RADIO'S TOP 25 GROUPS, THEN AND NOW. Page 4

||||||

NEWSWATCH

Congress To Probe Martí

WASHINGTON A congressional committee led by Rep. William Delahunt, D-Mass., plans oversight hearings into Radio and TV Martí amid allegations of mismanagement of taxpayer money and cronyism, according to the Miami Herald. A spokesman for the Broadcasting Board of Governors sought to refute the charges.

Delahunt's comments came a day after WAQI(AM) and WPMF(TV) began carrying an hour of Martí programming daily for pay, the Herald reported.

Internet Radio Grows

NEW YORK Terrestrial radio's share of unique visitors to Internet radio grew 3 percent in November compared to the prior month, and is now at a new high, 33.1 percent, according to a J.P. Morgan report.

Total unique visitors to Internet radio are up 44 percent from a year ago to 55 million.

Clear Channel's number of visitors grew 14 percent in November over the month before, to 8.2 million; it now represents close to 45 percent of unique visitors to terrestrial operators' sites; and between them, Clear Channel and CBS Radio sites represent more than 20 percent of the total Internet radio audience.

FCC Drops Morse Code Regs

WASHINGTON No longer do ham radio applicants need to pass a five-words-per-minute Morse Code exam to obtain a General and Amateur Extra license. The commission said the change eliminates an unnecessary regulatory burden.

EAS Experts To Serve New Alert Group

WASHINGTON The FCC has appointed several EAS radio experts to its newest committee on emergency alerts. The Commercial Mobile Service Alert Advisory Committee includes Art Botterell of Contra Costa County, Calif., Ann Arnold of Texas Association of Broadcasters, Patrick Roberts of Florida Association of Broadcasters, William Wertz of Michigan Association of Broadcasters and Kelly Williams of NAB Science and Technology.

Eddie Fritts, former head of NAB and now head of The Fritts Group, is representing Global Security Systems. The GSS First Alert System uses the FM infrastructure to deliver alert messages that can be received by mobile devices.

SpectraRep Senior Vice President Edward Czarnecki is on the committee. SpectraRep, owned by BIA Financial Network, is working with public TV stations and coordinating a FEMA pilot using its AlertManager system.

The committee will recommend technical standards for transmitting mobile emergency alerts as recommended in the Warning, Alert and Response Network Act.

News Roundup

IBIQUITY and STMicroelectronics could have an HD Radio in-car receiver chipset late this year. They signed an agreement to design an ASIC chip compatible with ST's AM/FM in-dash tuner. The goal is to provide receiver manufacturers a complete chipset with samples in late 2007 and volume production in 2008.

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Arbitron

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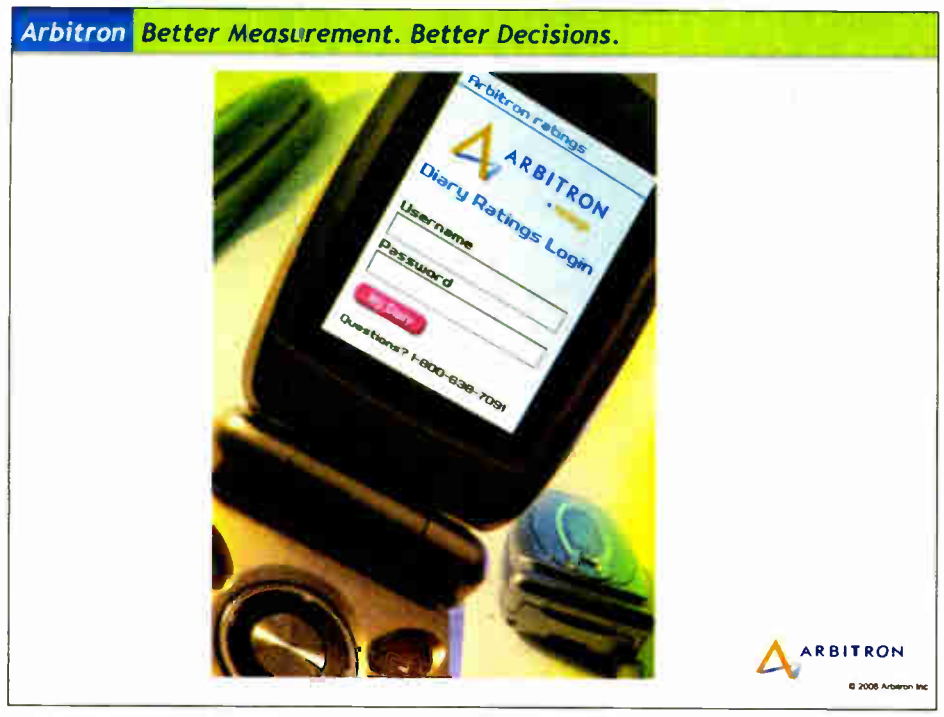
"Advertisers are demanding precise targeting," not just to a generic 18–24 demo, but "to those who actually use the product," he added. He also championed audio measurement for listeners 6 to 12.

Accountability to advertisers is key, he said. "Are you running the schedule as bought and are you delivering the product?" On this topic, "radio seems to be stalled," whereas it could be the most accountable medium.

Technology is blurring the lines that differentiate one medium from another. For example, he said, cell phones now carry both audio and video. "Who's going to own video on cell phones?" Morris asked rhetorically. "Radio and TV can do it but the TV people believe the space is theirs."

"You are in the entertainment business. Don't be afraid to be bold." He urged broadcasters to try video streaming to go with their audio, for example, rather than duplicating their main channel offerings on their Internet stream as technology blurs the lines between audio and video.

"Market yourself with the same gusto as you market HD," he said. "Staying on the bank until your product is perfect doesn't work. If you shove off the shore you can learn as you go. If you wait until your product is perfect, your product may no longer be relevant."



Arbitron is testing a mobile eDiary that might look like this on a cell phone.

RADIO NEEDS TO BE ONLINE, ON-DEMAND

In his industry forecast, Saga Executive Vice President Steve Goldstein, also a member of the Arbitron Radio Advisory Council, presented statistics meant to get the industry thinking about preparing for the future and paying attention to trends.

For example, two-thirds of the digital download profit is in ring tone sales for cell phones, he said.

"Everything is influenced by the consumer making his own choice. We need to be thinking about an on-demand future."

As an example of the popularity of on-demand video and podcasts, he noted that after the CBS network placed 300 video clips on YouTube, viewership for David Letterman's show rose 5 percent.

Online advertising is growing and projected to be the fifth-largest advertising medium in 2007, Goldstein noted. He pointed to local advertisers in Saga markets Columbus, Ohio, and Norfolk, Va., where local advertisers are spending $52 million and $26 million, respectively, on Internet advertising.

"This is money that's leaving traditional media," said Goldstein.

And, speaking to the audience made up mostly of commercial radio programming consultants, Goldstein called noncommercial radio listening a "hidden audience" with 26 million listeners a week. NPR says its "Morning Edition" has 13 million listeners each morning; that compares to roughly 8 million for Howard Stern when he was on commercial radio.

Slide From an Arbitron Presentation

HOW TO LURE YOUTH BACK TO RADIO

How can the industry get young people into the habit of using radio and reach 12-to-24- year-olds before they become addicted to iPods?

"There's so many places for them to go, I think we're kind of screwed," said Fred Jacobs, president of Jacobs Media in a panel discussion with programming consultants. He warns that if radio doesn't start attacking the problem, the industry will have a hard time attracting youth to work in the industry. "We grew up as teens with radio. It's not just that we're losing money to MTV. It's at the nut of our talent issue. To me, its AIDS. It's the number one thing."

Carolyn Gilbert, president of Clear Channel's Critical Mass Media, said radio traditionally follows the money and targets older listeners. Radio is doing less research as budgets have been cut over

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World Radio History

Radio's Business as Usual

From the Editor

Paul J. McLane

I'm interested in how the competitive landscape has changed since the last big ownership rules change in 1996. BIA Financial Networks prepared the accompanying chart for me showing revenue and station holdings of the top 25 groups today vs. 10 years ago. Take a good look; it'll shift again soon as Clear Channel starts to shed assets.

The numbers in this chart are fun to look at but aren't in much dispute. What generates heat is whether these changes have benefited commercial radio.

I asked Mark Fratrik, vice president of BIAfn, for his thoughts. "I think consolidation has been a net positive to the industry," he wrote back in an e-mail. "We often forget the difficult position radio was in the 1990s, and the strength moving through the decade."

Many people would disagree with Fratrik's conclusion. The discussion of consolidation's impact is back in the headlines now that regulators are again considering whether to ease ownership strictures.

Stark disagreement

The Future of Music Coalition recently said, "Contrary to the claims of commercial broadcasters, radio consolidation has had profound and negative effects on this democratic media." It argues that rapid consolidation after the Telecom Act of 1996 has led to loss of localism, less competition, fewer viewpoints and less diversity in programming and that "the overwhelming majority of niche musical formats like classical, jazz, Americana, bluegrass, new rock and folk, where they exist, are programmed almost exclusively by smaller station groups."

FMC says the top four station owners have almost half of the listeners, and the top 10 owners have almost two-thirds; ownership by individuals actually living in a station's community has declined by almost a third in a decade; 15 formats make up three-quarters of commercial programming; formats with different names can overlap up to 80 percent in terms of songs played; and across 155 markets, listenership has declined over 14 years, a 22 percent drop since its peak in 1989. "The consolidation allowed by the Telecom Act has failed to reverse this trend," FMC said.

NAB scoffed and quotes BIAfn statistics suggesting the opposite. The broadcast association says the number of general programming formats provided by local stations increased by 7.5 percent since 2001; markets of all sizes saw substantial increases in the average number of specific formats provided, with an average 22.2 percent increase since 2001; and across all markets since 1996, the number of general and specific programming formats has increased by 16 percent and 36.4 percent, respectively.

It also argues that in six years the number of Spanish-language radio stations increased by 45.5 percent; Asian-language stations have also increased, "demonstrating radio's ability to respond to niche markets"; and that urban stations targeting the African-American community have "soared" in the last decade, with

See BUSINESS, page 5 ▶

Ten Years Later

BIA Financial network

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Top 25 Radio Owners - 1996

Data taken from BIAfn's State of the Radio Industry 1997

Owner	Estimated Revenue - Owner 1996 ($000)	Owner # Stations - 1996
CBS Corporation	$1,015,350	79
Evergreen Media Corp	$398,650	42
Jacor Comm Inc	$389,180	113
Amer Radio Systems	$376,850	93
Clear Channel Comm	$291,040	101
ABC Radio Inc	$289,500	21
Chancellor Bcstg Co	$271,850	51
SFX Bcstg Inc	$270,450	75
Cox Enterprises	$198,730	41
Heftel Bcstg Corp	$138,050	37
Emmis Bcstg Corp	$119,200	11
Viacom Int'l Inc	$118,050	10
Susquehanna Radio	$117,200	20
Entercom	$106,800	22
Bonneville Intl	$100,100	12
Nationwide Comm Inc	$96,450	16
Jefferson-Pilot Comm	$89,550	17
Paxson Comm Corp	$81,200	43
Spanish Bcstg System	$81,100	12
Greater Media	$74,300	14
Beasley Bcst Group	$68,350	28
Tribune Bcstg Co	$67,360	5
Heritage Media Corp	$62,600	22
Saga Comm LP	$60,250	34
Sinclair Comm Inc	$59,200	28

Top 25 Radio Owners - Present

Data taken from BIAfn's MEDIA Access Pro™, Dec. 12, 2006

Owner	Estimated Revenue- Owner Present ($000)	Owner # Stations - Present
Clear Channel Comm	$3,531,724	1,157
CBS Radio	$2,058,550	140
Entercom	$561,750	120
Cox Radio Inc	$482,475	79
Citadel/ABC	$418,700	24
Citadel Comm	$412,550	212
Radio One Inc	$392,438	69
Univision	$384,850	74
Cumulus Bcstng Inc	$314,137	301
Emmis Comm	$297,475	23
Cumulus Media Partners LLC	$263,925	37
Bonneville International Corp	$258,200	28
Salem Comm Corp	$195,500	98
Greater Media Inc	$194,100	20
Spanish Bcstng System	$186,200	20
Lincoln Financial Media	$156,675	17
Beasley Bdcst Group	$141,325	44
Saga Comm Inc	$135,075	89
Regent Comm Inc	$105,670	68
Entravision Holdings LLC	$94,255	47
Journal Bcst Group Inc	$79,450	36
Liberman Bcstng Inc	$69,650	21
Inner City Bcstng Corp	$64,200	18
Sandusky Radio	$63,800	10
Multicultural Radio Bcstng Inc	$62,850	45

Estimated revenue based on 2005 revenue numbers.

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World Radio History

GUEST COMMENTARY

Allow AMs on FM Translators

by Larry Langford

Many of us small AM owners were amazed to see the NAB file with the FCC a Petition for Rulemaking, RM-11338, to allow AM stations to use FM translators (RW, Sept. 27). The NAB has strongly opposed previous attempts at rulemaking that would allow even a few standalone AM stations to use FM translators where low or no night power leaves the AM at a serious disadvantage. But now the trade organization says that interference has increased so much in the past few years that it is time to take another look at FM translators and allow AM stations to use them for "fill in" service.

While I have never agreed with the logic displayed by the FCC in refusing to allow widespread use of FM translators by daytime AM stations while at the same time allowing mega religious operations to set up nationwide translator networks, it still came as a surprise that of all organizations, the NAB would be in the corner of the AM stations on this issue. Could it be that they are doing the right thing but for a more cloudy reason?

Everybody rides

The petition does not exclude any AM station from qualifying for a translator as long as the 60 dBu contour of the translator does not extend beyond the 2 mV/m contour of the AM station or 25 miles from the AM transmitter, whichever is less. Do you realize a mid-band 50 kW station on average soil puts out a 40 mV/m signal at 25 miles? At this power level, noise and night problems should be no serious issue.

But the NAB does not exclude full-time 50 kW stations from the proposal. The 2 mV/m day contour of a typical kilowatt station represents a more realistic guide for local service and to that end, the NAB proposal is good. But the "facts in support" of the NAB petition seem disingenuous.

The NAB says that interference has become more severe in recent years, and that it's now serious enough to keep stations from serving their communities at night. That is true but let's be straight here, rising night interference levels have meant nothing to AM stations that are daytimers only, since they radiated nothing at night.

Did the NAB take a position in past objections that daytimers should get FM translators to allow night community service? No. So why now are they asking for all AM stations to get relief?

Smelling a rodent

While I do not have any spies at the NAB or a crystal ball, it seems the move to put thousands of AM stations on FM translators could be a reaction to the plain fact that HD-R may never be approved for night operation in hybrid mode.

The NAB may figure that if they get enough AM stations on FM, the hybrid night problem will go away and we can all be happy FM campers until the day AM HD-R is 100 percent digital and analog bites the dust.

I have read business news articles that suggest that Ibiquity Digital is stretching the investor model to the limit and may be close to the "make it or fold it" mark. Typical investor return models call for a five-to-seven-year plan. Original investments in AM FM digital schemes (USA Digital Radio and Lucent Digital Radio) are now 20 years old.

Follow the money

More than $100 million is on the line here. Analysts say Ibiquity has now received the last of its venture capital and the funding is being used to push marketing and sales rather than more technical advancement.

The NAB rulemaking proposal may be a way to get HD-R past this last major and possibly fatal hurdle. But as a 1 kW daytimer, I won't look a gift horse in the mouth.

I filed comments supporting the NAB proposal with the caveat that only stations really needing the relief get it. Those would be: daytimers with no night power, followed by stations with only unprotected post sunset authority and then Class D stations on the sorry six (local) frequencies.

Even if the FCC only adopted the proposal in part, and allowed only AM daytimers to have FM translators, it would be the biggest news in the industry since the introduction of solid-state transmitters. It would mean the FCC finally putting some

See TRANSLATORS, page 6 ▶

Even if the FCC only adopted the proposal in part, and allowed only AM daytimers to have FM translators, it would be the biggest news in the industry since the introduction of solid-state transmitters.

Business

▶ Continued from page 4

programming including urban/talk, urban AC, urban CHR, urban/jazz, rhythm and blues and urban/gospel.

NAB's Dennis Wharton also slammed the FMC, saying it has a "long history of producing questionable research and dubious data to fulfill its agenda-driven mission." He argued that "free local radio has more format diversity than at any time in its rich history." HD Radio, he said, will boost that even more.

Complex reality

I do believe radio often is tarred unfairly with a very broad, dark brush. Plenty of what we do well is overlooked in sweeping condemnations of this "old medium." That's why I'm glad the new NAB president is so proactive, talking us up. I'm also glad of the growing diversity in ethnic-oriented programming.

However, based on what I hear myself on commercial radio and what I am told constantly by friends, business observers and even radio insiders, the FMC's argument is closer to the truth of how consumers see radio. I wish NAB would acknowledge these perceptions and address them rather than tainting critics with overly broad brushstrokes of its own.

Radio has long suffered the consequences of not acknowledging our programming failings. I'm sorry, but truly innovative radio programming is rare, and risk-takers are not rewarded. Ours is an industry that plays things safe. "Hits of the '80s, '90s and Today" are not innovative, even if delivered in Spanish.

Do your friends know that you work in radio? They probably ask you about it. So when was the last time someone stopped you to ask with excitement about something really new on their local radio dial? If your friends are like mine, they ask you more about satellite radio; or they wonder, "Why does radio in this town stink"?

That's sad. I'd like our leaders to acknowledge this truth and act on it. As Steve Morris of Arbitron recently said, though he was referring to online initiatives: "You are in the entertainment business. Don't be afraid to be bold."

Programming innovation comes in the presence of competition; so trends in ownership are important. As to what the big companies will do on that front, Mark Fratrik of BIAfn says, "As radio faces more competition going forward, it still needs to be part of stronger corporations. I do not, however, expect to see any big groups beyond the 75–300 station range that so many of the major groups fall into. That seems to be large enough to enjoy the efficiencies of scale with providers of services (e.g., equipment manufacturers, Arbitron), but not too large to not keep effective control over the markets in which they operate."

He's probably right about that. But will a pullback from the era of a 1,200-station supergroup translate to more programming innovation? Doubtful.

We stated in the RW editorial last time that our industry has been a survivor over many years because it generated strong consumer loyalty, had a lock on listeners in certain environments and produced interesting content. But we are gambling away our market loyalty month by month, and our lock on office and car listening is gone. The content weapon remains, but we aren't using it fully.

World Radio History

Arbitron

▶ Continued from page 3

the years and the questions being asked in telephone surveys need to change. "We're still asking about spots, about 10 in a row. We're spending that precious 20 minutes on the phone, which is harder to get, on the wrong questions.

"Our media has been about us, not about (listeners). That's where we have to get to, to survive."

Larry Rosin, president of Edison Media Research, said radio hasn't tried to reach 12-to-24-year-olds because it's focused on the 25–54 demo, the focus of ad agencies.

Rosin said Edison Media's "30 Under 30" competition, his company's efforts to find younger talent to work in all facets of radio, previously reported here, has received a "good response," with 150 nominations so far.

AD AGENCIES HAVE ISSUES WITH RADIO

Media buyers for ad agencies say buying radio is a challenge.

According to Arbitron Senior Vice President of U.S. Sales Carol Hanley, radio represents about 6 percent of ad agency spending but accounts for 20 percent of their overhead. Most analysis for a radio ad campaign is labor-intensive as only 30 percent of radio invoices are processed electronically and advertisers view the diary methodology as antiquated, she said.

For advertisers, it's all about the return on investment. She cites increased demand for efficient targeting and reduced demand for traditional media. Rapid advances in media technology have led to a blurring of the lines between radio, television and the Internet, she said.

While new media tries to gain a reputation for allowing ad clients to see what they're getting for their money, radio can step into this breach with electronic measurement, Hanley said.

"There is a continued push for accountability," Hanley said. "This is what advertisers ultimately want. This is not a new conversation."

Advertisers' continued use of the Web and digital broadband content delivery, as well as video on-demand, offer a mass customization that could threaten mass media.

Advertisers are eager to see how radio's new technology shakes out. "Advertisers don't delineate between terrestrial and satellite radio. They are interested in the ability to deliver their content. They want to see what the right mix is," said Hanley.

If radio is going to win a spot in that mix, the battle may be won in Detroit, she said; there, automakers are moving for USB ports to be standard features on all car models in 2007.

'If you wait until your product is perfect, your product may no longer be relevant.'

— Steve Morris, Arbitron CEO

With the implementation of PPM, advertisers who wouldn't consider buying on radio might consider it now, said Hanley.

And PPM will help stations combat Google, which is attempting to take radio's struggles and market those as its own benefits, Hanley noted. Radio will gain scheduling integrity and reporting timeliness from PPM, she said.

ARBITRON PREVIEWS MOBILE 'EDIARY'

Arbitron unveiled a preview of a mobile electronic diary. The mobile eDiary will be tested on mobile Internet-capable devices such as BlackBerrys, Treos and smart phones.

Dr. Ed Cohen, Arbitron's vice president for domestic research, said the electronic diary is targeted to markets that will not be measured by the Portable People Meter.

A PC-based version of the electronic diary is being introduced in Winter 2007. Arbitron is working with UsableNet to create the smaller, mobile look of the eDiary.

Cohen said Arbitron began testing the eDiary two years ago and the results indicate about 5 to 8 percent of respondents in the 25–34 demo were likely to use it.

The company does not yet have an implementation date for the mobile version of the eDiary.

For HD Radio-related and more PPM-specific Arbitron news, see page 27.

Translators

▶ Continued from page 5

muscle to all the lip service of the past ten years on AM improvement.

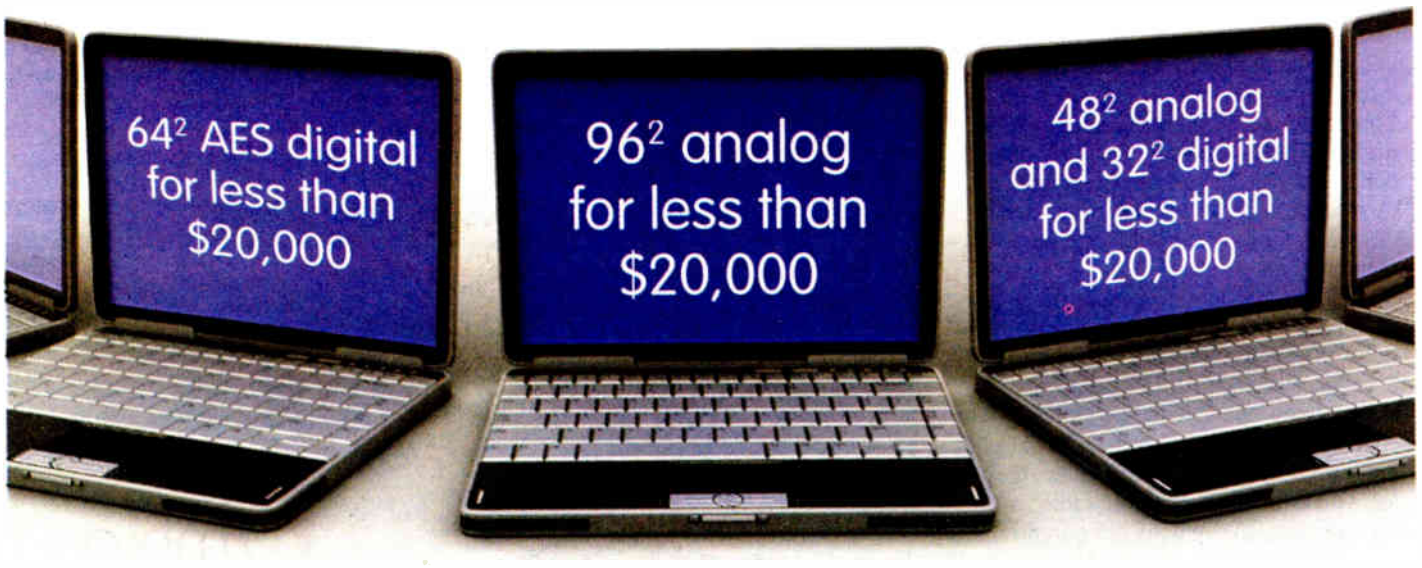
The comment period ended Aug. 24, 2006. Does the measure have a chance given the NAB backing? Even if there is an ulterior motive? Only time will tell. But as a local minister once told me: "Son, I'll take money from the Devil to do God's work."

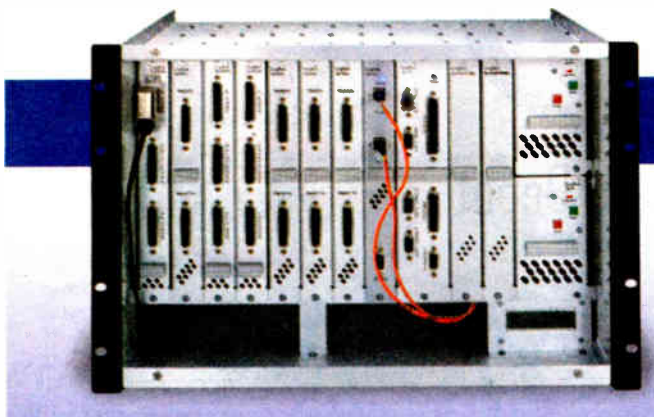
Amen!

Larry Langford is chief engineer and owner of WGTO(AM) in Cassopolis, Mich. Reach him at larrylangford@aol.com.

Radio World welcomes other points of view.

