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Radio Ownership
 NAB argues that local broad-
 casters need 'a level regulatory
 playing field.'

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The Digital DJ Dance
 A club DJ's tools and techniques
 used to be much the same as a
 radio jock's. Not anymore.

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Radio World

\$2.50 **The Newspaper for Radio Managers and Engineers** **November 22, 2006**

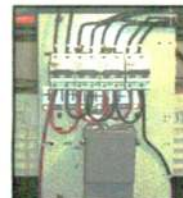
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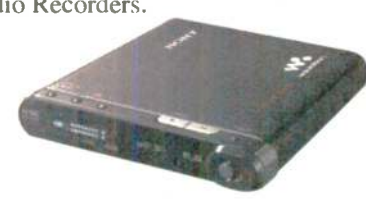
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LPFMs: We Fill Community Niche

by Randy J. Stine

SPOKANE, Wash. Despite the limited reach of their radio signals, hundreds of low-power FM licensees in the country are providing their local communities with important programming thanks to financial support of listeners and tireless efforts of volunteers, LPFM advocates say.

Since the service was launched in 2000, the 100-watt stations have served communities, typically in rural areas, with a variety of music and public service programming. Supporters say many LPFM broadcasters have become community assets even though they operate with limited resources.

See LPFM, page 12 ▶

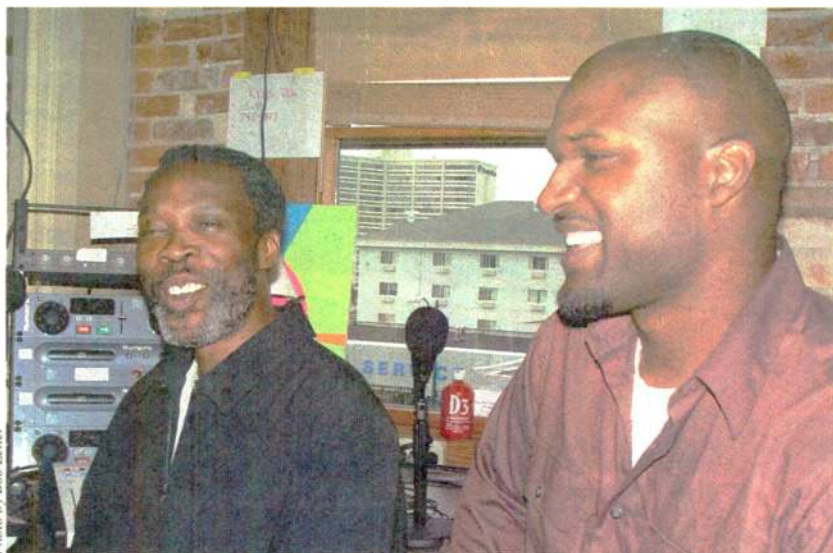


Photo by Bob Zeller

Former Program Director Ibrahim Abdurrahim and 'Gospel Music Hour' host Oşcar Harris at KYRS(LP), Spokane, Wash.

ROOTS OF RADIO

Radio's 'First Voice' Remembered

Historians May Argue Over The Details, But Fans Salute Inventor's Legacy Regardless

by Scott Fybus

A hundred years since the human voice and music were first sent out over the airwaves, broadcasters and historians are rescuing the "world's first broadcaster" from obscurity.

Even within the radio community, the name Reginald Aubrey Fessenden has never carried the same historic connotations as some of the industry's better-known pioneers, such as Marconi, Armstrong and Sarnoff. Yet Fessenden's experiments at the turn of the 20th century bridged the gap between Marconi's code transmissions and the voice and music broadcasts that would quickly become synonymous with "radio," providing crucial early breakthroughs that included the discovery of the heterodyne receiver principle and the invention of the high-frequency alternator.

Though he was born in Canada, Fessenden's seminal work took place on the coast of Massachusetts at an isolated spit of land 30 miles southeast of Boston called Brant Rock, in the town

See FESSENDEN, page 22 ▶

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◆ NEWS WATCH ◆

Industry Ponders Possible Clear Channel Sale

SAN ANTONIO Analysts are pondering the meaning for the radio industry of Clear Channel's acknowledgement that it is entertaining leveraged buyout offers.

Mark Fratrick, vice president of BIA Financial Network, said many radio companies are thinking of strategic changes, and that Clear Channel's decision "speaks to lackluster enthusiasm in (the) radio market and the industry's core revenue history

in recent years. The public market does not perceive the same value the company sees, particularly in radio, thus allowing them to move forward in a more strategic fashion."

Reacting to rumors in October, the big radio group owner confirmed that its board is "is evaluating various strategic alternatives to enhance shareholder value." Its board has retained Goldman, Sachs & Co. as its financial advisor as it sorts through leveraged buyout offers.

Observers including Banc Of America media analyst Jonathan Jacoby and Wachovia Securities analyst Marci Ryvicker believe the Mays family does not intend to give up control of the company. In a research note, Ryvicker said a

partial spin-off of a non-core asset is more realistic.

Clear Channel said in its statement that no sale may result and it doesn't intend to comment further publicly on the matter unless the board approves a deal.

CCR Posts Profit In Q3; Quiet On Buyout

SAN ANTONIO Clear Channel Communications reported third quarter revenues of about \$1.8 billion, a 7 percent

increase from the same period a year ago. However net income slipped to \$185.9 million, from \$205.5 million, which included profit of \$33.6 million from discontinued operations.

The company cited an increase in national ad revenue for the rise in overall revenue.

In the radio division, revenue rose 5 percent in Q3, to \$962.1 million.

Regarding its "Less is More" initiative, the company said the number of 30- and 15-second commercials broadcast as a percent of total minutes sold increased in the third quarter as compared to the same period of 2005.

Strong advertising client categories during quarter were autos, retail and entertainment.

"We are one of the best performing companies in the media industry," stated CEO Mark Mays, Chief Executive Officer. "Our radio division once again outperformed the industry, demonstrating the strength of our brands in connecting with our audiences."

Executives did not discuss the buyout offers they are considering; see previous story.

NPR Asks for Broad FM Mod Recall

WASHINGTON NPR CEO Ken Stern called for a recall of FM modulators that don't meet the FCC's Part 15 emission rules, echoing a call by NAB.

In a letter to FCC Chairman Kevin Martin, Stern said NPR's findings about illegal FM modulators "are alarming" and the illegal devices "have contributed to ...

See NEWSWATCH, page 8 ▶

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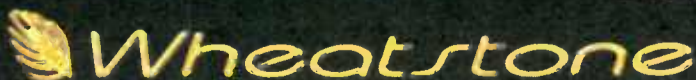
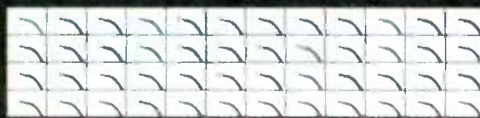
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NAB Seeks 'Equitable' Ownership Limits

Association Says FCC Should Reject Calls For Strict Radio Ownership Limits

WASHINGTON NAB supports continued relaxation of the local radio ownership limits, and maintains that radio has even more competitors from new technologies than it did when the Telecom Act was last revised, and ownership limits lowered, in 1996.

In a 139-page filing submitted to the FCC, NAB urged the commission to approach its review of broadcast ownership regulations "with an eye toward maintaining the vibrancy of the broadcast industry."

The trade group discussed the FCC's 2006 Quadrennial Regulatory Review, the 2002 Biennial Regulatory Review, cross-ownership of broadcast stations and newspapers, local radio ownership limits and the radio market definition.

The FCC's Media Bureau extended the comment and reply deadlines for the broadcast ownership proceeding. Reply comments are due Dec. 21, original comments were due last month.

The following are excerpts from NAB's October filing.

• **Local radio ownership limits:** "The commission must reject calls for stringent ownership restrictions on local radio. Numerous studies have demonstrated that radio programming diversity has continued to increase since Congress opened the door to more efficient and economically viable radio ownership structures in 1996.

"Stations today serve very diverse audiences, including minority groups, with entertainment and informational programming targeted to their needs and interests. Radio stations also clearly operate in an increasingly competitive marketplace and face continuing audience fragmentation such that even market leading stations

must find new ways to earn audience and advertising revenue share.

"Several previous studies moreover found no evidence that post-1996 ownership changes have led to increases in the price of radio advertising or other exercises of market power by station groups.

"Perhaps most interestingly, two empirical studies have concluded that any potential exercise of market power by

'Numerous studies have demonstrated that radio programming diversity has continued to increase since ... 1996.'

radio groups can be countered by the ability of other stations, including smaller groups and individual stations, to gain substantial increases in listening share through programming changes. And, finally, a further NAB study demonstrated that, despite the post-1996 changes in the radio industry, large numbers of radio stations either remain 'standalones,' or are part of local duopolies, in their respective markets.

"In this current competitive marketplace, NAB supports continuing relaxation of the radio ownership rules. Congress adopted the existing numerical station limits in 1996 before the emergence of satellite radio, Internet streaming of radio stations, the development of Internet applications such as podcasting, online music sites, music file-sharing and downloading and the growth of mobile audio technologies such as MP3 players and

even mobile phones.

"XM and Sirius alone now put hundreds of channels of music, news, talk and sports into every local market in the United States, and earn dual revenue streams from subscriber fees and advertisers, all without being subject to comparable ownership restrictions. In the Internet age, every local radio station is potentially competing against thousands of radio stations from around the country or the world, and estimated monthly audiences for Internet radio are over 52 million.

"With satellite radio and a host of mobile gadgets, terrestrial radio stations

groups, the commission should find that a further liberalization of the decade-old radio ownership restrictions would serve the public interest."

• **Radio/newspaper cross-ownership:** "The radio/television cross-ownership rule similarly does nothing to advance the public interest under current marketplace conditions. The rule is no longer needed to ensure diversity in local markets, but in its current form primarily serves to limit radio station ownership arbitrarily.

"With television and radio broadcasters facing unprecedented competition from cable, satellite television and radio, and audio and video Internet applications, a cross-ownership rule applicable only to local radio and television broadcast stations is inequitable and outdated. Particularly if the commission retains the local radio ownership rule and the television duopoly rule in some form, no plausible reason exists to also retain the cross-ownership rule, as any diversity or competition concerns can be addressed more directly by these other local rules."

• **Competition:** "NAB documents, in detail, the audience fragmentation and increasing competition for advertising revenue experienced by broadcast stations, as the result of new entry by cable television, satellite television and radio, numerous Internet video and audio applications, and mobile devices such as MP3 players. To

See OWNERSHIP, page 5 ►

Radio Opens Career Doors

COLLEGE PARK, Md. In a panel discussion on how to use the skills gained in student radio as a stepping stone to other opportunities, alumni from University of Maryland student station WMUC(FM) in College Park said working at the facility in news, music, engineering and other capacities gave them a foundation upon which to build several careers.

Whether it be honing writing skills or learning how to conduct interviews, students were encouraged to make the most of their college station opportunities.

An earlier session focused on making a career in broadcasting.

WMUC alumni planned and participated in the sessions as part of the station's 70th anniversary celebration in October. The station signed on the air with AM service in 1937 using equipment donated by CBS.

— Leslie Stimson



Top: Vince Bruce of Red Zebra Broadcasting, Carl Nathe of the University of Kentucky, Janet Bass of the American Federation of Teachers and attorney Adele Abrams, from left, speak to University of Maryland students about how to parlay radio skills into other careers. Bottom: Pat Anastasi of MSNBC.com, Bob Duckman of WNAV (AM), Annapolis, Md., Max Cacas of Capital News Connection and Lisa Baden of WTOP(AM), Washington, from left, discuss breaking into radio.

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'Help! I Have to Train an Engineer!'

"Thank you for publishing Ron Pesha's excellent article in your Aug. 16 edition," the e-mail began. "His observations prompt me to contact you and inquire of your thoughts about possible solutions to what Ron terms the 'incompetent broadcast engineer' syndrome."

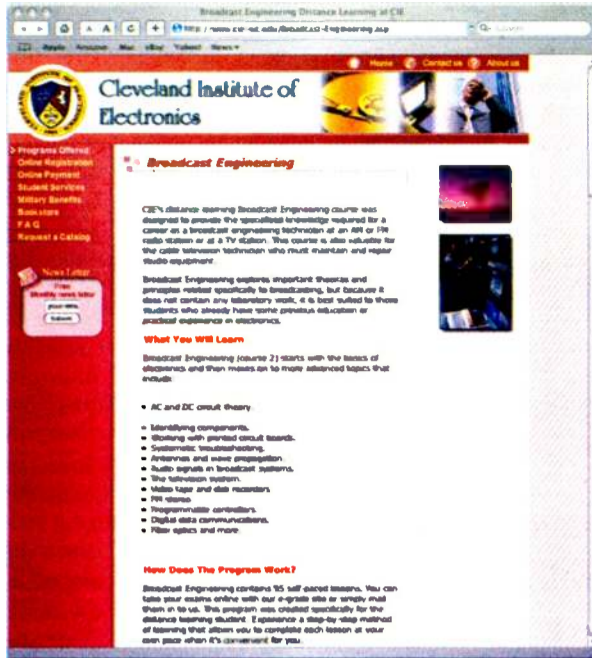
I received this query from a person involved in managing a small FM. He raised a useful question.

The manager hails from an engineering background and has worked in commercial and public radio. The person he has designated as chief operator has maintenance responsibilities that extend into other technical and academic areas. The employee's strongest suit is in IT, though he has some broadcast experience too.

"My desire," the manager tells us, "is to provide a formal technical education of some type for my Operator. His knowledge of both RF and AF is basic and minimal; quite frankly, it's insufficient to the point of being inaccurate. Perhaps Harris or BE could offer training to improve his RF knowledge but I'm uncertain about the opportunities available to him for the formal study of studio-engineering principles and practices.

"Last year I discussed this education situation with the SBE office in Indianapolis. The conversation didn't yield anything beneficial, only a discussion about its test-certification program. The person I spoke with didn't seem to understand that I needed to enhance my Operator's knowledge and not to certify what knowledge he already possessed."

The writer asked if we could help identify resources he hasn't discovered to improve his engineer's knowledge and skill set.



CIE's distance learning Broadcast Engineering course 'was designed to provide the specialized knowledge required for a career as a broadcast engineering technician at an AM or FM radio station or at a TV station.'

I put the question to several Radio World contributors in a round-robin e-mail. Cris Alexander of Crawford Broadcasting commented first.

Online course

"I recommend the Cleveland Institute of Electronics Broadcast Engineering course," he said. "We have put several up-and-coming engineers through this distance learning course with excellent results." Go to www.cie-wc.edu and click on Programs Offered to find Broadcast Engineering.

Buc Fitch replied: "Cris has taken you to one of the few 'formal' sources for broadcast engineering training. Overall, training opportunities in the broadcast engineering arena are lacking primarily because of economics. The count of personnel who would take that training vs. the recovery of the cost is so small and the money available for training is so limited, sources just aren't there.

"I get all sorts of seminar and course offerings for wastewater treatment, construction practices and the law and the like where a two-day seminar is \$1,400. That sort of money may be there in civil engineering but in many stations that's the total engineering budget for a month. Even if the money were of no consequence, freeing the time for training presents problems since most stations use their tech people for all sorts of additional duties, such as production and VO.

"Couple this with the fact that broadcast engineering is essentially a practiced art — and, worse for training concepts, a 'fusion' art — and finding a broad-based topic to gather up a class at a convenient central point is difficult."

So how do broadcast technocrats learn or stay conversant? Buc's suggestions:

- ✓ By reading the trade journals religiously;
- ✓ Sketching out at least 20 minutes a day to read instruction books, textbooks, papers and the like;
- ✓ Attending the tech lectures and presentations at NAB, SBE and state broadcaster events;
- ✓ Attend manufacturers' product schools;
- ✓ Carrying on a lively mutual support system with tech peers and vendors via e-mail and POTS;
- ✓ Take related courses;
- ✓ And spending an occasional day working on OPPs (other peoples' projects) with your "Elmer" or peers.

Buc adds: "This last suggestion may sound unusual; but I had a young 'tool box' carrier travel with me for a day; between the hands-on inspection and review of new gear and systems, and the in-depth discussion about these sites and systems while traveling, he told me that he had never learned so much in such a short period.

"With the substantial reduction in the count of technocrats in broadcasting, the character of our business is now one of individuals working in isolation. One engineer for seven or more stations is

From the Editor



Paul J. McLane

typical. In this circumstance, the admonition of Isaac Asimov is apropos: 'It's what you teach yourself that's most important.'

Basics

RW Engineering Extra Technical Editor Michael LeClair wrote, "It's pretty hard to improve on the list that Buc provided. The NAB in Las Vegas is a good place to get knowledge; it helps to go every year for the immersion. It's a relative bargain for the SBE member registration price of around \$500.

'My desire,' the manager tells us, 'is to provide a formal technical education of some type for my Operator.' Here are several ideas.

"In my personal experience," Michael continued, "the typical BSEE course of study at a four-year university is a nearly ideal background of knowledge for the modern broadcast engineer. It includes electronics, digital circuits, electromagnetics (unfortunately theoretical and not terribly practical, but still a necessary back-

See TRAINING, page 15 ▶

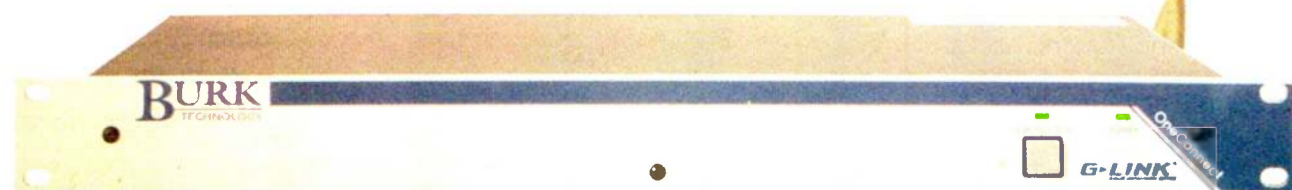
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GUEST COMMENTARY

iPods Are Killing Radio!?

by Lee Abrams

I have three iPods. Great devices. Other than the fact that I erased all 3,000 songs accidentally when I got a new laptop, they are a wonderful technology.

Then all of a sudden I got quite a few e-mails about the announcement [about iPod adapters being installed in more vehicles] as well as seeing a few blogs that spelled the death of radio, both satellite and terrestrial, due to iPods coming into cars.

Putting the denial radar on full, I have to think that the "death" comments are similar to the proclamation that North Korean ICBMs are poised to hit Los Angeles ... soon.

In my opinion, it's a changing world in terms of how you receive audio entertainment. Not a brilliant revelation, but how you process that reality is the key. The new choices are good! Bring it on.

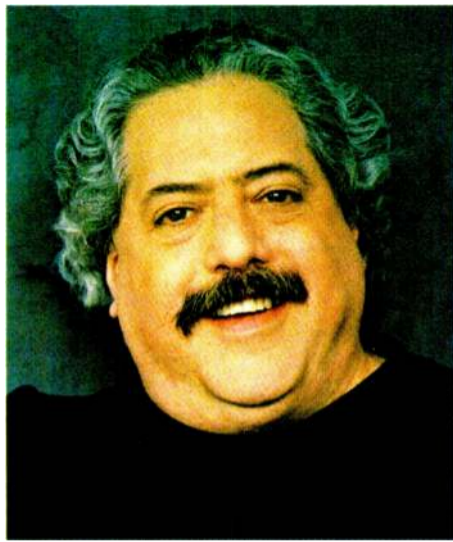
Expand TSL

I can't wait to have an iPod wired into my car. Put it right next to XM, next to terrestrial. More choice. Will I listen to my iPod in the car? Hell yes. Will I listen to XM ... of course ... and I might even pop over to terrestrial too. I think it can *expand* the time-spent-listening to audio entertainment.

One day, maybe Internet radio will be in the car too. Great! I think ya gotta accept that this is all coming and embrace the competition and the new playing field.

XM, and I assume Sirius, are going to continue to be aggressive in bringing satellite into as many ears as possible. It'll drive companies to become more inventive and rethink things. If you look at iPod, they too have challenges, namely attacking the upper-end listeners who were born and raised on vinyl, cassettes and CDs and are confused by things they perceive as complex.

Of course *any* blanket statement is pretty useless today, especially when referencing music. Eighteen-year-olds are wired into the MySpace world; 40-plus Luddites are clueless about downloading; music freaks of any age will go anywhere the music is offered and there are traditionalists who continue to hear music on radio and buy CDs at the big box stores. And that's an overgeneralization, with the point being that there are 300 million-plus North



Lee Abrams

Americans and any blanket statements are, in my opinion, far too general in 2006.

And then there's radio. It's a different experience. The key to radio has been in evolving what comes out of the speakers as much as the technology. In 1970, FM was a superior technology sound-wise, but what made FM happen is the programming.

FM had been around since 1940 but in the 1970s FM attacked the vulnerabilities of AM, which was still paying by the rules of 1956. Same thing now, FM is vulnerable because it's playing by the rules of 1980. When radio gets in sync with the era, it's an experience that I believe will always be a significant part of the listening pie.

Years ago, there was similar talk about when eight-track, cassette and later CD players were integrated into cars. That same "radio is dead" talk.

Radio is resilient. It was given its last rites in 1955 when TV became mainstream. The emergence of these technologies certainly creates a challenge, but media ain't no cakewalk.

Radio not 'dying'

I can't think of any business that changes as fast as media these days. If we were to stay stuck in 1988 — thinking or failing to address our shortcomings — that is a problem, but if we attack the areas we need to attack and actually deliver on what we promise, things will prosper. I can say that about any of the competing technolo-

gies, not just XM.

The technology is sound; the challenge is to maximize it through the speakers and to the public. To say the idea of satellite radio is "dead" because of another excellent technology strikes me as absurd.