$96^2 < \#20K$





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Peter Greenberg—Host of the syndicated radio program Travel Today

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

Radio Free Asia—Live from the Himalayas

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

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

Ski Mountain Remote

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

For the complete story visit
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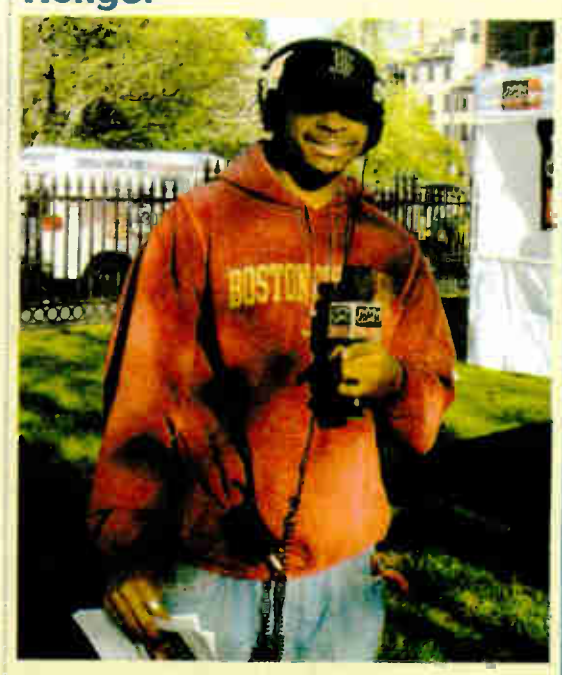
JAMN 94.5—Walk for Hunger



"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...

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COMREX

World Radio History

Google

▶ Continued from page 1

in newspapers and magazines.

Google's entry into radio advertising began with the acquisition of dMarc Broadcasting in January 2006 for $102 million in cash and other considerations. Since then, programmers have worked to integrate dMarc technology into the AdWords platform of advertising auction methodology. AdWords allows advertisers to buy keywords and deliver targeted ads based on specific searches.

Analysts note the auction-based interface of the beta test differs from dMarc's previous "set price" model. Radio stations also have traditionally offered dMarc their remnant inventories to fill after-hours when their commercial logs close. However, with Audio Ads there is an increased focus on gaining inventory guarantees from broadcasters, company officials say, with radio stations selling off blocks of air time to Google.

Beta testing

Google believes radio will benefit greatly since the service will bring mostly non-traditional radio advertisers to the industry. Companies participating in the beta test include FloorOne, a hardwood flooring Web site, and Working Planet, a search firm marketing agency, companies that Google says typify non-traditional advertisers.

"We have a very transparent mechanism where advertisers can service their ad campaigns and easily target customers by locations station types, day of the week and time. We really look at this as an augmentation of traditional sales forces to help service the buyers who haven't done traditional radio buys in the past," said Ryan Steelberg, Google's head of radio operations and co-founder of dMarc. "We are totally committed to bringing unique advertisers to the radio space thus increasing demand for radio inventory."

Google spent months building its own in-house radio sales staff in preparation of the beta test, which is expected to continue through early 2007. The company would not say how many employees are focused on radio sales. Steelberg declined to give specifics of Google's revenue sharing model and would not confirm if broadcasters are allowed to set minimum bids.

"We are open and flexible with broadcasters. We look at this as a partnership. Some groups are providing remnant inventory while other groups are providing us guaranteed inventory," Steelberg added.

Emmis Radio President Rick Cummings told the Washington Post that his company is participating in the experiment. "It has not had an impact on the company's bottom line but has been worthwhile, regardless."

Greater Media Inc. launched dMarc's inventory replacement system last year at one of its stations in Detroit, with plans to expand use of the Google ad-insertion platform if it proved successful there. However, Rick Feinblatt, Greater Media's vice president for radio, said his company is not participating in Google's Audio Ads experiment.

Some analysts expect Google's entry into radio placement sales to benefit the industry by creating incremental new revenue.

"I suspect radio would like to see a successful beta test," said Jim Boyle, media analyst with CL King & Associates. "It could introduce a 'long tail' of very wide, but much smaller ad clients that have never used radio."

Boyle views Google as radio's "new business development partner" providing the industry a valuable new business sales force.

Bishop Cheen, analyst with Wachovia Capital Markets, said, "I envision an early stand-off, with Google looking for lots of cheap inventory and broadcasters saying 'We want to sell you stuff, but we don't want to give it away cheap.' However, Google will be an eventual force."

Radio must be careful to protect "rate credibility" and not set a "low-bar hurdle" to selling its inventory, Cheen said. "But if Google can bring sustainable, critical mass to radio without upsetting the balance of rate and inventory it could be a great thing for radio."

Possible impact

Google's radio involvement could greatly affect the "middle" people in the advertising process, Cheen added.

"The possible impact on the national reps and agencies with Google as a substitute for ad placement could be substantial," he said. "Google will offer a much more streamlined process for buying time and creative."

In addition to Audio Ads, Google is rolling out the "Ad Creation Marketplace" for audio where clients can hire "ad creation talent" to develop audio ads at a cost of $100 to $1,000.

"The Ad Creation Marketplace is a searchable directory of professional ad specialists that advertisers can use to locate someone to assist them in creation of radio advertisements," Steelberg said.

Opponents to the Google auction process of selling advertising include Lew Dickey, chief executive of Cumulus Media, who told the Wall Street Journal, "We invest a great deal of time and money to train our sales people, and the Google approach ... represents the antithesis of value-added selling. We're certainly not going to cede control."

Several analysts said Google's approach to selling "commiditizes" the product if existing customers bypass present selling channels to obtain lower prices through the auctions.

"Any bid-based model tends to commoditize a product, thus placing downward pressure on rates. It's possible you could have clients simply waiting to the last minute to gain the cheapest rate," said John Sanders, media analyst with Bond & Pecaro.

Radio appears to possess "much nervousness" over what is to come, said CL King's Boyle.

"One can only imagine the 8,000-pound gorilla plopping itself down at your dining room table and asking you to pass it the first serving platter," Boyle added.

Mark Fratrik, vice president of BIA Financial Network Inc., said, "Certainly one can imagine a downside to all of this for the radio industry. However, I believe broadcasters will succeed in controlling their inventory. And given the recent poor revenue performance of radio, this added demand for inventory, could actually be very beneficial to the industry."

Analysts say the potential still exists for Google to strike up a relationship with a Clear Channel Communications or CBS Radio to secure a large share of regular radio inventory. They say such a move would provide the critical mass needed to attract large mainstream advertisers and media buyers. Despite some speculation, they also say it is unlikely Google wants to enter the ranks of radio ownership.

"I do not see Google acquiring a radio group. However, an inventive model might involve Google acquiring large blocks of guaranteed radio inventory and then re-selling it," Sanders said. "I believe a partnership with a large broadcast group is a likely scenario."

Other analysts say they are focused on the inevitable next Google step: TV ads.

"TV is certainly next on Google's radar as it expands the AdWords online advertising platform," Cheen said.

Google Audio Ads: How It Works

Google Audio Ads is an extension of the AdWords platform and allows advertisers to create and manage radio advertising campaigns using an online interface. Only a small set of AdWords advertisers are participating in Google's beta test for radio.

Advertisers create a new Audio Ads campaign by setting the maximum amount that they want to spend for a specific week. Clients then complete an audience targeting section specifying demographics, geographic location and station type desired. The advertiser bids on how much it's willing to spend on the air time.

Factors such as the number and size of markets will affect how quickly a budget is used. Advertisers can use Google's "Ad Creation Marketplace" to produce radio creative.

After the ad campaign is defined, Google searches for matching criteria for the advertiser among the 720 terrestrial radio stations participating in the Audio Ads beta test. Radio stations can view online who is bidding for their inventory and accept the highest bid.

Advertisers can receive detailed reports on how much of their budget has been spent, where their ad ran and when it played throughout the campaign.

Google declined to provide specific details of its bid process or disclose how it secures inventory and just how much is remnant or guaranteed. Also unclear is its revenue split with broadcasters.

— by Randy J. Stine

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-Steve Kirsch, President Silver Lake Audio

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World Radio History

Workbench

Radio World, January 17, 2007

Past columns are archived at *radioworld.com*

Glucose Meters Help Solve Tech Problem

by John Bisset

For most engineers, the new year brings new budgets and new projects. Make it a point to better organize yourself by adopting a white or "dry erase" board to keep track of things to do. In a shop with several engineers, this method of keeping tabs on work to be done ensures that everyone can find something to do. Just look at the board!

In Virgnia, Market Engineer Jon Bennett of Cox Richmond divided his board into three sections. There's the basic "to do" list, a "special projects" section and a column for IT projects.

In addition to keeping projects from falling through the cracks, a full board of things to do demonstrates to your owner or GM that you have plenty to keep you busy. With that in mind, when a task is completed, don't erase it; put a check mark by it or run a line through it. Leave it on the board for a few days. Again, it's a psychological thing. Anyone looking at the board sees your team is productive, getting things done.

So you run a one-man shop? A white board full of things to do helps explain to staff why little things may take a while.

★ ★ ★

John Demuth is CE for WTUZ(FM) in Ohio and comments on our discussion about "silica gel desiccant packs" in the Dec. 6 issue of Radio World.

He recalls some excellent packages of silica gel that were enclosed with military surplus gear some years ago. The packages were of heavy cloth and seemed almost indestructible; but even with that kind of construction, they might deteriorate with time.

So here's another thought. Both John and his wife are diabetic. They use Accu-Chek Compact Blood Glucose Meters. These monitors use a small drum holding 17 sensors. Each drum comes in an air-tight plastic bottle with an awesome lid measuring 1-1/8 inch in diameter by 5/8 inches thick.

Why is it awesome? The lid contains a desiccant to keep the drum moisture-free! The bottom of the lid will let the moisture pass into the desiccant, but it is pretty tough material and will take a lot of abuse. A few of those lids could easily be tossed into a toolbox; and if you wanted extra protection, they could be placed into a small cloth bag to keep them contained.

Unfortunately, diabetics abound; an inquiry may lead you to someone who uses this type of glucose monitor. Many hospitals have diabetic support groups and might welcome an opportunity to help their participants recycle the plastic bottles/lids.

The small bottles can also be used to hold screws or other small parts. A typical container is shown in Fig. 2, along with a ruler, to give an indication of size. The white membrane on the underside of the lid is pretty tough, and the lid alone should hold up in your toolbox.

Did you know that you can revitalize silica gel by re-drying it? One of the best ways available to the average person is to place the containers in a warm oven to drive out the moisture. You want the oven hot enough to evaporate the moisture but not so hot as to melt or burn the material surrounding the desiccant. Bake the dessicant at 150 degrees F for a couple hours. Note that some desiccants even change color to indicate whether they are usable (dry) or unusable (ineffective due to having absorbed too much moisture).

Like so many readers, John writes, "I enjoy your *Workbench* column very much; thank you for providing such a wonderful forum for sharing a never-ending multitude of useful hints, kinks, tips and techniques." You're welcome, John!

John Demuth can be reached at *john@wtuz.com.*

★ ★ ★

Tom Oaklund describes himself as a "retired RF guy."

Actually, Tom was transmitter supervisor for KPBS(TV/FM) in San Diego from 1995 to 2005. He offers an additional check that should be done periodically on nitrogen

See VIN, page 12 ▶

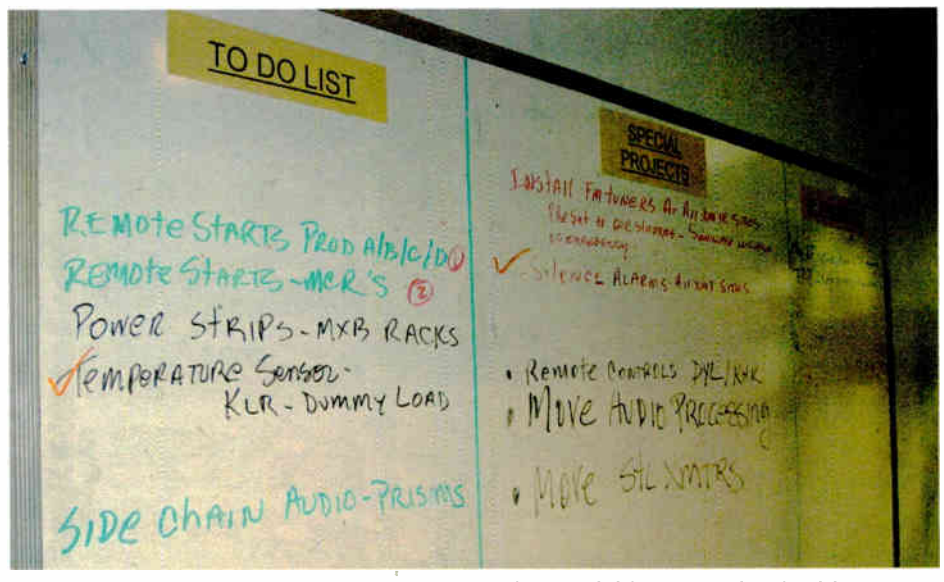
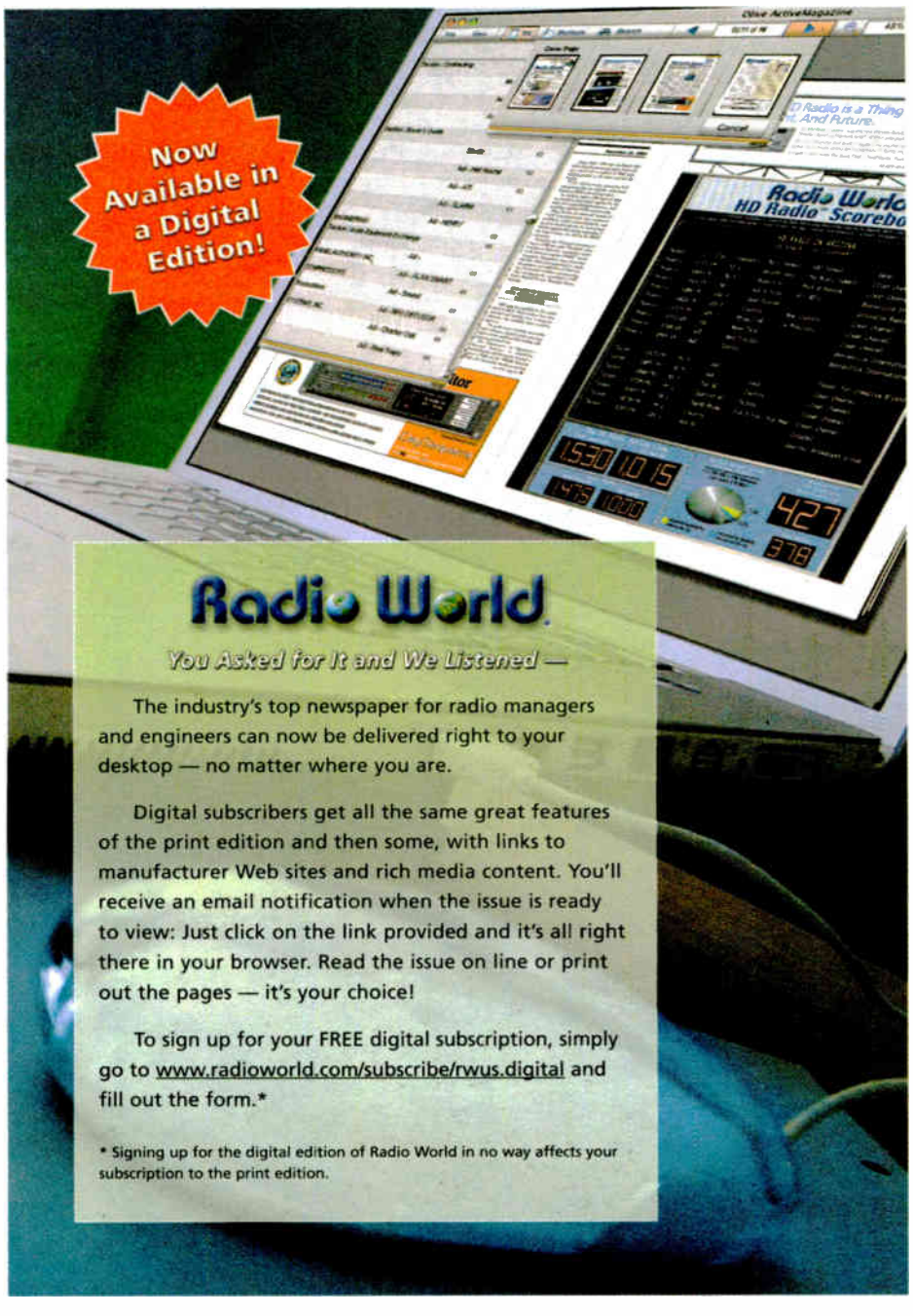


Fig. 1: Keep projects and engineering activities organized with a white board like this one, used by Jon Bennett of Cox.

Fig. 2: These Accu-Check bottle caps contain a dessicant; their hard plastic construction makes them ideal for toolboxes.



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Where Will Radio Go in Web 2.0?

Photo by Christine Spidell

Will radio suffer the same fate as Tower Records, or does Web 2.0 offer our industry a rosier outlook?

You've probably seen an increasing number of references to "Web 2.0" recently, and there's been a good deal of confusion over what it really means.

Unlike "Internet 2" or "IPv6," Web 2.0 is not a specific network or technology. It is simply a catchall term for the next wave of business on and usage of the Internet — some of which is already underway. Think of it as a maturing of the Web, as it moves from the heady, naïve and overly ambitious days of its childhood to a more realistic and sustainable early adulthood.

This movement is strongly focused on what's become known as *Web services*, which move many formerly off-line processes that run on local PCs to online, real-time, interactive processes on the Web.

Another major part of Web 2.0 is the *social networking* movement, by which Web users can connect to others of similar interest via a specific site, for discussion, recommendation or other sharing. And of course, there's the *user-generated content* component, the Web's equivalent of open-mic night, where users can post their own media creations for others to explore.

Part of this maturing is also the expectation that the Web is no longer a novelty or luxury, but a reliable, consistent part of everyday life. This implies that near-ubiquitous Web access (including wireless access) will also become a normal and expected utility.

Media delivery

A major part of this movement involves the delivery of digital media content, a lucrative and growing industry. As Web 2.0 moves from a vision of the future to the everyday present over the next several years for most Americans, the traditional role of the media industry will be challenged from end to end. But the stress will be felt most by those in the last mile — the "retail" end of the business, if you will, as new content-delivery mechanisms compete with traditional ones.

An early casualty of this trend is Tower Records, a former giant of music distribution, now shutting its doors due to lagging sales. Brick-and-mortar storefront gives way to online delivery — or as Nicholas Negroponte would put it, yet another example of the battle of bits vs. atoms (Bits 1, Atoms 0 — and in the digital world, those are the only two numbers that count).

Similar movements are in play throughout the media delivery world, but some players do not feel that the physical and virtual forms are equivalent. On one hand, some consumers still prefer physical media for its tangibility, portability and even its physical realization of accompanying graphics and other metadata. On the other side, some content owners remain concerned that electronic delivery is too vulnerable to piracy.

In any case, it is not the content or its owners/producers that are truly at risk, but the legacy delivery formats. The same studios and labels that make and sell movies and music today will continue to do so, but the outlets through which consumers make those purchases may change dramatically — or perhaps completely — in the near future.

Other associated forms of media consumption — including broadcasting — may be similarly affected. The impact from this pattern upon terrestrial radio is uncertain, but it is possible that the local station's value could be increasingly at risk — particularly if it is little more than a pass-through venue for content from an upstream source. Could that content source or its consumers find an alternative (read: more cost-effective or otherwise more advantageous) method of last-mile delivery for such service?

Terrestrial radio sets the bar pretty high for any would-be competitors, but it is not immune. Satellite radio is one example of last-mile replacement that has made some inroads, particularly in rural areas or among frequent long-distance drivers, where terrestrial radio offers low choice or little value-added service on essentially similar content. But for the majority of Americans, it has not penetrated the cost barrier, and terrestrial radio has retained the majority of its audience — for now.

Yet one element of satellite radio that also figures strongly in Web 2.0 is the subscription model, particularly for music. A subscription online music service may become as competitive to terrestrial radio (if not more so, among younger demographics) as is satellite radio. Again, all record labels are exploring and participating in new Web-based services that offer their content via all-you-can-eat, one-monthly-fee subscription download models.

Importantly, the labels are doing this voluntarily and proactively, unlike their involvement with satellite radio, which takes place via statutory license in U.S. copyright law, allowing satcasters to use any published music content they want without negotiating permission of the record label (in return for making a standardized royalty payment to the label). Thus the music industry may be more motivated to see the subscription model

See 2.0, page 18 ▶

The Big Picture

Photo: Gary Hayes, BBC

by Skip Pizzi

VIN

▶ Continued from page 10

tank regulators to ensure proper operation.

Turn off the tank gas valve and valves to the transmission line. Crack a valve on the regulated side slightly and watch as the tank pressure gauge drains down to the 200-pound range. Watch the output pressure gauge to see if pressure remains at the set point, or spikes up beyond the set point as the tank pressure gauge drifts down to zero.

The regulator is operating properly if the set pressure is maintained until tank pressure is equal to the set pressure. At this point, the set and tank pressures should drift down together to zero. If the set pressure spikes, possibly equal to the remaining tank pressure in a worst case, the regulator may not be a two-stage regulator or it's a two-stage regulator with problems.

Tom warns to be careful when shopping for nitrogen regulators, and be leery of any you find stashed away. One- and two-stage regulators look basically the same. Test them carefully before connecting to the transmission line.

★ ★ ★

Tom Weber is the engineering maintenance supervisor for LIN Television in Indianapolis. Tom noted the suggestion about covering station vehicle VIN (Vehicle Identification Numbers) to thwart theft. It seems some thieves have copied this number by viewing it through the windshield, then getting the dealership to cut a key for the vehicle.

Tom's son is a "repo man." At least in the state of Indiana, it's illegal to obstruct the VIN on a vehicle. So avoid a fine and check out your jurisdiction before "covering up."

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

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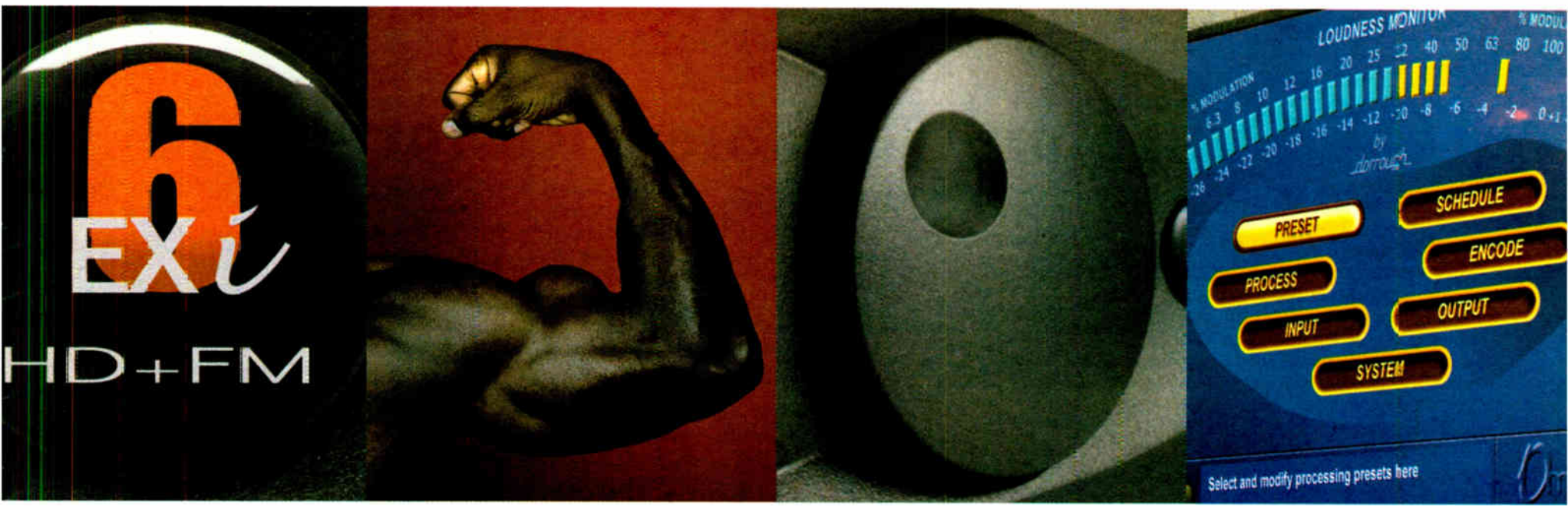

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World Radio History

FIRST PERSON

RCA Collector Welcomes, Restores 1-K

by Scott Horner

It all started with a microphone …

Having grown up in Burlington, N.J., I remember my first radio experience. I was a sophomore in high school. On a bright summer Sunday afternoon in 1967, I had been invited to be a guest DJ on WJJZ(AM) 1460, our local 5,000-watt daytimer. What an experience it was sitting down in the control room face-to-face with that big RCA 77DX microphone. I also vividly remember what happen when the red "ON AIR" light came on. I froze.

Well, I did finally get through the allotted 1/2-hour program and actually was invited back periodically during that summer. I also quickly realized my fascination was more with the equipment than the lure of being on-air, and I knew I had a lot of studying to do to get a 1st class ticket.

One man's trash

In radio sales-ese, South Jersey and Philadelphia were in the RCA ADI. Many AM radio stations were "RCA all the way," which to the best of my knowledge is a trademark slogan. In the early part of my career, I worked at several stations on many RCA tube-type consoles, transmitters and other associated equipment, not realizing in later years I would come to love umber brown and that big red and chrome meatball.

I should have known, though, that RCA and AM radio would be my passion; I was born in Camden, N.J., headquarters to RCA.