We're in an evolutionary world where music listening is changing and expanding ... not dying.

Then we gotta realize that as much as music is key to audio entertainment, news/talk is the number one most-listened-to format in North America. Throw in sports and it further illustrates the vastness of entertainment for the ears. As passionate about music as we are, that isn't the whole picture.

It's easy to get into denial and think we are invulnerable, and it's just as easy to take the sensationalist course and think it's all over. I'm in the middle. Gotta think realistically, put everything on the table — the good, bad and ugly — and think reality.

I believe we're in the second inning of a long "war for ears" game. There's a lot at XM we need to do to stay in sync with the battle. It changes almost daily.

It would be nice if this were 1955 and we just had to fight TV by playing the hit parade of songs. A bit more complex now. Not only for XM, for everyone.

Terrestrial has to worry about satellite. Apple is probably a bit concerned about Microsoft. Then there's Motorola and the phone companies. Satellite worries about

marketing. The point being, it's a changing world and a time for *everyone* to focus on the realities of their business and not "freak out" or buy into the sensationalism.

It's also important to separate the intellectual from the mass market. For example, intellectually FM is dead. In the mass market, FM is very much alive. Practically everyone listens to FM. That doesn't make it good or intellectually stimulating. The goal of course, is to have both the mass market and the intellectual stimulation going — a major challenge, but a critical one. It's all part of the success equation, at least from the creative side.

The age of AM vs. FM is over. Even satellite vs. terrestrial is over. It's infinitely more complex. It's an audio version of the political state of the world. It ain't the U.S. vs. the U.S.S.R. anymore. Simple statements about the state of affairs are too ... simple. Be it world order or music. It's all too complex to throw around "___ is dead" when discussing something that is vibrant and ever-changing.

Radio is a unique experience. A joyful one when done right. iPod is equally cool. Internet is a player. It's *all* good. At the end of the day, assuming you can receive everything with the same clarity, the best content will prevail. I am as confident now as in 1998. And for the music and sports fan: Let the games begin.

Abrams is chief creative officer, programming at XM Satellite Radio; this commentary appeared on his personal blog at leeabrams.blogspot.com and is used with permission.

RW welcomes other points of view.

Ownership

► Continued from page 3

best achieve the commission's goals of a competitive media marketplace that provides lower prices, better service and greater innovation to consumers, the commission should now structure its local ownership rules so that traditional broadcasters and newer programming distributors can all compete on an equitable playing field.

"A level regulatory playing field is particularly urgent, given that local broadcasters' most prominent competitors enjoy dual revenue streams of both subscriber fees and advertising revenues. Broadcasters, of course, are almost solely dependent on advertising, and local stations today must struggle to maintain needed revenues in a vastly more competitive advertising market.

"Any realistic assessment of today's media marketplace leads to the conclusion that competition considerations dictate change in the broadcast ownership rules."

• **Localism:** "(G)iven the relentless competition for audience and advertising shares from the vast array of other media outlets, the real threat today to the extensive locally-oriented service offered by television and radio broadcasters is not the group ownership of stations. Rather, it is the challenge stations face in maintaining their economic viability in a market dominated by consolidated multichannel providers and other competitors. If the commission seeks to maintain a system of viable commercial broadcast stations offering free, over-the-air service to local communities, then stations must be allowed to form efficient and financially sustainable ownership structures."

Comment on this or any story via e-mail to radioworld@imaspub.com.

IBC2006 Gains Ground

by Marguerite Clark

AMSTERDAM, Netherlands Organizers of IBC, the European fall show for broadcasters and new media, want to keep the conference fresh.

To that end, they've created an executive board to "deliver and implement the changes required to keep IBC central and relevant within the international electronic media business for 2007 and beyond," according to a statement.

The main purpose of the board is to maintain the quality of the conference and exhibits, as well as to make certain that activities held during the event are

beneficial to participants, said organizers.

Members of the board include Mike Martin, chairman of the IBC executive management committee; Michael Crimp, director of marketing and business development; Richard Suter, director of operations; and Glenn Robinson, director of finance.

"IBC is responding to the changing media landscape. Over the last four years, IBC has proven itself to be the premier, truly international event, covering all aspects of content creation, management and delivery," said Michael Bunce, chairman of the partnership board, which represents the owners of IBC.



Bunce said the number of visitors and exhibitors at IBC grows each year. "IBC is vital to their business plans," he said, describing the convention as "a unique

event that is owned and run by the industry for the industry."

"However," said Bunce, "it is clear that the rate of change in the industry is increasing and so we have formed this group to ensure we stay ahead."

With the number of visitors for IBC this year reaching 44,808 by the end of the show and with more than 800 exhibitors in the halls of the RAI Exhibition and Congress Center, the 2006 version of the September event reinforced the position of IBC as the main show in Europe for broadcasters and new media professionals, according to organizers.

Themed conferences

IBC is growing its stature as a "must-visit" for professionals interested in the future of electronic media, said Michael Crimp, director of marketing and business development for IBC.



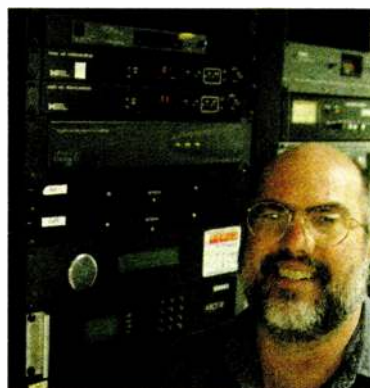
"Logitek's great support helped me get our new studios going."

"When I started working on the new studios for KAXE, I was new to radio engineering so everything was a challenge. To make things even more interesting, KAXE was the first USA installation of the Logitek Mosaic console. Fortunately, Logitek was there for me every step of the way. With help, I successfully integrated two new Mosaic-based studios and the central wiring area with our ENCO system—everything looks and operates great, and our operators love the setup. Our Logitek system has been running at KAXE for over a year now. Our studios complement the wonderful look of our new facility and the Logitek system's flexibility is fantastic."

Dan Houg, *Engineer, KAXE*
Grand Rapids Minnesota



Logitek's Mosaic is a router-based console system that provides the flexibility you need for your facility. Call today to schedule a demo, or visit our website for more information.



IBC is responding to the changing media landscape.

— Michael Bunce

"But more than that, we have been pleased to welcome more and more visitors who are leaders in their field. It is the quality of individual delegates, not just increased volume, that is the IBC hallmark."

"IBC2006 was a great success for us," said Diego Maioli, managing director of Italian company ANT, which produces remote control systems for the broadcast industry.

The IBC2007 conference is scheduled to take place Sept. 6–10, 2007, while the exhibition will run Sept. 7–11.

We'll report digital radio news from this year's IBC in a future issue.




NEWS WATCH

NRSC HD-R Goals Refreshed

The Surround Sound Task Group of the National Radio Systems Committee hopes to have its educational document on 5.1 surround sound ready in January. The document is meant to help stations prepare their plants to broadcast their HD Radio audio in 5.1 surround sound.

Meanwhile the Digital Radio Broadcasting Subcommittee has developed new goals and objectives, now that the digital radio standard is completed. Milford Smith, co-chair of the group said members will continue to keep the digital radio standard, NRSC-5, up to date as the technology matures, including "providing a clear path for the prompt adoption of" HD Radio and ensuring that all HD-R equipment will be suitable for all modes of the digital system.

The AM Subcommittee of the DRB is trying to determine if the standards that define AM bandwidth should be changed. To that end, the group has presented results of a study on the issue. Smith said it's too early to tell if any changes could be made to the AM standard based on the study.


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"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
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➔ 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..."

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

Put Comrex On The Line.

Newswatch

► Continued from page 2

unacceptable degradation of the audio quality of public radio stations" nationwide.

Although while NAB President/CEO David Rehr has several times urged the commission to recall of satellite radio FM modulators that fail Part 15 power limits, NPR has cast a wider net, urging the agency to "conduct a thorough technical review" including iPods and MP3 players.

An FCC official told the Baltimore Sun the NPR request is under review while a CEA official termed the issue of FM modulator interference "a serious issue."

RW reported earlier that in recent tests on two FM modulator frequencies in the Washington market, NPR Labs detected modulators being used in 99 vehicles; of those, it said, 40 percent were operating above legal part 15 emission levels.

Stern notes that its analysis supports an earlier study by NAB and documents that the issue "is a widespread problem."

Rehr Calls for FCC Probe Over Sat STAs

WASHINGTON NAB President/CEO David Rehr has called again for the FCC to investigate the satellite radio companies, citing "alarm" over Sirius and XM's application for special temporary authorizations for terrestrial repeaters that were built and deployed inconsistently with their agency

authorizations. In a letter to FCC Chairman Kevin Martin, Rehr said, "Given the scope of Sirius and XM's wanton disregard" of the FCC rules, the agency should investigate the companies' conduct.

We've reported on XM's repeater request. Sirius recently shut down 11 terrestrial repeaters and asked the FCC for permission to turn them back on. The 11 were either not operating according to their original designations or constructed differently than what was applied for under their STAs, said Sirius in an FCC filing.

Spitzer, CBS Settle Payola

NEW YORK New York Attorney General Eliot Spitzer and CBS Radio reached an agreement over payola allegations.

CBS will institute reforms and pay \$2 million to not-for-profit entities to fund music education, Spitzer's office said. CBS said the deal was not an acknowledgement of wrongdoing but it wanted to put an end to the litigation.

In response, FCC Commissioner Jonathan Adelstein said called the agreement a "breakthrough" and said the settlement should help drive the FCC payola investigation to completion.

The development follows earlier settlements between Spitzer's office and SonyBMG, Warner, Universal and EMI.

Separately, Entercom said a New York State Supreme Court judge allowed Spitzer's payola lawsuit against the broad-

caster to go forward and denied Entercom's motion to dismiss the suit.

Public Radio Groups Share Ford Digital Media Grants

NEW YORK The Nonprofit Finance Fund will receive an initial \$1.2 million grant from the Ford Foundation to provide financial and business management guidance services to NPR, PBS, Public Radio International and eight other organizations.

The recipients are participating in a \$50 million media initiative called Global Perspectives in a Digital Age: Transforming Public Service Media.

In 2005, the Ford Foundation announced a \$50 million commitment over five years to help public media organizations expand international news, public affairs and cultural programming and "reach diverse audiences that can help them attain financial security."

PRI Channel Leaves Sirius

NEW YORK Sirius is no longer airing the Public Radio International channel. The public radio program distributor had its own channel on the satcaster, a relationship begun in 2002 and concluded in September.

In a statement to Radio World, PRI said

that the landscape has changed dramatically since it entered into an agreement with Sirius to provide a full 24/7 PRI channel with a global news focus, the BBC World Service and BBC Mundo. "After careful evaluation, we have made a strategic decision to change our relationship with Sirius," stated PRI.

The company says it will continue to work with the satcaster to provide programming on other channels and will continue providing access to the BBC World Service. PRI still licenses content to XM for the XMPR channel.

Stations Seek PPM Start Dates

The Arbitron Radio Advisory Council, which represents several commercial radio customers, is pushing the audience research firm to release the dates the company plans to deploy PPM in 2007 so stations can begin preparing their employees for the transition from paper diaries to electronic ratings. Council Chairman Bill Kelly said the group would like stations to receive 60 days notice of PPM deployment in any market.

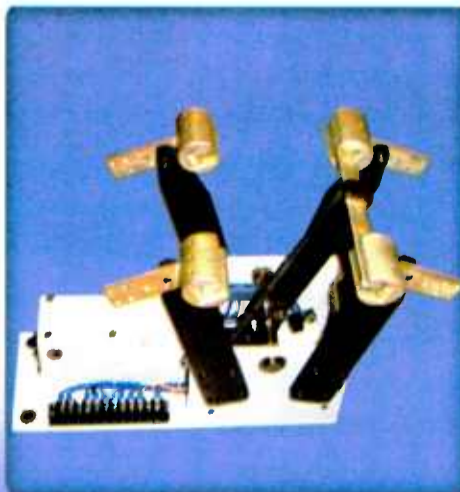
Arbitron has said Philadelphia is scheduled for Jan. 11 deployment and Houston should happen in the same month, while New York and Los Angeles are also expected to go live with the PPM device next year.

For those markets not going PPM by 2008, Arbitron announced diary survey dates for 2008-09 at www.arbitron.com.

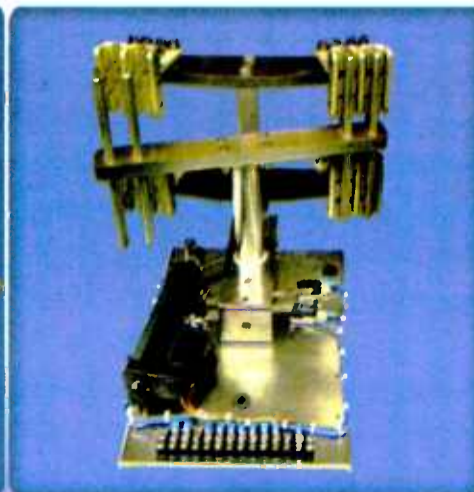
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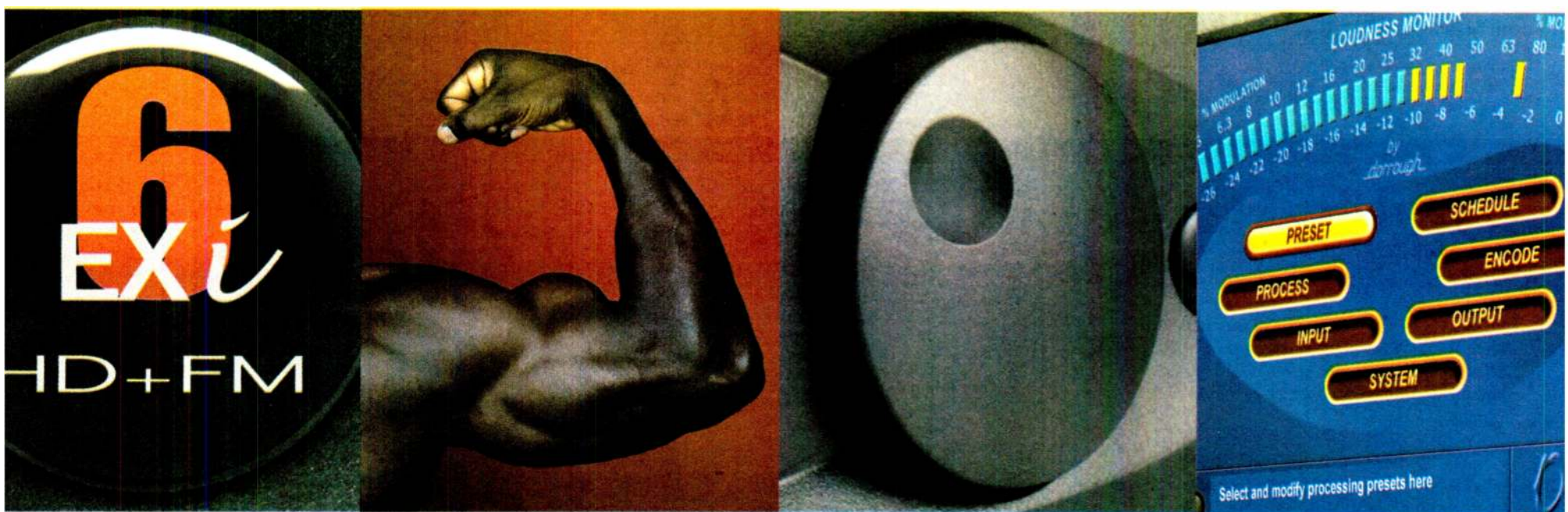
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HD CONVERSION DIGEST

Delay, Air Monitoring Vital to HD-R Listening

by W.C. Alexander

Cris Alexander is director of engineering for Crawford Broadcasting. This is one in a series of tips about HD Radio implementation. The series is archived at radioworld.com.

When a station moves into the HD Radio world, its engineers have to change their thinking about a lot of things. One important consideration is the 8.4-second audio diversity delay that will be added to the analog audio path.

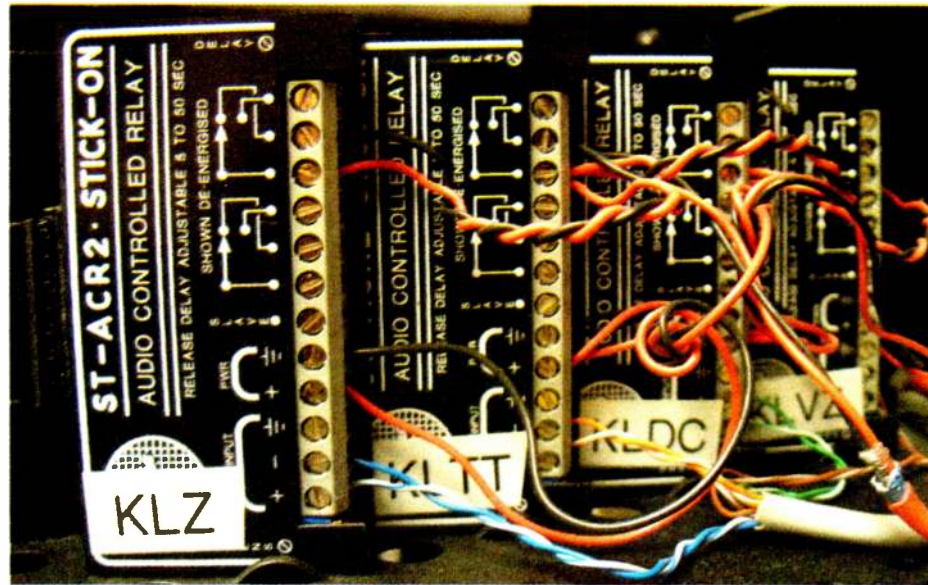
What listeners hear on their radios — and what will be heard on the studio off-air monitor unless remedial steps are taken — will be 8.4 seconds behind real time. That makes real-time off-air monitoring impossible.

Some stations, even big-market FM facilities, simply leave the diversity delay off, figuring that until a certain percentage of listeners are listening to the HD signal, it doesn't matter. That momentarily solves the monitoring problem, but it also creates a big problem for the listeners who do have HD Radio receivers.

Get creative

Fringe-area HD Radio listeners — or core listening area listeners if there are multipath and other signal anomalies within the coverage area — will find the station unlistenable as the "blend to analog" feature of the radio works back and forth between the delayed digital and undelayed analog signals. That's a big tune-out factor and will not help sell IBOC receivers, so it's advisable to get the diversity delay set right from day one, and that means finding a way to monitor in the studio.

Stations that operate profanity delays full-time have likely addressed the issue



A frame of RDL silence sensors used to monitor the actual off-air signal.

already and developed ways to handle the studio monitor issue. Others will have to get creative.

There are two important considerations: providing on-air talent with a processed "air monitor" feed and providing some sort of confidence monitoring.

Some engineers have taken an old audio processor, run a program DA output through it and connected it to the studio headphone feed, switching between a "live" (i.e. "delayed") air monitor feed and the pseudo-air monitor feed from the processor with the monitor mute relay. That works, but it can be confusing to talent when 8.4 seconds "disappear" when they turn the studio mic on.

Perhaps a better option is to provide those two feeds — the live, delayed off-air feed and the pseudo-air monitor feed from the processor on the EXT1 and EXT2 monitor inputs, respectively. The normal

monitor mode would be the pseudo-air monitor feed.

A silence sense unit, available inexpensively from RDL or others, can then be used to monitor the real off-air signal, operating a highly-visible warning light in the studio when more than five seconds of

silence is detected in the live, off-air monitor. When the warning light illuminates, the operator can then punch over to EXT1 and check the live monitor and take remedial action if necessary.

The live monitor should also be used to feed office speakers in the lobby, restrooms and common areas so the station staff can keep an ear on what's really going out over the air.

Some provision for monitoring the HD Radio signal should also be provided, either by means of another external studio monitor input, if available, or a muted HD Radio receiver in the studio. It's a good idea to connect a true HD Radio off-air feed to a separate silence sense detector and warning light to alert operators and engineers that there is a problem with the IBOC audio.

Suggest topics for this series. E-mail to crisa@crawfordbroadcasting.com.

NEWS WATCH

News Roundup

DIGITAL FREEDOM: A group of technology companies, artists, innovators and consumers launched the Digital Freedom campaign at www.digitalfreedom.org. They say the effort is in response to lawsuits filed against technology developers and bills introduced in Congress, such as audio flag legislation, by record labels and movie studios.

HARRIS said its broadcast revenue was up in its first fiscal quarter, mostly the result of three acquisitions. The company said revenue in its Broadcast Communications segment was \$140 million in the quarter, up 59 percent compared to the same period last year, primarily as a result of the addition of Leitch Technology, Optimal Solutions Inc. and Aastra Digital Video.

AIR AMERICA RADIO, the liberal talk and news radio network, filed for Chapter 11 bankruptcy protection. AP reported that the network had denied rumors it would file for bankruptcy, but said in October negotiations with a creditor from the company's early days had broken down.

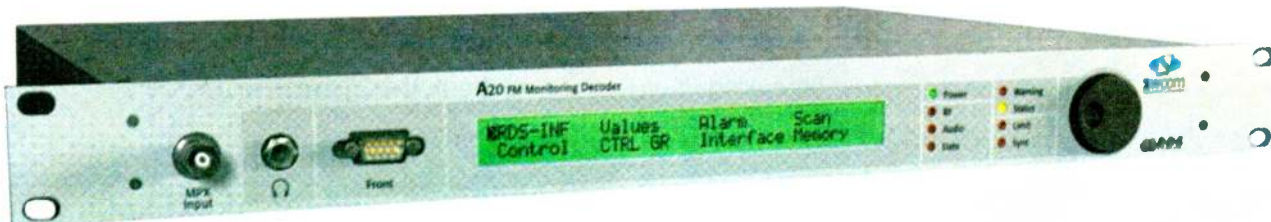
CLAY FREINWALD was seeking leads after learning he'll be out of a job. The corporate engineer for Entercom Seattle's cluster — who was recently elected to a second term as SBE national vice president and is active in EAS organizations — said his Entercom position would be eliminated by the end of the year for budget reasons.