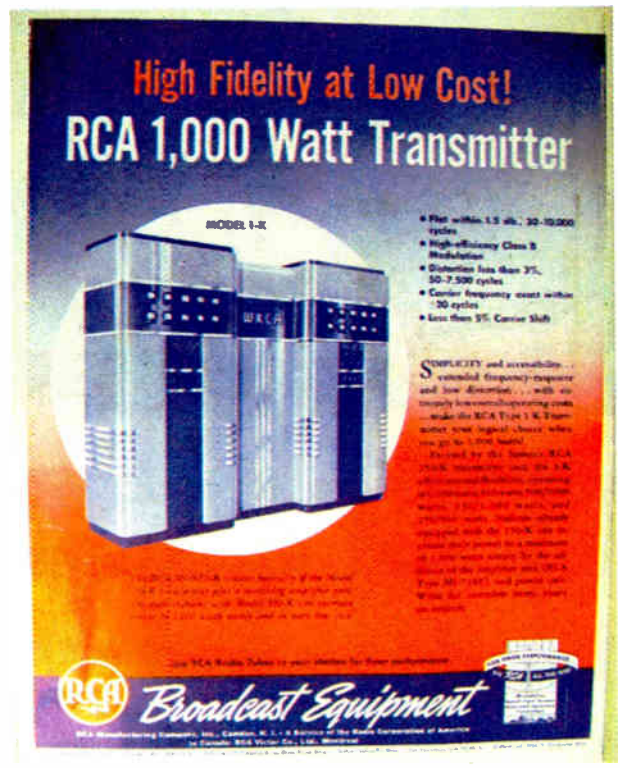
As our industry moved forward, I would see some

The author with some of the 250-K transformers (which he doesn't want to throw away).

forlorn piece of equipment sitting outside or gutted in a dumpster and I would think how that console or transmitter had once stood shiny and proud at an NAB show years past, and how it served so many listeners for so long. Old makes way for the new, and I suppose my calling was to drag this unwanted gear home.

Today there are quite a following of collectors for just about any RCA broadcast product or printed matter. Obviously many collectors stick with the popular items like microphones or ON AIR lights that are small enough for most desktops or shelves; but I discovered a problem. Once you have that, you want something to go with it … say, a 76-B console or a transmitter. Or how about a 1 kW transmitter? A big 1 kW transmitter.

Much RCA equipment was retired from broadcast use many years ago, and the majority of the larger pieces such as transmitters ended up in the scrap yard. In recent years however there has been renewed interest in tube-type broadcast equipment of all kinds. Many ham operators have converted standard broadcast rigs to operate on 80 and 160 meters and have equipped their stations with vintage tube-type equipment.



An ad for the RCA Model 1-K

Horner and his Model 1-K, which consists of the Model 250-K transmitter and a matching amplifier unit.

I should have known, though, that RCA and AM radio would be my passion; I was born in Camden, N.J., headquarters to RCA.

As with most collectors, we seem to know who collects what, and which items are needed to complete their collections. In the 1980s I met Mike Dorrough, a well-known and avid collector. Over the years he has been generous in giving me pieces of RCA equipment I needed to build a turnkey RCA studio. Mike shares my vision to build a museum someday to showcase complete operational RCA radio stations from the 1930s to the 1960s.

Recently I got a call from an engineer that a Southern California station was remodeling its old transmitter site and that there was an RCA transmitter that needed to be removed from the building. To my delight I discovered it was a pre-World War II model 1-K. This transmitter had been installed built into a wall of the building, which was typical for that time period. In order to remodel that building, the entire wall had to be removed and the transmitter dissembled to remove it.

I was out of town at the time, yet the construction crew needed the transmitter out of the way. I would like to thank Jim Glogowski, Mike Dorrough and the group of workers who rented a truck and removed the transmitter for me.

Vintage design

In 1941 RCA announced "High Fidelity at Low Cost" and introduced the model 1-K. "Simplicity and accessibility … extended frequency response and low distortion … with extremely low overall operating costs … make the RCA Type 1-K transmitter your logical choice when you go to 1,000 watts!"

In those days, many AM stations were licensed 250 watts and as they were granted power increases, the 250-K transmitter was then used as an exciter to increase flexibility operating at either (or a combination of) 500- or 1,000-watt power levels by simply adding the 1-K amplifier and power unit.

This transmitter is big, measuring 108 inches long and 85 inches high, weighing in at 3,410 pounds. The 1-K transmitter is not portable like today's small rack-mounted units. I have to make a steel rolling frame so I can move it around, as I don't have a fork lift … yet. At 100 percent modulation, the average power consumption is 4,500 watts at 220 VAC single phase. Audio frequency response was 30–10,000 cps +/- 1.5 dB, hum and noise rated at –60, harmonic distortion at 95 percent modulation (50–7,500 cps) not to exceed 3 percent. Quite respectable for it's day. I wonder what happens at 100 percent.

The 1 kW power amp is push-pull using 833s, and high-level plate modulated. The 1-K would operate at any frequency between 540 and 1600 Kc and could deliver rated power into a 20 to 250 ohm transmission line. A matching network is provided between the output tank circuit and the output terminals that includes series inductors and shunt capacitors. I have full schematic reproductions of the Type 1000K if interested.

The cabinet is a typical John Vassos design sporting satin chrome trim strips mounted on an Umber grey and dark brown cabinet with rounded corners. I supposed this noted streamline design made the transmitter go faster! It does look really cool, though.

Twenty meters monitor critical circuits and tuning and selector knobs as well as breakers. These are located on the recessed middle panel and are lit with a hidden top-mounted lamp.

The 250-K and 1-K cabinetries look identical. There is an additional center portion on the 1-K version containing interconnect wiring and circuitry.

RCA included metal slides on the center so a station's call letters could be attached on a backing and slid into place. In this restoration, I have had the letters "KALI" made to match the original RCA deco-style font.

This transmitter was installed in the early 1940s at KALI(AM) 1430 kHz licensed to San Gabriel, Calif., although the original KALI call was reassigned in 1999. There is a little original brass tag riveted to the back of the transmitter that reads KALI.

Neither the 250-K or the 1-K contains blowers. Air circulates through the side-screened portion of the cabinet and louvered rear doors. There is a vented top portion that is attached as well.

Because there was no air forced through the cabinet

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World Radio History

RCA

▶ Continued from page 14

and it originally had been mounted through a partition wall, the inside of the transmitter has cleaned up remarkably well. All components are mounted on a heavy steel plate that appears to have been a sub assembly that was then bolted to the cabinet shell. Component locations were stamped on the plateand had a spot of clear varnish that prevented them from washing away when I cleaned the inside of the cabinet.

The RCA 1-K center plate. Horner had the letters KALI made to match the original RCA deco style font.

The wiring for the most part is cloth-type insulation and the trick is to spray it well with WD-40 to bring back the original suppleness. The meters are mounted on a hinged panel that can be raised and locked into position for access.

Because the cabinet is an outer shell to the component panel, access to some of the wiring, and to mounting nuts that hold the side-trim strips, is difficult. The chrome trim strips were attached to the cabinet prior to installing the mounting plate. I had to have these strips re-plated satin chrome, as they had all rusted. The only way to reach the mounting nuts was to invent some sort of a narrow right-angle nut driver to reach down in between the top assemblies.

Well, duct tape has yet another application. Making like Red Green, I used a wood broom handle, an air driven socket ratchet and lots of duct tape to wrap this thing together to reach down inside to reach the nuts. Of course the socket came off and dropped down to the bottom so I had to find a round speaker magnet, tape it into a toilet paper roll and hang it from a string to pick up the socket. The toilet paper roll keeps the magnet from getting stuck to the inside and allows the string to attach like a plum bob.

The 1-K transmitter is touted in a 1941 RCA Broadcast News issue. After the war RCA came out with the 1-L, which is identical in appearance to the 1-K. When I acquired the transmitter, the instruction manual that was with it was for the L series, so they are similar. I would think that there are few 1-K transmitters in existence today, as their production count was relatively small due to the outbreak of the war. This transmitter was well maintained and in complete condition, so I am hopeful I can make it "airworthy," and perhaps the only known working example of a wonderful RCA piece.

This transmitter will keep me busy for some time, requiring the time, patience and money it takes to restore an automobile. Once completed, it will stand tall and proud as new.

Scott Horner is national project manager for Salem Communications.

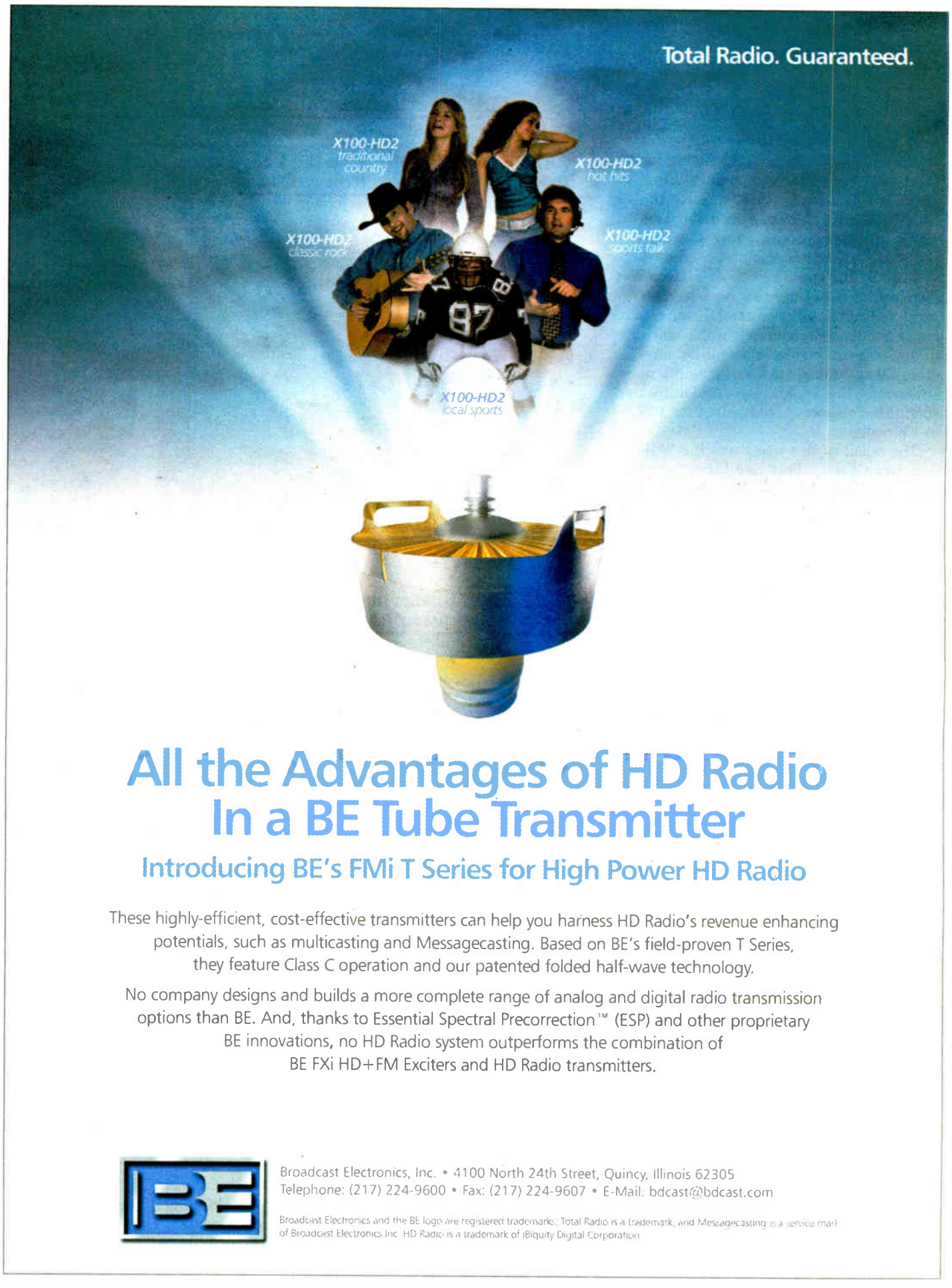
NEWS ROUNDUP

DIELECTRIC Communications said it is now registered under the ISO 9001:2000 standard, from the International Organization for Standardization, for quality-management systems.

NAB is accepting nominations for its 2007 Engineering Achievement Awards. Winners will be recognized at the Technology Luncheon at NAB2007. Nominations are due Jan. 19. *Go to www.nab.org.*

BROADCAST and media technology suppliers in North America and Europe are experiencing 40 percent year-on-year profit growth, according to a quarterly index from the International Association of Broadcasting Manufacturers. The group also named a North American representative to increase membership.

41 DAYS is the amount of time a typical American will spend listening to radio next year. The U.S. Census Bureau also said in a statistical abstract that nearly half of our time — 3,518 hours — will be spent with TV, personal listening devices, Internet and newspapers.



World Radio History

MILE STONES

Remembering the All-American Five

by Charles S. Fitch

America has long had a strange ambivalence towards quality. In electronics, the elements of quality's triple crown — performance, perks and price — are in constant contention. We always want more, for less.

Radio was a revolution in the 1920s and '30s, uniting a country through current events, issues, entertainment — even through time, because most clocks in America were set to network time then.

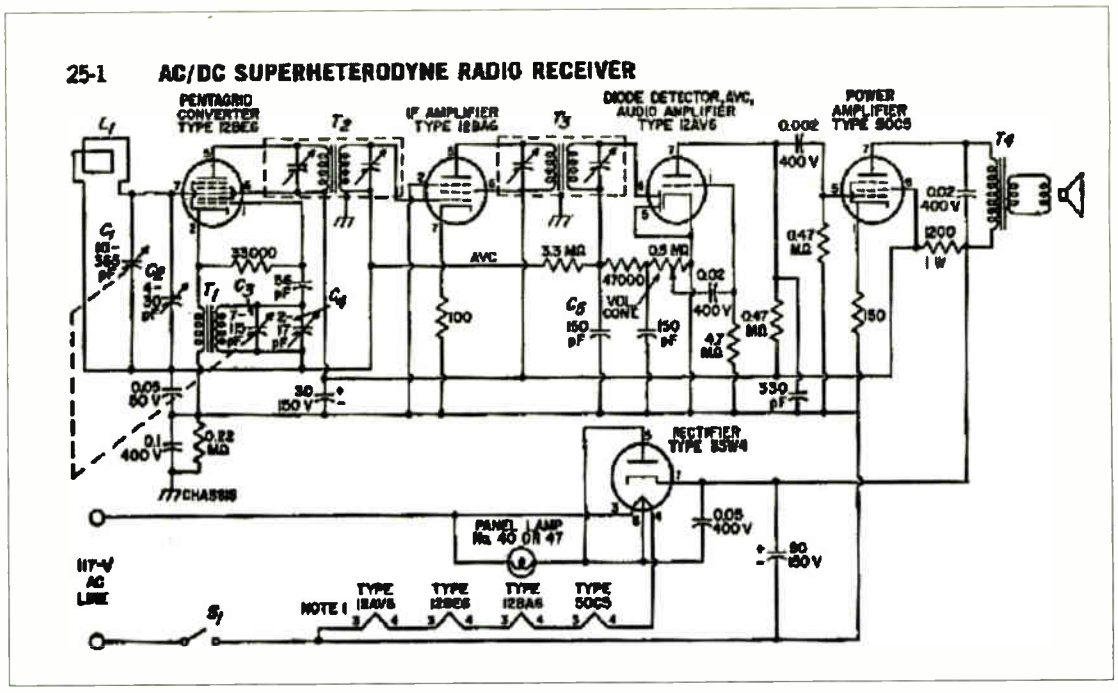
A radio was an investment. A home's receiver occupied a hallowed place in the living room or wherever the family centered its lives.

Economies limited the secondary uses of radio, so manufacturers developed a unit so inexpensive that "second sets" became affordable.

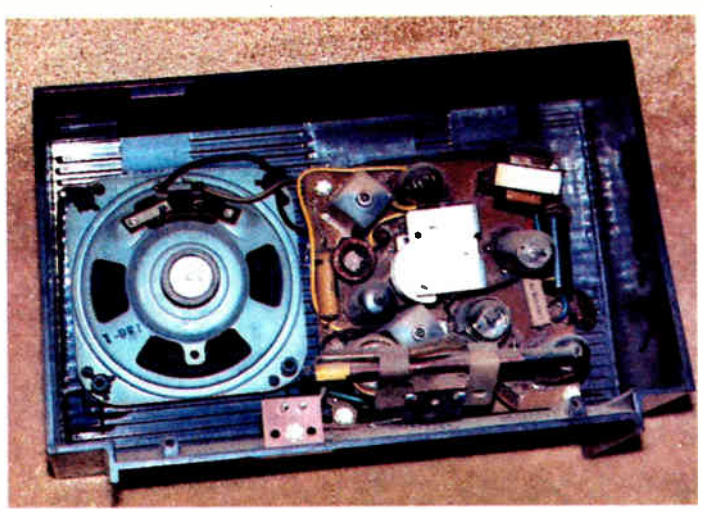
Value engineers — the guys who identify a goal and then ascertain how to reach it at the lowest possible price — set out to design a radio circuit suitable for mass production, one that could fill this need. It was a sort of Model T for the ether. It filled a sales gap for its makers while filling bedrooms, garages, workshops and offices with radio's benefits.

In the '30s the number of stations increased; most of the new ones were in rural settings, closer to their listeners, hence moderate sensitivity in the unit's design was acceptable. Also, utility power now was available to a vast majority of Americans; line voltage was standardized such that designers could anticipate 100 to 130 volts.

The result of this quest was the "All-American Five." This five-tube circuit was atypical; its design is not credited to a specific person or firm, to my knowledge. If a progenitor could be identified, that most likely would be the tube manufacturers — probably more specifically RCA. The introduction of improved, innovative tubes, mainly by RCA, gave designers the ability and impetus to explore new approaches.



A version of the AA5 with miniature tubes from the author's files, source unknown. Note the tap on the rectifier filament for a 6-volt pilot light.



A GE plastic case radio from the 1950s. Its claim to fame is that it had a printed circuit board to further reduce cost. The radios shown here are from the collection of Bill Rosenfeldt.

With a real wood cabinet, this RCA octal tube AA5 required a great deal of hand assembly. This particular one needs a new main tuning capacitor and restringing. Tubes included 35Z5, 12SA7, 12SK7, 12SQ7 and 50L6.

on the top floor, radio production for that day would begin with the bare chassis; as parts were added, these batches of subassemblies would be rolled down wide ramps to floors below for continued work until arriving at the cabinet shop and shipping at ground level.)

Americans must have been delighted with the products they were able to buy at an affordable price, judging by the quantity of AA5-type radios sold.

As we've mentioned, it's not how these boxes worked but what they did that's most important. The ubiquitous AA5 design took radio to new locations where it could be heard by more ears and for more hours. These radios gave stations an increased audience and allowed the industry to grow.

Millions of AA5s were made by a myriad of manufacturers; thousands are still in use even now. The Web has lots of information if you'd like to know more about the history of the AA5. See:

pweb.netcom.com/~wa2ise/

and

www.atatan.com/~s-ito/vacuum/vacuum.html

Also check out Wikipedia's All-American Five listing.

Next time we'll talk about my even more minimal radio — the AA4 perhaps? — and how it changed my life.

The next "big thing" that turned radio into a new mobile, personal and intimate accessory was the transistor portable. We'll talk about that phenomenon another time.

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Harris Sponsors Public Radio Event in Anchorage

Harris Radio sponsored the Western States Public Radio conference in Anchorage, Alaska in October.

"At the annual meeting, public radio managers from western states meet to discuss best practices, new technology, receive reports from attorneys on FCC and regulatory matters, network with one another and receive updates from NPR and the Corporation for Public Broadcasting," a Harris spokeswoman stated.

Shown, from left: Chris Pannell, national sales manager, Radio Broadcast Systems, Harris; Paul Stankavich, conference chair and GM of KSKA(FM), Anchorage; Ron Kramer, president of WSPR(AM) and Jefferson Public Radio, Ashland, Ore.; Debra Huttenburg, VP/GM of Radio Broadcast Systems, Harris; and Hal Kneller, Senior Manager, Public Radio Initiatives, Radio Broadcast Systems, Harris.

2.0

▶ Continued from page 12

flourish in the Web 2.0 world, where they maintain a higher level of control over business results.

Re-intermediation

One of the buzz words of recent years in the media industry has been *disintermediation*, referring to the Internet's ability to connect consumers directly to producers, eliminating "the middleman." While this movement has been largely embraced in some spaces, it has been more successful in connecting individuals to one another and to small businesses (witness eBay and other similar sites).

This trend is expanded in Web 2.0 with a host of social networking and user-generated content sites, greatly empowering individual expression, and allowing birds-of-a-feather to meet and interact in a rich yet inexpensive virtual way.

For the heavily star-culture driven world of digital media, however, the movement to virtual spaces still seems to prefer aggregation — perhaps even more so than in the physical world, since there are generally no lines to wait in or crowds to fight. Whether delivery is ultimately made via atoms (e.g., Amazon.com or Netflix) or bits (e.g., iTunes or Napster et al.), there is great consumer preference and loyalty for a single portal.

Web 2.0 builds on this, with recommendation engines and other discovery/sharing processes building appeal. This is where a high-quality, "radio-like" service fits in. It's therefore no surprise that several popular music download sites include "radio" services among their offerings. Retail 101 tells us that there's no better way to stimulate sales than by free samples of good stuff. This has always been one of radio's key values to both consumers and record companies, but the connection has always been indirect, and airtime has always been scarce. Web 2.0 will change this, with "radio" services proliferating almost infinitely, while providing a showcase for a wide range of samples from an online vendor's inventory.

This also fits well with the oft-mentioned "long tail" model, which posits that in an unrestricted market, half of sales come from the most popular ~10% of titles ("hits"), while the other half comes from the remaining ~90% ("catalog"). Terrestrial radio's and physical storefronts' economics limit them to serving up mostly just the hits, while online radio services and stores find it viable to present and sell the entire head *and* tail of the inventory.

Finally, music services aside, the strong social networking culture of Web 2.0 may also warrant the development of streaming audio services that address specific subject matter or interest groups — much like trade magazines do in the print world. Again, aggregation of audience builds the commerce of the site, and popular radio-like services could be a key component of this.

So while the implementation and business models may change, it seems there will always be a place for well-presented audio services. We call them radio today, and probably always will, but the term may someday become simply a recognition of its roots. Web 2.0 will likely widen the opportunities for new, targeted, radio-like services, and who better to provide them than experienced broadcasters? Keep your eye on this ball as it bounces into a new court.

World Radio History

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GUEST COMMENTARY

IP: The Power of Data Packets

What's Good About the World of Internet Protocol Is Great for Radio

by Kirk Harnack

The author is director of international business development for Telos/Omnia/Axia.

IP — Internet Protocol — in its various dialects is now an all-pervasive technology. It's a business enabler like no other single technical standard. And, despite the name, most IP-transported data never crosses the Public Internet. IP blazes across Local Area Networks — within an office suite, university campus or within a radio station.

Every industry has tried and used proprietary technologies and protocols. These are usually one-off solutions, designed for (and usually only useful for) solving narrow problems. But within every field of endeavor, proprietary technologies, especially involving communication and real-time data transfer, are giving way to IP/Ethernet systems. Rather than clinging to the comfort and security of narrow, made-to-order systems, we see and hear of CTOs and COOs installing new systems that work together by virtue of standards. Broadcast facility infrastructure is primed for this transition as well.

Standards-based technologies in radio broadcast facilities will hand you tangible benefits, both now and with every format or studio change ahead.

Perspective

One person's view of a given tech will often be different from another. It depends on perspective — including the perspective that only exposure and experience provide. Conversely, a lack of exposure or experience narrows one's perspective. Sometimes we call it "fear of the unknown." We rationalize that we know how to do something the old way; the tried and true way — the way we've always done it.

We may even think we fully understand a technology (such as IP/Ethernet). Perhaps we read a book about Local-Area Networks (LANs), or installed a network a few years back, and we're "aware" of the shortcomings of some networking protocol or equipment. This often persuades us that our previous experience is fully applicable today.

But, as broadcast engineers, we're expected to stay apprised of dozens of technologies. And more than any other, network technology is changing — fast.

Old-school, leading-edge

Internet Protocol was ratified as a data communication standard in 1981, over 25 years ago. And the convenient and ubiquitous Ethernet connection scheme is now over 30 years old.

But just because these partner technologies have been around a while doesn't mean they're ready for retirement. To the contrary: every fiscal quarter, venture capital firms are investing billions of dollars in Ethernet and IP-based technologies. Every year the number of wide-ranging applications of IP/Ethernet grows dramatically. And, while maintaining backward compatibility for standardized functions, new capabilities are added to power new business applications.

It's fair to say Ethernet and IP — as data transport and routing technologies — are the most solidly based, widest-ranging and most-researched and -implemented communication schemes ever used.

IP for profit

Universities, research institutes and the U.S. military started the IP revolution using our tax dollars. Today, it's largely our disposable dollars that fund development of IP-based applications and networks.

How many products that touch your life now depend on IP/Ethernet? The business world, and indeed our own daily routine, relies on data acquisition and transport — and IP/Ethernet handles nearly all of it.

Worldwide standards, including those comprising IP and Ethernet, give rise to real benefits. Equipment designed to communicate using IP/Ethernet is by definition interoperable. Whether the equipment is a cash register, a fetal heart monitor or a remote missile launcher, its control and reporting data can be easily routed using IP/Ethernet. And thanks to Ethernet switches and routers, these packets of data travel anywhere we direct them.

So what does the ubiquity and success of IP in the corporate world have to do with radio station facilities? It demonstrates the reliability, economy and effectiveness of IP and related technologies. The corporate world's embrace of Ethernet and IP further demonstrates that proprietary, one-off technologies are often best replaced with systems that use worldwide standards to which manufacturers design and build equipment that plays well with others.

Interoperability is king, and standards rule.

For broadcast

Computers and the networks to which they're connected have the useful ability to emulate other technologies.

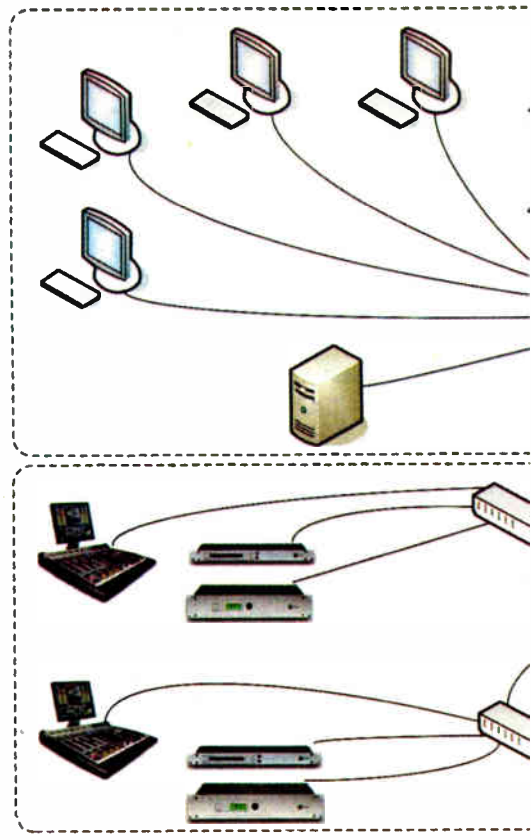
It was said a couple decades ago, "In the future, we won't have cameras; we'll have computers that take pictures. We won't have radios; we'll have computers that pick up and play radio stations. We won't have telephones; we'll have computers that handle audio and make phone calls."