MOTOROLA has added content from public radio organizations NPR, PRI and American Public Media to make available to consumers on its iRadio service. The company says it plans a "full-scale launch" of iRadio early next year and is in consumer and partner trials in several cities.

VOA's new director is news media executive Danforth Austin. He replaces David Jackson, who is returning to the private sector. Austin was chairman/CEO of Ottaway Newspapers, a community media subsidiary of Dow Jones & Co. He also held senior positions with The Wall Street Journal.

VERNON IRVIN is the chief marketing officer for XM Satellite Radio, a new position. XM said the move is part of a restructuring it began in July with the appointment of Nate Davis as new XM president and COO.

CHRISTOPHER GLENN died at age 68, shortly before he was to be inducted into the Radio Hall of Fame. Glenn, who retired from CBS earlier this year, covered the explosion of the shuttle Challenger and anchored the children's TV program "In the News."



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LPFM

► Continued from page 1

"How the LPFM station is run and who runs it is important to its ultimate success just as it is with commercial stations. Some are run better than others," said Pete Tridish, one of the founders of the Prometheus Radio Project, a non-profit resource center that aids LPFM broadcasters launch their stations. Tridish said some stations view themselves as voices for particular segments in their community, while others are more inclusive.

"Ultimately, each station has its own goals and a view of what they consider to be success. These are really community institutions and the successful ones balance the needs of the community with their own goals," Tridish said.

A rulemaking before the FCC, which includes relaxing or possibly expanding LPFM rules by dropping third-adjacent-channel protection for full-service FMs, is pending, said a commission spokeswoman. "We are in the process of reviewing documents received in the docket."

The NAB has filed comments against the possibility of an expanded LPFM service. "We are still concerned that eliminating protections will be a recipe for interference for radio listeners," a NAB spokesman told RW previously.

LPFM advocates believe the FCC should ease interference restrictions to



WCSA(LP) in Portsmouth, N.H., installed a custom, freestanding Dielectric Communications DCR-L Dipole antenna rig. Eastern Communications of Saco, Maine, donated its labor to install the antenna, which is mounted on a weighted base.

allow for low-power FMs in thousands of places that currently do not have them, "mainly more urban areas" Tridish said.

Future growth

Two LPFM broadcasters who responded to queries by Radio World say they are satisfied with their progress and are making plans for growth.

Lupito Flores, station manager and founder of KYRS(LP) in Spokane, Wash.,

said, "To hear people in the community talking about radio with excitement and happy to have a truly community radio station is very gratifying. The community is very involved with (KYRS) and very supportive."

The station, which signed on the air in 2003, has approximately 60 volunteer radio hosts and another 30 people who assist behind the scenes, Flores said.

"The station is very eclectic musically and serves the underserved and unserved populations in the Spokane community. We spotlight diverse cultures and give voices to people normally not heard on commercial radio stations. Everything from Spanish language programming to Native American music," Flores said.

The noncommercial station, operated by non-profit Thin Air Community Radio, broadcasts from studios near downtown

local community," Flores said.

The station airs a variety of programs including a Persian-language hour and is about ready to launch a Russian-language program. "We have inquiries nearly every week from people interested in creating a show. As long as it doesn't duplicate something that is already available locally, we'll give it serious consideration," Flores said.

Bringing in money

The station brings in money through on-air fundraising, benefit concerts and some underwriting. Flores' position is salaried along with that of a part-time program director. The annual operating budget in 2006 is \$100,000, while the projected budget for 2007 is \$120,000.

KYRS's transmitter site is located 10 miles south of Spokane because of contour protection for a commercial station in Sand Point, Idaho, which shares the 95.3 MHz frequency, Flores said. That limited the station's reception near downtown, so in 2005, KYRS began re-transmitting its programming over a 50-watt FM translator at 92.3 MHz, owned by another non-profit group.

Tim Stone, founder and facilities manager for WCSA(LP) in Portsmouth, N.H., calls his station a "true grassroots success." The station, on the air since 2004, originally recruited people interested in community radio with signs around the town of 21,000 residents.

"There were about 15 of us who came together with the thought to start a real open-door radio station with no agenda. We wanted the station to reflect the community, the businesses, the culture, non-profits and so on.

"We had envisioned a musical playground with some news and public affairs, but the amount of public affairs programming we carry now has been very surprising. We have over 20 hours of weekly public affairs programming on the air," Stone said.

Ultimately, each station has its own goals and a view of what they consider to be success.

— Pete Tridish

Spokane, a city of approximately 480,000 ranked by Arbitron as radio market 92.

"We have one small on-air room and a small office which doubles as a production room and the program director's office," Flores said.

The on-air studio is equipped with Macintosh computers that run MegaSeg automation software, Flores said. Approximately 60 percent of KYRS's programming is live and locally produced. The remainder of the program schedule includes automated music and national talk radio programs such as "Democracy Now" and "Free Speech Radio News."

Flores applied for a LPFM license in 2001 and spent the next two years fundraising. He ran an advertisement in the local paper asking for help from people to plan a local community radio station.

"I came from a non-profit background and just grew tired of commercial radio ... the lack of local voices and local content. We raised \$10,000 from donors through various fundraising events to purchase transmission equipment, including a brand-new Bext transmitter. We had donations of computers and other office equipment. It really became a creation of the

WCSA, which is operated by Portsmouth Community Radio, has about 100 volunteers contributing on a weekly basis, Stone said.

The noncommercial station spent most of its startup money — which came from private donations and grants from the Public Telecommunications Facilities Program, the funding program of the National Telecommunications and Information Administration — on its transmission system.

"We went all-out on that because we thought the most important things was for people to be able to hear us. We purchased a new Crown transmitter, a custom monopole and Dielectric single-bay antenna. We were on the air for under \$25,000," Stone said, whose previous radio experience was limited to a stint at his college radio station.

Other broadcast gear includes Shure SM-57 microphones, Denon CD players, Sony MiniDisc recorders, a Marantz flash recorder and a \$499 Sound Design 12-channel stereo mixing board, Stone said. The station, which is automated for up to seven hours a day, uses OtsDJ automation software.

See LPFM, page 14 ►



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K T S, Northwestern University

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— Jeff DePalo, WRTI-FM
Temple University, Philadelphia

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>> Erick Steinberg, KFOG, San Francisco <<

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Norway Strides Down Digital Path

by Lawrie Hallett

OSLO, Norway After introducing what it claims was the first all-digital Eureka-147 DAB station in 1995, Norway is taking what some consider the next logical step: preparing to close existing FM analog networks, both for the public Norsk Rikskringkasting (NRK) stations and for commercial national and local stations.

Bold step

Costs are driving the move. Norway is a large and mountainous country; each network needs several hundred FM transmitters to achieve acceptable national coverage.



Existing FM networks, particularly those operated by NRK, are reaching the end of their useful life. Serving a population of fewer than 4.6 million, Norwegian broadcasters understand that duplicating FM and digital output is costly.

Current thinking is that FM broadcasting in Norway will cease in 2014 with some NRK non-mainstream services becoming digital-only as early as

next year.

At present, the national DAB multiplex network carries both NRK and national commercial services, P4 and Radio 2 Digital. This single-frequency network of DAB transmitters reaches about 70 percent of the population.

In addition, separate regional multiplexes serve some 30 percent of the population, primarily in and around Oslo. The intention is that, by year-end 2007, both the national network and regional multiplexes will together achieve at least 80 percent population coverage.

Approximately 50,000 DAB radios were sold in the country in 2005, according to the group that markets the technolo-

gy. Current estimates are that around 1 million will be sold by 2009, when the Norwegian government is expected to start making final decisions about analog switch-off.

Trial calculations

However, the second national analog commercial network, Kanal 24, broadcasting on FM since 2004, has yet to receive a DAB license.

According to a government report published last December, the national multiplex may have room for Kanal 24 once NRK transfers some of its services to regional multiplexes.

In addition, the fate of numerous small-scale community radio stations operating around the country is unclear. Many operate only on FM and have yet to obtain a digital broadcasting alternative.

According to an autumn 2005 report from the media authority, local radio operators have been given the opportunity to try limited DAB test transmissions. However, the report stated, trial calculations show DAB will be too costly for about 40 percent of local radio channels and that the working group thinks an implementation of Digital Radio Mondiale broadcasting may prove a more cost-effective solution in areas where there are only one or a few radio channels.

Medium-wave shutdown

Changes to NRK AM operations are also already well under way. Its high-power international medium-wave transmitter closed in July. The transmitter was used for a station that aired a mix of NRK national services P1 and P2.

In fact, the termination of Euro-pakanalen is not the first such shutdown of medium-wave services here.

Further north, a 20 kW transmitter
See NORWAY, page 15 ▶

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LPFM

▶ Continued from page 12

WCSA, with an annual operating budget at \$50,000, broadcasts from an old mill building near downtown Portsmouth. Studios include on-air and production rooms, which occupy "what was once a large closet," Stone said. Expansion plans call for a studio upgrade in 2007.

Fundraising, which includes live music benefits, on-air drives and some underwriting, is key to the financial survival of the 100-watt station, Stone said.

"It's remarkable how inexpensively you can operate a radio station when you have to," Stone said. "We do hope to eventually have a budget of \$150,000 and hire a full-time paid manager."

Meanwhile, the station continues to offer a 24/7 schedule of shows ranging from parenting and pet tips to political talk and old-time radio dramas. In fact, the variety of programming can alienate some listeners, but Stone offered an analogy.

"True community radio is really appointment listening. People will complain about the punk music show we have, but I tell people to tune in and listen to what they want. Decide when to listen. It's like the menu at your favorite restaurant. You order what you like even though there are some things on the menu you don't like. Regardless, you keep coming back for more. We're sort of like that," Stone said.

In April, 712 LPFMs were on the air, according to the latest FCC data available. ☺

Training

► Continued from page 4
ground), signal theory and laboratory training. I would recommend this for anyone looking to really get the tools to master broadcast engineering. Any state university should have this as a course of study.

"There is a great program at U-Mass Lowell for electronics technicians and audio engineers. We have a couple of their graduates working with us at WBUR(FM) right now."

Contributor Jim Withers weighed in: "In my experience, about 99 percent of what I needed to know came from my knowledge of basic electronics. There is nothing particularly complicated about

FM modulation, for example. Amplifiers, oscillators, etc., etc. all work based on certain principles that are well known and part of any reasonably complete basic/advanced electronics curriculum. Digital systems, likewise. Sampling rates, compression; these are things that are common to industries other than broadcasting and the principles translate readily.

"For example," Jim continued, "control logic in transmitters is not unique to broadcasting. Anyone familiar with microcontrollers could navigate his or her way through a transmitter control ladder. (Home appliance controllers are about as complicated as the average FM transmitter startup circuit!)

"Knowledge about situations 'unique' to broadcasting (I put that in quotes; there really is nothing unique about

audio/RF in a broadcasting plant) are still handed down from the old guys to the new; I can't think of any way to change that. Some broadcast engineers (including my 'mentor' Robert Shrader in 'Electronic Communications') have written books describing these issues. I still pull out my copy if I come on a problem I haven't addressed for a long time and need a refresher.

"If your reader's guy is competent in electronics design and maintenance, he will be able to translate that knowledge to our chosen field with just a little help from a seasoned broadcast engineer.

"In my experience, the real problem is that most of these young guys grew up on Macs and PCs and just naturally gravitate toward what they know. IT comes naturally; high-powered RF does not. To me,

that's the problem."

And our long-time *Workbench* author John Bisset wrapped up our discussion with this: "In addition to these suggestions, Excelsior College of Albany, N.Y., gives credit to SBE-certified people within their degree programs. Also various SBE chapters hold Ennes Foundation Workshops; these sessions cover broad instructional areas for both TV and radio. Recently they have been in New York, Alabama and Boston. Many colleges and universities have schools of continuing and professional studies, where a person can take a one-day course or a seminar in many, many subjects."

Thanks to the team for their suggestions. Tell us your own ideas for engineering training. Write to me at pmclane@imaspub.com.

Norway

► Continued from page 14
closed down in 2000, and 55 years of analog shortwave broadcasting by NRK ended in December 2003 when an analog transmission site was closed and another transmission site became a digital-only operation.

For the time being, NRK P1 will continue to broadcast on medium-wave from three mainland cities as well as via the 362-meter long wave mast on the island of Ingøy, which covers much of the north of the country from the district of Finnmark.

However, NRK priorities have clearly shifted toward digital program delivery; its Web site heavily promotes both Internet and satellite reception.

Therefore, the life expectancy of remaining NRK AM outlets is almost certainly limited, although it is conceivable that some of the infrastructure could be used for DRM broadcasting.

DRM tests have already taken place from the Ingøy long wave installation, and the Kvitsøy shortwave transmitters are used by transmission-services provider Norkring to rebroadcast BBC World Service "English for Europe" program digitally.

Information gap

NRK is also upgrading its satellite radio and television transmissions. NRK believes satellite radio offers better audio quality, the option of supplementary text and picture information, and an increasingly large installed receiver base.

In June, NRK moved all its satellite output to the Thor II satellite. At least nine radio channels are broadcast via this platform, all unencrypted and available free-to-air.

To fill the information gap caused by the closure of the Europakanalen service, a new weather service for ships at sea is also delivered via satellite, with 24-hour information, updated five times a day.

The previous NRK satellite distribution via the Thor III satellite will end in September.

Like some other public-service broadcasters, NRK embraced the opportunities offered by the Internet. NRK streams each of its services via the Internet in real time, and also provides a "listen-again" archive and a variety of podcasts for time-shifted listening.

While the vast majority of radio listening in Norway is still via FM, the alternatives now available are certain to move rapidly into the mainstream in the coming months and years.



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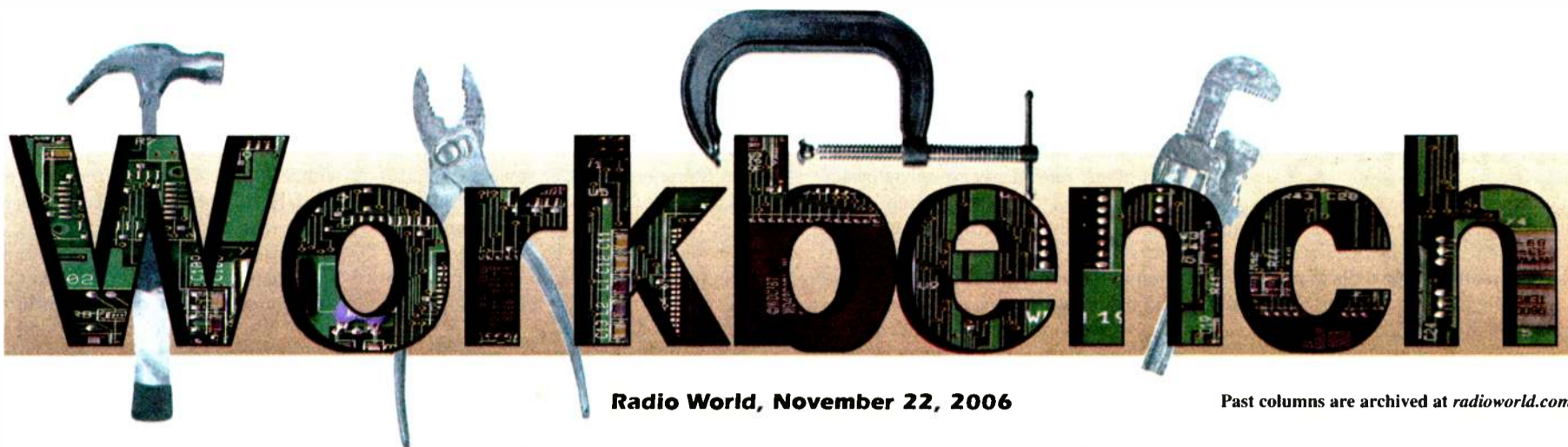
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Radio World, November 22, 2006

Past columns are archived at radioworld.com

Zip Up Annoying Wire Bundles

by John Bisset

Rick Brancadora owns an AM in New Jersey, to which the legendary calls WIBG belong. Rick and his engineering consultant, Ted Schober, had been troubleshooting an intermittent VSWR trip that seemed to be coming from their LPB transmitter. The trip would show up on the remote control, but for no apparent consistent reason. One day it was wet, another dry, one day it was warm; you get the picture.

Nothing made sense, so Rick grabbed a broom handle and started rapping on things. When he got to the equipment rack, his rapping found its way to the relay panel for the Sine Systems Remote Control. Bingo; he had a VSWR alarm appear on the remote control.

Further investigation found that the pluggable screw terminal "Euro" or "Phoenix" connector was not fully inserted on the pins of the relay panel. Apparently this intermittent connection was causing the problem; there was nothing wrong with the transmitter.

He solved the problem by removing and re-inserting the plug. Rick says his plugs seem to come loose when mounted horizontally, but would fall off if positioned vertically. Perhaps some strain relief on the cables would hold the connectors in place.

Caig Labs' Deoxit, a restorative liquid treatment for connectors and contacts, may be another solution. Oxidation building up on push-on connectors can cause all kinds of screwy problems. The Caig product coats the connector pin, cleaning it and minimizing oxidation. Visit www.caig.com.

Deoxit comes in wipes, liquid pens and sprays. The chemical composition actually improves the electrical connection. This is one product no engineer should be without.

Thanks to Rick Brancadora for reminding us that major problems can be caused by the "little things" — and also that a good whack, now and then, may actually point you to the problem.

★ ★ ★

Mike Zeimann is the station manager for WKDN(FM) in Camden, N.J. His tip is a quick formula for converting FM channel numbers to frequencies when you don't

have a cross-reference chart like the one in 73.201 of the FCC Rules and Regulations.

Mike has had this formula sitting in his desk drawer for years and refers to it regularly.

- Subtract 201 from the channel number
- Multiply the result by 0.2
- Add the result to 88.1

For example, let's say the channel is 263:

$$263 - 201 = 62$$

$$62 \times 0.2 = 12.4$$

$$12.4 + 88.1 = 100.5 \text{ MHz}$$

Mike says while you could do the calculations in your head, he uses a calculator.

★ ★ ★

Jeff Twilley, DOE for Delmarva Broadcasting, and his Milford CE Dan Mammone were wrapping up a new studio project recently. From the beginning of the project, they had run 4-inch copper ground strap around the perimeter of the new building that would house the studios. This strap was connected to 10-foot ground rods.

Each studio had a copper pigtail, connected to the perimeter copper strap, and shown in Fig. 1. The console equipment would be connected to this pigtail and centrally grounded.

With the building nearly finished with drywall and paint, imagine their surprise when they arrived at the studios to find each pigtail cut off flush with the wall. A little investigating found that one of the contractor's guys said he understood that he could have all the "scrap" copper when the rooms were finished! With the painting completed, and the rooms "finished," he lopped off each copper pigtail and sold them for scrap.

Talk about misunderstandings. The engineers never said that. I guess the allure of that precious salvage copper was just too great a temptation.

The contractor agreed to remove the molding and cut the drywall, seen in Fig. 2, so Jeff and Dan could silver-solder new copper pigtails. Is copper becoming the new gold? It sure seems that way. Jeff is just glad they didn't "remove" the perimeter copper strap.

★ ★ ★

Fig. 3 is an all too common sight, not only in studios but around desks — even with our entertainment centers at home. AudioSkin to the rescue!

See AUDIOSKIN, page 18 ►



Fig. 1: A copper pigtail for studio grounding



Fig. 2: Access for connecting a new pigtail

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—THE NEW YORK TIMES

"A GEM"
—THE NEW YORK TIMES

"A HOME RUN"
—THE NEW YORK TIMES

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THE NEW WAY OF BUSINESS[™]



E-mail radioworld@imaspub.com with news of recent product purchases, installations or sales.

Harris said its first U.S. sale of the Intraplex NetXpress platform for transport of audio over IP was made to WorldSpace in Silver Spring, Md. The satellite radio provider will install six platforms at uplinks in Maryland, London, Singapore and Bangalore, India. The Walisko Group is assisting with integration.

Separately, Harris said Commonwealth Broadcasting took delivery of three NetWave digital on-air consoles with VistaMax studio audio networking for a facility in Glasgow, Ky. The group is also upgrading its Campbellsville facility with the same complement of digital studio gear. ...

Ascent Media Systems & Technology Services said Worldspace and its partner in Dubai, Samacom, chose it to provide audio facilities that will enable Samacom to launch broadcast operations and uplink services to the AfriStar satellite. Ascent implemented similar systems for satellite radio uplink facilities in London, Johannesburg, Singapore,

Nairobi and China, and also designed and built Worldspace's new Production Operations Center in Silver Spring, Md.

In Dubai, Ascent Media will provide consultation, design, integration, packaging, delivery, installation, documentation and training services for the deployment of the Worldspace routing and monitoring system at the Dubai Broadcast Operations Center. ...

Crawford Broadcast purchased Wheatstone Bridge Routers and Generation-6 control surfaces for its Denver, Detroit and Birmingham clusters. Separately, Hansard Broadcast Services of British Columbia, Canada has taken delivery of a Wheatstone Bridge networked audio system for its Victoria facility. The system comprises two Generation 4 control surfaces and a Bridge digital audio router. ...

Dalet won a contract for an installation involving more than 1,000 workstations at sites in Berlin and Bonn, Germany. Deutsche Welle selected Dalet OpenMedia and Dalet OpenMedia OnAir plug-ins to equip its broadcast newsroom. The system will be used to produce TV and radio programs in 28 languages, Dalet said. Its business partner Thum und Mahr is the prime contractor. ...

Heil PR40 mics are being used by Bravo Mic Communications, which opened a new broadcast facility in Las Cruces, N.M. The company owns oldies KVLC(FM) and new rock station KXPZ(FM). The executive vice president is Mike McKay. Doug Sharp of SCMS made the recommendation.

ENCO Systems said DADtv was installed

in NEP's Supershooter 25 Broadcast Production Truck in support of ESPN's "Monday Night Football" broadcasts. ...

WNHU(FM) at the University of New Haven in West Haven, Conn., chose a Nautel V5d solid-state FM transmitter. ...

WLAD(AM) in Danbury, Conn., purchased a Broadcast Electronics AM-1A with AM stereo earlier this year. ...

Digital Juke Box Software said Texas Farm Bureau Network purchased a license of The Radio Spider software for its network affiliates to simplify downloading of radio programs. ...

Klotz Digital Asia announced an order this year from HT Music in India for new FM stations. The order is for the supply of Vadis routers in the main control rooms for each station and Aeon Digital On-Air consoles for on-air studios. ...

The AudioBitXchange said Nassau Broadcasting station WODE(FM) in Easton, Pa., is the newest affiliate to the audio and production library service. ...

The University of Missouri, St. Louis, earlier this year took delivery of four studios' worth of Axia IP-Audio networking equipment, to be installed at NPR affiliate KWMU(FM), including includes 24-, 20- and 12-position Element modular control surfaces, 25 Axia Audio Nodes, and PathfinderPC Routing Control Software for Windows.

MARKET PLACE

BE Adds Tube HD Radio Transmitters

Broadcast Electronics said it is shipping a new line of tube transmitters for HD Radio, the FMi T Series. It touts the family for its efficiency and power levels for low-level combined operations.

The first unit went on the air at Clear Channel's WGAR(FM) Cleveland, combining analog FM and HD Radio into a single antenna system. Among orders received is a purchase by Cache Valley Radio in Logan, Utah, which ordered three FMi 25Ts for similar configurations.

The series consist of three models, the FMi 17T, 21T and 25T, with up to 25 kW FM+HD Radio operation. The company said the models offer overall efficiency of better than 55 percent.

BE FM 25T, FM 30T and FM 35T transmitters operating as analog FM can be updated for HD Radio operation.

For information contact the company in Illinois at (217) 224-9600 or visit www.bdcast.com.

Audioskin

► Continued from page 16

AudioSkin collects cables and zippers them into a wrapped bundle or snake. What makes the product unique is that the plastic bundling sheath has multiple slots through which individual cables can be routed. Just like a zipper pull, a plastic cable clip is used to open and re-close the bundle (to add or remove cables later).

AudioSkin is available in 5-foot lengths that can interconnect to each other, forming a customized length for your application. In addition to cleaning up computer cabling under desks at the station, this product is ideal for pre-assembling cable runs for remote broadcasts.

An online video shows how simple the AudioSkin is to use. It will amaze you. Perhaps the best part is the price; each 5-foot section has a retail price of only \$16.99. Head to www.audioskin.net.

John Bisset has worked as a chief engineer and contract engineer for 37 years. He is the northeast regional sales manager for Broadcast Electronics.

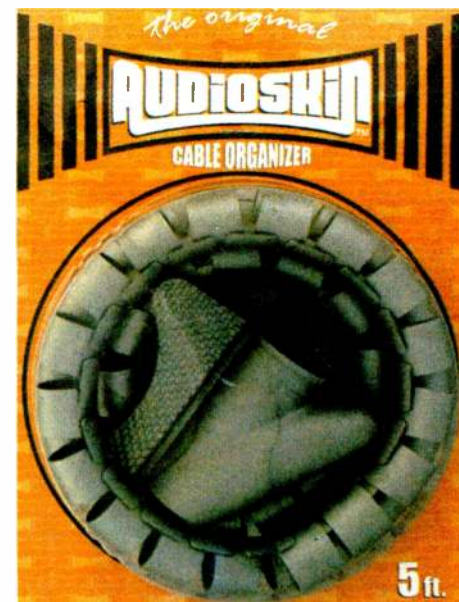


Fig. 4: The slotted plastic sheath 'zippers' around the cables to form an organized bundle.

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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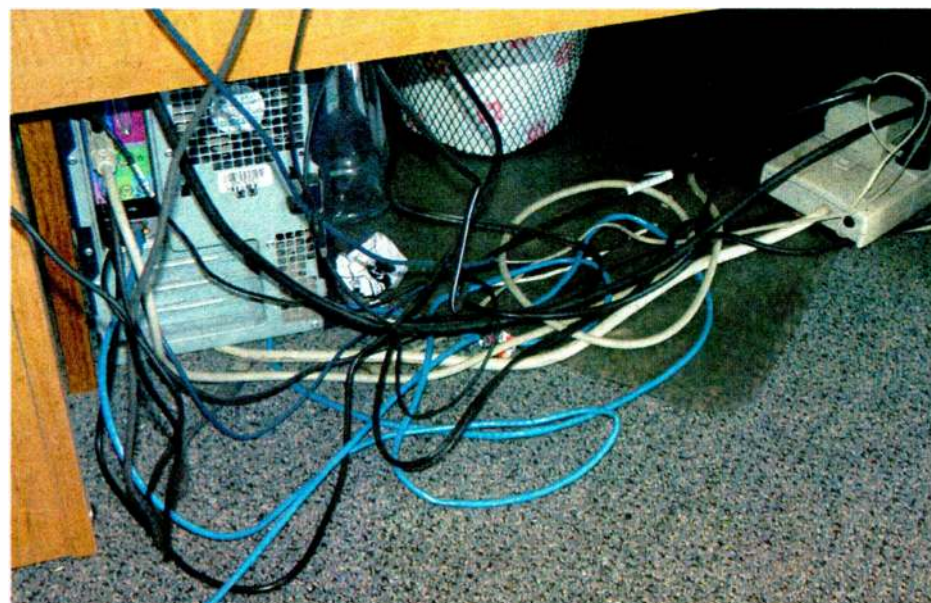


Fig. 3: End the cable mess with AudioSkin.



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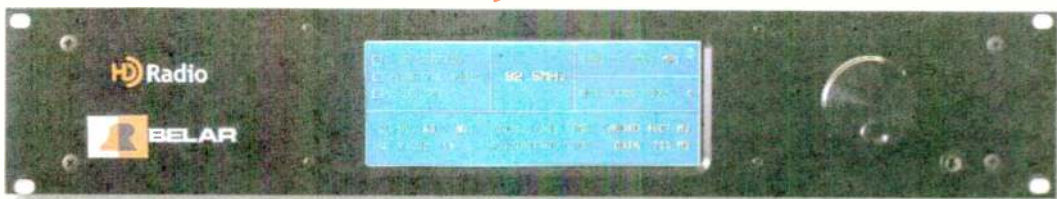
The H-4 also has a 4-track recording mode for easy to use multitrack recording, and it can serve as a USB audio interface allowing direct recording of vocals and instruments to your computer. It comes bundled with Cubase LE software for easy editing, mixing and mastering of your recordings on either Windows or Mac. Cool tripod also included. Get it today from BSW!!

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The FMHD-1 will monitor multiple audio streams, and its 8 user-assignable analog audio outputs and 3 assignable optical AES/EBU outputs provide support for a wide variety of broadcast scenarios.

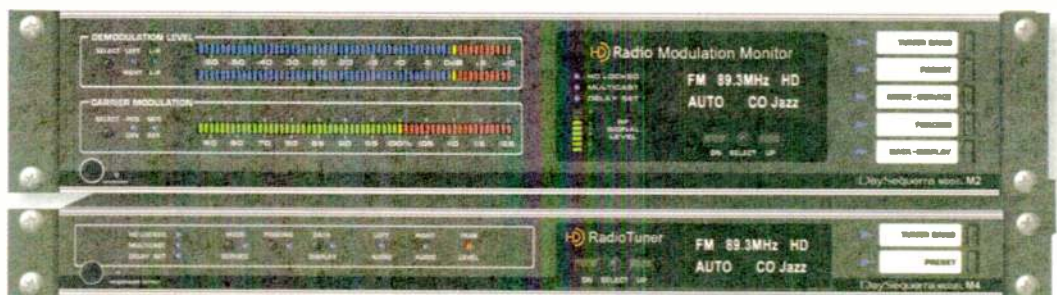
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For AM radio, the new AMHD-1 demodulates analog and digital carriers, displays the RF spectrum and all HD parameters. It features both analog and AES/EBU audio outputs, and has an Ethernet interface for remote operation.

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Day Sequerra also has the downsized M-4, a radio tuner with multicast capability for monitoring analog & digital signals. Details at www.bswusa.com.

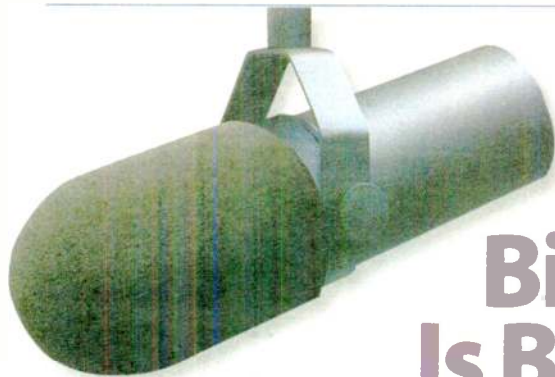
M-2 List \$3,995.00 **LowestPrice@bswusa.com**
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TECH TIPS

The Battery-Powered Radio Station

Author Uses a Big UPS to Solve an Electrical Service Problem at a North Jersey Station

by Tony DeNicola

Thirty years ago, having graduated college with an engineering degree and after attending broadcast school, I took my first radio job spinning records as a weekend DJ at WFMV(FM), located inside a former railroad station in Blairstown, N.J.

The rail line remained active. Every time a freight train passed I would sit at the rotary control board, full of apprehension that a record would skip on the air; and at times one would.

When I arrived at WFMV at age 21 I noticed that the station had no audio lev-

er, will not allow a generator at the transmitter for environmental reasons and because the rough terrain makes it difficult for a fuel truck to travel up the mountain. Access to the top of the 1.5-mile climb requires a Jeep or four-wheel-drive SUV vehicle.

When I joined Clear Channel recently after working in New York City for several stations, my first jobs were to make the four stations sound better and brighter, clean the transmitter sites and give the equipment some TLC.

Only one station of the four had a generator; I'm arranging to have generators installed at two other transmitter sites.



Yes, this is New Jersey. A telephone pole supports the antenna; transmitter building is below. Photo was taken from a nearby fire tower.

eling or compression. The board output was fed into two STL transmitters, one for the left channel and the other for the right; the audio was transmitted via microwave to the transmitter site on a 1,680-foot height called Catfish Mountain in Columbia. At my suggestion the owner had had a compressor installed.

Little did I know that three decades later I'd end up working for the station in its new iteration. WFMV, no longer in a train station, has become WHCY; and I'm back as a chief engineer for Clear Channel, which owns this and three other stations serving a tri-state area and located in the borough of Franklin.

Power problem

In its 30 years of existence the station often would go off the air during bad weather due to downed power lines and trees falling on the electrical wires. Frequently, this caused the station to be off the air for hours, days, even an entire week.

Forestry officials for the state, which owns the land next to a fire lookout tow-

**Now after 30 years
WHCY can stay
on the air during
power failures.**

My big question was what I could do for the company to solve the loss of electric power to WHCY. I thought of solar panels; then said, "Wait a minute, why not a big UPS?" I went to the wonderful world of the Internet, did a Google search and discovered a company called Bomara that made a battery backup supply unit which would give me the backup electricity I would need to run my site.

I spoke with Bob Ravenstein, owner of the company, and found a battery backup unit large enough to run my rack equipment and transmitter. This unit consisted of 40 batteries, each rated 12.7 volt 14.4 amp hours, with an inverter charger unit with an auto bypass to supply 120/240 volts that I needed.

My father and his carpenter friend reinforced the wood building floor to handle the unit's weight of 5,000 pounds. My biggest fear was that the floor would not hold this new unit. Also it was a challenge bringing the unit up the mountain along with batteries; the job required

three trips from the studio to the top of the mountain with two strong guys.

After everything was in place it was time to wire up the four trays of 10 batteries in series and in parallel. I installed the four 20-amp breakers for each tray and also wired in a main 60-amp sub breaker panel I bought at Lowe's. Eventually it was time to hook up the DC output of the inverter/charger unit to the

inverter module in the unit, which was causing the transmitter not to work on battery power at 3 a.m. on a Monday morning. On Tuesday I had a new one delivered; I installed it that afternoon and the unit worked great.

The switching is so fast, like the one you use on your home computer, that you cannot tell if you're on battery power or utility power. The fans in the transmitter do not even change pitch.

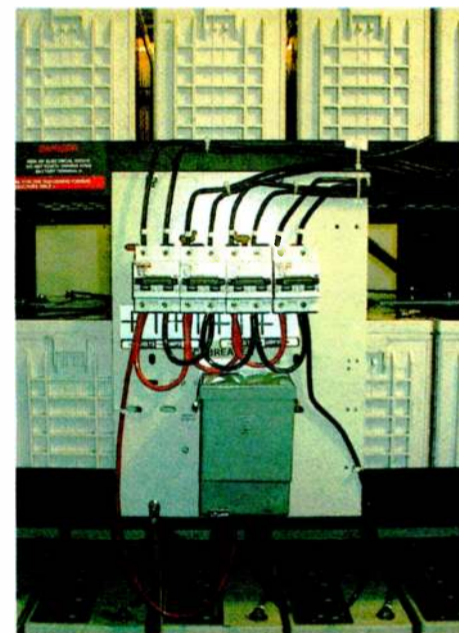
That evening, history was made for WHCY 106.3, the old WFMV. I came back two days later to hook up the status



UPS battery power unit, on left, occupies a space where a Sparta tube transmitter had been. The rack next to it holds STL, remote control and backup exciter; the main Harris transmitter is further right.



The Bomara inverter/charger with the cover off.



Front of the battery unit and closeup of the four breakers, one for each tray of 10 batteries, with a main 60 A breaker.

main battery breaker and turn the unit on to charge the batteries. I took out my trusty Simpson 260 multimeter and pocket RS digital meter, checked each tray of 10 batteries and read 127 DC volts on each tray. With all four in parallel, I now had enough energy — 4 kVA — to run WHCY for about four days.


The manufacturer suggested the unit charge the batteries for two days before testing the unit under a load, so that's what I did: I came back two days later at midnight to shut the station off and wire the unit to the transmitter and rack, which holds my backup 40-watt aux exciter, STL and Burk remote.

With help from Bomara's 24-hour tech service we were able to diagnosis a faulty

lights and meter readings to the Burk remote control unit for auto pilot monitoring, and while there I let the UPS run the transmitter for the day with no problems. Now after 30 years WHCY can stay on the air during power failures.

For their help on the project, my thanks to Bob Ravenstein of Bomara (www.bomara.com), my dad Tony, Dominick Mariano, "Big Andy" Kalipetis and Arty Eisner.

The author is chief engineer of Clear Channel Radio Tri-State New Jersey.

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Fessenden

► Continued from page 1 of Marshfield. Fortunately for Fessenden's legacy, Marshfield is today the home of WATD(FM), the sole broadcast property of Ed Perry, known to friends as one of the most committed community broadcasters in the country.

Recreation

As early as 1991, Perry began restoring Fessenden to the local consciousness, staging a celebration of the 85th anniversary of the Brant Rock broadcasts. But the impending arrival of the 100th anniversary gave Perry the opportunity to do something much bigger, in the form of multiple

where the first trans-Atlantic voice communications were picked up back in 1906.

The August Fessenden weekend also included historic tours, live music and an evening banquet at which the first "Reginald A. Fessenden Broadcasting Award" was presented to Gary LaPierre, veteran morning news anchor at Boston's WBZ.

Symposium

That, however, was only act one in the Fessenden centennial celebration. On Oct. 7, Marshfield's Isaac Winslow House was the setting for the next piece of the party, a daylong symposium on Fessenden's life and legacy.

Marc Jacques of the Canadian consulate in Boston discussed Fessenden's early years north of the border, which ended

Whether or not historical research supports the Christmas Eve legend, Perry says the story is simply too good to pass up; and so on Dec. 24, WATD will be broadcasting live from the Fessenden tower site.

celebrations that will culminate on Christmas Eve with a recreation of Fessenden's first broadcast.

"Fessenden-fest" in Marshfield began in August, when WATD staged a daylong remote broadcast from the Daniel Webster Estate. Guests included David Wolfe, son of Fessenden's patent attorney; veteran Boston broadcaster Fred B. Cole, now 91; Canadian historian and journalism professor Len Arminio; and several of Perry's counterparts in community station ownership around New England. Checking in by telephone from the coast of Scotland was Duncan MacGregor, GM3TNT, one of several hams working on preserving the Fessenden legacy at the site of his receiving station in Machrihanish, Scotland,

when he was turned down for a professor position at Montreal's McGill University. That turned out to be a stroke of luck for the future of broadcasting, since it propelled Fessenden south to New Jersey and the laboratories of Thomas Edison, where he earned the respect of the legendary inventor and gained exposure to the cutting edge of electrical technology, circa 1890.

After a stint at the University of Pittsburgh, Fessenden ended up in the employ of a new company called the National Electric Signaling Company (NESCO), which funded Fessenden's 400-foot towers and transmitting equipment at Brant Rock.

There's no doubt that by 1906, Fessenden was successfully using a rotary



Ed Perry at a base from Fessenden's Brant Rock towers, located in what is now an RV park.



Fessenden's towers used an array of smaller insulators, rather than the large style now found at AM sites.



Station owners Barry Lunderville, Marshall Sanft, Dennis Jackson and Ed Perry, from left, share the mic.

spark-gap transmitter (the antecedent of the high-frequency alternator that Fessenden and General Electric's Ernst F.W. Alexanderson developed) to transmit audio over a crude facsimile of a continuous wave. With the arrival of one of Alexanderson's first working alternators that December, the stage was set for those historic "first broadcasts."

At the October seminar, broadcast historian Donna Halper of Emerson College cast some doubt on the story that's been passed down through history, the story that the very first broadcast took place on

Christmas Eve 1906, with Fessenden reading bible passages and playing "O Holy Night" on his violin.

Fessenden never spoke of a Christmas Eve broadcast at the time and only mentioned it once, in a 1932 letter just before his death. If such a broadcast did happen, Halper says, it may well have been a bit of holiday fun amidst more serious experiments and demonstration broadcasts that took place, fully documented, on other dates in December. It's entirely possible, she suggests, that the shipboard radio oper-

See FESSENDEN, page 24 ►

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The Ballad of Depot Town Radio

by James Careless

From December 2005 to April 2006, "Depot Town Radio" serenaded the residents of Ypsilanti, Mich., on 89.5 MHz.

Taking its nickname from that of the town, it was operated by Mike Crutchfield, who also worked weekends at talk station WAAM(AM) in Ann Arbor; his wife Laura; and former WSDS(AM) DJ John Petelka. The studios were in the Crutchfields' basement, its antenna was on a flagpole in their back yard.

But Depot Town Radio didn't have a license.

Frustrated

"We wanted to do community radio in Ypsilanti, and had applied for a low-power license a couple of times without even getting a response from the FCC," Crutchfield said.

"Eventually we got frustrated and decided, 'Let's just try it at 10 watts, and see what happens.' We won't do anything political derogatory or political; we'll just talk about what's happening in the community and play some music."

"We knew it was illegal, but we did our homework," Crutchfield added. "We learned that, typically, if you get caught and you are cooperative, you just receive a warning, in pirate terms a 'bow shot.' We felt the effort was worth the risk because the community really needed what we had to provide, and that was substantiated by the community's reaction when we were shut down."

Using a 12-channel Mackie board, "a couple of CD changers and a turntable," an RVR TEX-150 LCD transmitter and a Ramsey 58 dipole antenna attached to a flagpole on a second-floor deck, Depot Town Radio pumped out signal to nearby residents and businesses. Crutchfield boosted the station's power to 100 watts in January.

According to The Echo Online, a Web site run by students at Eastern Michigan University, the pirate was much loved by retailers in the Cross



The flagpole-mounted antenna.

Street region of town. Depot Town Radio "played songs that I hadn't heard in a long time," Silver Spoon antique store employee Karen Bower said. As well, she told the Echo it "was fun hearing about my neighbors."

Not everyone was pleased.

In April, working at the board, Mike Crutchfield looked outside to see "two very official people looking up at my flagpole; one was carrying one of those aluminum briefcases."

Correctly deducing that the commission had arrived, Crutchfield said he took pains to invite them in. After "a very cordial conversation," the FCC agents told him to shut down the unlicensed broadcast. He says he did so immediately.

"We subsequently received a warning letter and nothing else happened," Crutchfield said. "That was it. Later on I accepted an avionics job in California and moved away."

Asked for the commission's account of events, a spokesperson declined to comment on the enforcement action without a Freedom of Information Act request

being filed. At press time a reply to that request had not been received.

Listener complaints

Who reported the pirate to the FCC? Crutchfield "strongly suspects" local NPR affiliate WEMU, licensed to Eastern Michigan University. He said the owner of a local restaurant overheard a conversation "between some folks from WEMU management and their friends," he said. "When the bar owners inquired about their excitement, the patrons boasted of turning in a local pirate radio station broadcasting on 89.5 to the FCC. They even talked about how they alluded to the FCC of an interference issue on 89.9 CBC, so they wouldn't be considered as the ones turning us in."

We knew it was illegal, but we did our homework.