Some forward-thinking inventors also said, "We won't have dedicated audio routing switchers and consoles; we'll have networks that route audio and computers that mix audio."

But don't we already have computer networks in our radio stations? Indeed we do. It's been over 10 years for some stations. They've been moving traffic logs, music schedules, audio files and "as-played" data among PCs for some time. However, the on-air audio — both contributory content and Program audio — is still handled by proprietary systems.

Consider the things we do with computer networking that we couldn't have done just a few short years ago. Traffic and billing was an island unto itself. The music director edited a playlist on computer, but had to print it on paper for the air staff. The finance office produced P&L statements, but the advertising sales projection report was completely separate, not easily incorporated into the rest of the financial picture.

Computer networking changed all that. Now the different office, sales, programming and engineering functions can interact. As-run spot reports are available immediately. Last-minute inventory can be automatically sold and scheduled. Talent and remote equipment resources are easily scheduled without conflict. And key-card security systems, call logging, and prize inventory management software all help station clusters run smoother, faster and more efficiently.



Visio drawing showing an audio LAN

But IP/Ethernet can help us do still more.

Most radio stations still use single-sourced, proprietary equipment and systems to route source audio, produce programming and deliver finished audio to STL or transmitter systems. Is anything wrong with that? No, but the same flexibility and convenience we enjoy with our networked office functions aren't available using typical proprietary broadcast equipment. We engineer get the job done connecting together various pieces of equipment, but what benefits might we see if all our broadcast equipment spoke a "common language"?

What if the satellite receivers could plug into an IP-Audio network, making audio programming plus cueing information available to any other equipment on the network? What if, instead of devising, buying and installing various connection and routing schemes, we could simply plug our network-ready broadcast equipment into a managed IP/Ethernet network, where it works with all the other gear on that same network? The advantages are clear.

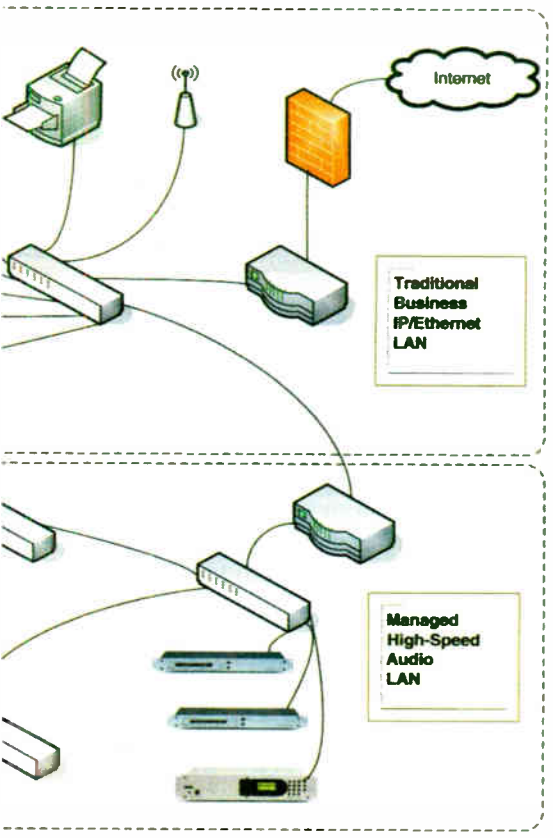
Advantages

Moving radio studio systems to an IP/Ethernet foundation brings three main advantages: Lower cost, flexibility and simplicity.

Compared to the worldwide IT industry, the broadcast industry is small. Broadcast equipment manufacturers often build their wares in small lots — sometimes one at a time. By contrast the IT industry enjoys fantastic economies of scale. Cisco, HP, Dell and others will build thousands of powerful, high-speed Ethernet switches in the next day or two. And many of these Ethernet switches will have far more real-time data handling capability than any digital audio router for broadcast.

The difference in cost? In round numbers, about a 10-to-1 ratio. A high-quality

World Radio History



connected to a traditional business LAN.

Ethernet switch capable of routing and distributing 200 stereo sources to 200 stereo destinations costs about one-tenth of a traditional purpose-built audio routing switcher.

Other cost savings are realized, too. Broadcast facilities depend more on PC automation and playout systems. The cost advantage of connecting them with IP-based equipment becomes quickly apparent. Expensive, proprietary audio cards aren't needed in IP/Ethernet systems. Rather, a software driver moves digital audio from the play-out system to the IP network. Better still, the costly audio input and output connections of traditional audio routers aren't needed, either.

We noted that IP/Ethernet can handle all kinds of data, from telephone calls and spreadsheet files to songs, playlists and commercials. This flexibility also applies to the types of data and routing we need for a cluster of radio studios. IP packets can carry real-time stereo or 5.1 Surround audio at far better than CD quality. Those packets can also carry "contact closures" or other cueing information. Program-associated data is gaining importance for broadcasters; IP packets will route PAD data right along with the audio or elsewhere if desired.

The elegance and flexibility of IP/Ethernet owes to the fact that IP doesn't care what the data, or payload is; it only cares about getting it to the right place. That's IP's built-in routing at work. This routing, inherent to every IP packet, implies flexibility in designing an IP audio network. Manufacturers don't have to design their own routing standards and protocols; those are inherent to the very IP specs underlying an IP-Audio network's design. Further implied is the freedom to make changes or additions later. Those changes or additions are low-cost and simple, owing to Ethernet's inherent scalability.

Simplicity implies using an elegant structure and the knowledge one already has to achieve a specific goal, and this certainly applies when using IP/Ethernet to route and mix audio and other data. The concepts that an engineer uses to configure a large IP-Audio system are the similar to adding a PC to a LAN.

The elegant structure of an IP-Audio network is evident both in connecting peripherals and in the network design itself. Devices such as PC playout systems, PC-based audio editors and other IP-Audio sources simply plug into the nearest Ethernet switch. Their audio inputs and outputs, as well as remote control and configuration, all appear on the IP-Audio LAN. Legacy audio equipment is easily interfaced by plugging into IP-Audio nodes — hardware interfaces that reduce wiring complexity and distance by being located close to connected equipment.

The final evidence of simplicity is in configuration and maintenance of equipment designed for IP networks. While designers *could* make IP-connected equipment cumbersome to configure, convention says otherwise. There's a design culture that expects simplicity in setup, favoring HTML graphical user interfaces (GUIs) within network-connected hardware. Hence, configuration tends to be done via Web browser using any PC or Mac on the LAN. There needn't be any cryptic config files — just a Web-based GUI with easy point and click or fill-in-the-blank setup.

Summary

Most in radio broadcasting agree that, within the next 10 years, all of our audio transport and routing will be over IP networks. Even those with no investment in this direction realize that IP/Ethernet will eventually replace one-off, proprietary schemes.

IP-Audio systems that are based on recognized networking standards will always be interoperable. As such, they'll easily connect and communicate with our office LAN and allow system control and audio sharing across corporate WANs or even the Public Internet, if needed.

At the backbone of IP-Audio networks is networking equipment with many lifetimes of research, development and expertise. Companies such as Cisco, HP and 3Com have invested more into their network equipment than the entire broadcast industry could hope to.

Broadcasters often use technologies from other industries. For years we borrowed many ideas and standards from the telephone companies. More recently, we've been using computers to help us run profitable stations. Now it's time to use the standards, maturity and power of real-time data networking in our broadcast facilities.

In addition to his duties with Telos Systems, the author is part-owner of four radio stations. Reach him at kirk@telos-systems.com.

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PPM HD Measurement This Year?

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HD Radio News

Radio World | Covering Radio's Digital Transition | January 17, 2007

DIGITAL NEWS

Canada Eyes IBOC Additions to DAB

Broadcasters Test FM IBOC in Toronto; AM, DRM Planned for Spring

by Wayne A. Stacey

The author is chairman of a government/industry advisory group, the Digital Radio Co-ordinating Group, which is in the process of preparing an FM IBOC technical evaluation.

To date, Canadian broadcasters have rolled out Eureka-147 DAB L-band Digital Radio Broadcasting services in six cities: Ottawa, Toronto, Vancouver, Victoria, Montreal and Windsor. More than 50 AM and FM stations are currently broadcasting 100 percent simulcasts of their analog programming.

This was accomplished under a transitional DRB policy set in 1995 by our regulator, the Canadian Radio-television and Telecommunications Commission. The CRTC foresaw DRB as being an eventual replacement for analog AM/FM services.

The CRTC said that until a permanent policy is established, DRB stations would primarily be licensed only to existing AM/FM licensees and the DRB facilities would mostly simulcast the programming of existing analog stations. This has not proven attractive to the public and has not encouraged consumer receiver dealers to stock and sell L-band DRB receivers in large quantities.

The CRTC has had a permanent DRB policy for Canada under consideration. [The new policy was released in December, see sidebar, page 26.]

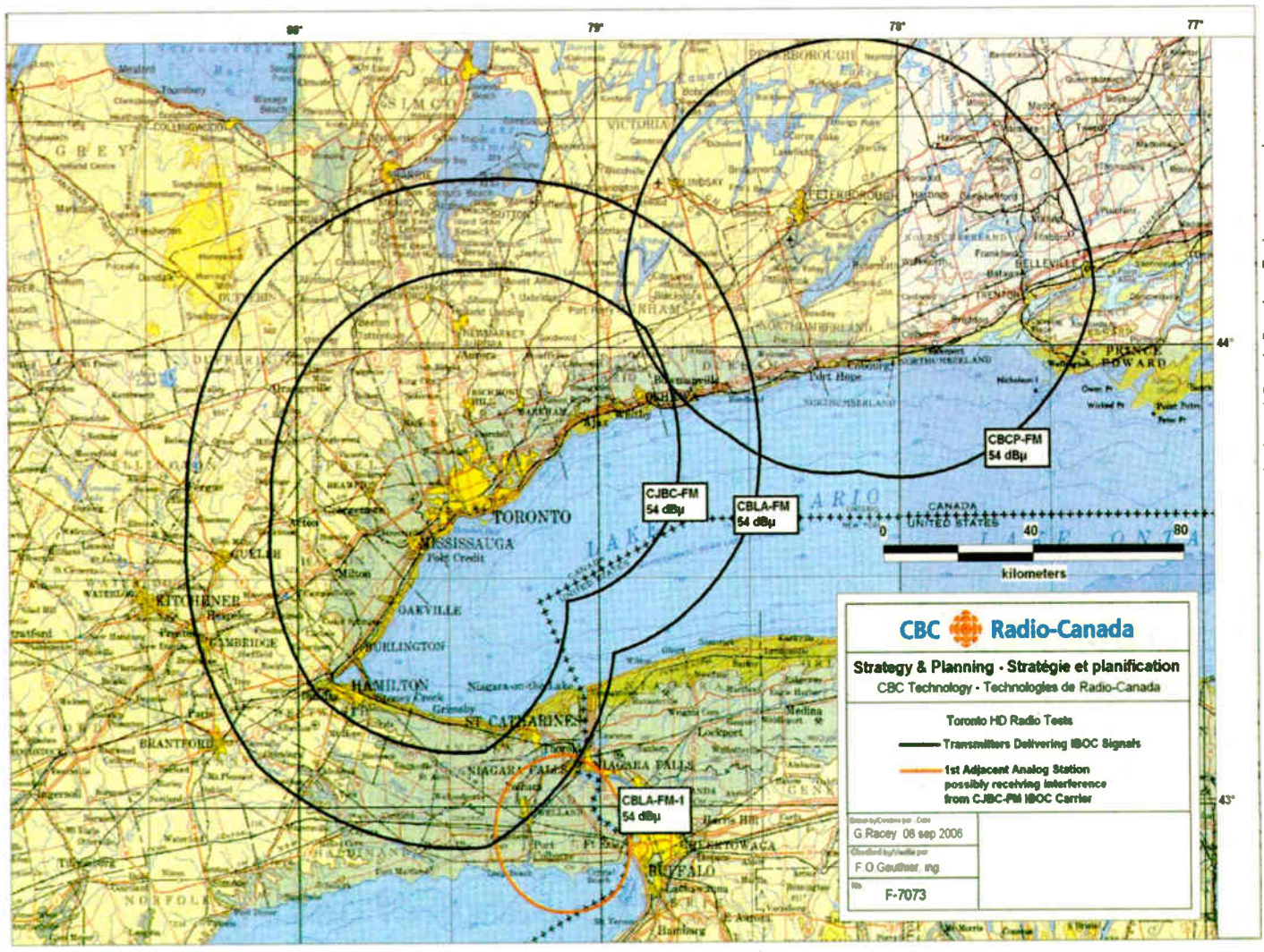
When it became known that this was underway, broadcasters put the implementation of any new DRB facilities on hold until the new policy was in place.

When the CRTC held public hearings earlier in May 2006, it received many recommendations. See "Review of the Commercial Radio Policy" (*www.crtc.gc.ca/archive/ENG/Hearings/2006/n2006-1.htm*).

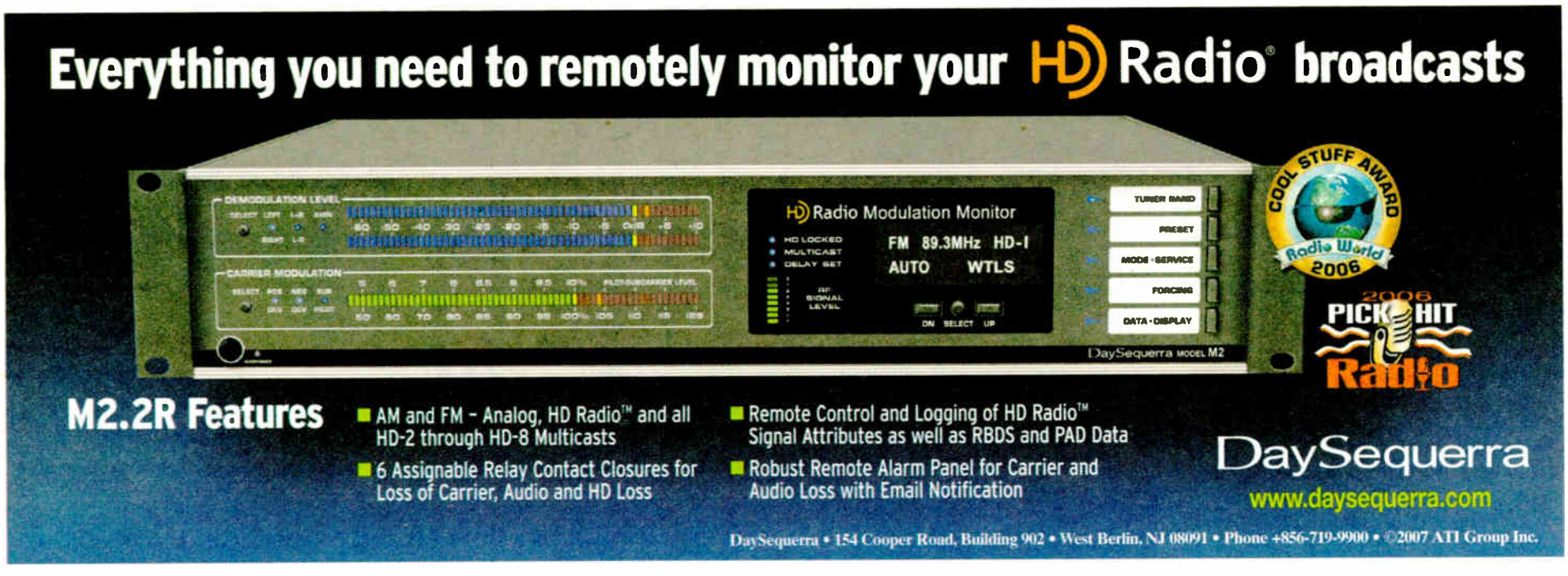
A key recommendation was that the CRTC should allow DRB stations to originate entirely new programming services that would be attractive to listeners. Moreover, broadcasters expressed interest in providing new types of multimedia DMB services via L-Band DAB transmitters and recommended that this technology also be considered when setting the new licensing policy.

Contrary to some recent reports, broadcasters in Canada are not suggesting that L-band DRB services be dropped from our long-term strategic plans. However, they would like the regulatory freedom to re-purpose this service, to move away from the "replacement" model of the current transitional policy and to provide exciting new services that Canadians want

See CANADA, page 26 ▶



Source: From a presentation by Francois Gauthier of the CBC during the Central Canada Broadcast Engineers convention.



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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 late December. This page is sponsored by Broadcast Electronics. HD Radio is a trademark of iBiquity Digital Corp.

On the Air in Seattle-Tacoma

Frequency	Station	Format	Licensee
850	KHHO-HD	Sports	Clear Channel
88.5	KPLU-HD1	Jazz/NPR	Pacific Lutheran U.
88.5-2	KPLU-HD2	Jazz 24	Pacific Lutheran U.
92.5	KQMV-HD1	Rhymc/AC	Sandusky
93.3	KUBE-HD1	CHR	Clear Channel
93.3-2	KUBE-HD2	Xtreme Hip Hop	Clear Channel
94.1	KMPS-HD1	Country	CBS Radio
94.1-2	KMPS-HD2	Future Country	CBS Radio
94.9	KUOW-HD1	NPR/Nws/Inf	Univ. of Washington
94.9-2	KUOW-HD2	NPR News & Info	Univ. of Washington
94.9-3	KUOW-HD3	BBC World Svc	Univ. of Washington
95.7	KJR-HD1	Clsc Hits	Clear Channel
95.7-2	KJR-HD2	All '80s	Clear Channel
96.5	KJAQ-HD1	Jack	CBS Radio
97.3	KBSG-HD1	Oldies	Entercom
97.3-2	KBSG-HD2	Urban AC	Entercom
98.1	KING-HD1	Classical	Classic Radio, Inc.
98.9	KWJZ-HD1	Smooth Jazz	Sandusky
99.9	KISW-HD1	Rock	Entercom
99.9-2	KISW-HD2	Live Rock	Entercom
100.7	KKWF-HD1	Country	Entercom
100.7-2	KKWF-HD2	Comedy	Entercom
102.5	KZOK-HD1	Clsc Rock	CBS Radio
102.5-2	KZOK-HD2	Deep Cuts Classic Rock	CBS Radio
102.9	KNBQ-HD1	Country	Clear Channel
102.9-2	KNBQ-HD2	Classic Country	Clear Channel
103.7	KMTT-HD1	Adult Rock	Entercom
103.7-2	KMTT-HD2	Blues	Entercom
104.9	KFNK-HD1	Rock	Clear Channel
104.9-2	KFNK-HD2	Indie Rock	Clear Channel
105.3	KCMS-HD1	Christmas	Crista Ministries
106.1	KBKS-HD1	AC	CBS Radio
106.1-2	KBKS-HD2	New CHR	CBS Radio
106.9	KRWM-HD1	Christmas	Sandusky
106.9-2	KRWM-HD2	KIXI in Stereo	Sandusky
107.7	KNDD-HD1	Alternative	Entercom
107.7-2	KNDD-HD2	Intn'l Hits	Entercom

The HD Radio Bottom Line

Total Licensed	On the Air
1,629	1,123

Last Month

Total Licensed	On the Air
1,579	1,052

Market Penetration
United States
of 13,793 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: 527

Last Month: 482

World Radio History

You think *we* have a lot to say? You should hear our clients.

When we asked our clients which Element features they liked best — well, you see the results. And this is the *edited* version. (Good thing we bought two pages.)

Go (con)figure • The folks at MPR say they really love being able to configure their Elements and keep tabs on their entire Axia network using standard Web browsers. You can set up and administer an entire building full of consoles from the comfort of your own office (where there's plenty of Cheetos and Pepsi). Put an Internet gateway in your Axia network and you can even log into Element remotely, from home or anywhere else there's a Net connection. 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.

Screen play • Element lets you 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 wanna bet he bought his monitors on sale?) Hook up a VGA projector and make a Meter Wall!

Perfect timing • You can't have too much time. That's why Element's control display contains **four different chronometers** to help keep talent in sync: a digital time-of-day readout that you can slave to an NTP (Network Time Protocol) server, an elapsed-time event timer, a countdown timer talent can set for any interval they choose... and there's also that big, honkin' analog clock right in the center of the screen (Big Ben chimes not included). We wanted to make it even bigger, but our screen designers charge us by the pixel.

Where's Waldo? • Hide-and-seek is a pretty fun game. But not when when you're in a hurry, and definitely not when you're on the air. So every Element fader comes with a big, **bold** 10-character LED display right above it to show talent, at a glance, exactly what source is assigned to that fader. If it's music from a digital playout system provided by one of our partners, the display can even show the title or artist of the song that's active. Talent tells us that these displays are at the perfect angle for either sit-down or stand-up studios.

Options • Clients say they love Element's uncluttered worksurface. We kept it clean by placing an "Options" key over each fader to give instant access to all the advanced goodies. It makes customizing settings easier than selling fudge cake to Dom DeLuise.

Black velvet • What's 100 mm. long, silky smooth, goes up and down all day and **lasts forever**? Our super-quality conductive-plastic faders, of course. (You have a filthy mind, mister. Shame on you.) We sourced the most durable, reliable, premium faders and switches for Element. And we added extra touches, like the custom-molded plastic bezels that protect on/off switches from accidental activation and impact. Because we know how rough jocks can be on equipment — some of us were (jocks, not rough). And because we also know there's nothing more embarrassing than a sudden case of *broadcastus interruptus*.

Audio cards • Well, *um*, there actually aren't any. Not in Element, or anywhere else in an Axia network. Why not? Think about this: your production guy spends hours crafting exciting, finely-tuned bits of broadcast magic, only to filter them through a card sitting in a noisy, RF-filled PC. It's like washing a wedding dress in the Hudson River. Not only that, broadcast audio cards are *expensive*. And they only work in *PCI slots*... how many of those are you seeing on new PCs? The **Axia IP-Audio Driver** installs on any Windows ® PC to send and receive pure digital audio right through the PC's Ethernet port — no sound card required. You get better, cleaner PC audio that's sharable right to the network. And you save tons of cash on sound cards, and on the audio inputs you would have needed for that PC card audio — more than enough to buy that cool new network tester you've been lusting after.

Great Phones • We wanted the phones on Element to work like an extension of the board-ops themselves. Unfortunately, talent objected to having Ethernet ports implanted in their skulls, so we came up with the next best thing. 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 it really clicks with the Telos Series 2101, TWOx12, or the new NX-12, which connects four hybrids plus control with a *single Ethernet cable*. Status Symbols™ (those cool little information icons) tell talent at a glance whether a line is in use, busy, pre-screened, locked on-air, etc. You can even dial the phone right from the board using the integrated keypad.

Fried Chicken • Conductive aluminum bullnose is connected to a 40-kilovolt storage capacitor* that can be activated with a GPIO closure. Set up a hotline remote trigger for the PD to give the jocks a little "positive feedback!"

Shown: 20-position Element, nicely equipped, $16,557.00 US MSRP. Not shown but available: 4-, 8-, 12-, 16-, 24- and 28-position Element. Dual exhaust and whitewalls optional at extra cost.

Element

World Radio History

<< "Neccessity is the mother of invention." So we invented IP-Audio for broadcasting: realtime, low-latency routing where logic & mix-minus follow audio. Thanks Mom!

<< Those other guys are really proud that they've built a couple dozen routers. We use Cisco switches to power our networks. Guess how many *they've* built?

<< At Axia, "remote" is our favorite word. As in "remote control," "remote maintenance," "remote diagnostics." So your life doesn't have to go on without you.

<< Soundcards? How quaint. Our IP-Audio driver for Windows sucks audio right out of computer NICs, like pimientos from martini olives. Mmmm... olives.

Meter reader • LED program meters? How very 1990's. Element's SVGA display has lots of room for timers, meters, annunciators (*there's* a five-dollar word) and more — enough to show meters for all four main buses at once. Reboot the console to 5.1 surround mode and the light show is even cooler. Any more bling and those fast 'n furious types'll want it for their dashboards.

Status Symbols • There are those icons again. (We're in love with icons. It's the Telos way.) These Status Symbols alert talent to phone lines ringing, mix-minuses minusing, talkback channels talking, etc. They can even display fader numbers, like you see here. Just one more way Element makes it easy for talent to do a fast, clean show.

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

Swap meet • Element modules are easy to hot-swap. Remove two screws and a cable or two, and they're out. In fact, you can hot-swap the **entire console** — unplug it and the audio keeps going, because mixing is done in an external Studio Engine.

Can I play with your knobs? • Twist 'em, push 'em, make 'em click. Element comes standard with some pretty powerful production features, like per-fader EQ, voice processing and aux sends and returns. 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.)

Memory enhancer • We know how forgetful jocks can be, so 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. 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.)

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.

Coffee? • No console is spill-proof, but Element is easy to service and has no motherboard to damage in the event of stupidity.

Mixmaster • Does the thought of constructing a complicated mix-minus on-the-fly bring a big grin to your face? If so, you're excused (Masochism 101 is down the hall). But if you hate building mix-minuses manually as much as we do, you'll love the fact that Element does them for you. No more using all your buses for a four-person call-in; no more scrambling to set up clean feeds for last-minute interviews. When you put remote codecs or phone calls on-the-air, Element **automagically** figures out who should hear what and gives it to 'em — as many custom mix-minuses as you have faders.

It's already in there • Element comes standard with a lot of cool goodies you'd pay extra for with other consoles. Like custom voice processing by Omnia™ that lets you 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. (There's even a secret "Big Balls" setting that makes wimpy interns sound like John Leader. A fifth of Chivas to the first guy who finds it.)

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.

Push my buttons • You can program these custom button panels with any macro you want, from recorder start/stop to one touch activation of complex routing switches and scene changes using PathfinderPC™ software. You can probably even program one to start the coffee machine (black, no sugar; thank you).

AXIA
A TELOS COMPANY

www.AxiaAudio.com

© 2006 TLS Corp. Axia, Element, PathfinderPC, Status Symbols, Omnia TM TLS Corp., all other TM's property of their respective owners. *No, the console doesn't really have a high-voltage zapper in it. (But it sure would be cool!)

World Radio History

Canada

▶ Continued from page 22

to receive.

After this, broadcasters will determine their future strategies for the permanent use of allocated L-band spectrum.

As for the so-called In-Band, On-Channel DRB option, Canadian radio broadcasters see this as a possible opportunity to transition their current analog services in the AM and FM bands to digital. During the CRTC hearings, broadcasters recommended the following with respect to IBOC services:

• The CRTC should allow the implementation by existing broadcasters of AM and FM IBOC DRB services that are 100 percent simulcast with their respective analog services (HD1) and that broadcasters should be permitted to determine when such implementation should occur.

• With respect to ancillary FM IBOC DRB services (HD2, HD3, etc.) the regulators should adopt provisions similar to the current policy governing audio programming services delivered via FM subcarriers. That is, the CRTC should allow this capacity to be used by the licensee or its lessees, subject to certain specific provisions applicable only to services that compete with existing programming sources in the same market (such as ethnic radio services).

• It is important to understand that the broadcasters are recommending that these IBOC policy steps be taken only if the following happens:

• The FCC officially adopts one or more IBOC systems as voluntary standards in the United States.

• Canada's technical evaluations of IBOC technology demonstrate that the compromises necessary to implement this technology are acceptable to the regulators and the broadcasters.

• Industry Canada (our technical regulator) adopts transmission standards in Canada that are similar to the U.S. standards.

FM-band IBOC tests are currently underway in Toronto, with a view to assessing the second point above. A slide presentation on preliminary technical results, presented by Francois Gauthier of the CBC during the Central Canada Broadcast Engineers convention in September, is available at *www.ccbe.ca/Papers2006.html.*

AM-band IBOC tests are planned for the spring. Although the FM-band tests involve only the Ibiquity Digital HD Radio system, broadcasters anticipate that AM-band testing will include both the Ibiquity HD Radio and the Digital Radio Mondiale systems.

Freedom to choose

In summary, Canadian broadcasters would like the freedom to use L-band DRB and AM/FM IBOC technologies as they transition their analog services into the digital world. They believe that this policy would provide the best opportunity for them to be able to compete with the array of new digital audio services available to consumers, such as satellite radio, Internet radio, iPods, etc. It also provides a multi-option plan that permits them to proceed with digital radio conversions, even if one of the technology options fails to gain adequate consumer acceptance.

This article is adapted from a post to Radio-L, a list serve dedicated to international digital radio issues. It is reprinted with the author's permission.

Wayne A. Stacey, P.E., is a broadcast consulting engineer who heads up Wayne A. Stacey and Associates in Ottawa, Ontario. Reach him at wstacey@stacey.ca.

Radio World welcomes other points of view.

Source: From a presentation by Francois Gauthier of the CBC during the Central Canada Broadcast Engineers convention.

US Operating Parameters (Domestic)			Canadian Operating Parameters (Domestic)		
Class	ERP (kW)	EHAAT (m)	Class	ERP (kW)	EHAAT (m)
A	6	100	A1	0.25	100
B1	25	100	A	6	100
B	50	150	B1	25	100
C3	25	100	B	50	150
C2	50	150	C1	100	300
C1	100	299	C	100	600
C0	100	450			
C	100	600			

US Protected Contours (Domestic)		Canadian Protected Contours (Domestic)	
Class	Protected F(50,50) (dBµV/m)	Class	Protected F(50,50) (dBµV/m)
A	60	A1	54
B1	60 (channels 201-220) 57 (channels 221-300)	A	54
B	60 (channels 201-220) 54 (channels 221-300)	B1	54
C3	60	B	54
C2	60	C1	54
C1	60	C	54
C0	60		
C	60		

	US		Canada	
Channel relationship	D/U (dB)	Interfering F(50,10) (dBµV/m)	D/U (dB)	Interfering F(50,10) (dBµV/m)
Co-Channel	20	40	20	34
1st Adjacent	6	54	6	48
2nd Adjacent	-40	100	-26	80
3rd Adjacent	-40	100	-46	100
4th Adjacent	N/A	N/A	-46	100

CBC/Radio-Canada Technologies - Strategy & Planning

Differences Between the United States and Canada

Canada: IBOC May Be Licensed

OTTOWA In a public notice on digital radio released in December (CRTC 2006-160), the Canadian Radio-television and Telecommunications Commission states that "in order to enhance the prospects of digital radio broadcasting offered in L-band, licensees will be free to develop whatever broadcast services they believe will be of greatest interest to the listening public."

In the document, the CRTC states it is a station's responsibility to decide whether it wants to use IBOC, given technical limitations. Specifically, in section 53, the CRTC states:

"Because of ... technical limitations, there are three key service elements to consider if a station implements IBOC in a particular market. First, digital IBOC signals will add a certain amount of noise to a station's analog signal, marginally reducing its effective service area.

Second, the service area of both the main digital signal and whatever multicast signals are broadcast will be somewhat less than the service area of the corresponding analog signal.

Third, IBOC signals can degrade the service areas of technically related stations located in the same or adjacent markets. The amount of the degradation will depend on a number of factors, including the frequency relationships, the relative location of the service areas and whether or not the second station has also adopted IBOC."

The CRTC stated that if the technical issues can be addressed, "particularly any potential interference to other stations," IBOC "could be considered for licensing."

The commission further stated that if the Department of Industry authorizes IBOC technology for the AM and/or FM bands under the Radiocommunication Act, the commission would be prepared to authorize IBOC and it would adopt an expedited process for stations that propose to transmit a digital simulcast of their analog service.

The commission plans to meet with the executives of the major radio groups within six months to discuss the industry's proposed plan and implementation schedules.

Read the notice at *www.crtc.gc.ca/archive/ENG/Notices/2006/pb2006-160.htm.*

— Leslie Stimson

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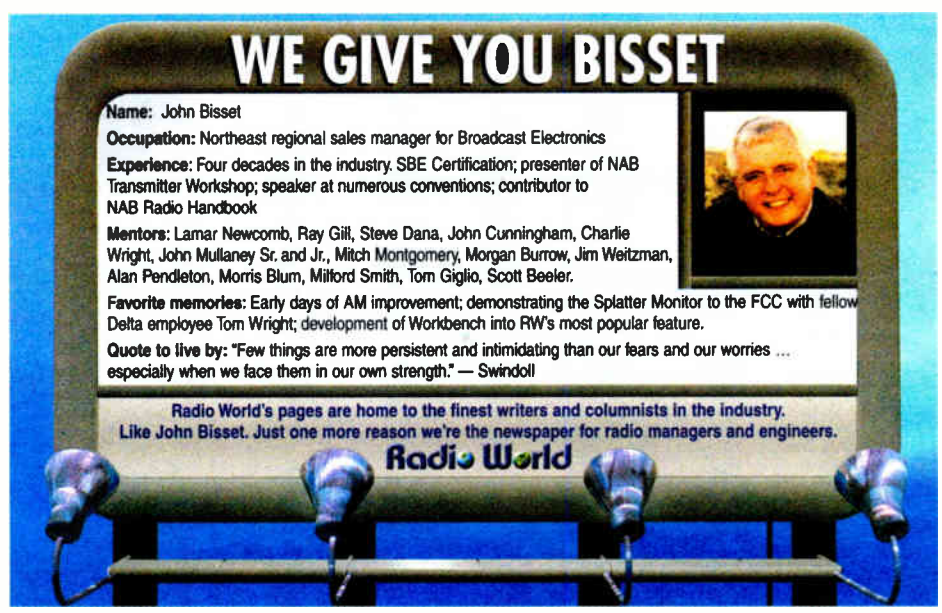

World Radio History

DIGITAL NEWS

PPM TO INCLUDE YOUTH, PLATFORM LISTENING

With the Portable People Meter electronic audience measurement system that Arbitron plans to roll out in five markets this year, stations have the promise of receiving more frequent and timely reporting, identification of what platform listeners heard a station on, be it AM/FM, HD or Internet, and whether that listening has been time-shifted, such as on a podcast.

Jay Guyther, Arbitron's senior vice president of global PPM marketing, said the PPM is also measuring actual radio exposure, rather than relying on listener recall.

Stations will receive 52 discrete weekly reports with the same estimates as they receive now in the diary, with addition of listeners' ages 6–11.

At the request of the Radio Advisory Council, the company has added a two-month demonstration period prior to PPM commercialization of each market to provide time for customers to review the impact of PPM data on their business as compared to the diary.

For example, in Philadelphia Arbitron plans to begin dual audience measurement in January, with PPM demo data available at the end of March and dual PPM/diary market reports available in April. See the rollout schedule at: *www.arbitron.com/portable_people_meters/ppm_rollout.htm*

ENCODE ALL YOUR STREAMS

Arbitron wants to make sure all stations in a market are encoding for PPM, whether they are subscribers to its data or not. Therefore, all FCC licensed AM and FM stations can receive two encoders and an in-station monitor at no cost.

Stations receive two encoders; one is a back-up unit.

The company can also encode HD Radio, multicast and Internet streams. It has the ability to encode satellite radio channels as well although to date those companies have chosen not to do that.

Arbitron subscribers can have encoders for all of these streams and back-up encoders at no cost, Guyther told Radio World. Some stations have dozens of encoders, he said.

Stations need to monitor their encoding equipment to make sure it's working correctly because PPM audience estimates won't be adjusted to exclude unencoded intervals, said Guyther.

Stations should give Arbitron advance notice of any frequency moves and other facility changes to ensure proper reporting.

And to compensate for those stations that choose not to encode for PPM, Arbitron is working on a method to make sure it still has electronic audience measurement for all stations in a market. The company is testing encoding plus audio matching, as the PPM captures audio codes and audio "signatures." Only encoding can capture identify platform, simulcast and time-shifted programming, said Guyther. This technology could possibly be implemented within 12 months.

PPM METER REDESIGN UNDERWAY

Arbitron is redesigning the pager-like device that PPM panelists wear. The device would still fit into the same base station.

Changes to the circuit board make it easier to manufacturer, Guyther said in an interview with Radio World. Each meter costs about $200 to make.

The headphones would plug into a simpler mini USB port on top of the unit. Also, a screw would now hold the unit together, making it easier for Arbitron to open and replace the battery, which now has a life of about 36 hours.

Arbitron needs to have prototypes built and field-tested; if the new design is finalized by next December, the new units could be deployed in the field in mid-2008.

MEASURING HD COULD BEGIN THIS YEAR

Arbitron has refined diary instructions for respondents to indicate whether they're listening to Internet or satellite radio and testing the concept continues.

Dr. Ed Cohen, Arbitron's vice president for Domestic Research, says the company is "ready to launch for HD" when market penetration and consumer understanding improve. Arbitron continues to study diary entries to see how listeners characterize their HD main and multicast channel listening.

New broadcast platform listening such as Internet and HD reporting is tentatively set to begin in the second quarter of 2007.

Meanwhile, Arbitron conducted a pilot test of satellite and Internet radio instructions in winter 2006. Testing showed increased Internet and satellite radio listening. Credited Internet listening from broadcast radio stations more than doubled (up 130 percent), all Internet listening rose 230 percent and satellite radio listening was up 50 percent.

"When satellite radio was announced, 15 percent of the diaries said that's how they heard radio," said Cohen.

The company planned to conduct an offline test in the winter 2007 survey with five source columns: AM, FM, Internet, satellite and "other."

— *Leslie Stimson*

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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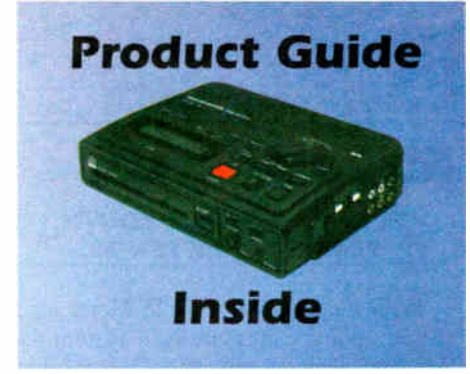
World Radio History

Studio Sessions

Radio World — Resource for Radio On-Air, Production and Recording — January 17, 2007



PRODUCT EVALUATION

CD-RW901: Multiple Playback, Nav Modes

by Ty Ford

CD players have become under-$50 disposable technology. For less than $200, you can buy a CD recorder. They are lightweight, flimsy and don't suffer hard use very well. While these low-cost "sacrificial" versions can be useful, mission-critical operations require professional solutions. The 2 RU TASCAM CD-RW901 CD recorder/player is such a beast.

As I pulled the CD-RW901 and its hardwired remote control out of the shipping box, I noticed the unit had heft and felt solid. It comes with rack ears and feet so you can put it anywhere. TASCAM suggests leaving one rack space above so that the top vents of the unit can throw off some heat. I ran the CD-RW901 all day on a countertop and felt for heat several times. The unit never got up to even mildly warm, even when I left a large CD wallet across the vents.

Determining the right feature set for professional gear is an exercise in thoughtful restraint. Too many features and the box costs too much and is too difficult to use. Too few features and the box is of limited use. TASCAM has been making CD recorders and players for a long time.

Photo by Ty Ford

They have listened to the market and tried to figure out what set of features would best suit as many users as possible.

But hold on, the manual says, "Using commercially available CD stabilizers or printable recording discs will damage the mechanism and cause it to malfunction." To get the lowdown I reached out to Neal Faison, manager of operation support and customer service at TASCAM.

According to Faison, this manual was printed at a time when printable CDs were causing some problems, but these days if you are using good printable surface media, he says you should be good to go. I tried several printable surface CDs and had no problems.

The CD-RW901 drops tracks at one- to 10-minute intervals. This is great for long-form recording the listener may want to selectively access.

Playback

CD-R, CD-R-DA, CD-RW and CD-RW-DA discs are supported for record and playback. MP3 files formatted at 44.1 kHz and 128 kbps or higher in ISO9660 Level 1, Level 2 and Joliet formats also are supported for playback. While in the CD-RW901's MP3 Directory Search mode, different directories are accessed and only the files within a visible directory may be played. When not in Directory mode, MP3 files are visible and can be played.

The dedicated Input Select button allows you to choose from the five audio inputs. The CD-RW901 supports both unbalanced (-10 dBv) RCA jacks and balanced (+4 dBu) XLR connectors. Two small Phillips-head screws beside the +4 dBu XLR outputs allow each analog output level to be decreased by up to 10 dB. Digitally, the CD-RW901 supports coaxial (RCA) S/PDIF, optical (TOSLINK) and (XLR) AES/EBU. Engineers also will appreciate the 15-pin D-sub parallel control I/O and the RS-232C compatible serial control port that allows remote control from a PC.

There are seven playback modes: Single-track, Random, Program, External Sync, Timer, Repeat and A to B. In addition, the CD-RW901 supports pitch control (CD-A only) of .1 percent to 1.0 percent, and key control with +/- half an octave range in half-tone increments. Key change does not affect the original tempo, and works; but what it does is not pretty when applied to music.

During playback, the Auto Cue button moves the playback start point in from the beginning of a track to a point where the audio level reaches a user settable level. The Auto Ready button, when used with Auto Cue, allows automatic cuing of the next track.

The Sync Rec key puts the deck into record when an audio source above the user-settable threshold is detected. You'll want to remember this feature and check for the word Sync over the red Record light on the front panel. You'll also want to remember to turn Sync off if you want to set levels and then record, or you'll make some coasters like I did. External sync playback puts the player into Play when it receives digital audio. I can't think of an application for that, but you might have one.

The CD-RW901 also can be set to drop track cues automatically at one- to 10-minute intervals. This is great for sermons, talk shows and any long-form recording that the listener may want to selectively access. The manual does a poor job of explaining how to access and adjust this feature. Faison was kind enough to e-mail me the "secret code."

To Setup:

1. Press the Menu button.
2. Turn the Multi-Jog wheel until "REC" is selected.
3. Press the Multi-Jog wheel and then turn it until "A_TRK TIME?" is selected.
4. Press the Multi-Jog wheel. "A_TIME>?" is displayed.
5. Turn the Multi-Jog wheel to adjust the time between 1-10 minutes.
6. Press the Multi-Jog button to exit.

To Select:

1. Follow the above steps 1-2.
2. Press the Multi-Jog wheel and then turn it until "A_TRK?" is selected.
3. Press the Multi-Jog wheel and then turn it until "TIME" is selected.
4. Press the Multi-Jog button to exit.

Navigation

The CD-RW901 supports a variety of navigation modes: by track number; the exact minute and second within a track (but not for MP3 files); pressing the Call key in record creates an index number. In playback it moves the play head back to the previous start position and goes into standby. The Multi-Jog wheel serves several functions: track choice, parameter and parameter value select and, when pushed, enter.

The Finalize/INS key also serves multiple functions: finalizing, as a space bar during naming; and showing the ISRC code of a disc during playback. Finalizing a 64-minute CD recorded on the CD-RW901 took 60 seconds.

The Backspace key is context-sensitive. When the CD-RW901 is in Index mode, depressing the backspace key indexes backwards within a track. During text operations, the backspace key moves the cursor to the left. The Forward key functions similarly, but in the opposite direction.

If the CD-RW901 detects an incoming source other than 44.1 kHz during Ext Sync, audio playback may be affected. If the digital input source has been set to 48 kHz, the CD-RW901 will properly play the 48 kHz audio; however, pitch control and key control functions are disabled. The CD-RW901 has a sample rate converter that re-clocks incoming digital audio to 44.1 kHz. A pair of analog input controls allows adjustment of the analog record level. Control of the digital audio input also is supported from –54 dB to +18 dB, relative to the incoming digital signal.

Pitch (.1 percent to 1.0 percent) and key (+/- 1/2 octave in halftones) control are both supported for playback of CD audio, but not for MP3 files on a CD. During key playback, the key of the music changes, but the tempo remains constant.

During recording, pressing Record puts the CD-RW901 into Record-Ready. Pressing Play puts the machine into record. Pressing Record while recording increments the track count. Pressing Stop requires the CD-RW901 to go into PMA writing mode, during which the unit will not go back into record. Fade in/fade out and synchronized (level dependent) recording also are supported. If the CD-RW901 doesn't lose audio above its –72 dB to –24 dB adjustable threshold for five seconds or more, it will drop out of record. A sync trim feature allows +/- 125 frame adjustment of auto sync recording start times.

See TASCAM, page 30 ▶

Product Capsule:
Tascam CD-RW901 CD Recorder/Player

Thumbs Up

- ✓ Uses all recordable CD media
- ✓ Many analog and digital I/Os
- ✓ Many Play and Record modes; even MP3 playback.
- ✓ Sample Rate Converter
- ✓ Easy menu navigation

Thumbs Down

- ✓ No analog or digital input limiter
- ✓ Key change works but doesn't sound great

PRICE: $1,125

CONTACT: *TASCAM in California at (323) 726-0303 or visit* www.tascam.com.

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World Radio History

PRODUCT EVALUATION

WS-Series: A 'Carry-Anywhere' Recorder

Unit Could Serve Radio News Operations Via Size, Self-Explanatory Controls, RAM Storage Technology

by Carl Lindemann

Static RAM digital storage technology quickly is becoming the standard for professional field recording. At the same time, the technology is appearing in consumer devices, albeit without the high-end features and flexibility, and mostly as part of MP3 players. Can these consumer recorders have a place in the radio mix?

The Olympus WS-Series voice recorders are a handy next-generation upgrade to the inexpensive pocket tape recorders that used to be a staple at many radio news operations alongside bulkier "pro" devices.

The WS Series comprises three models that differ in their storage capacity. Each is basically a USB-flash drive — those tiny computer accessories that have virtually replaced the floppy drive — with a recorder built around it. The entry-level WS-300M has 256 MB of memory, the WS-310M has 512 MB and the flagship WS-320M comes with a full gig.

Used as a field recorder, the increase in memory is mostly irrelevant. With the high-compression Windows Media codec (WMA), even the WS-300M will record more than eight hours in stereo. The added storage serves the needs of audio entertainment, as these also are designed to double as MP3 (and WMA) players. With prices under $100 available, this can serve as a backup, carry-anywhere recorder.

Toggle around

The WS-320M I tested is set apart from its smaller storage siblings with a piano black finish. The .73 inch L x 1.50 inch W x 0.43 H unit is actually a two-part package. The simple controls are self-explanatory. A switch on the left side toggles between recording and music-player functions so it is easy to put business before pleasure.

On the right side, familiar transport controls feature buttons for record, stop and play. On the front, controls toggle between menu functions selecting mono or stereo recording and compression levels. Other options include mic sensitivity, marked as "voice" or "conference."

An integrated speaker and stereo microphone are geared towards business recordings, while the 1/8-inch jacks for an external mic and headphones open up the opportunity for radio use with external mics. A small LCD screen shows recording time, time remaining, and recording and battery levels.

The battery compartment holding a single AAA battery wraps around the male USB-2.0 connector hidden in the rectangular form. The battery compartment clicks into place, as does the detachable battery cover on it. The unit, ready-to-record, weighs less than two ounces with battery.

Olympus WS-320M

Testing the unit with a beyerdynamic MCE 58 at the highest quality mono setting delivered audio that was at least a match for old cassette recorders — minus the tape "hiss." The 32 kbps WMA codec did a respectable job on voice recordings. With over 70 hours recording capacity at this compression, I wish that a 64 kbps option was allowed, or even uncompressed PCM recording. But even so, the 32 kbps was quite listenable. The published spec shows that this delivers a 100 to 12,000 Hz frequency response, fine for spoken word recordings.

Additional tests with a Crown SoundGrabber II PZM mic did well in capturing speeches from a podium. In both cases, mic sensitivity was set low, though over-modulation wasn't pronounced when set to the high setting. Aside from the sensitivity settings, levels are fixed. It's strictly a "two sizes fits all" deal — lo and high. Depending on your mic, that's hit or miss. The LCD meter was actually usable. The integrated mic was less so, but if the option is getting no sound versus something through the built-in stereo mics, these will do in a pinch.

After a recording session, popping off the battery compartment and plugging the unit into a USB port made transferring audio files easy and fast. The recorder is recognized as a removable drive under Windows XP, and dropping and dragging files is quick with its USB 2.0 data rates. The only annoyance here is that the recorder's settings are lost after detaching the battery to dump audio.

Though the WS-320M is small, controls proved easy to operate and menu options easy to navigate. Users can jump right into recording without having to refresh their memory with the manual, even if only used occasionally.

The bottom line here is that the Olympus WS-Series voice recorder makes an excellent backup or student field recorder. If you already carry an MP3 player or are thinking about getting one, having this along is worth considering. Toss an EV RE635 and a cable in the glove compartment and you're ready for anything.

Carl Lindemann is a frequent contributor to Radio World.

Product Capsule: Olympus WS-Series Voice Recorder

Thumbs Up

- ✓ Tiny and light (under 2 oz. with battery)
- ✓ Good battery life
- ✓ Decent audio quality

Thumbs Down

- ✓ Limited recording level choices
- ✓ No hi-resolution recording options
- ✓ Settings reset after downloading audio

PRICE: $179.99 (estimated retail per Olympus site)

CONTACT: *Olympus America at (800) 622-6372 or visit* www.olympusamerica.com

TASCAM

▶ Continued from page 28

The A_TRACK feature allows the CD-RW901 to continue recording, but instead of stopping after the audio falls below the threshold for two seconds or more, it creates a new track.

The EOM (End Of Message) feature can be adjusted between one and 99 seconds before the end of a track and an entire disc. When the time is right, a small orange rectangle in the lower right corner of the display begins to blink. The CD-RW901 is programmed so that if a CD is left in the tray when the unit is powered down, the CD will begin to play upon power up.

Copy protection is applied on a per-track basis, and four modes of copy protection are available: Free, IGEN, PROB, Origin. In Free, no copy protection is applied. In IGEN, one digital copy can be made. PROB prohibits any copies; and Origin uses the SCMS-Serial Copy Management System, which applies CCI (Copy Control Management) to the disc.

Titles and other text are becoming increasingly important. The CD-RW901 supports disc title and track title. Although it displayed the ISRC code I entered into my Jam 6.0.3 CD burning software, it did not recognize the track names. If you are burning on the CD-RW901, you can jog and enter, using the multi-pin interface, plug in a mini DIN 6-pin IBM/PC compatible keyboard to enter text. A parallel D-Sub 15-pin port and RS 232C D-SUB 9-Pin port also are available.

After reading about all of the features the CD-RW901 is packed with, you might think that menu navigation is a nightmare. It's not. Most of the important features have dedicated controls. Accessing the menus entails hitting the menu key and twisting the jog/shuttle knob to Rec, Play, System or Text. Choose from those four choices by pushing in the jog/shuttle knob and scroll it again to find the object of your desire.

To get back to the top, just hit the Menu button again. Page 15 of the manual shows the entire directory layout with reference pages in the manual for each selection. Very nice.

After wrapping my brain around the controls, I had no problem making CDs or playing them — even CDs with MP3 files.

The headphone amp has enough power to push a set of AKG K271 headphones to a very reasonable output, and I like a higher level than most. With Sony MDR 7506 headphones, the maximum level was too loud even for me.

The CD-RW901 has one of the fullest feature sets I've seen in a CD recorder. The only other neat feature I have seen in others is analog and digital input limiters. TASCAM could probably have knocked a few dollars off by not including some of the semi-pro I/Os, sample rate conversion and pitch control, but even pros have come to find them useful. I like the large typeface when scrolling through the easy menus and that you can see the display plainly from any angle.

This is not a CD recorder for dummies. If someone accidentally presses the wrong buttons, you can find yourself lost in the weeds unless you know the front panel. Maybe a Dummy Lockout mode would be helpful.