— Mike Crutchfield

WEMU Music Director Linda Yohn said, "We were not the 'big bad meanie' who turned the local pirate station into the FCC. We had nothing to do with it." Yohn attributes the busting of Depot Town Radio to "concerned listeners who called us in Ypsilanti, wondering what was causing interference with our signal at 89.1 and CBC2's classical music service at 89.9 FM across the river in Windsor,

Ontario. This latter group lives close to the location of Depot Town Radio's transmitter and could not receive their favorite classical music station.


"We told all of these people to contact the FCC with their complaints," Yohn said. "I suspect that the CBC2 listeners had a lot with the FCC taking action, because there were lots of them who called us as the local Ypsilanti station, trying to find out what was going on."

WEMU did its own investigation into Depot Town's 100-watt interference with WEMU's 16,000 watt signal. "Initially, we began to wonder why we were sounding so fuzzy and why we were suffering from multipath in some areas of town," Yohn said. "If you hit the 'Search' function on your car radio, you'd come across this station playing Patsy Cline at 89.5, and you'd ask yourself, 'Who the heck is that?'"

When it comes to Depot Town Radio, WEMU or anyone who wants to broadcast on the public airwaves, the rule of thumb is to follow the rules, Yohn said.

"If you want to do radio, then pay the bucks and get your license. There's plenty of opportunities to do low-power FM if you want to; but whatever you do, play by the rules that we and every other U.S. broadcaster has to. After all, even the smallest of Webcasters have to report their music activities to the RIAA. If they can play by the rules, why shouldn't everyone else?"

Another station in Ypsilanti, WDEO (AM), did not respond to a request for comment for this story.

Crutchfield, now working in the defense industry in California, says he's eyeing Webcasting as a means of reviving his station. "Who knows? We may even keep the Depot Town Radio handle, because it's kind of cool," he said. "On the Internet, we can go worldwide, which means we could reach the friends we used to serve in Ypsilanti." 

Fessenden

► Continued from page 22

ators who heard Fessenden's broadcasts may even have been annoyed at the interruption to the Morse Code weather transmissions they were listening for, rather than amazed at the magical sounds in their headphones, as the legend says. (Also see "Fessenden: World's First Broadcaster?" in the Oct. 25 RW.)

RV park

The October seminar included talks on broadcasting history by Boston University journalism professor Nick Mills; and I spoke about the few remaining physical artifacts of the earliest radio transmitter facilities that are still standing.


That includes the base of Fessenden's Brant Rock tower, which sat on a sandwich of concrete slabs and small ceramic insulators. Today, the concrete is cracked and crumbling and many of the insulators are broken, and the base sits incongruously in the middle of what's now an RV park by the shore, with only a small plaque telling its story. (Only in the last few years have historians identified two houses nearby as having been built for Fessenden's staffers. They've also tentatively identified a small shed as an early transmitter shack.)

Acts 3 and 4 of the Fessenden revival will take place in December. Whether or not historical research supports the Christmas Eve legend, Perry says the story

is simply too good to pass up; and so on Dec. 24, WATD will be broadcasting live from the Fessenden tower site, presenting a recreation of the 1906 transmission. In one concession to 2006 listening habits, Perry says the recreation will take place early in the day, rather than late at night.

A few days later, the hams will take center stage, as MacGregor and his colleagues in Scotland set up a station at the original Fessenden site in Machrihanish, using the special-event call GB1FVT ("First Voice Transmission"). At the same time, a team led by Steve Barreres, K2CX (whose day job is with ABC in New York) will set up at Brant Rock under the special-event call W100BO/W1F ("100" for the centennial, and "BO" for the calls Fessenden used at Brant Rock).

The Dec. 29-30 event will culminate a year of Fessenden celebrations in the amateur radio community, where the American Radio Relay League has been promoting the centennial with the "Hello" campaign, commemorating the first word Fessenden supposedly said over the air in an early voice experiment in 1900.

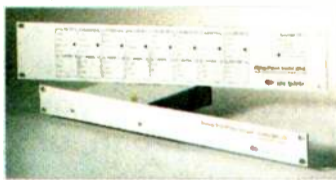
The final word, perhaps, comes from Machrihanish, where MacGregor and other local Fessenden buffs have also been taking the story of "Radio's First Voice" into the local elementary school. Students there have been studying the Fessenden story and corresponding with pen pals "across the pond" in Marshfield. Is it too much to hope that some of them will be active in the Fessenden sesquicentennial, half a century from now? 



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Doing the Digital DJ Dance

A Club DJ's Tools and Techniques Used to Be Much the Same As a Radio DJ's. Not Anymore

by Skip Pizzi

Anyone from the radio business who's noticed that a dance club lately may have noticed that the equipment used by the DJs looks pretty unfamiliar. Back in the day (i.e., through the 1990s) radio and club DJs' work was relatively interchangeable (other than the choice of music, perhaps), but this is no longer the case. Over the past several years, the art and tech of the club DJ has made significant departures from radio DJ work.

Of course, most radio DJs now work almost completely by computer, in many cases preparing shows offline, and allowing an automation system to assemble the program at play-out time. But this isn't where the real difference lies. Club DJ work remains more manual, visceral and real-time, but digital technology has also been implemented there. It is just how digital systems have been developed and implemented in the club DJ space that creates some fascinating divergences.

The compact DJ

There are two main classes of new technology that have been developed for the club DJ world, and many of the top clubs and DJs use one or both today.

The first is generically referred to as the "CDJ," for a class of CD players designed specifically for club DJs by Pioneer, which markets the line with various model numbers after the common CDJ-prefix. (Pioneer refers to this

(forward or reverse) on command, either as a single play or a continuous loop. The samplers can play independently or together through an on-board mixer, and can be mixed with real-time audio coming from the CD. The latest units also support MP3 file playback from CDs.

Le Club Computer

The other new digital technology used in the club DJ space is, like most of radio today, computer-based audio,

but with a twist — literally. Music cuts are stored on a PC (typically a laptop) hard drive, and viewed or selected via a directory, as with radio automation systems, but in this case the PC audio application accepts transport control input for the audio files from peripheral devices. Those devices are a pair of CD players or analog turntables (or one of each), connected to the PC through an outboard USB hardware interface box.

The system comes with several CDs and vinyl LPs, which are pressed throughout with a continuous sync signal. Any variation in pitch from the sync signal's nominal frequency is interpreted by the PC as a control sig-

The Big Picture



Photo: Gary Hayes, BBC

by Skip Pizzi

nal, in which case the audio playing from the hard drive at that moment (again, loaded into a large RAM buffer)

See DJ, page 26 ▶

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DJ

► Continued from page 25

is played out — backwards or forwards, fast or slow, in accordance with the movement of the LP or CD with the control track. Two separate audio files can be played (or cued) simultaneously, with one control disc assigned to each. On the latest incarnations of these systems, the correspondence of the discs' movements to the PC audio files is so precise that experienced DJs say they typically forget that the audio they're hearing isn't actually pressed on the discs they're manipulating.

When using these systems, the DJs never need change the LPs or CDs (unless they wear out or get damaged),

and they can drop the stylus (or laser pickup) anywhere on the discs and hit play to establish manual transport control of the assigned PC audio file. The selected music plays from the PC hard drive as it exists in the original file until the control signal from the CD player or turntable tells it to do otherwise.

Another obvious advantage of this system is its compactness and convenience of access to a large library of music. These systems typically accommodate a variety of compressed or uncompressed audio file formats, so all the music a DJ might need can be preloaded into a laptop, with every cut available via a quick scan of the directory, or a search by artist, title, album, genre or whatever — yet still controllable as if the tunes were spinning on palpable, removable media.



Pioneer's CDJ-1000

The system that seems to be most in favor among the DJ culture today comes from a New Zealand company called Serato, which markets its popular Serato Scratch Live system via exclusive license to Seattle-based Rane Corp. (Rane produces the USB hardware interface device mentioned above for Serato Scratch Live.) The system runs on PC or Mac, and supports a range of audio coding formats. Other similar systems are Stanton's Finalscratch, Alcatech's Digiscratch and PCDJ's Scratch.

Geeks need love too

For old school radio jocks, watching a skilled contemporary club DJ use either of these systems is really fun. The choreography involved with the CDJ operation is a kind of digital ballet, and watching the PC screen display respond to the movements of an old Technics turntable is very cool.

One system shows a simulated virtual view of the record groove flying past the stylus.

XM Satellite Radio
WOR, Buckley Broadcasting
WCBS, Infinity Broadcasting
Radio Free Europe/Radio Liberty
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One current system shows an animated graphic that simulates a virtual view of the record groove flying past the stylus, with the audio file's waveform cut into to the groove walls, and moving backwards and forwards past the style cursor as the control disc spins. All of the systems show some kind of visual waveform display, but because the entire audio file is on the PC (and is partially preloaded into a RAM buffer), the display shows audio data in both temporal directions around the stylus. The displays typically show a graphical representation of the turntables' or CD players' rotation, as well, creating a neat visual hybrid of the digital audio data file and its mechanical control via the peripheral device.

So next time a colleague drags you along to the hippest dance club in town, at least you'll know that while he or she is out on the dance floor or schmoozing the hotties, you'll have something interesting to check out too.

Skip Pizzi is contributing editor of Radio World.



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Cox Radio appointed Steve Crumbley to operations manager of WHZT(FM). He had been operations manager and program director of sister station WJMZ(FM).

Former Air America President Gary Krantz was appointed chief digital media officer at Westwood One, a new position.

NRG Media appointed Kurt Luchs as general manager of its Waitt Radio Networks operations based in Omaha, Neb. He had been vice president/general manager of the American Comedy Network.

Salem Communications named Dave Armstrong vice president and general manager of KCBQ(AM) and KPRZ(AM). He had been vice president and general manager of Salem's New York cluster. M. Susan Lucchesi was appointed general manager of the New York stations, WMCA(AM) and WWDJ(AM).

Ronald J. Gordon was elected as the new president of the Independent Spanish Broadcasters Association. He is the founder and shareholder of ZGS Communications Inc., a Hispanic-owned Spanish-language communications company with interest in television and radio stations.

MARKET PLACE

OMT Offers Customer Service Application

OMT said it has added a Web-based access application to provide added customer service. It's called iMediaPowerSupport system.

The online application supplements the company's telephone and on-site support. The company said subscribers to its support plans will have the ability to easily check the status of software updates, download new versions, volunteer for beta testing opportunities, and access an online knowledge base of iMediaTouch and iMediaLogger-related products. iMediaTouch is a suite of audio content management and digital delivery software for broadcast radio applications.

Visit www.imediatouch.com/support_powersupport.html.



Gary Krantz

D.A.V.I.D. Systems President Richard Doll left the company to work in out-located management at Novell, headquartered near Boston. Doll had been with the radio audio management supplier since 2003. Earlier he had established a U.S. presence for IMS - InterMedia Solutions Inc.

Sennheiser promoted Dan Radin to product manager for Neumann, Klein + Hummel Studio Products and HHB. He had previously been in the marketing communications department. Prior to Sennheiser, Radin received a Bachelor of Music degree from the Berklee College of Music Business/Management.



Dan Radin

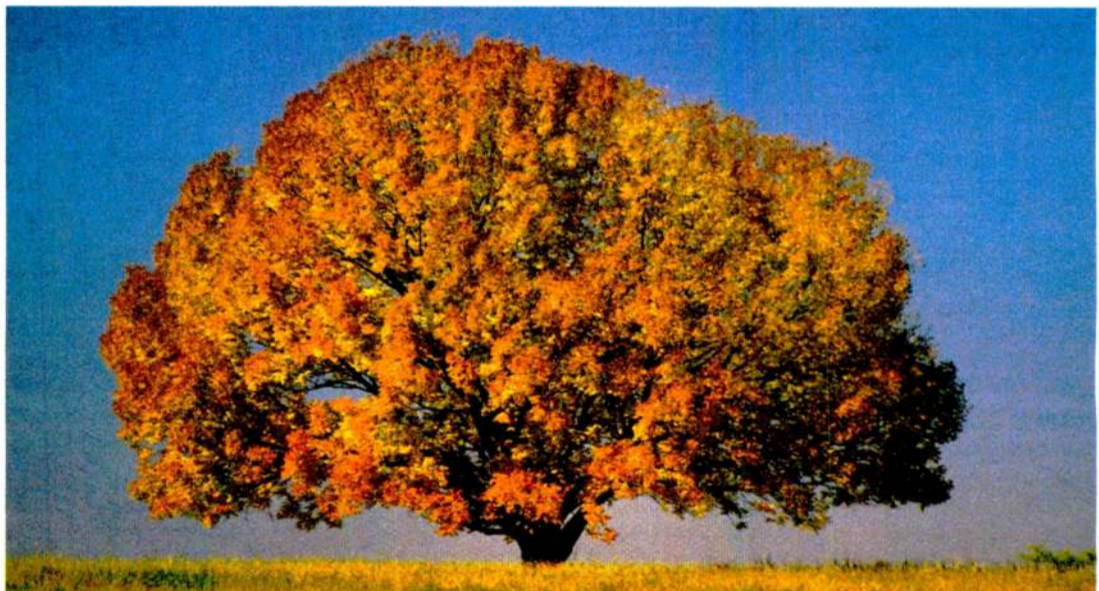
Sherwin Siy joined Public Knowledge as staff attorney and director of PK's Global Knowledge Initiative. He previously had been an Internet Public Interest Opportunities Program Fellowship Staff Counsel.

Country Radio Broadcasters Inc.

announced the inductees for the Country Music DJ Hall of Fame and Country Music DJ Hall of Fame. Larry Daniels, Bob Moody and Les Acree will be inducted into the Country Music Radio Hall of Fame. Joe Ladd and Big John Trimble will be inducted into the Country Music DJ Hall of Fame.

Hip-hop pioneer and Sirius Satellite Radio host Grandmaster Flash was the recipient of BET's first "I Am Hip-Hop" Icon Award. He received the award on Nov. 12 during the taping of BET's inaugural Hip-Hop Awards at Atlanta's Fox Theatre.

Tom Land was named director of radio programming for Journal Broadcast Group. He had served as operations manager for the company's Omaha, Neb., stations since 2000, and continues to oversee the programming department.



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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.

Screen play • Element lets you use any display screen you choose, to suit your space and decor. 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 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.

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.

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.

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.

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.



Fried Chicken

Conductive aluminum bullnose is connected to a 40 kilovolt storage capacitor that can be activated with a GPIO closure set up as a hotline remote trigger for the PID to give the jocks a little positive feedback!



« "Necessity 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. Mmm... 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 minus-ing, 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. Sweetest.

Coffee? •

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

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 Loader. A fifth of Chivas to the first guy who finds it.)

Talk to me •

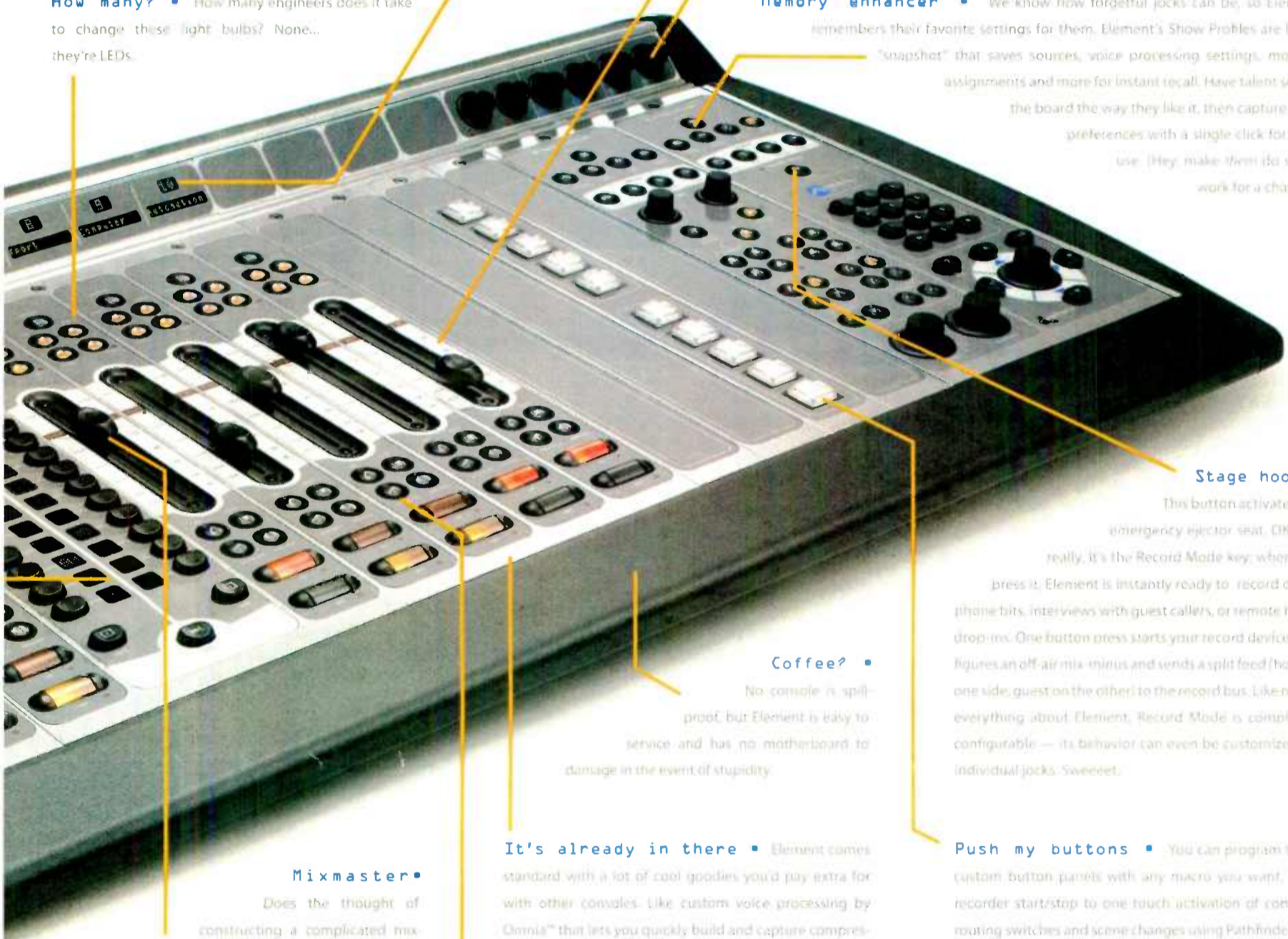
Need some one-on-one time with your talent? Talk to studio guests, remote talent, phone callers... talk back to anyone just by pushing a button.

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).

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 codics 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 fingers.



www.AxiaAudio.com

© 2006 TFS Corp. Axia, Element, PathfinderPC, Status Symbols, Omnia™ TMS Corp. all other TMS products or Axia's respective makers. *See the console docs to really know a high college dipper is in. (But at any time would be cool.)

Pubcasters Focus on Tech Issues

NPR Labs Studies Aspects of Digital Conversion, Seeks to Quantify Coverage & Interference

by Leslie Stimson

Reasoning that spring is too long to wait to update pubcast engineers on their many technical projects, the Association of Public Radio Engineers and NPR Labs held a mini Public Radio Engineering Conference at the NAB Radio Show in October.

APRE Chair Ralph Hogan, who is assistant general manager of engineering services at Washington State University, said volunteers are still needed for the new group, which is writing bylaws, developing membership categories and starting to focus on helping NPR Labs organize the spring PREC in 2007.

What follows are highlights of the October event; a story in a subsequent issue will look at IBOC program-associated data projects.

FUNDRAISER HD-R UNITS ON DELIVERY SCHEDULE

NPR Labs was anticipating shipments of 1,200 Boston Acoustics Receptor Radio HD units by early November. Member stations can purchase the units under favorable terms from the network and use the radios as giveaways in exchange for promoting the radios.

The network was not looking at other HD Radios for purchase at this time, said NPR VP/CTO Mike Starling, also executive director of NPR Labs. The lab, along with the HD Radio Receiver team and station volunteers, evaluated four radios for possible purchase; of those, two tested well, he said, the BA and a JVC unit. He didn't name the other two units.

Member stations expressed interest in tabletop models to be used as giveaways

during fall fundraisers.

Ibiquity offered for review a rough engineering sample of the Sangean tabletop (to be sold to consumers by Directed Electronics) before the bulk order confirmation deadline; however given time constraints, the team thought it prudent to wait for the final version before proceeding with a bulk order. Ibiquity is offering the tabletop to broadcasters for \$99 plus shipping for promotional purposes in time for late November/early December availability, which would miss most fall pubcaster fundraisers.

The receiver evaluations are becoming more sophisticated, Starling indicated, including determining whether the pre-set buttons are easy to use and selecting a radio whose operation won't be frustrating to listeners, he said.

This is the second such order for the Receptor; NPR placed a group buy last November as well. He pegged the dollar amount of the recent purchase as representing more than \$300,000, even with the recent retail price drop for the BA Receptor HD.

The unit is now listed at \$149, down from \$299.99. Consumers may also apply for a \$50 rebate.

CPB SEES HD-R GRANT APPLICATION SLOWDOWN

CPB is concerned because the pace of applications for digital radio conversion grants has slowed — a 45 percent decline from fiscal 2005 to '06. While CPB announced that 85 new matching grants were awarded in August, Lynne Chadwick, until recently the senior director of media technologies at CPB, said the drop is disappointing and CPB would



APRE Chair Ralph Hogan

Photo by Leslie Stimson

award a contract to survey to discover why eligible noncom stations are not applying for the grants.

"We were afraid some could not do the match. We are going door-to-door to make sure stations know the grant money is there for the next round," which may open up in January, said Chadwick, who recently took a position with NTIA.

CPB is getting pushback from lawmakers on Capitol Hill to justify the funding in a tight budget year, she said. "If we want this money, we're going to have to show demand for it."

TV and other needs are consuming resources, she said, and while funds for radio's digital transition are set aside now, she couldn't guarantee that money will still be available in a year.