Ty Ford has been a Radio World contributor since 1986. Contact him at www.tyford.com.

PRODUCT GUIDE

Klotz Revamps Vadis Line

Klotz Digital redesigned the Vadis router series, and debuted the new design and functionality for the Vadis 888, the bigger sibling of the Vadis 212. It consists of a 19-inch 4 RU mainframe with 21 freely assignable slots for interface plug-in cards.

The front panel display provides more information and is clearly arranged, and a fanless power supply unit is included for silent operation. An optional hot-swappable redundant PSU is available, which the company says provides reliability and allows maintenance operations while the frame is in operation.

Klotz Digital's hot swap technology applies to components of the frame such as Vadis cards and the synchronization module. The PSUs are installed at the front of the Vadis 888 to facilitate service.

The new Vadis frame also is available as Vadis 884, and is additionally equipped with a video sync module.

For more information, contact Klotz Digital in Georgia at (678) 966-9900 or visit www.klotzdigital.com.

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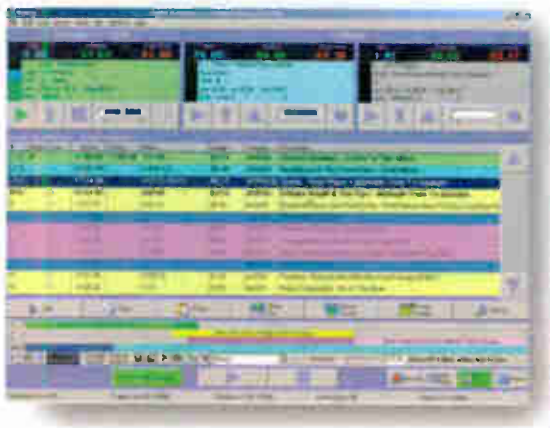
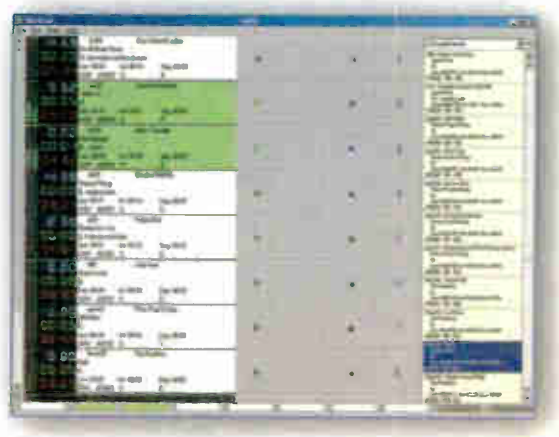


Simian - radio automation and digital playout system.

Instant Audio

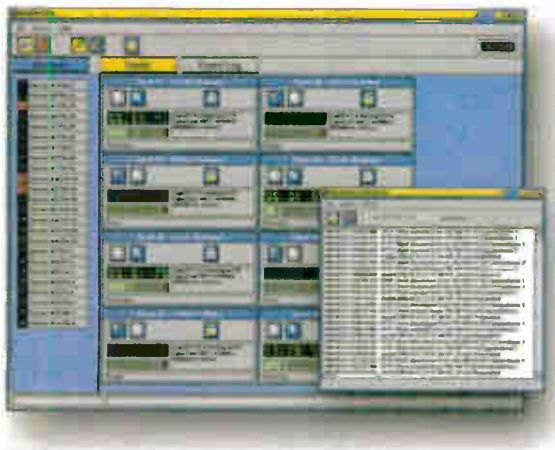
Stinger - Instant Access to 288 'rapid-fire' audio files.

Digital Cart Player



WaveCart - the original on-screen cart machine replacement.

Audio Logging

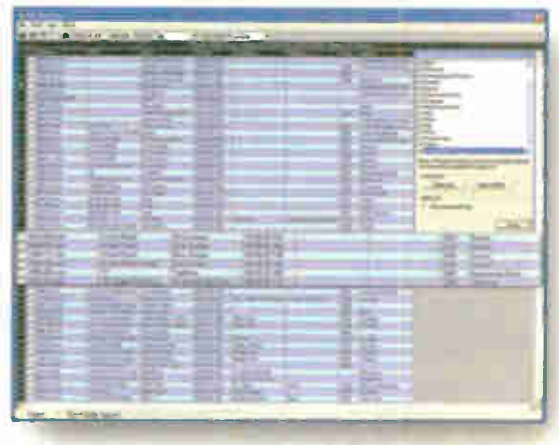


SkimmerPlus - skimming and audio logging with web playback.

Complete Systems

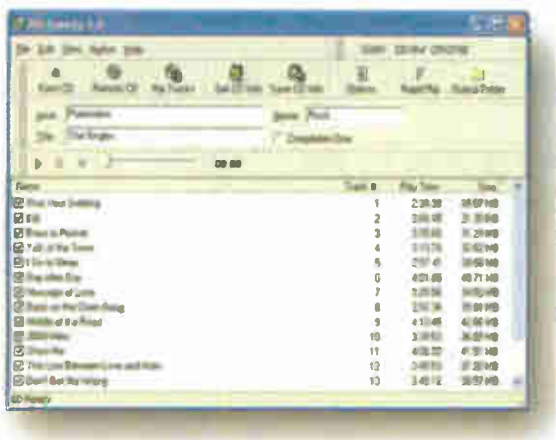
Systems - fully configured with hardware, software and music.

Music Library



MusicStore - select from over 48,000 ready-to-play songs.

CD Ripping



Speedy - fast CD ripping with automatic file tagging.

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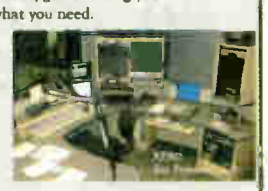

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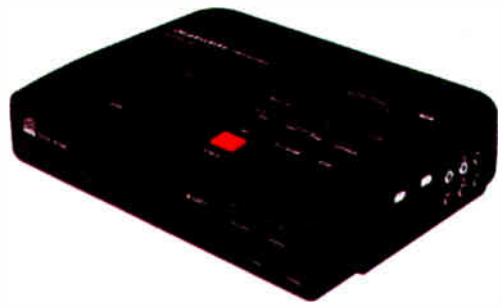
PRODUCT GUIDE

CDR310 Finishes Projects To CD Burner



Marantz Professional is shipping the CDR310 professional CD recorder, which offers long-term recording in uncompressed and MP3 formats and optional battery operation for up to four hours. It features microphone preamps with XLR connectors and 48 V phantom power for use with external condenser microphones, a microphone and the ability to finish the final project to the CD burner.

The burner can create both audio discs for instant playback on a CD player, or data discs for transfer to a computer or for archiving purposes. Battery power capability — using AA batteries or the optional RB1651 rechargeable battery — allows for up to four hours of remote operation without an external power supply; the company says support for uncompressed audio and MP3 file formats provides flexibility and long record times.

The CDR310 also incorporates Background Record mode, which enables recording to constantly be active as an ongoing backup, even when the CDR310 is in Pause mode. Recording also can be active in Pre-Record mode for up to 10 seconds with the recorder stopped. Analog line level inputs and outputs and S/PDIF-format digital inputs and outputs allow connection to audio equipment.

The CDR310 retails for $1,049.

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

Logitek Ships Artisan Console Line

Logitek is shipping its Artisan line of router-based digital audio consoles, which are control surfaces for the Logitek Audio Engine, an X-Y router accommodating analog and digital audio I/O. Artisan consoles use a series of drop-in modules that permit users to purchase console configurations that meet their needs.

Artisan features include multiple frame sizes; 5.1 compatible operation; two master

busses, eight sub master mix groups, four stereo aux sends and up to 24 mix-minus busses; frame delay on each fader; and a five-function dynamics processor and four-band equalizer for each fader and bus. IFB functions also are included.

A fully configured Artisan console plus Audio Engine is available for less than $60,000.

For more information, contact Logitek in Houston at (800) 231-5870 or visit www.logitekaudio.com.

UniStar IIILA Protects Over Wide Input Range

Staco Energy Products has debuted the UniStar IIILA Series single-phase, online, rack-mount Uninterruptible Power Supply, which the company says features protection over a wide input voltage range at an affordable price. The double-conversion technology enables a steady sine wave that protects downstream equipment without going to battery mode.

The UniStar IIILA has a unity input power factor that meets industry standards for energy savings and low reflected harmonies, the company says. It is available with capacities of 1 kVA, 2 kVA and 3 kVA. Each size offers remote monitoring and diagnostic capabilities through the Web, networks or an SNMP adaptor. Standard software is compatible with most operating systems including Novell Netware, Windows, Linux and Free BSD.

Staco says an advanced microprocessor control yields greater reliability and functionality in a smaller size than other systems. Each UniStar IIILA features high overload handling without transfer to the bypass, and protection against short circuit and over-temperature conditions.

The Smart Battery Management System continuously monitors battery status and recharges whenever necessary. Hot swappable battery packs allow users to change batteries without shutting down the UPS.

For more information, contact Staco Energy Products in Dallas at (866) 261-1191 or visit www.staco-news.com.

LEDtronics Has Frosted Tube Lights for Studios

LEDtronics' TBLxxF Series sealed tube LED light strips offer diffused illumination and are suitable for use in the broadcast studio. They come in a milky frosted lens and feature a UV-resistant polycarbonate housing over the LED tube, which the company says gives increased protection and shielding against environmental effects, allowing the light tubes to be placed in atypical locations.

Additionally, TBL3xxF Series tubes come in various lengths including six, 12, 24 and 48 inches; and come in 6000K Pure White and 3000K Warm White colors, all operating at 12 V. Both whites use .96 watts for the six-inch model, 2.16 watts for the 12-inch, 3.84 watts fro the 24-inch and 7.68 watts for the 48-inch length.

Pure white 6000K LEDs give off 52 Lumens at 6-inch lengths, 116 Lumens at 12-inch, 206 Lumens at 24-inch and 413 Lumens at 48-inch sizes. Warm white 3000K LEDs radiate 40 Lumens for six-inch models, 89 Lumens for 12-inch, 158 Lumens for 24-inch and 317 Lumens for 48-inch sizes. Other LED colors are available for OEM customers.

Along with each LED tube strip is a mounting clip (MTG-CLIP-STP-001) that snaps onto the back of the tube. Two clips are provided per foot of tubing. Each clip has a location for a self-tapping screw that allows users to mount the LED tubing in various locations.

Retail prices for TBL3xxF Series sealed tub LED lights range from $26.95 to 108.35, depending on length.

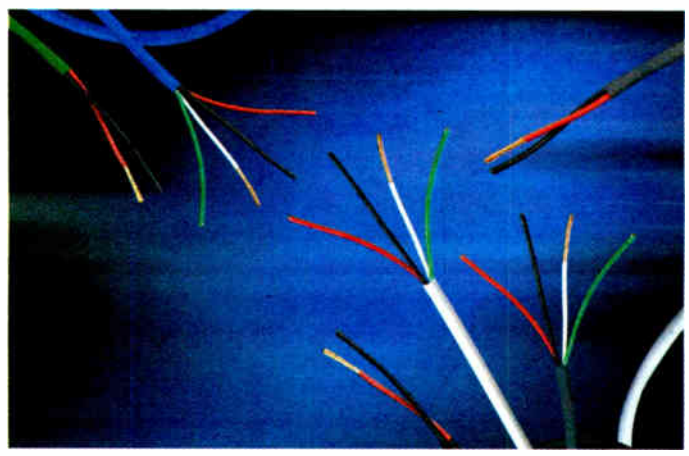
For more information, contact LEDtronics in California at (800) 579-4875 or visit www.ledtronics.com.

Belden Touts Brilliance Low-Cap OFHC Speaker Cables

Belden has added to its Brilliance line of professional audio cables. Brilliance Low Cap Speaker cables are aimed at pro audio users for high-end indoor, outdoor and burial applications.

The company said these cables offer enhanced sound performance with exceptional clarity. "Performance gains are achieved through the use of high-conductivity, oxygen-free, copper conductors that are inherently free of impurities," it stated. "In addition, the use of a low-capacitance polyolefin dielectric rather than traditional PVC ensures a superior high frequency response, even over extended distance cable runs."

They are available with 10, 12, 14 or 16 AWG bare copper conductors and feature round, colored



and satin-finished PVC jackets. The company said installers benefit from highly stranded conductors and PVC jackets that provide flexibility on installation. Colored jackets have ascending/descending sequential markings at two-foot intervals and print legends that incorporate location information (e.g., Room 1234, Zone ABCD).

The Brilliance line of cable assemblies includes breakouts, BNC, CatSnake, composite A/V, dubbing cable, fanouts, MIDI, mults (snakes), musical instrument, patch cords, RCA, speaker, S/PDIF, Y-adapter, XLRs and other items.

For information contact the company in Indiana at (800) BELDEN.1 or visit www.belden.com.

World Radio History

USER REPORT

WQXR Browses Off-Air Recorded Audio

OMT's iMediaLogger Is Part of an Internal LAN, Enabling Desktop Browsing for Station Personnel

by David Antoine
Engineer/IT Specialist
WQXR(FM)

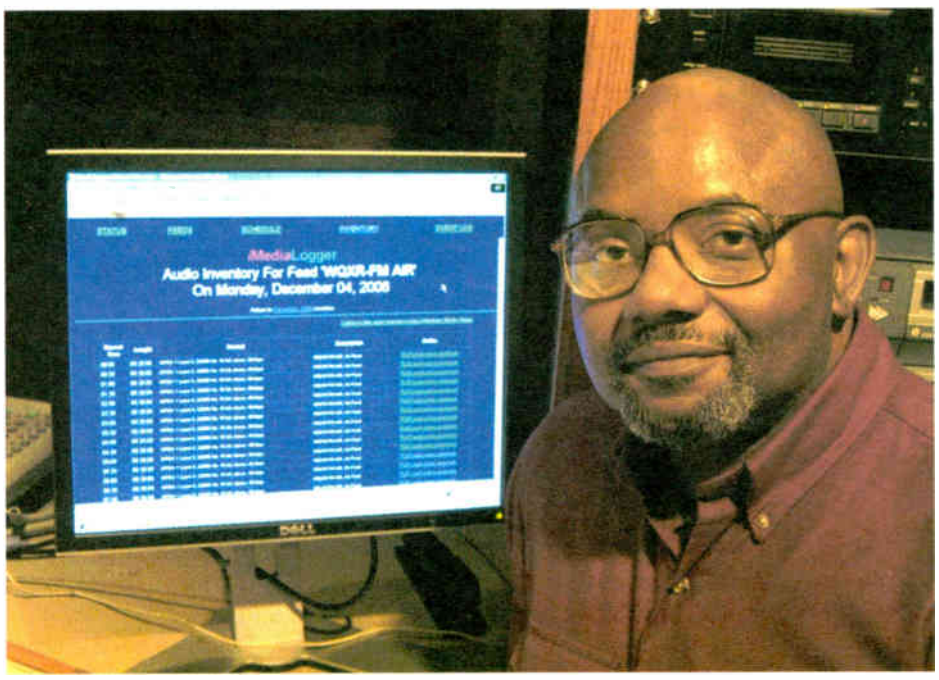
NEW YORK Three years ago WQXR was at a crossroads. Our DAT-based logger system was faulty, and we either had to repair it or look into what newer technology was available to do the job. Like all radio stations we log our off-air audio 24/7. The logged audio is more often used for commercial confidence recoding, keeping our commercial clients satisfied that their spots have in fact played on the air.

The process to provide this service to the clients involved a request to the production department, which in turn had to make time to find the spot on a data-grade DAT tape that recorded for three days and barely yielded telephone-quality audio. The found audio would be dubbed in real time to an audio cassette, labeled, boxed and passed on to the account executive to be mailed or messengered to the client for listening.

This process would at times take a two-hour chunk out of a production person's day. We began to look for a better way.

While visiting another radio station in town and speaking with its chief engineer, we were introduced to OMT's iMediaLogger. The feature of the logger that intrigued us the most was the ability to have it reside as part of an internal LAN, and via browser access allow anyone in the station — sales, news, production, programming and station management — to browse recorded off-air audio at their desktops using an audio media player.

We contacted OMT and spoke with Ron Paley, who gave us a quote and placed the order for a system. We opted to have OMT configure a turnkey system for WQXR's needs. We wanted a system that could simultaneously record at least four separate stereo feeds. The system consisted of a Compaq P4 1.5 GHz computer with a 20 GB system drive and a 60 GB audio file drive; 256 MB RAM, running Windows 2000 Professional SP2; and a Motu 2408 MKII sound card and rack-mount audio interface.



David Antoine and WQXR's iMediaLogger system.

OMT installed the software and configured the system and sent it to us. It worked out of the box with minimal programming and tweaking.

Taking Inventory

Programming, setting up and configuring the feeds was a straightforward process, and we were recording our air feeds the same afternoon we began to set up the system. We opted to record our feeds as low-bit-rate MP3s to make them e-mail size. We concurrently configured one stereo channel for high-quality WAV files for special program record feeds, and another channel for WQXR's Web stream.

We assigned the logging computer a static IP address and published that address to both production and station staff on our internal networks that need it. All they need to do is launch their browsers, typically Internet Explorer, and navigate to the inventory page.

The inventory pages are in HTML format from the logger computer and are laid out like a calendar. The user selects the feed they want according to the month, date and time. They can listen to the feed in any media player on their desktop: RealPlayer, Windows Media Player, Winamp or any media player of their choice.

Users additionally have the option to download the audio files to their computers and save them. This is achieved by right-clicking the file and selecting "save target as option" from the Windows drop-down list.

To eliminate the production requests and empower our sales department, we purchased lite version sound editing software and loaded it on each sales executive's desktop. Now the sales person can search the recorded inventory and download the files as needed when clients need audio verification that their spots played.

We record our files in 30-minute segments, so they can download and open the segment in the sound editing software, and then trim the file to include a few seconds before and after the target spot for continuity's sake. Because it is a low-bit-rate MP3, they can attach the audio file to an e-mail and forward the file to the client, eliminating the production request process altogether. For WQXR, that alone was worth the investment.

In the three years since we began using the iMediaLogger, OMT has upgraded the software and published newer versions. The company has been gracious with its tech support and upgrades, and its support plans are more then reasonable.

We also have added some modifications to the original hardware configuration to meet our needs and the needs of our production and news departments. We have since upgraded to the latest version of iMediaLogger software and upgraded the OS to Windows XP Pro SP2. Reloading

See OMT, page 36 ▶

We are proud to announce that our ECS Studio was selected by the Nevada Broadcasters Association for their Headquarters' Radio Studio

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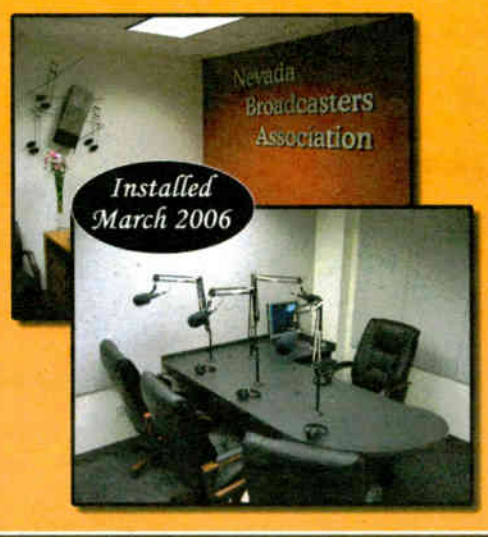

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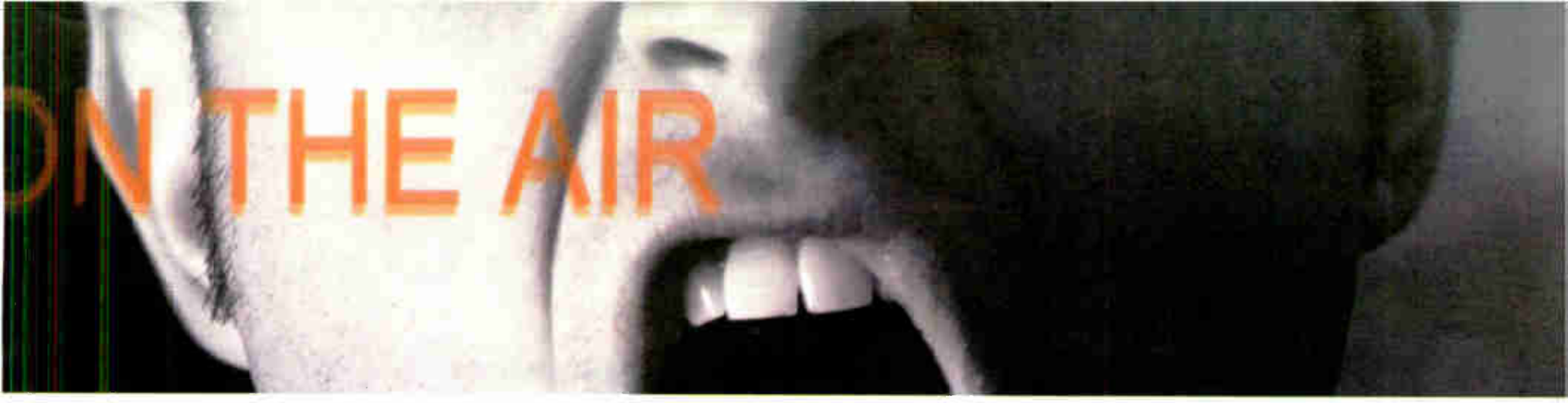

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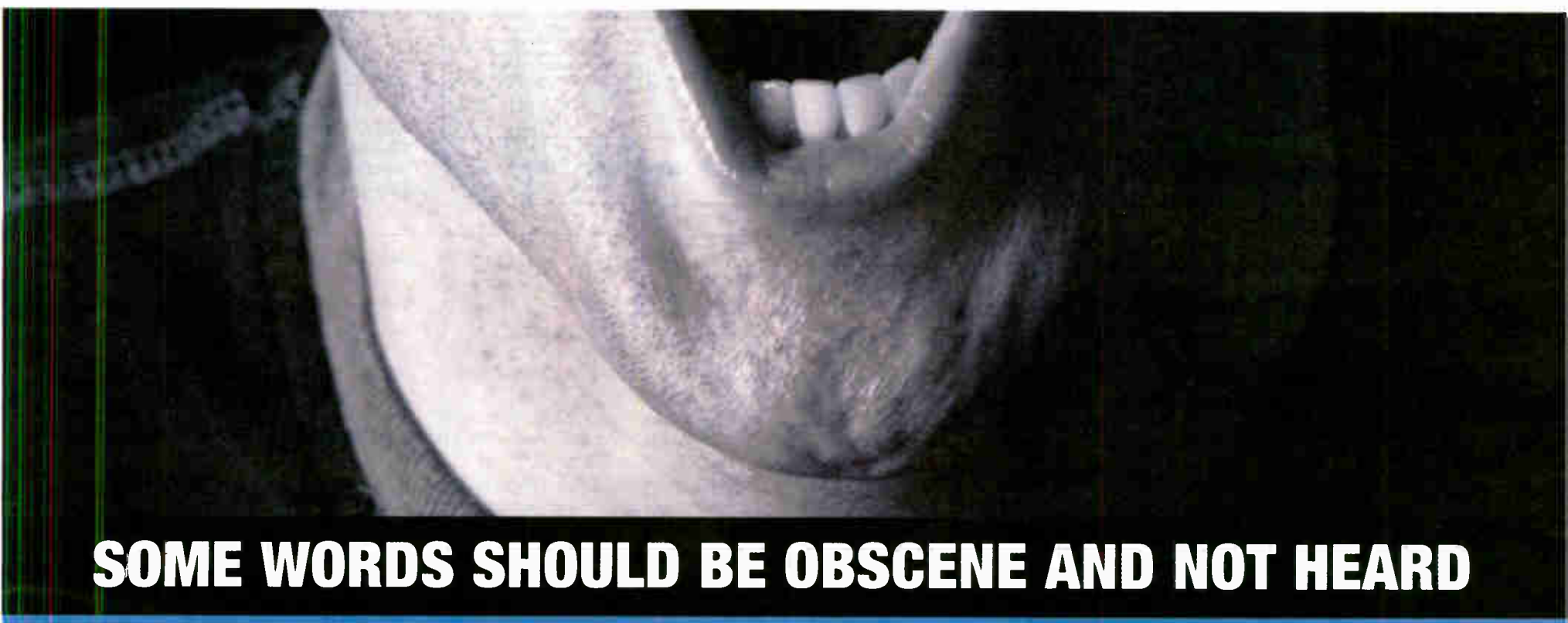

SOME WORDS SHOULD BE OBSCENE AND NOT HEARD

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

The BD600 offers two different methods of delay buildup and reduction: Eventide's catch-up and catch-down system, and an exclusive fast-entry-and-exit feature which allows starting a broadcast with the delay already built up to a safe amount and ending it with a rapid reduction of delay.

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

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World Radio History

USER REPORT

Telos File-Based System Tracks Audio

ProFiler's Server Uses a Database That Keeps Audio File Lists Updated If Any are Added, Deleted

by Kent Lewin
Chief Engineer
WTMX(FM)/WDRV(FM)/WWDV(FM)
Bonneville Chicago Radio Group

CHICAGO Every engineer has his or her list of favorite products. One of mine is Telos Systems' ProFiler, a versatile audio recording program that can be used for capturing any audio you wish to digitally archive. It operates in three modes: Continuous Recording, Skimming and "Smart Skimming." Live audio streaming also is supported.

User-configurable recording modes allow you to select bit rates from 16 kbps to 320 kbps, in stereo or mono. Recording is done in the familiar MP3 audio format. With the Smart Skimming mode you can even change recording bit rates automatically, for higher-quality recordings, when activated by the remote control.

The program consists of both server and client applications, which can be run on most computers of modest resources.

A Telos-provided audio card with one stereo/two mono balanced audio connections and four hardware-based GPI controls is the default way of getting audio into the server computer. This is expandable up to four streams per server. For users of the Axia IP-Audio networking solution, a "sister" program called iProFiler supports up to 16 stereo/32 mono audio streams directly into the application, without the use of the internal computer sound card.