The reduction noncoms enjoy on their one-time Ibiquity license fee also depends on CPB continuing to bring the technology developer noncoms to sign up for IBOC, she said.

Since 2003, CPB has distributed 559 radio digital conversion grants. It awarded a total of \$7.74 million in IBOC conversion grants to 85 radio stations in August.

Of the 169 licensees operating 315 transmitters that are eligible, none have begun any IBOC conversion projects.

As reported earlier, CPB hopes to find out if stations that haven't applied for the funds also need additional resources, such as staffing, and what CPB can do to help.

Doug Vernier, president and founder of V-Soft Communications and a contractor to CPB on several technical projects, said the grant funds could also be used to help stations upgrade their analog equipment if the improvements are tied to the IBOC conversion.

Including the 85 grants awarded in August, CPB has some 390 public radio transmit facilities (by transmitter count) on the books as subjects of IBOC conversion grants. The projects range from those that have filed grant paperwork to begin their projects, to completion and final testing of converted facilities and preparing close out paperwork, according to CPB Radio Digital Grants Manager Brian Gibbons.

NPR LABS TO QUANTIFY IBOC, ANALOG COVERAGE, INTERFERENCE

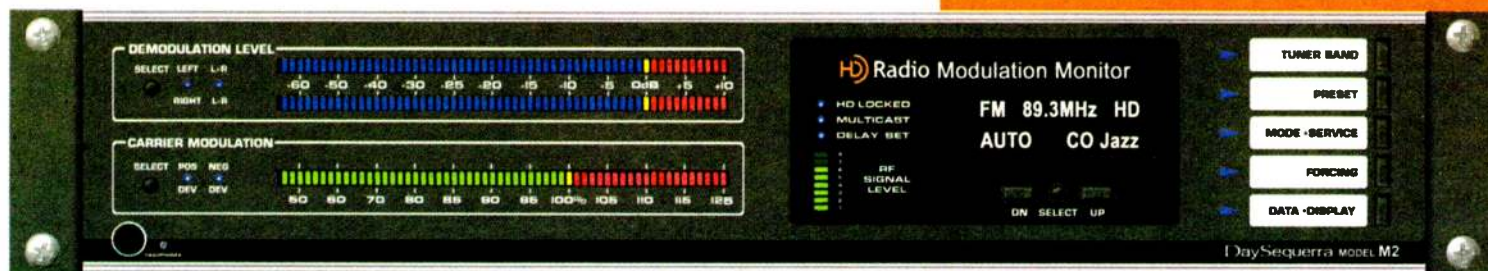
NPR Labs has applied for five grants related to IBOC. Some of those have been awarded and Starling was "cautiously optimistic" the remaining items would be approved.

The grant topics include accessible radio services, digital signal coverage improvement, audience data mining and program-associated data.

The Department of Education's National Institute of Disability Rehabilitation and Research awarded a grant to NPR and the WGBH National Center for Accessible Media to develop

See APRE, page 33

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

HD RADIO IN ARIZONA (On the Air or Licensed)

Market	Call Sign	Frequency	Main Format	HD2 Format	Owner
Phoenix	KYOT(FM)	95.5	Smooth Jazz	The Music Summit	Clear Channel
Phoenix	KMXP(FM)	96.9	Modern AC	Rock @ Random	Clear Channel
Phoenix	KPKX(FM)	98.7	Adult Hits	All 80's	Bonneville International
Phoenix	KQMR(FM)	100.3	Span/Oldies		Univision Radio
Phoenix	KNIX(FM)	102.5	Country	New Country	Clear Channel
Phoenix	KZZP(FM)	104.7	Rhymc/CHR	La Preciosa	Clear Channel
Phoenix	KFYI(AM)	550	News/Talk		Clear Channel
Phoenix	KTAR(AM)	620	Nws/Tlk/Spt		Bonneville International
Phoenix	KMVP(AM)	860	Sports		Bonneville International
Tucson	KXCI(FM)	91.3	AAA		Found. for Creative B'cast
Tucson	KWMT(FM)	92.9	AAA	Jazz	Clear Channel
Tucson	KRQQ(FM)	93.7	Top 40	Country	Clear Channel
Tucson	KTZR(FM)	97.1	Spanish AC	Tejano	Clear Channel
Tucson	KOHT(FM)	98.3	Top40/Rhymc	Old School Hip-Hop	Clear Channel
Tucson	KIIM(FM)	99.5	Country		Citadel
Tucson	KZPT(FM)	104.1	Hot AC		Journal Broadcast Group

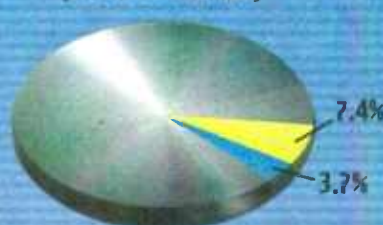
The HD Radio Bottom Line
Total Licensed On the Air

1,530 1,015

Last Month
Total Licensed On the Air

1,475 1,000

Market Penetration
United States
13,748 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:

427

Last Month:

378

FIRST PERSON

Misconceptions About HD-R Abound

by Brian Cunningham, CBRE

In a follow-up to an article in the Sept. 1 issue of Radio World, allow me to share a little of the recent research I have done on the Internet to gauge the general public's perception of HD Radio.

One thing that clearly stands out is that most people have not a clue as to what HD-R really is and how much it can benefit them.

I'm certain that their lack of knowledge can be attributed to virtually little or no advertising as compared to that of satellite radio. Many of the responses I've read have been pre-conceived notions from people who have not even heard digital broadcasting firsthand; they are just repeating what they've heard from other misinformed people.

Some responses are downright funny, while others attack the radio industry with justified ignorance. Here we go. I'll let you decide how well the broadcast radio industry is doing in educating and promoting HD-R. This was not intended to be a statistically valid survey; but my own experience indicates that these comments are indeed typical of how many people think.

First I sifted through answers posted to someone who had asked about High-Definition Radio. The unknown online individual was trying to collect informative opinions about this new medium. He

was confused because his local radio station boasted of broadcasting in HD but he couldn't tell the difference between HD and analog reception. He didn't know that he had to purchase an HD Radio-capable unit to receive the new type of broadcast.

Note he used the "high definition" wording. Presumably he adopted the term from the many TV stations that boast that they are "Now broadcasting in high definition" and the assumption that the HD in "HD Radio" stands for the same thing.

I then posed the question "What is HD Radio" on Yahoo Answers and collected more than 30 responses. Most of the people who responded had no clue what HD Radio really is.

The following excerpts are samples of replies to the question, "What is High-Definition Radio (HD-R)?"

- "Never heard of it. High-Definition Radio? As far as I know radio frequencies have always been terrible for quality."
- "Just so you know — it's a scam to get you to buy satellite radio."
- "It's terrestrial radio's attempt to hype something that's nothing. It's their way of saying 'you don't have to buy good programming when you can have it for free.' Not! I'd rather have decent sound quality and great content than decent SQ and lousy content."
- "The stations that are currently broadcasting in digital in the LA area

don't offer *anything* special. It's the same old c**p they play on the analog channel. Why would I fork over several hundred dollars to hear the same old thing?"

- "There is no such thing as digital radio. It's just the receiver manufacturer's way to get you to buy their stuff."

- "HD-R is nothing more than a high-power cell phone. It will cut out and chop up just like a digital phone. Even worse, and because of the nature of the AM band, digital transmission will not work here, PERIOD. Why the FCC can't see this is baffling."

One radio station's Web site carries the following statement as to why it will not convert to, or support, HD-R: "Digital transmission and RF will not mix. Not to sound old-fashioned, but just like Kahn works and C-Quam does not ... well, conventional analog works and digital IBOC does not."

One person wrote about HD Radio: 'Just so you know — it's a scam to get you to buy satellite radio.'

I'd *really* like to meet their engineer.

Another question posed was, "What's better, HD Radio or satellite radio?" The responses included:

- "Satellite Radio. HD Radio is kind of a good idea to improve current terrestrial broadcasts. But it's limited in bandwidth. It'll never carry the hundreds of channels that the sats carry and it is limited in range. HD-R has the same coverage as the local station. You can't drive cross-country listening to the same program. Currently, HD Radio doesn't offer anything new. It's just a better-sounding version of its analog counterpart, commercials and all."

- "XM and Sirius' content can't be beat. The cons are HD's sound quality is better and HD is free. Besides that, sat radio has FM/HD beat in every way."

- "In a side-by-side comparison, I gotta be honest with you: I can't tell the difference between the digital and the analog."

- "There is *no* comparison! I can get Stern on sat radio. You lame, earth-bound stations don't have the balls to carry real, entertaining, jocks anymore. All you care about is commercials every 10 minutes, and worrying about offending somebody. I'll never turn my sat radio off!"

- "I think HD Radio will eventually catch on. Once the newness of satellite radio wears off, and people get tired of *paying* to hear blabbermouth ramble on about nothing, they will look to purchasing HD Radio receivers. Besides, where will they get the news and weather for their region? Not from sat radio. I'll tell you. I've heard some of the secondary music channels on HD-R in Boston. I was rather impressed! All music with no commercials or breaks! Now that's my kind of radio!"

A recent Radio World article by the radio engineer who uses the pseudonym Guy Wire was posted on a blog site. The article "Satellite in Trouble as HD Grows"

stated that while HD Radio sales may be slow, XM and Sirius stocks and subscriptions are on the decline.

The online response, clearly from sat subscribers, included comments such as:

- "Another puff-piece about HD. It amazes me how they can laugh down their sleeves at the adoption of satellite radio by 11 million people when HD lies totally dead in the water. How they can laugh about the financial woes of sat radio when they have had to consolidate multiple stations in markets and lay off thousands of people to stay profitable, and about the debt taken on by sat radio when most of those traditional radio outfits are under such debt loads they can hardly take care of themselves? Consolidation hasn't given us more niche formats, it has taken them away."

- "What has happened to terrestrial radio is a tragedy. This person is mentally ill."

- "The technology doesn't matter. As long as the same people program HD as do conventional terrestrial radio, it must fail."

- "The only discussion needed is that 11 million persons are willing to *pay* for what they are giving away for free."

- "BTW, maybe we need to stop talking about satellite radio. The satellite part doesn't really matter. What matters is that the programming is so drastically better. It doesn't matter if it comes from a satellite or is streamed over the Internet or whatever. Maybe XM & Sirius should drop the satellite label and start calling themselves *Quality Programming Radio*. Yeah, maybe someone can come up with a better phrase but you get the point."

Such comments could support those who argue that we, as broadcasters, aren't doing enough to educate and promote what we see as the future of radio. This is unscientific; for instance we can't know whether the opinions of people who are most likely to post such remarks to a blog are representative of the larger population. Yet people who frequently visit these blog sites are found to be technically advanced over the average Joe when it comes to new electronics. This is relevant due to the amount of crosstalk between those "techies." Although some of their information may be misinterpreted, they *are* aware that the medium exists.

Critics say more must be done to attract the interest of those who shun HD-R, whether it be specialized HD2 programming or more print as well as TV and other advertising to promote HD-R and its advantages. If they are not listening now, how can they hear spots, promos and other on-air publicity for HD-R? Millions of dollars are being invested in equipment that enables us to broadcast a digital signal, but if no one is listening, for whom are we doing it?

The author is chief engineer, western New York, for Crawford Broadcasting.

How well is HD Radio being marketed? What should be done differently? Comment on this or any article. E-mail radioworld@imaspub.com.

"Who says
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the future?"

"They do."

Some very well-known companies are embracing IP-Audio using Livewire™.



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APRE

► Continued from page 30

accessible radio technology for listeners who are deaf, hard of hearing, blind or visually impaired. The grant will help fund three years of R&D. The award is for \$150,000 the first year.

The project's total budget for the first year is \$227,810. The grant will cover 65 percent of the project costs for the first year; NPR will fund the remaining 35 percent.

NPR Labs demoed one aspect of the concept at NAB2006; as reported here earlier, proponents hope to demo "conditional access capability" for HD Radio at NAB2007.

NPR Labs is conducting digital radio coverage and interference analysis research for CPB with the goal of determining long-term implications for public broadcasters and the potential impact on listeners. CPB's portion for this work is \$544,000.

If we want this money, we're going to have to show demand for it.

— Lynne Chadwick

The project will determine the impact on the public's ability to receive an interference-free public radio signal during and after the digital conversion. Planners said loss of service in the top 50 markets will be quantified by measuring the difference in coverage during and after all public broadcasters begin transmitting IBOC. The amount of interference created by co- and adjacent-channel HD-R stations also will be explored.

The interference measurements will determine the difficulty listeners might experience using various analog and HD-R receivers.

The project, expected to take a year, will recommend improvements that can be made to receivers and transmitters that will lead to a larger availability of public radio services in the U.S.

Also, NPR has applied for a PTFP grant to drill down into its audience figures, refining research it conducted in the 1990s that showed how many people had access to public radio signals. Starling said NPR hopes to learn the demographics of those who have access to public radio, and of those who do not, and to learn more about who could be in that audience. The project is projected to take a year and a half, he said.

CPB is funding two grants for program-associated data research related to HD Radio. The goal is to develop and define a consensus on first-generation program-associated data services for public radio.

Public Radio International has a \$325,000 grant to develop a PAD incorporate it into their broadcast and programs.

NPR Labs has applied for a \$200,000 grant to develop a PAD standard for hardware and explore the possibility of

bundling the capacity of ContentDepot into PAD for stations.

TECHNICAL DATABASE PROJECT UNDERWAY

NPR Labs is assembling a station technical database in order to have all such information on its member stations in one place. This would make it easier, when lobbying the FCC or Congress, to have information readily available.

With such a database, Starling said, NPR could tell the FCC, for example: "Here's a percentage of our stations already on the air with an HD3 signal that would be affected by a particular proposal."

The database will include information from CPB, the FCC's Web site, NPR's member information and new fields.

Kyle Evans of NPR Labs said the network seeks advice on what data would best serve member station needs. Currently, for example, the database includes fields on general station information, technical data, operations, IBOC and disaster readiness. The IBOC section in particular includes details about digital transmitter power output, digital combiner loss and multicasting.

Member stations will be able to access the information through an online interface; other publiccasters would have a way to see the information, said Starling.

APRE SEEKS INPUT

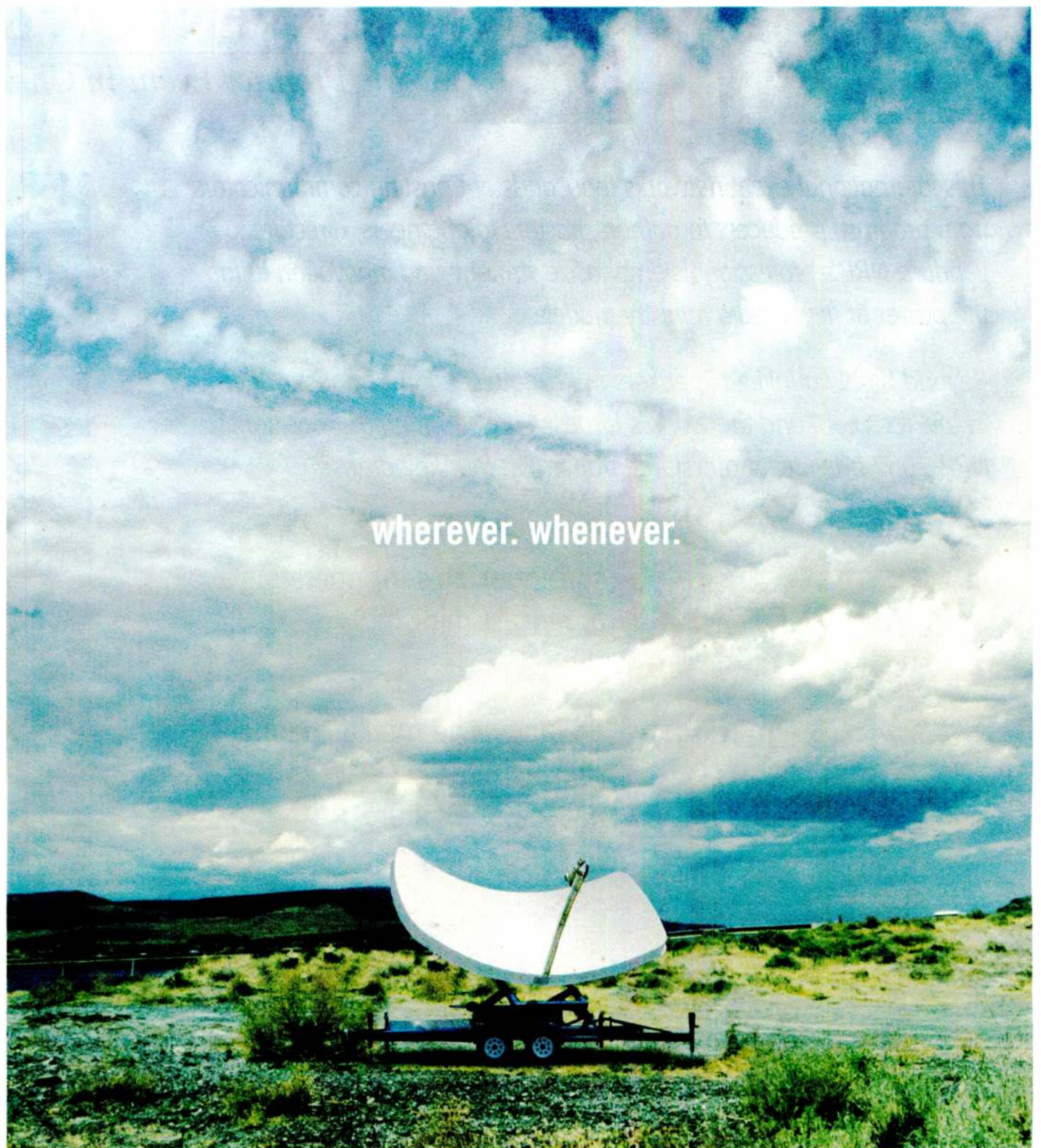
APRE is focused on helping noncom technical staff understand and implement updates for issues such as new public services, signal development and spectrum

integrity.

Of the NAB Radio Show event, vice chair Dan Mansergh, director of engineering for KQED(FM) in San Francisco and an RW contributor, said the group is interested in feedback on whether APRE should continue to offer educational opportunities at the convention, especially seeking comments on format, content and style.

"We got very good response from those we talked to. We all came away with valuable info. The big question for next year is format — should there be more presentations or workshop-style groups?" APRE plans to address those points with some follow-up to the to the larger noncom engineering community in April, he said.

Meanwhile, the spring PREC is tentatively set for April 12-13. NAB2007 begins on April 14. ●



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Studio Sessions

Product
Guide
Inside



Radio World

Resource for Radio On-Air, Production and Recording

November 22, 2006

PRODUCT EVALUATION

Ares-M Has Speaker, 1 GB Memory

*Nagra's Recorder Is Suitable for Journalists;
Has Long Battery Life, Facilitates Edits and Transfers*

by Paul Kaminski

As a radio reporter, I've wished many times for a broadcast-quality recorder that I could slip in my pocket for those times when you need to record audio but when a recorder hanging off your shoulder might not be appropriate or wise. The Nagra Ares-M makes that happen with a package the size of a large cell phone.

Small but complete

The Ares-M is a digital audio recorder that records audio files in standard WAV and MP3 formats on a 1 GB hard drive. It records stereo or mono audio, and stores more than three hours of mono audio at a 44.1 kHz sampling rate — certainly enough for any news situation, such as a news conference or grab-and-go opportunity interviews. It supports sampling rates from 8 to 48 kHz.

The Ares-M records microphone and line-level audio. It comes with a proprietary interface for an external microphone and a stereo plug-on microphone with a little red foam windscreen. It is powered by two AA batteries and an adapter that plugs into the Ares-M USB port, which is used to transfer files and power the unit. In case you forget the adapter, you can plug it into any USB port to save batteries.

The Ares-M has a speaker that mutes in record and is activated on playback. There are fast-forward and reverse capabilities, and a set of mini jacks for line- and headphone-level audio. The unit has automatic gain control and a limiter, which can be customized for the specific application. Users can keep tabs on the unit with a LCD display, which shows recording format, levels, time and input.

Push buttons on front and side give the user access to the control menus for recording, file management and setup. The Ares-M measures 5 inches by 2 inches by 1 inch, without the plug-on microphone. Add an inch and a half for the mic and windscreen, and the Ares-M becomes a small but complete hand-held audio recording solution.

The Ares-M has preset templates, which give users default choices for recording, to include input selection, sampling rate, gain and limiter control, so the user does not have to make those choices each time the recorder is powered up. In the setup menu, the user can reset parameters to the factory setting.



Software for the Ares-M can be updated by the USB connection from the company Web site.

Play (and record) the field

Our unit was supplied with the red band plug-on stereo microphone; XLR-F microphone adapter for external microphones; AC/USB power adapter and plugs for U.S. and European power; carrying case; red foam windscreen; and a special identification chip for the Ares-M system.

I used the Ares-M as a field recorder, recording audio in ad hoc news conference situations, one-on-one interviews, voice reports and gathering of natural sound. For the test, I recorded mono WAV files at a 44.1 kHz sampling rate, which I imported into CoolEdit on a Dell laptop. I used it to file reports for CBS News Radio from Indianapolis, and record audio for my "Race Talk" programs. The unit was supplied with software version 3.11.

To test the battery power, I used both fresh alkalines and three-year-old rechargeable NiMH AA cells. I customized a template, which had all the appropriate parameters (mono, 44.1, etc). I used both the external mic interface, and the supplied stereo plug-on mic.

The LCD display wasn't bright enough to see in sunlight, so I had to hold the unit in one hand and shade it with the other when I had to check levels and look at the display to see if the recorder was recording. My workaround for this was to keep the Ares-M in record pause, and take the unit off pause once I entered a recording situation. That also helps when the unit is powered up; it takes a few seconds to power up once you flick the switch.