In the vault

Audio to be archived can be saved by the server program, based on several different methods of control: direct GPI contact closures, calendar based schedules or continual recording. The latest software version even permits logic control via TCP/IP. This handy feature can interface easily with your network-based mixing or audio playback systems.

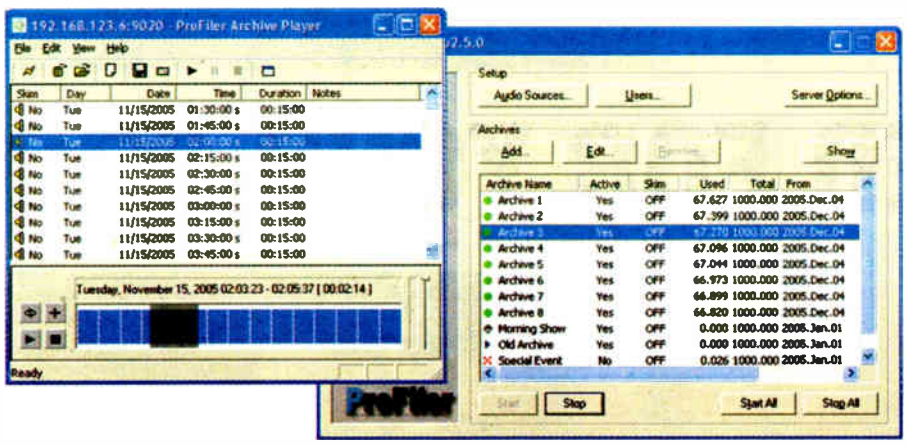
Audio is stored in time-stamped, 15-minute blocks. An upcoming version will permit the time interval to be selected by the user. Archived audio can be uploaded automatically to a Web server via FTP, or backup copies saved to any number of different storage media.

The server application utilizes a new file-based database structure to keep track of your audio. Your list of current audio files is updated if any are added or deleted via Windows explorer. This means access is fast, lists of available files are always current, and memory requirements on your computer are eased. A new Web server application lets you audition or save files directly from within your computer browser, without the need of the ProFiler client application.

Stored audio is auditioned — and selections saved — across your LAN, WAN or the Internet with the use of the ProFiler client software. Access to the client is set up by creating users and assigning them permissions and passwords. Stored audio files and live streams are therefore independently secured from unauthorized use. Functions in the user interface are intuitive and learned in a few minutes. Segment selection, auditioning and extraction are performed with this application.

A new feature lets you directly e-mail saved audio segments from within the client application, which is handy for the sales department sending out commercial airchecks to station advertisers. A cue list feature lets you assemble files of the audio clips you wish to save, without the need for third-party editing software.

A display window shows the currently selected audio segment, allowing the user to select only the desired portion for playback or extraction. Or if you choose, audio segments are exported easily to external editing programs. Text notes can be appended to any audio segment to ease identification at a later date.



Telos ProFiler simultaneously records eight stereo audio streams on a standard PC.

See PROFILER, page 37 ▶

OMT

▶ Continued from page 34

the software, and matching your original configuration and settings, is easy.

We also added more RAM, making it 512 MB. We changed the internal audio file drive from 60 GB to 200 GB and added an external 250 GB USB connected drive for additional archival capacity. We now have approximately 10 months of audio files archived for limited access by the production department, only if needed. The iMediaLogger software can be programmed to dump audio to any external storage location, either network- or USB-connected.

Recently we purchased a second software package and have plans to use iMediaLogger to assist WQXR in some podcasting initiatives. The iMediaLogger software can be used to record and automatically publish the recorded audio files to an FTP site or server for later podcast posting. To make this happen we retasked a Dell GX150 computer, loaded the software and set it up using the internal sound card to record audio and connect via IP to our FTP site, all internal to our WAN.

This is a new feature that OMT is marketing and more detailed info is available at the following link: *www.imediatouch.com/products_imedialogger_podcasting.html.* A trial version is available for download at OMT's Web site. It is fully functional and will time out in 30 days.

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

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World Radio History

TECH UPDATES

Eventide BD600E Expands Remote Capability

Eventide says the BD600E features control capabilities that allow further integration into automated systems. It offers 16 bipolar opto-isolated inputs, which may be configured to drive BD600E functions or as general-purpose delay inputs. Additionally, it has open-collector outputs that may be configured to display BD600E status indicators or to pass through delayed versions of the inputs; and an RS-232 output provides a delayed version of the input, which the company says is useful for driving a time display or for other control purposes.

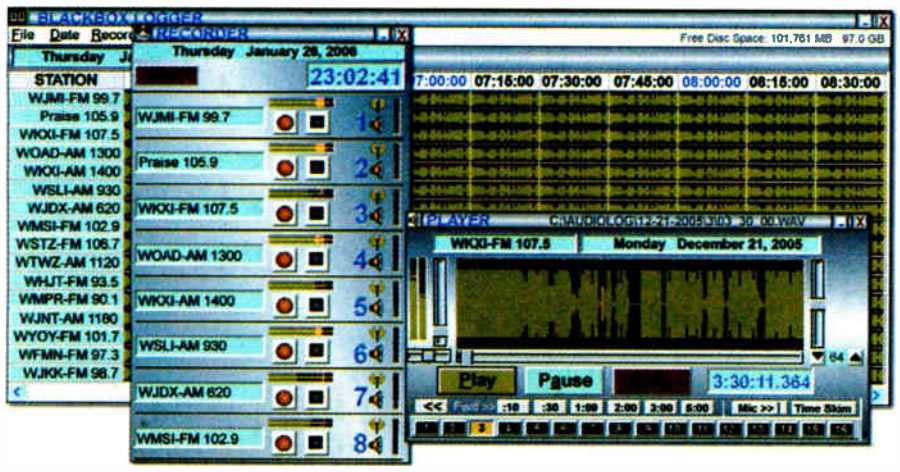
Any BD600 can be upgraded to a BD600E when the product becomes available at the end of June. Eventide says the BD600E features improved audio performance, and expanded obscenity delay capabilities up to 80 seconds for protection for live show feeds. Other features include the Panic function, which stores a WAV files on a Compact Flash card to be played when the Panic button is pressed. While the file, which may be a jingle, station ID or any other message, is played, the delay buffer is rebuilding, allowing programming to continue in safety as soon as the jingle has completed.

Additional highlights include the Sneeze function, which prevents throat clearing, coughing or other extraneous noises from going out over the air; Rebuild, which rebuilds the delay buffer after a portion of audio has been removed; and Ramp-to-Zero, which gradually backs out of the delay buffer at the end of the program.

For more information, including pricing, contact Eventide in New Jersey at (201) 641-1200 or visit www.eventide.com.

Pristine Offers BlackBox in English, Spanish

Pristine Systems' BlackBox digital audio logger, monitor and alert system is available in English and Spanish versions, with the capability to record up to 16 stereo (32 mono) audio channels in popular formats. It is suitable for continuous logging, proof of program content, monitoring a station's performance as well as that of competitors, and reviewing talent performance.



Time and microphone skimmer modes ease programming review. BlackBox also is suitable for recording repeat broadcasts and "best of" shows, the manufacturer says.

A pushbutton radio-style player allows switching between multiple stations during playback as though the user were listening to a radio in real time. Users can listen to their stations or market history on a pushbutton radio, and switch between channels to hear what each station was playing at that time. A LAN player module makes it possible to use this function on a computer on the local area network. A Web server interface is included.

BlackBox uses standard WAV audio devices, as well as AudioScience's 87xx Series tuner boards. When used with the tuner boards, RF signal strength monitoring, logging and alarm functions are available.

Real-time monitoring of audio level and RF signal strength with an alarm system provides alerts to help avoid lost airtime. BlackBox plays WAV files through the station PA system, send serial commands to a switcher or modem, dials a pager or phone, sends e-mail messages, sends SMS text messages, issues DOS commands and/or uses TTL to control lamps or warning devices.

For more information, including pricing, contact Pristine Systems in California at (800) 795-7234 or visit www.blackboxlogger.com.

Coming up in Buyer's Guide

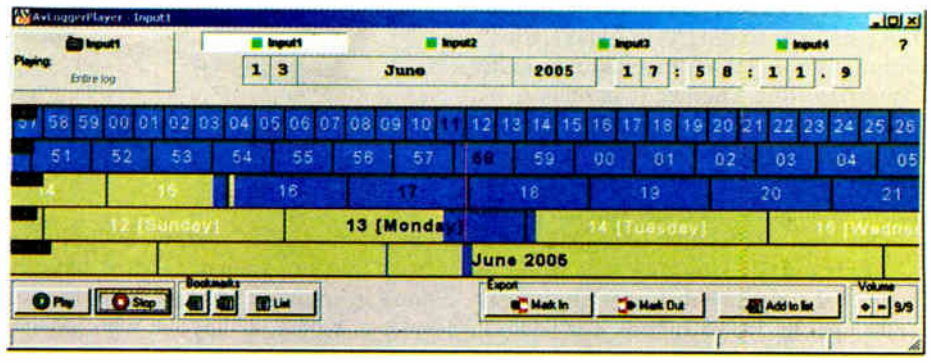
Portable Audio & Newsgathering	February 14
Audio Production & Creation	March 14
Microphones & Audio Monitors	April 11

AVLogger Encodes Multiple Streams at Once

Broadcast Electronics' AVLogger archiving system simultaneously records multiple sources at different compression rates and formats, and for different purposes.

AVLogger software simultaneously encodes several streams for each program feed. While AVLogger is logging the on-air program in MP3 at a sample rate of 128 kbps mono, for example, it can record another log of the open mic channel at 256 kbps, and also capture the morning show in uncompressed WAV.

AVLogger logs audio in standard coding formats such as PCM, WAV, MP3 and



Shown is the AVLogger player menu with program timeline by month, day, hour, minute and second. File marker and bookmark buttons, below, offer navigation and recall of events.

MP2. It records audio feeds from the console or offer the air. Additionally, it records based on specified windows of time, and captures hours of programming in the station's native playback file format or as coded audio to be stored as an affidavit of service.

AVLogger has file markers that are used for logging events such as the opening or closing of a microphone, and a timeline menu that lets broadcasters log audio by month, day, hour, minute and second. Shortcut buttons are useful for moving between locations without restarting the application every time. Its bookmark feature and event toggle offer navigation and access to archived audio. Users can define personal bookmarks for auditioning audio segments stored on a local hard drive or at multiple station locations, FTP sites or Web sites.

Audio logs can be played back over a network or Internet connection, which the company says is useful for production and aircheck purposes. AVLogger also e-mails information to multiple e-mail and SMS addresses.

AVLogger audio files can be archived to removable media such as CD-ROMs, placed on a network for retrieval or made available by remote access. AVLogger is compatible with most automation systems and can be purchased as a standalone application or integrated into the BE AudioVault digital media system.

For more information, including pricing, contact Broadcast Electronics in Illinois at (217) 224-9600 or visit www.bdcast.com.

ProFiler

▶ Continued from page 36

Connection shortcuts can now be created to immediately return you to the specific server and archive settings you last used. This makes quick access for repetitive routines.

Program directors will find the client software great for remote playback of air checks from their desk. Production personnel can use the archived audio to assemble podcasts, station composites or "best of" bits for the Web or station promos.

Both the client and server applications install smoothly. Electronic user guides are automatically installed with each application.

Three other handy items round out the ProFiler system. An NTP time sync application automatically keeps the server machine's time set, which ensures your files have the correct time stamp. A small application is configured to sync with the NTP time server of your choice, and at the interval you select.

A remote monitoring application lets you keep tabs on ProFiler remotely using your network. It indicates the presence of audio at the server, and monitors the available disk space.

Finally, a handy bit rate vs. storage space application calculates the amount of hard drive space needed for archiving files at various bit rates. The amount of audio you can store is limited only by the size of the storage device. With a large hard drive, many years worth of audio can be archived. Settings in the server application let you decide how much to store, and whether to delete old files after a set number of days. This is handy when you want to know what that promo you ran six months ago sounded like.

We have been using ProFiler consistently for many years. The sales, programming and production departments have found different uses for the audio we capture. In addition to the normal off-air skimming and logging archives, we have special archives setup to record clean console audio without commercials. This makes clip integration into show promos a breeze for our production staff. They can easily integrate audio segments stored on ProFiler servers located across town, into their work.

Other archives are triggered to record only incoming feeds from remote broadcasts or capture long-form programs. The TCP/IP logic control has eliminated the need for wiring between studios and the rack room. Flexible configuration options make logic interfacing with existing systems easy.

For more information, including pricing, contact Telos Systems in Cleveland at (216) 241-7725 or visit www.telos-systems.com.

World Radio History

USER REPORT

Sonifex Net-Log Is Free From PC

Tindle Radio Likes That the Audio Recorder Has No PC Motherboard and Runs Its Own Operating System

by Simon Tims
Technical Director
Tindle Radio Ltd.

GREAT BLAKENHAM, England Logging or recording your radio station's output is a legal requirement in many countries. But whether it is or not, it's still a very good idea. Consider the possibility of legal action against you after a presenter or guest outburst, or having to prove to an advertiser that you did actually play their ad at 3 a.m. last Sunday.

Traditionally, logging was done on open-reel tape machines running at cassette speed; 15/16 inches per second, often quarter track and modified so you could do four passes of the tape. Those old enough to remember this system will also, I'm sure, remember how unreliable it could be.

In the 1980s the introduction of VHS video, and in particular long-play machines with HiFi soundtracks, led to the next stage in logging: a bank of three machines programmed to record across the 24 hours of a day, or two machines and the reliance on an early morning and/or late night operator to change the tapes.

Of course, this particular feature of the VHS system was the weakest link and I would venture to suggest that large chunks of station output were inadvertently missed in those days.

We now have more choices regarding logging. PC-based versions come in various forms and at various budget levels from free to expensive. Most have one thing in common and that is an operating system, which, as anyone who has been around a computer for the last 10 years or so knows, has its foibles.

The personnel of the various stations have taken to Net-Log well. Our program controllers extract audio for use in trails, and sales teams use it to their advantage too.

Welcome change

U.K.-based **Sonifex** has approached the logging question from a different angle with its Net-Log system. Net-Log is a four-channel audio recorder with a dedicated hardware platform. It was designed from the outset to offer MPEG compressed audio logging with 24/7 reliability and easy operation. Net-Log has no PC motherboard and runs its own operating system.

Stored audio can be replayed and archived across a standard computer network using a range of client programs that run under MS-Windows NT/2000/XP. Net-Log-Win allows users to find, play, save and edit audio while the Net-Log Auto-Archive utility allows audio to be moved to other storage areas manually or automatically.

The Tindle Radio Group adopted Net-Log at four of its stations: 99.9 Radio Norwich in Norfolk, Town 102 in Ipswich and Channel 103 and Island FM on the Channel Islands of Jersey and Guernsey respectively. We'd been looking around at logging alternatives given the decline of VHS, which we were using. After some trials we decided to give the cheap PC options a miss; and the expensive PC options tended to have too many bells and whistles, raising the price and introducing higher risks of failure. Net-Log's non-reliance on PC operating systems was an attractive proposition.

The personnel at the various stations have taken to Net-Log well. Having been used to a tape-based format, they love it. Our program controllers extract audio for use in trails, and sales teams use it to their advantage too.

I use Network Attached Storage devices with fault-resistant arrays to store duplicate backups of 50 days worth of high-quality audio. U.K. broadcast legislation requires that six weeks worth of audio should be available to the regulator OFCOM at all times. I use an in-house script to enable a further low-quality backup to the office server, which is taken off-site along with the office data.

Tindle has a rigorous checking procedure inherited from the days of VHS. We use documented procedures where tapes are taken into the studio and checked through at least three points in their length against the schedule to make completely sure it recorded properly, as well as check crossovers between tapes.

We keep these same procedures now, with staff regularly accessing the Net-Log archive to confidence check. Net-Log's ability to send us alerts and close contacts during error conditions gives us further reassurance.

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

TECH UPDATES

DigiLogger Stores Files in Archiving Bin

The DigiLogger from **Prophet Systems** is a logging and archiving tool used to retain audio. It uses compressed or non-compressed audio formats, and can be configured to work with analog or digital sources, including automation systems, satellite receivers and switchers.

DigiLogger Status Screen

DigiLogger also enables users to capture playback and preserve material from the system log. Audio files that are captured can be put in an archiving bin where the system automatically stores them for a specified amount of time. Settings within the software can remove them from the system log on a specified date, which the company says prevents a hard drive from filling up and creates space for additional audio.

Prophet says DigiLogger is a standalone feature with a turnkey solution for logging and monitoring. The DigiLogger software can simultaneously record up to four stations off-air with the additional purchase of a tuner card, which enables users to tune into any frequency on the card for air checks or recording a competitor's feed. It also provides access to any point in a recorded period from any of the four channels. Providing the DigiLogger machine with an opto from the board turns DigiLogger into a skimmer.

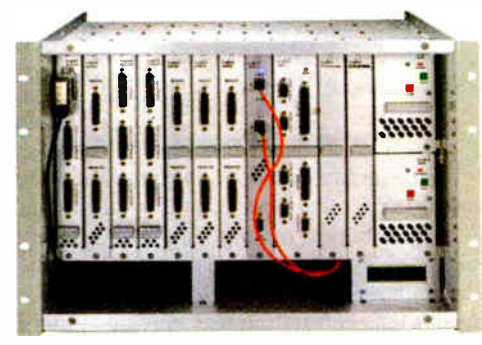
Another feature available with DigiLogger is DigiWeb, a Web-based application that allows users to playback files recorded from DigiLogger. It also accepts RDS information from NexGen so DigiLogger displays metadata information being transmitted.

Additional features of DigiLogger include Flex Skim technology, improved channel organization, silence detection, remote access via Internet browser and direct audio playback from a Web browser using Windows Media encoding.

For more information, including pricing, contact Prophet Systems in Nebraska at (877) 774-1010 or visit www.prophetsys.com.

Logitek Consoles Have 14-Second Delay

Logitek includes multiple profanity delays as part of its digital console systems, and says it now offers up to 14 seconds per delay. In order to incorporate delays into studio operation, the company's SharcAttack multi-DSP processor card — a plug-in card for Logitek's Audio Engine router — is required. In addition to providing delay operations, the SharcAttack card enables users to perform on-board EQ and dynamics processing functions.



Logitek Audio Engine

Each SharcAttack card includes two stereo profanity delays with a maximum delay of 14 seconds each. An Audio Engine can accommodate two SharcAttack cards, permitting operation of up to four independent profanity delays. Delay length is user-adjustable. Dump functions can be set up in multiple steps, with each step fixed at four seconds. A bargraph with numeric display of the delay length is provided on Logitek's console control surfaces (Remora, Mosaic and Artisan).

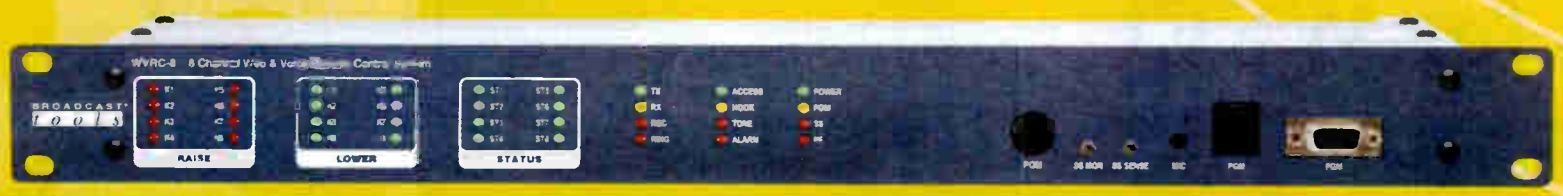
Fill, Empty and Dump functions may be programmed into the control surface soft-keys or activated via external buttons. The delays also can be controlled from a PC via Logitek's vScreen program or the vDelay IP client program.

Machine start and stop commands can be linked to the audio delay time for functions such as downstream ad insertion. Pressing a start button while operating in delay mode causes the machine to start at the end of the current delay period when the associated audio exits the Audio Engine.

For more information, contact Logitek Electronic Systems in Houston at (800) 231-5870 or visit www.logitekaudio.com.

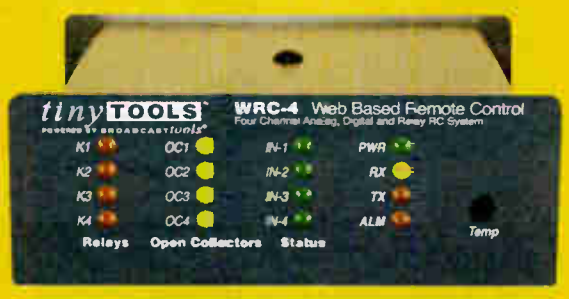
World Radio History

Remote Control



WVRC-8 8 Channel Web & Voice Remote Control System

The WVRC-8 provides a cost-effective, one rack-unit solution for web based and/or recordable voice response dial-up transmitter site control. The WVRC-8 was designed from a users point of view, so all of the basic functionality you need is included to control your site equipment, while including the accessories other manufacturers consider optional. Each analog, status, silence sensor and power failure input can be configured to email up to four individual email addresses, allowing different input alarms to be routed to different email recipients. The WVRC-8 is equipped with a browser based 100-event program scheduler for relay control and alarm muting, along with an 8192 event alarm logger. The user can also elect a sound effect to play when an out of tolerance alarm is generated. We have also provided SNMP capabilities to allow multiple units to be monitored with any SMNP manager software package. The WVRC-8 is equipped with eight high-resolution analog (telemetry) channels, while each of the eight optically isolated status channels may be configured for 5 to 24vdc wet or dry (contact closures) status monitoring. The eight control channels are equipped with independent SPST one-amp relays for each raise/on and lower/off function. These relays may be latched, unlatched or momentarily closed. The WVRC-8 is supplied with spoken words and phases in English, while the user is free to record words and phases in their language. In addition, the WVRC-8 may be programmed for dial-up operation via HyperTerminal, while the Java applet programming can be performed using your favorite web browser. System expansion may be accomplished by cascading multiple WVRC-8's on the same telephone line and/or Ethernet switch. Future external add-on products may be attached via the BT-Link expansion port.



WRC-4 Web Based Remote Control

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, combined with web access and your favorite web browser, brings you the following features, all available in this small, but powerful tiny TOOL: A powerful built-in web-server with non-volatile memory; 10/100baseT Ethernet port; four channels each of high resolution telemetry inputs with a large monitoring range; optically-isolated status (contact closures or external voltages) inputs; normally open dry one amp relays; open collector outputs; front panel status indicators, a single front panel temperature sensor and 4-email notification addresses. The WRC-4 is also SNMP enabled. The WRC-4 has been carefully RFI proofed, while including the accessories other manufacturers consider optional. The WRC-4 is supplied with plug-in euroblock screw terminals and loaded with a generic web page that may be edited by the end user. The WRC-4 works with either dynamic or static IP addresses (when used with a dynamic IP, an inexpensive cable or DSL router may be required). Multiple WRC-4s may be used with a user provided Ethernet hub. The WRC-4 may be set on a desktop, mounted on a wall or up to four units mounted on the RA-1, Rack-Able mounting shelf.

AVR-8 Voice Remote Control

The AVR-8 is a voice remote control system that automatically reports changes detected on any of its eight digital inputs to a remote telephone and/or pager. After speaking a greeting message that may identify the source of the call, the AVR-8 then speaks a unique message for each input change. Each message comes factory programmed, but may easily be re-recorded with your own customized messages. After reporting, the AVR-8 allows you to give it commands through your telephone keypad. Functions include telling the AVR-8 to report on the input state of any of the eight digital inputs, commanding the AVR-8 to pulse any one of its four relays for 750 ms and/or turning any one of the relays on or off. When a relay command is given, the AVR-8 speaks the relay 'name' followed by the 'on' or 'off' message. For instance, commanding relay 4 ON causes the AVR-8 to turn the relay on and then report "Relay 4 ... is on." As with the greeting and input messages, the relay 'name', 'on' and 'off' messages may be re-recorded if desired.

In addition to initiating a call out when inputs change, the AVR-8 monitors its telephone line to receive a call-in from a remote location. When a call is received, the AVR-8 speaks a greeting message, and is then ready to receive and execute commands to report on its inputs, change to its relay outputs or turn on an audio input to the telephone line.

VAD-2 Voice/Pager Auto Dialer with Silence Sensor

The tiny TOOLS VAD-2 is a user programmable two-input with integrated stereo silence sensor, multi-number voice/pager auto dialer, designed for dial out voice message notification. The VAD-2 has two dry contact inputs and stereo silence sensor, which, when tripped, will sequentially dial up to four different phone numbers and play back a user recorded message corresponding to the tripped input. The VAD-2 is also equipped with two SPST one amp relays for the control of external equipment. The VAD-2 can store up to four 32 digit phone numbers and one 32 digit pager phone number which may be associated with any of the two inputs and/or stereo silence sensor. The VAD-2 is capable of remote or local configuration and message recording with a total recording time of 16 seconds. The two SPST relays may be programmed for momentary, latching or tone duration operation. The VAD-2 may be set on a desktop, mounted on a wall or up to four units mounted on the RA-1, Rack-Able mounting shelf.

Be sure to visit our website at **www.broadcasttools.com** for downloadable manuals, complete product information, and a list of dealers.

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USER REPORT

ATM Enables Smooth Joins for WEEI

by Douglas Lane
Remote Operations Supervisor
WEEI(AM)

BOSTON I recently demoed a new product that has many applications for sports talk radio, and talk radio in general: **25-Seven Systems'** Audio Time Manager, an advanced TiVo-style digital audio recorder for audio.

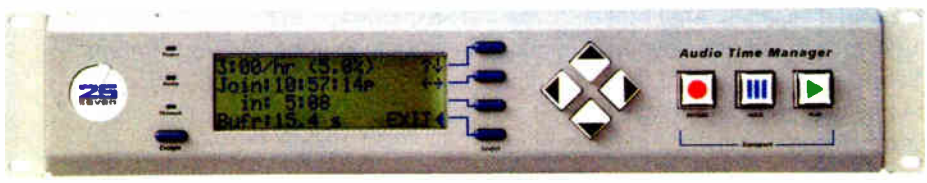
The unit acts like an hour-long loop of tape. Audio is constantly being fed into it and then played out. What makes this unit unique is users can pause the audio playback while it is still recording, then use the "catch up" feature to speed the audio and catch up to real time seamlessly.

Here's an example of how we used the unit. We were about to join a post-game press conference "live," but were still in a long commercial break. So we routed the press conference audio to the Audio Time Manager. When we heard the start of the press conference we simply pressed the Record button on the unit. The unit already is recording, so this button really just marks a spot for future playback. Out of the commercial break we hit the playback button. We were back to live in no time using the catch-up feature.

Douglas Lane

Catch those first words

Adding extra drops or spots to live events is possible. This unit makes adding those spots and then using the "catch up" feature to get back to "live" easy. There have been few devices around that allow for adding extra spots; this unit is great in that mode.



25-Seven ATM

If that was all ATM did it would get a solid grade, but it does more.

Join press conferences when you want. You won't hear announcers fumble and stall when the press conference is late. Don't dump out of a commercial break to get to a press conference "live." Never miss the first words of the press conference because you had other programming to deal with.

Interrupt press conferences to add spots. If the press conference is running long we usually get backed up with spots, then to catch up we either discrep spots or run excessively long breaks. With the ATM, you can add spots or ID to the middle of a press conference without missing any part of the press conference.

Don't miss an interview because you were in a break. How many times have you been in a commercial break when an important interviewee calls in or steps to your mic? Users can feed the interview into the unit and then start the interview "live" when the break is over. No more screwing up the clock as you wait for the interviewee.

Network joins are no longer a problem. If you are joining a network show after a sporting event, your announcers usually stall or just join the network show in progress. Instead, feed the network show into the Audio Time Manager. Press the Record button at a logical point. When the live game ends press the Play button for a smooth transition.

Don't miss game action because the game started before your commercial break was over. Every sports broadcaster has missed a home run, touchdown, goal or exciting play because play resumed before the spot was finished.

When we demoed the unit, everyone on staff was impressed that there was no noticeable difference between a live announcer and the announcer voice sped up by 7 percent. As we increased the catch-up rate above 7 percent all the way to 20 percent, the only noticeable difference was the announcer appeared to be talking fast, then really fast. There were no artifacts, and the pitch is unchanged.

I wish the unit had a scrub wheel, which would allow for easier cueing of the paused audio. As currently configured the audio cueing is via rewind and fast-forward buttons. Also, eliminate the wall wart power cord. I hate wall warts.

The Audio Time Manager retails for $7,950.

For more information, contact 25-Seven Systems in Boston at (888) 257-2578 or visit www.25-seven.com.

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TECH UPDATES

6100 Clears Memory, Dumps Obscenities

The **Symetrix** Air Tools 6100 broadcast audio profanity delay is a 24-bit digital delay for live broadcast that prevents profanity or unwanted comments from reaching the airwaves. According to the company, when a program begins, the 6100 gradually and unobtrusively "stretches out" the program until up to 20 seconds of full-bandwidth stereo audio is stored in memory. Users prevent offensive material from broadcasting by dumping the 6100's buffer, which removes said material.

For example, if a radio caller says something the host or producer deems inappropriate for broadcast, he or she presses the Dump Profanity button. The 6100 clears its memory, and the unwanted material never reaches the airwaves. Meanwhile the host releases the offending caller from the telephone line and proceeds with the program.

After the Dump Profanity button has been pressed, the 6100 begins to stretch (time-expand) the program audio again until the full delay is attained.

The 6100 also features automation interface for network broadcasts.

For more information, including pricing, contact Symetrix in Washington state at (425) 778-7728 or visit www.symetrixaudio.com.

Arse! Has 30-Second Delay, Display Screen

MDO UK's Arse! Delay offers up to 30 seconds of broadcast-quality, stereo delay. The company says the all-software PC system has advantages over more traditional standalone black-box systems such as the color display on the PC screen that gives status information on the current level of delay, audio levels, mode and user options.

Countdown clocks to cue points also are shown on-screen. The system can be controlled with a mouse, using user-defined keyboard hot keys; or using external keypads, which can be built into existing control surfaces in studio areas.

Delay can be built in one of several ways. The delay-build function builds the delay over a period of a few minutes with a dual-mode technology suitable for use in speech-only program segments, or for music/speech mixed segments. Alternatively, for a quicker build, the company says Arse! Delay can play filler audio direct from the PC's hard disk while the delay is gathered. This audio is played from a standard WAV file, and where filler audio is used that is longer than the required delay period, an on-screen countdown to the cue point is shown for presenter/operator use.

For more information, contact MDO UK at sales@mdouk.com.

BSI Simian 1.7.9 Released

The latest version of Simian was released in November by **BSI**.

Version 1.7.9, according to the company's Web site, offers the most reliable version yet.

"Our in-house tests of Simian 1.7.9 have been running for 224 days non-stop. Extensive internal testing using our custom-configured Dell GX620 PCs and rack-mounts using our recommended AudioScience sound cards re-affirms Simian's reliability prior to full public release."

Other features include new QuickStart Help, Welcome Program log, GetWeather module, GoTo macro and other improvements.

Simian includes a built-in voice-track editor, dynamic Web page generation and time and temperature announce module. Two background record machines can time-shift programs, Simian can also playback while still recording.

Simian will import music and traffic logs from most scheduling programs, merging them into a single chronological Program Log. You can import from Programs such as Excel (CSV format) or Notepad to add additional scheduled elements to a Log.

Simian is marketed as a complete radio automation software package, including fully automated, live assist and fully manual playout modes; it provides comprehensive support for satellite fed stations.

For information contact the company in Oregon at (888) 274-8721 or visit www.bsiusa.com.

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Non-profit radio station/ organization seeks donations of radio equipment. We specifically need a console, a P3 or higher computer, studio and field microphones, mic processor, studio monitors, CD players, a hard-drive based field recorder and a telephone audio interface. Email: ColinCruz@TheBlast.FM

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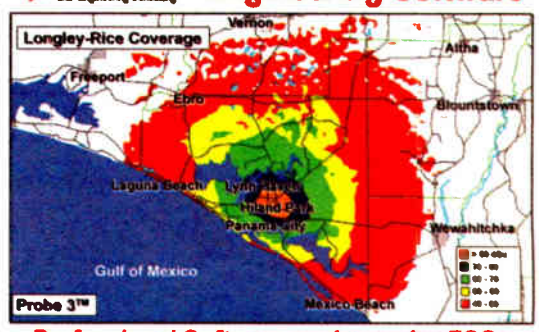

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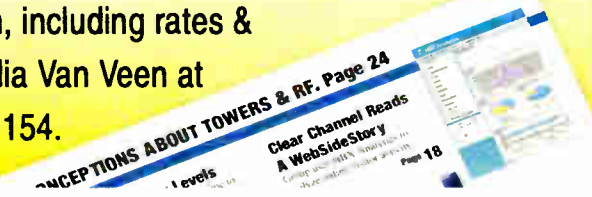

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World Radio History

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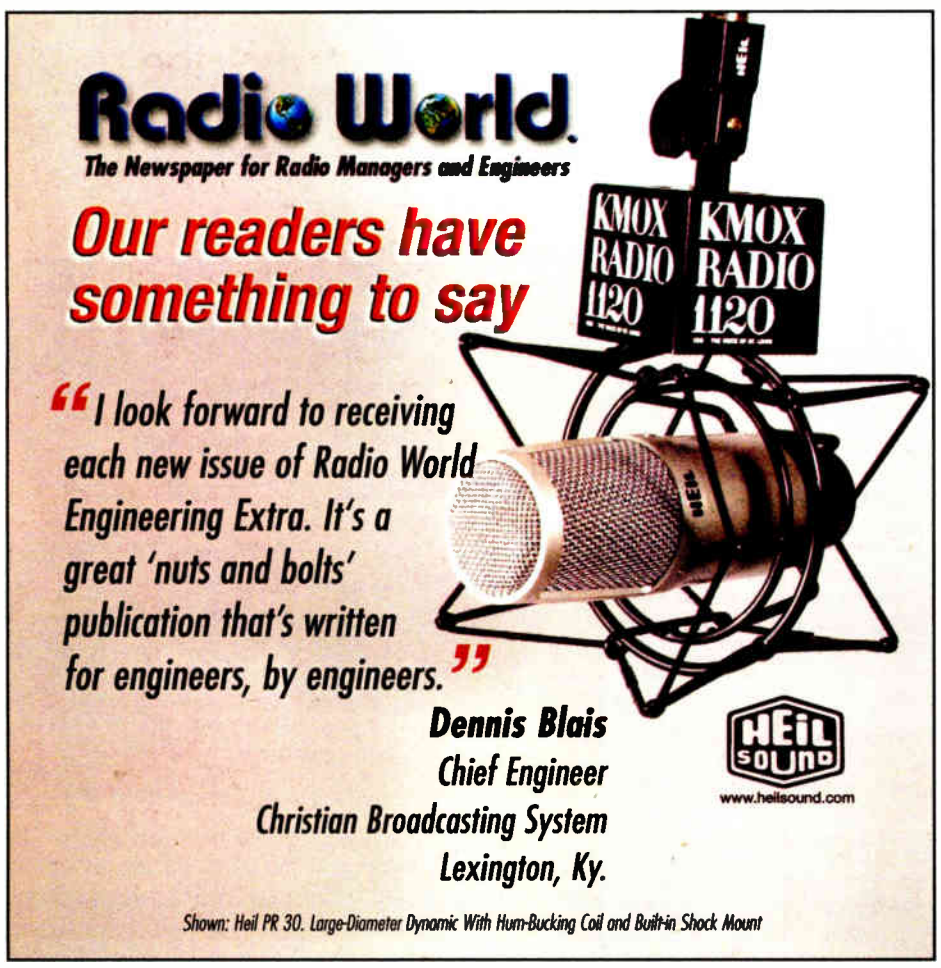

◆READER'S FORUM◆

Take Creative Risks

When I come across a fresh article on programming HD2 ("Now the Hard Part: Programming HD2," Oct. 25) I can't help but chuckle and shake my head. As broadcasters, we have one of the most significant developments to come along in decades at our doorstep. The industry, however, has become so bloated and bureaucratic that it doesn't know how to proceed without holding summits and panel discussions.

I ask you: Was top 40 conceived by committee? Is talk radio a product of industry panels? Sure, every radio format has been refined and monetized by years of applied research tools. But are we, as creative professionals, so devoid of imagination and weary of the risk involved in sparking a new format that we'll suckle the teat of a satellite delivered "format lab" jukebox? Using your HD2 streams for such content implies a lack of faith in the technology, when we should be enthusiastically embracing it and the sandbox for programming originality it provides.

Secondary streams represent an opportunity for additional revenue, community outreach, artistic expression and credibility of a medium that we cannot allow to wither and die by approaching it exclusively as businessmen. This is a chance to explore our wildest ideas about what radio could be. Dive in, head first, into that pool of mixed paint! Yes, targeting your desired demo is paramount. But I just don't see PDs and OMs taking the creative risks they did in this industry's glorious and colorful past.

HD Radio's success rests on our ability to recapture the listener's heart and spirit. To do that, we must begin thinking with ours.

Joe Cassara
Operations Manager
WDNA(FM)
Miami

As a broadcast engineer since 1967, I had the feeling what you put on the air was more important then how it sounded. As a teacher in electronics and information technology for the last 25 years, I interface with many teens.

That said, I wonder why stations think they need the latest audio processor, whether it be an Optimod, a three-band audio processor, Octimax, etc. I never heard anyone say, "WXYZ had a louder, or more dynamic, or cleaner or less dynamic signal." The audience primarily cares about one thing: the content of the programming. Just as fancy graphics won't do much for a poor TV newscast, the quality of your audio is secondary to what you put on the carrier. As long as a station has reasonable audio the focus ought to be on program content.

When I hear my students say, "I listen to WXYZ because they are 3 dB louder, or its noise is –60 dB or I love WXYZ because its frequency response is flatter than the competition," then I might change my mind.

Burt Fisher
South Dennis, Mass.

More Than Music

Thank you for Jim Withers' reality check ("Real-Life Lessons for Would-Be Owners," Sept. 13). Now and then I'll meet a college student majoring in communication who wants to buy a radio station, and this article is perfect. Most of them should just go out and buy a CD player like the author suggests.

Vicki Medina
Senior Affiliate Sales Manager
Dial Global Digital 24/7 Formats
Valencia, Calif.

HD Tuner as Aux Input

I have a very good stereo receiver and speakers, and I'm looking for an HD Radio tuner that could be used as an aux input. I have been unable to find such an item. All I can find are stand-alone table radios.

I think audio manufacturers are passing up a huge market.

Francis J. Hensler
Slippery Rock, Pa.

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World Radio History

◆READER'S FORUM◆

Honoring Maritime Radio

Per *radioworld.com* (RW Online, Nov. 22): "Hams Test Propagation at 500 kHz — While many spectrum users are exploring higher frequencies in the search for increased bandwidth, a group of ham radio operators, operating under an experimental FCC license, are investigating propagation at 500 kHz, just below the U.S. AM broadcast band."

We at KSM are familiar with the amateur project. In fact Fritz Raab, whose long efforts are responsible for the granting of the experimental license, has visited our station (at the site of ex-RCA coast station KPH) to discuss his project.

KSM maintains a watch on 500 Kc during its operating hours, as has been required of all coast stations since 1906. We handle traffic from ships on this frequency as well as our working frequency (426 Kc). We also have frequencies in all of the HF marine bands.

While radio propagation at 500 Kc is a new realm for amateurs, the characteristics of this frequency must surely be the best known of any frequency to commercial marine operators.

While during the day the range is relatively short, at night the signals span oceans. The 500 Kc signals of KSM have been reported in New Zealand, for example.

It was on 500 Kc that operators listened throughout their watch during careers that lasted decades. Normally the conduits of routine marine commerce, these operators would occasionally hear those three most electrifying letters — SOS — through the static. Then they pressed their earphones close to catch every word of the message from a colleague in peril on the sea. Their courage, dedication and skill made the profession one of honor and saved thousands of lives.

While we work closely with Fritz Raab and the operators of the experimental stations operating in the 505-510 Kc segment, and even provide signal reports for these stations, we think that 500 Kc itself should be preserved as an International Heritage Frequency to acknowledge, honor and commemorate the men and women who have dedicated themselves to the profession. Several organizations have joined in the effort to bring this about.

For more information about KSM, visit *www.radiomarine.org*.

For more information about the International Heritage Frequency project, visit *www.roassn.org/*.

Richard Dillman
Chief Operator, KSM
San Francisco

Fair and Balanced?

In the article entitled, "Old Media and the New Generation," (Dec. 6) you made reference to the almost 130,000 public comments to the FCC on media ownership rules. You made it appear as though these comments had been generated solely by a Consumer's Union petition, and that the comments did not come from concerned citizens who feel that our democracy is being undermined by the concentration of media ownership in only a few hands.

What was worse was the fact that you devoted approximately 17 column inches of space to sample comments by opponents of consolidation, and then gave close to 20 column inches to one letter from Clear Channel supporting not only the present unfair and undemocratic rules, but a plea and reasons to *expand* ownership by the conglomerates such as Clear Channel.

Do you call this a balanced editorial point of view?

Robert Simmons
Austin, Texas

Training Opportunities

All the suggestions you received about how to get education for our business are fine, but they gloss over one very important fact (*Reader's Forum*, Aug. 16; "Help! I Have to Train an Engineer!," Nov. 22). You don't really know how to cope with a situation in the real world until you have personally had to deal with it. In another industry, that would be called an apprenticeship, or at least on-the-job training.

Somehow we've all managed to train ourselves with virtually no help from management, just so we could have a career we love.

— Gary Keener

What few opportunities we once had along those lines disappeared along with consolidation. Management has continually blocked me personally from offering any such experiences, even when it wasn't going to cost them anything. "You don't need an assistant," I've been told. Or, "Our insurance doesn't cover non-employees, and we're not hiring you an assistant."

I've also had no luck getting current ownership to allow us to use their premises for laboratory work in a course I want to establish. Broadcasters are determined to stay away from anything that even looks like on-the-job training in their industry. Education is somebody else's job. Compare that to the electricians.

Of course, electricians always seem to have a union. Maybe that's the real issue here for management. Any personal concession made to a technical employee might be taken as an indication that unionization was a possibility. Instead, they have created an environment that is as hostile and unsafe as possible for technical workers. To them, there's no problem because somehow we've all managed to train ourselves with virtually no help from them, just so we could have a career we love.

But the real training has to be done on their premises, with their systems. How do you get access to that without their cooperation?

Gary Keener
San Antonio, Texas

GUEST COMMENTARY

In Defense of IBOC Concerns

HD Radio User Experiences and Test Data Indicate There are Issues With the Service

by Allan A. Augustyn

A guest commentary once lumped myself and other small-market radio engineers together in a group of "IBOC naysayers" who "fear change" (RW, May 24). The challenge is in explaining clearly why many of us are legitimately concerned about IBOC.

The fact is, we have experienced change in the smaller markets as much as the major markets, but on a much smaller scale — and budget. Many of us have had to become "change agents" to simply exist in our present positions. However, as one who has worked in management for more then one large corporation, I can tell you that "change" simply for the sake of change is not good.

Those of us with stations that will remain analog for a long time to come are genuinely concerned about what the IBOC signals are doing to analog signals in the FM band. Clearly the experiences and test data indicate there are issues. They need to be addressed before we end up with a "blended" FM band of aberrations where the consumer becomes turned off and moves further away from terrestrial radio. HD Radio is meant for "retention" of listeners; it would be devastating if it pushed them away instead.

AM IBOC?

At this juncture, it appears AM IBOC will do more harm than good to the AM band. I have heard enough from experienced engineers, test results and a little listening to know the AM IBOC solution is not there yet. It may destroy AM nighttime listening altogether. It may surprise some, but there is a large group of people who still listen to AM at night, both locally as well as the clear-channel AMs.

A large portion of the advertising I hear on my local and distant AMs is targeted nationwide, and yes I do listen to stations in more then just my time zone.

Those of us with stations that will remain analog for a long time to come are genuinely concerned about what the IBOC signals are doing to analog signals in the FM band.

In any case, AM IBOC needs to be corrected before it puts another nail in the coffin.

At 45, I am old enough to know the application of a 12AV6, however, I certainly do not want the inefficiency of vacuum tubes back into my life. At the same time, I like to embrace new technologies when they: operate as intended; are of a value to my customers (listeners); and are cost effective (will eventually pay back the investment).

Right now, it seems FM IBOC is getting real close and AM IBOC is not even close to meeting those criteria. So please do not label others and myself "naysayers" simply because we want a working product before installing it.

Like most of my fellow engineers, my work has shifted from traditional broadcast engineering to about 70 percent computer repair, networking and automation, and maybe 30 percent traditional work. I had to re-invent myself to meet this challenge, and have done so. I am no stranger to change and my contact with other engineers has shown we all have to act as change agents or we will become obsolete. But change in the case of IBOC may be premature.

With IBOC transmitter costs running double or more than those of analog transmitter costs, I doubt we will see IBOC in the smaller to medium markets anytime soon.

On the other hand, maybe one of those large group owners will buy up the stations I work for and tell me I have to install IBOC tomorrow. Oh wait, certain investors have recently decided that bigger is maybe not better in the radio broadcast business. Now I may have to wait for someone else to tell me whether or not to roll back my AM bandwidth.

Allan A. Augustyn is an engineer for Radio Results Network in Escanaba, Mich.

World Radio History

◆READER'S FORUM◆

A Quickly Dying Field?

After reading the recent articles and comments about the lack of trained engineers in the radio business, I have to say stations in general have gotten pretty much what they asked for (*Reader's Forum*, Aug. 16; "Help! I Have to Train an Engineer!," Nov. 22). My attempts over the last few years to find someone willing to train me in the technical aspects of RF, transmitter site maintenance, studio installation, cabling, properly cleaning console fader contacts and so on have gotten nowhere.

Most of the engineers I have met have been nice enough guys, happy to "run out to the tower" for a tour, but they seem to have little interest and time when it comes to anything else. The ones who have let me help them with the occasional task have had little patience with any questions, and seem to guard their experience rather than share it — protectors of some mystical knowledge not to be shared with anyone. Rather, they seem intent on taking this knowledge to the grave.

In my search for a radio "mentor," I have often been referred to some other station, whose engineer passes me on to some other station who passes me on. Several engineers along the way have told me it's no longer a good field to get into, complaining they are doing twice the work these days for half the pay. A lot of stations don't pay their engineering staff anything like a competitive wage, preferring to call in contract engineering firms when troubles arise.

Engineering pay rates and budgets have, of course, pretty much always been seen by station management as money disappearing into the ether, spent on some project at a transmitter site they never see. They are reluctant to pay for work they don't understand, performed by people they perceive as never being at the station, indifferent to the fact that much of that work is done after hours or requires them to be somewhere other than the station.

Then there are the giants like Clear Channel and their ilk, who gobble up stations, reduce the staff to near nothing, slash budgets and pay, suck all the profit out of the community and then provide little-to-no training for an overworked engineering staff.

Clear Channel's revenue is up for the third quarter, which it ascribes in part to an increase in ad rates. So it's increasing rates, raking in plenty of profit, but shows little interest in investing it in training or retaining key engineering staff with pay raises. As a result, though I have always had and interest in radio in most forms, I cannot afford to actually work on the technical side of radio, nor is there any station or engineer interested in training. It appears to be a quickly dying field.

Given this situation, I have to laugh in disbelief when I see statements like the title, "Help! I Have to Train an Engineer!" All I can say to this is, "Duh, what the hell did you expect?!!"

Scott Ensley
Santa Rosa, Calif.

Corrections

Call letters were transposed for one of the stations featured in "LPFMs: We Fill Community Niche," in the Nov. 22 issue. WSCA(LP), Portsmouth, N.H., is operated by Portsmouth Community Radio.

Also in Nov. 22, the final suggestion in the article "Help! I Have to Train an Engineer" was contributed by John Lyons, not John Bisset.

And a photograph from the AES show on page 24 of the Dec. 20 issue was of a panel on audio transport; its placement implied that it was of the digital radio session.

Saggy Tubes

The Gates BC-1T ("Gates Built a 1 kW Classic," Oct. 11) was originally supplied with the 6BG6 audio and RF drivers that were mounted horizontally. As the tubes aged, it was my understanding that they sagged internally, failed and destroyed the circuit board. A modification consisting of a 90 degree socket was introduced, but they still had serious failures. This was when Gates came up with the 807 modification.

As an aside to this, when I was selling for Gates/Harris, I stopped in at WSPT(AM/FM) in Stevens Point, Wis., one day. During my conversation with the chief engineer at the time, I learned his BC-1T was still using the 6BG6 tubes. I strongly suggested he purchase the retrofit board, which he did.

Exactly one week after receiving the board, the 6BG6s flamed. He had the replacement on the shelf, and as a result he had very little down time.

Bob Gorjance
Racine, Wis.

How Far We've Come

Thanks so much for reminding us how young our radio industry really is ("Fessenden: World's First Broadcaster?," Oct. 25).

Whether or not Reginald Fessenden made his Christmas Eve "broadcast," it is remarkable how far we have developed that early and rather modest technology over the past 100 years.

Can anyone even imagine what another century of progress will bring?

Bob Greenlee
Denver

Lynn Cheney

Paul, in reading your article, I felt that Lynn Cheney's retirement marked the end of an era ("Cheney Era Ends at Comrex," Dec. 6). But I'm glad she will be around for at least one more NAB.

I've known her since the early 1980s. At the first NAB show I attended in 1982, there were *very* few women in the equipment-manufacturing world, especially women with any sort of technical knowledge. We certainly stood out in a sea of men. Fortunately, that demographic has changed dramatically over the years.

Lynn has always been competent, knowledgeable and above all, a nice person. I'm pleased to call her a friend.

Elaine Jones
Salt Lake City

Paul, I just read your column on Lynn. She's just one of those people in this industry who really stands out, but in a quiet way. I am so glad you recognized that, as I thought I was the only one who admired her. You've really captured what I've always thought about her, and I'm sure others feel the same.

Dee McVicker
Gilbert, Ariz.

More Letters On Pages 44–45

I Want My Portable HD

One of radio's primary values is its nearly ubiquitous presence, thanks to its broad signal coverage and the inherent portability of its receivers. Thus the complete lack of portable HD Radio receivers to date seems to be a major missing piece in the HD rollout strategy.

We believe this needs to change, and quickly, if the transition to HD Radio is to be successful.

The handheld form factor is increasingly important, with consumers now expecting pocket-sized versions of anything they have on our desks, dashboards or tabletops. (Note that although satellite radio was also initially in-car only, handheld satellite receivers have now been available for about two years.)

For an industry that has been wireless since its inception, the lack of a portable HD receiver appears as a stunning omission in this context.

Of course we recognize the technical challenges involved. All receivers using OFDM technology (as HD Radio does) are notoriously processor-intensive and therefore current-hungry devices, causing severe constraints on their use in battery-powered devices. Meanwhile, AM and FM receivers with extremely low power requirements are widely available, and this differential prohibits manufacturers from simply swapping HD receivers for analog radios in existing portable product lines.

So it appears that new HD receiver designs optimized for portable use from the ground up (both in size and power requirements) are required. From what we hear, this work is under way, and appropriate chipsets may get to market later this year. This implies that we may see the first portable HD receivers on the shelves sometime in 2008, with reasonably priced models possibly available for holiday 2009 buying. Meanwhile, of course, battery technology also continues to improve, and Ibiquity reportedly has put portable receiver development high on its priority list.

All this is good news, but the timing is still worrisome. Portable HD devices need to get to market soon. Without them, the entire HD Radio transition is at risk.

— RW

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Asia/Pacific: Wengong Wang	+86-755-5785161	Fax: +86-755-5785160	e-mail: wwg@imaschina.com

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