One set of AA alkaline batteries lasted one weekend for me at the races (Friday, Saturday and Sunday). The rechargeable

AA (3+ years old) batteries lasted a day before I had to recharge, so battery life does not seem to be an issue. During the test I didn't use the AC adapter (which plugs into the USB port), when I wasn't using it in the field. I plugged it into a USB hub.

The Ares-M allows you to make simple on-board edits with a few menu choices. I used the USB interface to upload audio; all you need to do is plug the interface into a USB port. The operator's manual says the user interface download speed "is at a fixed bit rate and the full memory (1 GB) will take about 20 minutes to empty." That is a concern if you are transferring longer files on deadline; for 30-second voicings, bits of natural sound or five-minute ad hoc group interviews, it was not a problem.

Using this machine to record voicings and ad hoc post-race candid interviews while using another recorder to record audio from a news conference allowed me to be in two places at once and process the audio much more quickly than with one machine.

The little red foam windscreen for the plug-on microphone element lost part of its grip around that element and I inadvertently lost the windscreen. The screen reduced the plosives found when microphones are held close to the person speaking into them.

Quality time with the owner/operator manual is essential; but the Ares-M manual is straightforward. It took a five-minute skim to get forward information to start making basic recordings out of the box.

The list price for the Ares-M is \$995. It

Product Capsule:

**Nagra Ares-M
Digital Audio Recorder**

Thumbs Up

- ✓ Small size
- ✓ Hours of storage with 1 GB drive
- ✓ Battery and USB power; one weekend of power from two AAs
- ✓ Supports sampling rates from 8 to 48 kHz
- ✓ Templates set up parameters
- ✓ Unit can be upgraded from Web site

Thumbs Down

- ✓ LCD display washes out in direct sunlight
- ✓ Foam windscreen loses grip after a few installations
- ✓ USB download slow on larger (50 MB) files

PRICE: \$995

CONTACT: Nagra USA in Tennessee
at (615) 726-5191 or visit
www.nagraaudio.com

is a professional recorder you can take anywhere in your pocket, upload sound to a computer through the USB connection and be confident that what you are recording (with such a small unit) is of sufficient quality to broadcast. All you need for years of news recording are AA alkalines or rechargeable batteries, a couple of the little red windscreens and a USB cable.

Paul Kaminski is a regular contributor to Radio World and news director for the Motor Sports Radio Network and contributes reports to CBS News Radio. Contact him at motorsportsradio@msrpk.com.

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PRODUCT EVALUATION

Sony MZ-M200: MiniDisc Is Not Dead

Pocket-Size Recorder Supports Multiple Formats, Includes EL Display and Is Mac-Compatible

by Charles Dubé

When I mentioned to a co-worker that I was going to have a look at Sony's new MiniDisc offering, the MZ-M200, he looked at me with a grimace and let me know exactly how he felt about the previous generation of MiniDisc. Apparently, some folks had misgivings about recent MD products and might have given up on MD as a dead technology.

With MP3 players and Flash recorders as common as Kleenex tissues, why would anyone want to use the seemingly anachronistic MD format anyway?

We know there are strengths and weaknesses to any format; Sony has given cynics a reason to rethink the MiniDisc format with the MZ-M200.

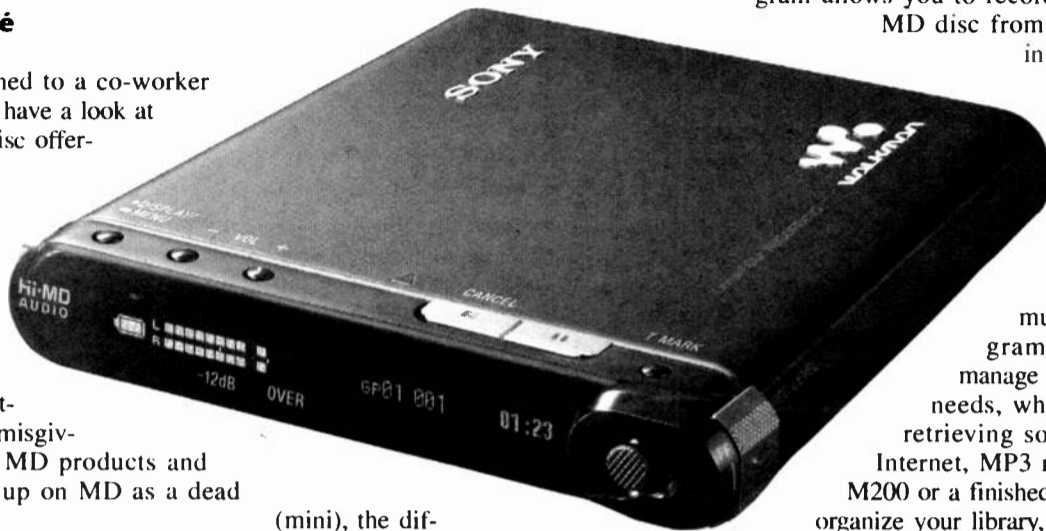
The MZ-M200 is a compact digital audio recorder/player that can play files downloaded in LinearPCM, Sony's ATRAC (including ATRAC3 & ATRAC3plus) or MP3 format. It features the ability to record or transfer legacy recordings onto a low-cost (less than \$10) 1 GB Hi-MD MiniDisc. The 1GB MiniDisc theoretically can store up to 675 songs, 45 hours of music (or 13 hours of music on a standard MD media). The 1 GB Hi-MD media also can be used to store 1 GB of data as well.

Users of legacy MD devices will enjoy the MZ-M200's ergonomics. There's no doubt Sony put a lot of thought into how this recorder will be used in a professional environment. Little about the MZ-M200 resembles earlier MD recorders, except perhaps the size. Pocket-sized as expected, the MZ-M200's display has been moved to the top of the unit, making it perfectly readable in one's shirt pocket for instance.

If placed flat on a counter, such as in a recording studio or newsroom, the slightly angled display allows for easy reading as well. Used like this, Sony has added four small runner feet to prevent it from sliding around. It's almost as if someone ran your full-size MD player too long in the dryer. In your hands, the rubberized surface keeps it from slipping away.

The MZ-M200 feels like a piece of professional gear as well. Although small, all buttons are spaced enough for even the clumsiest of fingers, and the solid metal chassis rivals that of most MP3 devices around. The Record switch is simple and not likely to be accidentally triggered. Stop and Pause buttons are clear and accessed easily. On the side, a jog lever — again, difficult to unintentionally engage — steps you through the tracks on the disk. The multifunction Display/Menu button gives easy access to the device's many features.

The feel of the M200's controls is solid and intentional. There are no sloppy switches or soft gooey pushbuttons. Input and output jacks remain standard fare



(mini), the difference here being the addition of a USB port greatly enhancing upload capability to a PC. The port also functions economically as a DC power input. The MZ-M200 also can function as an external PC drive using the USB 2 port as well.

Back to basics

Sony has brought back many of the earlier MD features that were coveted but unfortunately dropped in previous incarnations. For instance, the ability to use regular MD disks has returned, good news for those who have amassed an archive of standard MD recordings.

The MZ-M200 can use these disks for recording should one have a stash of blanks kicking around, although at a reduced capacity as compared to the Hi-MD's capabilities (using the line-in jack, you can transfer old MD format material to the newer high-capacity discs, minimizing your library space).

If you take a moment to set the time and date on your MZ-M200, it will time- and date-stamp your recordings. This certainly could be a useful feature for those interested in archiving interviews, for example. The ability to change playback speeds of recordings is back in the guise of the Digital Pitch Control feature, useful when replaying speech recordings and hunting for certain passages.

The player's headphone jack is switchable as a line-out jack, relieving the necessity of having to shuttle volume levels all over the place to facilitate other playback equipment you might wish to connect to.

If losing your record settings caused you grief with past MD recorders, the MZ-M200 remembers these settings for you, even for a short duration after removing the Li-ion battery. For use in the recording studio, where so many computers are of the Mac variety, Sony has made the MZ-M200 Mac-compatible. In particular, this means Sony supplies Hi-MD music transfer software, which comes standard with the MZ-M200.

Sonic Stage is Sony's WIN PC program, which enhances the transfer and conversion capabilities of the MZ-M200. With it you can shuttle audio back and forth between the recorder and your PC's hard drive, convert files for playback purposes, burn CDs or use the MZ-M200 as an external drive. As mentioned, the

recorder connects to your PC via the supplied USB2 cable. The software display is reminiscent of an FTP transfer program and user-friendly. A "Simple Mode" program allows you to record tracks to an MD disc from an audio CD

in your computer's D: drive without storing it first on the hard drive.

Sonic Stage is a multifeature program designed to manage your PC audio needs, whether you are retrieving sound from the Internet, MP3 recorder, MZ-M200 or a finished CD. You can organize your library, and of course move audio to and from the recorder itself; Hi-MD recordings can be saved in the WAV format using Sonic Stage.

Crisp, cool display

I would be remiss if I neglected to mention the EL display. It is rather cool and heads above earlier portable MiniDisc products. As I stated, it is positioned in a way that makes the recorder a good fit for pocket or tabletop operation. But wait until you see this window.

The characters, although small by necessity, are brightly displayed and crisp, for lack of a better word. During playback you can toggle through various descriptions of what you are hearing:

group number, number of tracks remaining along with current track, the record time and date, even a somewhat cheesy but definitely fun pair of spectrum analyzer displays.

Even without reading the manual (as many of us are wont not to do), I was able to navigate about the MZ-M200 intuitively without much strain on the cerebellum.

Sony hasn't forgotten that despite the serious uses to which this little recorder can be applied, we like to have a little fun on the way. There is a remote control included that provides its own LCD display. It is simple to jump through the menu to select record modes, levels, mic AGC or sensitivity, mark time or activate any of the other features.

Okay, so we have the ability to select various record modes (of various quality), move audio about to a PC and store large quantities of sound on the MZ-M200. But that "moving parts" issue is always in the back of my mind. You do indeed have moving parts, which of course are subject to failure at some point; but you also have a high-capacity

Product Capsule:

Sony MZ-M200
Hi-MD MiniDisc Recorder

Thumbs Up

- ✓ The most evolved Sony Walkman MD
- ✓ Flexible and adaptable
- ✓ USB2 transfer
- ✓ Long battery life
- ✓ High capacity
- ✓ Sturdy

Thumbs Down

- ✓ Mini jack for input and output

PRICE: \$439.95

CONTACT: www.sony.com/professional or Sony dealers

storage medium — the Hi-MD disc — which is removable from the recorder, meaning that in the event of device failure there is a good chance your files will be safe.

As for the price, a professional using the MZ-M200 might consider buying more than one so as to have a backup unit.

One aspect I do not like about MD recorders has been the mini jacks used for the mic/line input and headphone/line output. Although understandable to a degree in a device of this size, they simply do not hold up to repeated stress over time. I do not consider these adequate for professional use unless Sony has come up with a way these can be easily field-serviced. Unfortunately, this Achilles Heel has

If losing your record settings caused you grief with past MD recorders, the MZ-M200 remembers these settings for you, even for a short duration after removing the Li-ion battery.

contributed to many folks considering the MD recorder "disposable" devices.

Finally, the MZ-M200 comes with some useful accessories, such as an AC power adapter designed to work with the USB cable; a remote control; a set of ear buds; and a compact stereo microphone, which is actually a lot of fun for field recordings. A Lithium-Ion battery provides 5–10 hours of record time and 8 to 19 hours of playback time depending on the format.

It is beyond the scope of this article to go into the details regarding the different formats and features of which this portable MD recorder is capable. Suffice it to say, it was designed for the broadcast or studio professional. Those looking for a way to archive high-quality sound will find the many aspects of this recorder attractive. Those wishing to archive music such as home studio recordings or live concerts, i.e. in the uncompressed LinearPCM mode, also will discover much to like about this palm-sized wonder.

Charles Dubé is chief engineer at WFCR(FM), Amherst, Mass.

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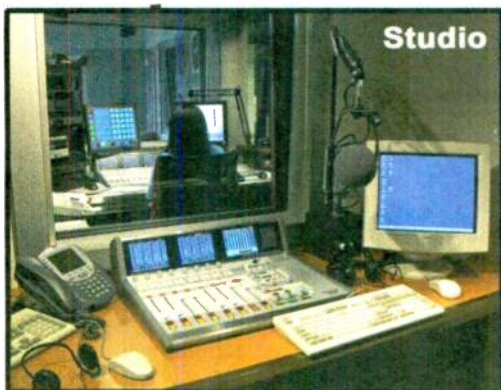
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Processing for digital radio/netcast (DR) is now supplied standard. We increased the base sample rate of all processing to 64 kHz. A built-in 8-second delay in the analog processing path vastly improves installation versatility in HD Radio plants. This allows you to use the 8500's built-in stereo encoder and composite limiter to drive the analog FM transmitter, ensuring no-compromise analog-channel loudness.



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NEWS ANALYSIS

Radio Conspicuously Absent From PME

The Podcast & Portable Media Show Suggests Podcasting Has Arrived, But Is Radio Taking It Seriously?

by Mark Jensen

The author is a former radio personality, now IT professional, podcaster and voice talent. RW asked him to share his observations about the second annual Podcast & Portable Media Expo.

Apple computer has always had a flair for being hip. So with the summer 2005 release of iTunes version 4.9, it was with subdued fanfare that a curiously named category popped into the iTunes category list: podcasts.

The podcast had been validated, to some degree. Although we can trace podcasting back a few years, most would agree that iTunes launched the medium into the mainstream.

Just a few months later, the first Portable Media and Podcast Expo was born. But just how many "podcasters" would show up and what would they do there? Would mainstream radio have a presence and a place here?

As I pondered this article while sitting at Orlando's International Airport, bound for the second annual Podcast & Portable Media Expo (notice that this year, the word "podcast" is now in front) in Ontario, Calif., I found myself in a large gray area, stuck among "real" broadcasting, the recording industry, audio-on-demand, podcasting, RSS feeds, streaming audio and many, many other forms of "alternative media." But alternative to what?

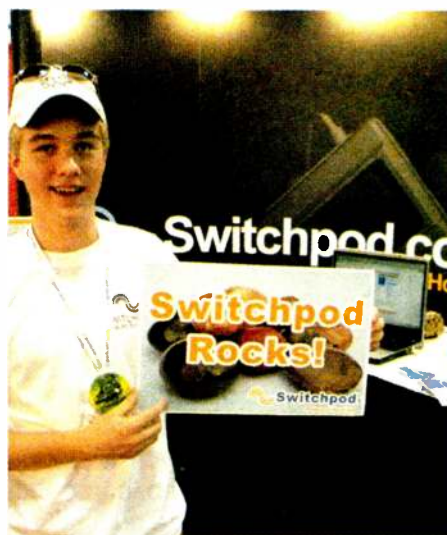


Podcast User Magazine promoting its new e-zine.

Last year's convention showed few signs of radio. There was a humble KYOU Radio banner at a PME awards banquet, and Leo LaPorte did a remote broadcast from the Expo floor via KFI(AM), Los Angeles. Ironically, Leo's KFI remote from the floor that year was a runaway success. People were lined up around the van just to get a glimpse of Leo — or perhaps of real radio.

KYOU Radio, aka KYCY(AM) 1550 in San Francisco, opened the door to an experiment with its "Open Source" format to test the waters of podcasting. Would anyone listen?

The KYOU banner was not in sight this year at the Podcast Expo Awards



Jake Fischer, one of the entrepreneurs of SwitchPod.com podcast hosting, was present with sign ready.



Blip TV was recording on the Expo floor, capturing small pieces of reality on video.

ed by former MTV VJ Adam Curry, last year sought to find and acquire unique programming that would make its mark on the entertainment industry. Like a major-league baseball scout in the benches searching for talent, PodShow held "Unditions" outside of last year's show seeking new, uncharted entertainers.

This year, Curry had commitments in the U.K. and could not attend. PodShow had a presence this year but held its highest profile at neighboring hotels, not the expo.

In the end, I couldn't even find a small KYOU banner.

Although I contacted all of my local Orlando stations, none of them even knew about the PME and weren't sending anyone.

Legitimize it

If the PME is any indicator, radio wasn't taking podcasting seriously this year. However, podcasters were taking themselves much more seriously. Looking at one corner of the convention, I could easily mistake this year's PME for a miniature NAB. There were fewer body painting exhibits and strange hairstyles this time around. This year, the PME was about legitimizing podcasting. Finding a business model was this year's theme.

The indicators are there. We just need to listen. First of all, the podcast bubble is bigger than ever, but it hasn't popped yet. This year's Expo was much larger than last year and there was a tremendous amount of business-casual energy. Next year's PME is expanding from two to three days. Things were happening and deals were being made this year in every corner of the convention hall and at the neighboring hotels.

I overheard a podcaster in my hotel lobby talk about having several meetings with potential sponsors that day. This was a normal line — except he looked to be no more than 10 to 12 years old.

It appears that the divide between grassroots podcasters and mainstream media has never been wider. If a podcaster had an olive branch at this show, it would take a lot of searching to find a radio station representative to grab the other end.

Mark "Jensen" Titterington records podcasts from his home studio at www.studio1aproductions.com. Contact him at mark@studio1aproductions.com.

RW welcomes other points of view to radioworld@imaspub.com.

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PRODUCT GUIDE

Paltalk Lets Hosts Chat With Listeners in Real Time

Paltalk offers radio DJs free video-enabled chat rooms that allow users to chat with each other through video, voice and text in real time. The company says Paltalk Messenger gives DJs the opportunity to enhance their shows and build stronger communities of listeners, as a one-way broadcast is turned into a two-way interactive dialogue with an unlimited number of people.

Paltalk Messenger lets DJs control the environment, deciding who talks, shows videos and stays in the room. Chat rooms are available 24/7, which the company says lets listeners keep conversations going after the radio host signs off.

According to Paltalk, Opie & Anthony of XM Satellite and CBS Radio have integrated the program into their show. The hosts have Web cameras in the studio, as well as a laptop, and communicate with chat room listeners during the show. The audience can see and talk to Opie and Anthony and offer real-time reactions, which are incorporated into the program. Additionally, volunteer moderators are on hand to make sure discussions are appropriate.

For more information, visit www.paltalk.com.

PRODUCT GUIDE

UniStar IIIILA Protects Over Wide Input Range

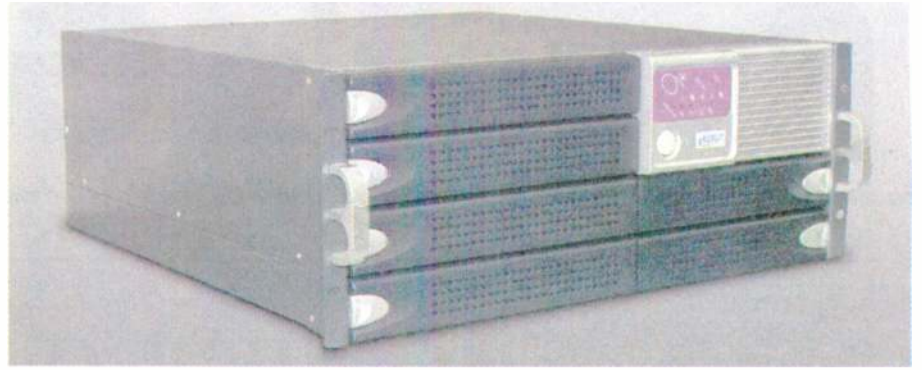
Staco Energy Products has debuted the UniStar IIIILA Series single-phase, online, rack-mount uninterruptible Power Supply, which the company says features protection over a wide input voltage range at an affordable price. The double-conversion technology enables a steady sine wave that protects downstream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

The UniStar IIIILA has a unity input power factor that meets industry stan-

dards for energy savings and low reflected harmonics, 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 FreeBSD.

Staco says an advanced microprocessor yields greater reliability and functionality in a smaller size than other systems. Each UniStar IIIILA 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.

AKG Adds 400 to Perception Line

AKG Acoustics' Perception 400 is a multipattern, large-diaphragm condenser microphone suitable for musicians and audio engineers in studio and live sound applications. It offers selectable cardioid, omni and figure-eight pickup patterns with switchable 10 dB pad, switchable bass cut filter and shock mount.



The Perception 400 features two separate back-to-back, one-inch diameter vibrating surface capsules with gold-sputtered foil diaphragms. The company says the externally biased "true" condenser capsules deliver greater performance consistency, particularly in high temperature and humidity conditions. The Perception 400 features 20-20,000 Hz response and high 145 dB max SPL capability at less than 0.5 percent THD.

Additional highlights include the zinc/aluminum alloy metal chassis with a stainless steel, dent-resistant grille screen to protect the capsules. Like the Perception 200, the 400 comes in a metal-framed "sound tools" carrying case with a screw-on, spider-type shock mount. Perception microphones have a two-year parts and labor warranty from AKG.

The Perception 400 retails for \$559.95.

For more information, contact AKG in California at (818) 920-3212 or visit www.akg-acoustics.com.

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Buyer's Guide

Radio World

Signal Monitoring, Remote Control & Test

November 22, 2006

USER REPORT

Cluster Monitors With Goldeneagle HD

by Jerry K. Massey, CPBE, CBNT
Director of Engineering, MIS
Entercom Greenville LLC

GREENVILLE, S.C. Purchasing the Audemat-Aztec Goldeneagle HD is like going to a new car lot, first finding the basic car you like and then deciding on what extras you want. The Goldeneagle HD comes in several "models." It can be configured with just FM; just AM; or both FM and AM. It measures both analog and HD in any of these models.

Other options to consider are the nifty spectrum analyzer built into the unit, and how complex you make the IP-2 control and monitoring system. There are additional add-ons including RS-232, DTMF and relay options. Audemat-Aztec has put forward thinking into the system by providing additional slots in the unit whereby the IP-2 can be expanded by installing additional cards for control, monitoring or both.

When we received the Goldeneagle



the spectrum analyzer, which was an option we had installed, and we also could hook it up to our internal LAN for easy access using the Goldeneagle client program. We found that by using the client program, we could monitor and take measurements of our sites and those of our competitors in the market without having to get up from the desk.

The Goldeneagle HD is different from what we have known in the past when it comes to monitoring our stations. There

way up when we are all-digital. You can still monitor the analog on the spectrum analyzer with no mask, so even though the Goldeneagle has "HD" in its name, straight analog is not forgotten.

The modulation bargraph monitor is great. On one screen you select what frequency you want to monitor, and then by

selecting the modulation monitor you can see on one screen the total composite modulation, pilot injection, RDS injection, analog left and right, left plus right and left minus right. In addition the HD left and right levels also are displayed. That's a lot of information you can view on one page.

We are going to have our audio processors and analog delay at the studio, and I can use the Goldeneagle HD to exactly time align the analog and HD signals. What's next for our Goldeneagle HD? Instead of having it on our internal LAN, I am going to switch it over to our WAN. That way, I can wake up in the middle of the night, pull out my laptop and look at all of the signals. Second, I hope to hook up the IP2 for internal studio controls especially to reset some of our servers, and of course from the comfort of my bed.

For more information, including pricing, contact Audemat-Aztec in Miami at (305) 249-3110 or visit www.audemat-aztec.com.

The modulation bargraph monitor is great.
You can see on one screen the total composite modulation, pilot injection, RDS injection, analog left and right, left plus right and left minus right.

HD, the question was where to install it. We could see the benefits of having it at a transmitter site where it also could serve as a backup remote control using the built-in IP-2 system, or we could install it at the studio and monitor all of our five FM sites.

We decided on the studio site for a couple of reasons. It would be close at hand to allow us to go directly to the unit and use

was a time when the modulation monitor you bought was forever as you received it. It never changed or evolved. The Goldeneagle HD is different; it evolves to higher levels with software upgrades.

With the present 1.3 version of software, new features allow you to determine what spectrum mask to overlay on the spectrum display. No matter what level of HD is running, it can handle that all the

TECH UPDATE

Web Remote Has Slide-In Card, Rack-Mount Versions

Harris Corp. said its Web Remote system is a compact monitor and control system for use with Harris transmitters and other supporting equipment. It allows broadcasters to monitor and control equipment at a remote location via an embedded Web server and a standard browser application.

The company says the Web Remote provides reliability and a small form factor and uses no moving parts. The Web Remote comes in two versions: one is a slide-in card designed for the Harris ZX line of low-power FM and HD Radio transmitters, and the second is a 1 RU rack-mount system to support universal connectivity.

Equipment connected to Web Remote will interface with the Internet or LAN to provide complete monitor and control capabilities in any location via IP.

Connections to the system are made via standard DB 25 connectors for monitoring inputs and control outputs. The card version is powered from the ZX transmitter and the rack-mount version by an external 5 VDC power supply. The system includes standard connections to either a LAN or the Internet via a RJ-45 connector.

For more information, including pricing, contact Harris in Ohio at (513) 459-3400 or visit www.broadcast.harris.com.



DL1 Digilyzer Handheld digital audio analyzer and monitor

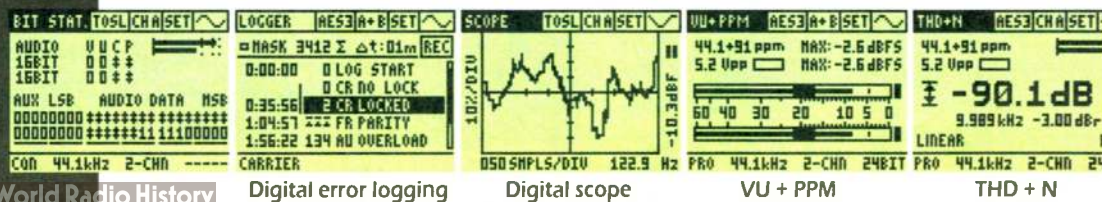
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USER REPORT

Plan B Switches to Alternate Source

Danager Silence Eliminator Is Used With Analog Or Digital; Plays Backup From Various Media

by **Chuck Leavens**
Director of Engineering,
WDUQ(FM)
JazzWorks Network

PITTSBURGH, Pa. I like this product. I became acquainted with the Danager Plan B silence eliminator series when I was looking for a device that could automatically switch audio to an alternate source at a satellite uplink. But I discovered the Danager Plan B is much more.

Uplink use

I was able to have redundant audio servers that could be switched to allow maintenance or automatically in case of audio failure. The Danager Plan B can be used with analog or AES digital audio. You can actually use one source in analog and the other in AES if desired, or wire them both for an extra layer of redundancy. In case of catastrophic failure of my entire audio server system the Danager Plan B Classic can play audio given for backup use either from CD, DVD or Compact Flash card.

In the most extreme of circumstances it can play more than 75 hours of audio without repeating. That gives me plenty of time to replace or rebuild a system. If

the Danager Plan B itself were to fail it would not stop the audio from playing, as both analog and AES digital audio paths are passively switched. I have accidentally removed the power cord of the



Chuck Leavens holds his original Plan B on the left, and his new Plan B Classic on the right.

Danager Plan B with absolutely no affect to the on-air audio.

Being able to listen to the audio server that is not on the air and preview audio over the phone also is handy for verifying audio cuts that may have been reported as

bad or not playing properly.

Did I mention that my uplink location is 1,500 miles away from the control point? Being able to trust a device in a network head end application so far away from the control point is a critical concern. In three years of use the Danager Plan B has not let me down. In fact, it has been one of the most reliable pieces of

gear at the uplink site.

I liked the features and reliability of the unit so much that I got another unit for our FM station in Pittsburgh. Again, being able to switch between main and backup on-air sources manually or automatically, as well as being able to listen directly to the feed that is not on the air, are great troubleshooting tools. Being able to do so from one end of the path is a welcome third hand.

The front panel is laid out simply and elegantly, and functions are easy to understand. I like the lockout of the but-

tons against accidental touch. Pressing Button Enable before any other button ensures no accidents with the audio switching.

Live audio unaffected

The Danager Plan B allows full simulation of an audio failure without affecting the live audio on the air. You also can do an actual on air demo failure to test the system. Whatever your comfort level, the Plan B will do it. If you are at the Plan B's location, stereo speakers are provided to monitor the unit.

There are four relay closures that can be assigned to different events. A closure is provided to trigger external alarms or events. No auto-dialer is needed because the Danager Plan B does that by itself. It identifies the site and provides the necessary information. Status inputs control how the unit operates, if needed.

The Plan B is capable of putting a feed directly from the phone line to air if desired. I cannot imagine needing this with so much storage capacity but you never know; every contingency has been thought of.

If you were in a weather emergency and lost your studio site, the phone audio could provide live emergency announcements along with the locally stored programming inside the Plan B. It can function as a station in a box.

There is a three-year system warranty and coverage of audio storage devices for two years. The unit is well built and easy to use, a product you can count on in emergency situations. I used to think of the unit as a luxury. Not so anymore. It's a necessity. I would encourage downloading the manual to get the full breadth of the Danager Plan B.

For more information, including pricing, contact Danager Audio Works in Canada at (888) 892-8346 or visit www.danager.com.

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TECH UPDATE

ARC Plus Communicates Via HTTP, TCP/IP

Burk Technology says its ARC Plus broadcast facility control system is now in manufacturing. The system's TCP/IP architecture enables network scalability to more than 1,000 sites. Data is communicated via HTTP and TCP/IP, with RS-232 modem access and e-mail, SMS or dial-out alarm notifications.



Users can access the system via software, Web browser, telephone or front panel, with site-to-site control allowing users to manage other sites from the front panel at any location. SNMP network management broadens users' monitoring and control scope.

The modular expansion path of the ARC Plus supports 256 channels each of metering, status and command. Separate input and command units achieve cost efficiency and allow users to add channels in any configuration. Integrated transient protection and RFI resistance assure reliability in lightning-prone environments. Automatic routines are embedded in the main ARC Plus unit and run without a dedicated PC.

The ARC Plus offers intelligent alarm management due to multiple alarm thresholds and priorities on each channel. Alarms can be directed to individual e-mail and dial-out lists, assuring the proper people are notified of trouble conditions.

AutoPilot Plus software provides PC-based real-time monitoring, control and report generation with a customizable user interface. Drill-down and map-based displays provide dashboard-style summary reporting. For managing IT infrastructure and broadcast equipment side-by-side, the AutoPilot Plus Network Manager provides condition reporting for network PCs, servers, printers, hubs, etc., including SNMP devices.

The ARC Plus is backwards compatible with the ARC-16.

For more information, including pricing, contact Burk Technology in Massachusetts at (800) 255-8090 or visit www.burk.com/arcplus.

USER REPORT

ANT Helps RDS Assure Service

by **Giancarlo Onano**
Technical Manager
RDS Radio Dimensione Suono

ROME Private national radio broadcaster RDS Radio Dimensione Suono boasts more than 500 FM repeaters and an enviable position in the audience rankings. We are a young and determined team — the key to our success is the fact that we keep fresh ideas flowing out. Cutting-edge and innovative technologies support this success.

RDS network sites are designed and built using “best-brand” equipment, with most of the sites protected by back-up equipment and UPS units too.

Visualization and control

In a complex network with hundreds of sites, it is key to know the operational status of every site in real time, especially if there is backup equipment. Otherwise, there is a risk of not knowing whether backup equipment has switched.

Nowadays, transmitter equipment back-up switches over so quickly that there is no way anyone can know if it has changed over. If this information does not come through, your backup may malfunction, leaving you with nothing.

When our technician Giancarlo Dintino tested a number of control systems, he found that none of them were entirely compliant with the demands and complexity of our network.

During 2005, with the ANT Group team, we studied the entire RDS network and evaluated the Garda remote monitoring and controlling system with the new ANT NetPOD software.

After a first installation on a randomly chosen site, we tested it and realized its uses and potential. I was pleased with the results.

We focused our budget on the ANT Group remote control and monitoring system, and now control and monitor the entire network from a central control room.

The control center NMS server is installed in the main center in Rome. Technical and administrative staff from RDS and external technicians from various maintenance companies have access to the NetPOD server through local networks and through the Internet.

These users can access the system in accordance with specific permission and can manage the monitoring and control of the entire network or get a simple view of their own site or region of competence, or have a mix, with visualization and control of a few remote sites.

It is up to the administrator of the network to grant permission to interact with the system.

The NMS works without a technician present. It accumulates fault warnings and sends alert notices to appropriate staff via SMS or e-mail.

The RDS monitoring network configuration uses a mix of media to collect data from sites — connected mainly through the UHF radio 400 MHz band assigned by

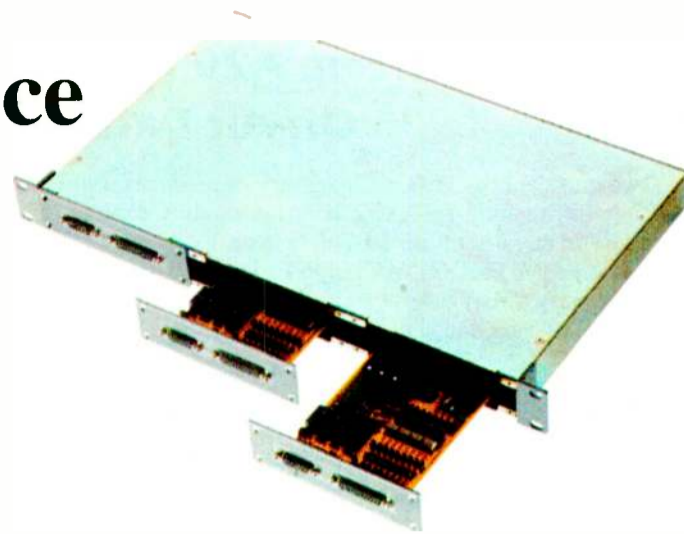
the Telecommunications Ministry. There also are remote sites connected by GSM and by IP.

I realized that, on some remote sites, the amount of in/out points of the standard RDF were not sufficient to control all pieces of equipment so I simply added analog/digital expansion units.

Every expansion unit allows me to have eight analog in and four relay out or one analog output 0/5V, or eight digital in and four relay out, or one analog out 0/5V. In this way, I can choose to scale according to my net needs and budget.

We have directly connected equipment with RS-232 and RS-485 ports to the ANT130 protocol converter, allowing total interaction with the equipment and little cabling.

For more information, including pricing, contact ANT Group at (704) 973-0913 or visit www.antgroup.it.



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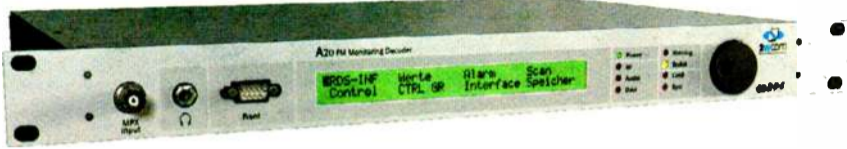
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www.aeqbroadcast.com

TECH UPDATES

2wcom A20 Receives Off-Air Data

2wcom says NAVTEQ, an integrator of broadcast traffic information data that distributes information on XM and Sirius satellite services, chose its A20 decoder to receive and monitor off-air RDS data in each of its markets.

It is streamed back to NAVTEQ's Chicago Data Center, where the RDS data is read by third-party (GEWI) software to compare the counts of sent TMC messages against received messages and against expected message counts.



NAVTEQ says normal use for the data from the A20 is to populate monitoring screens that overlay digital maps with details of traffic incidents, traffic flow data and weather information, so it is known what customers in each market are receiving.

The A20 FM RDS/RBDS monitoring system contains a measurement-grade tuner that measures FM signals such as total/peak modulation and pilot injection. The measurements are loggable and most can be set up with alarm thresholds to send an alarm e-mail if there is a problem using the integrated TCP/IP interface.

In scan mode, the A20 can listen to eight stations; the user can program different alarms on any station being monitored, and e-mail or use SNMP on these, as well.

Additionally, the A20 streams the received audio back to the user with an optional MP3 server module. The company notes that this feature enables engineers to hear what the A20 is listening to.

For more information, including pricing, contact the A20's North American distributor ViaRadio in Florida at (321) 242-0001 or visit www.viaradio.com.

NTI DL1 Monitors Digital Broadcast Lines

The battery-operated, handheld DL1 Digilyzer from **NTI** offers diagnostic and investigative tools for monitoring digital broadcast lines. The device is suitable for use on digital links in studio/transmitter systems and also remote applications with satellite uplinks.

Tools include an event logger, which can help log and then locate intermittent problems in the digital audio data stream.

After the user has connected it to the digital transmission line, the Digilyzer continuously monitors and logs events on the line during the monitoring period. It captures any errors and disturbances in the protocol, time stamps and groups these according to categories of origin and interface function.

The completed log is a simple ASCII text file transferable to a PC via the optional USB connection and software. With this log, users can document the quality of leased lines as regards the quality of service and costs.

For more information, including pricing, contact NTI Americas in Oregon at (503) 684-7050 or visit www.nti-audio.com.



Fanfare FP-TRO Uses NTP to Clean Signal

Fanfare Electronics says its FP-TRO receiver/translator converts any FM in-band signal, including FM analog and HD Radio, to another on-band frequency with a command through its RS-232 serial data I/O or front-panel control set.

Like its predecessor, the FT1AP receiver, the FP-TRO also is capable of producing a fully quieted signal in areas where other receivers are struggling or may have failed completely. The company says Omega Reception Technologies' NTP technology enables the unit to do this without the usual lossy demod/remod procedure.

Additionally, the FP-TRO is able to "manicure" the signal, clean it of extraneous artifacts and ensure that it is a 99-percent-plus duplicate of the original signal.

NTP — an abbreviation for No Tail Pair as opposed to Long Tail Pair — is a connection joining two amplifier devices in a configuration that enables a high degree of voltage/current amplification. Fanfare says the NTP connection eliminates parasitic feedback noise, controlling the level of Miller Effect capacitance arising from the signal gain. Because of these and other characteristics, it is possible to obtain single-stage gain-bandwidth products and isolation of the input circuit from the output circuit.

It also is possible to combine NTPs so as to achieve a linear modulator with very wide dynamic and frequency ranges.

For more information, contact Fanfare Electronics in New York at (716) 683-5451 or visit www.fanfare.com.

Barix Annunicom-100 Connects to Groups, Stations

Applications of the **Barix Annunicom-100** include monitoring and alarming systems. The device is suitable for deployment over standard IP or Ethernet network infrastructures connecting any number of locations, between studio and transmitter site, for example. It is possible to connect the Annunicom-100 directly to a PC or use it autonomously with other Barix products as a PC-free solution, the company says.

By means of address tables, the Annunicom-100 can connect to eight groups with up to eight preset targets, and to an unlimited number of stations in a broadcast configuration. Users can select target station addresses over a Web browser, contact input or serial interface.

The unit has an Ethernet interface, its own integrated Web server, RS232 and RS-485 interfaces, as well as a USB memory stick interface.

The Annunicom-100 offers a programmable environment, which provides full-duplex functionality. Additionally, it accepts emergency calls and intercom over its microphone or line-level input and distributes them to the appropriate target locations.

For more information, including pricing, contact Barix at (866) 815-0866 or visit www.barix.com.

WVRC-8 Offers Eight Control Channels

Broadcast Tools says its WVRC-8 provides a one-rack-unit solution for Web-based and/or recordable voice response dialup transmitter site control. It is equipped with a browser-based, 100-event function program scheduler and event alarm logger. The user may select from four e-mail recipients and a sound effect to play when an out-of-tolerance alarm is generated.



The WVRC-8 has eight high-resolution analog (telemetry) channels, while each of the eight optically isolated status channels may be configured for 5 to 24 VDC wet or dry (contact closures) status monitoring. The eight control channels have 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 has spoken words and phrases in English, and the user can record words and phrases in another language.

It may be programmed for dialup operation via HyperTerminal, while the Java applet programming can be performed using a Web browser. System expansion is accomplished by cascading multiple units on the same telephone line and/or Ethernet switch.

Highlights include a stereo silence sensor with aural monitoring, front-panel microphone for remote aural site monitoring, telco hybrid with send and caller balanced audio I/O, front-panel LED indicators for most operational activities and surge-protected power supply.

For more information, contact Broadcast Tools in Washington state at (360) 854-9559 or visit www.broadcasttools.com.

IP2 Choice: Modular Remote Tx Monitoring

Audemat-Aztec's IP2 Choice transmitter remote control is a 19-inch rack-mountable modular system for remote management and monitoring. It can be



configured to connect to the equipment of a remote site through to its three serial ports, 128 digital inputs, 40 analog inputs or 64 relay outputs.

Peripherals linked to the IP2 Choice then become accessible with one telecom line. The company says Ethernet and PSTN are planned soon. The IP2 Choice automatically connects peripheral equipment with remote servers or directly to the Internet.

Features include SNMP (Proxy agent) for management and alert; e-mail for sending of alarms, state visualization screen, local history log and ScriptEasy software for configuration of embedded scripts and automatic actions. Also included are a speech interface and DTMF interface.

ScriptEasy software is installed on a computer remotely connected to the IP2 Choice. It enables input/output and macro configuration, creation of routines and alert sequences; simulation of the script to validate configuration and creation; and display in real time of the status of each object of your script. It includes a scheduler for time-based automatic actions and enables readings of I/O status.

For more information, including pricing, contact Audemat-Aztec in Miami at (305) 249-3110 or visit www.audemat-aztec.com.



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TECH UPDATES

Logitek UV51 Monitors Multiple Channels

Logitek says its UV51 surround meter helps broadcasters keep track of multiple audio channels by providing at-a-glance indications of the channels. Six LED bargraphs are aligned vertically in packaging designed to sit on a console overbridge. The unit's power supply is in a separate enclosure, which can be locked away from the console.

The UV51's Ultra-VU bargraphs each have 62 tri-color LEDs. Several operating modes are selectable, including VU, loudness, "fine" mode and image/phase. A "brightness" control allows users to adapt the display to room lighting conditions. The center indicator in each meter is user-adjustable.

The UV51's displays comply with the international standard for 300 ms VU ballistics. This ensures that the bargraph motion will track other standard mechanical and electronic meters closely.

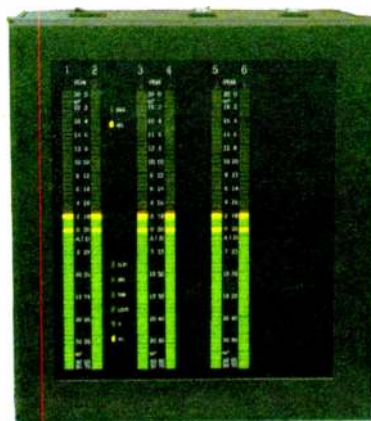
However, the displays use an alternate means for displaying peak. The international PPM standard does not require display of true peak when the peak signals are short. The Ultra-VU displays are set to display the highest peak of the input signal, even when the peak is very brief. In addition to display of instantaneous peak, the displays offer peak hold and max peak hold options.

An A-weighted loudness scale also is available, which follows a 58 dB SPL auditory curve. This "loudness" filter allows the VU bars to represent the actual loudness perceived by a listener more closely and allow better level matching between different kinds of program material.

Logitek UV51 meters are available with analog or digital inputs or both. Analog inputs are bridging and accept balanced or unbalanced signals. Units may be calibrated to a reference between -10 to +24 dBu. Digital models accept professional (AES/EBU) or consumer (S/PDIF) digital signals and automatically lock to the sample rate of the input signal (up to 96 kHz). A clip indicator is provided for users utilizing digital inputs; the indicator can be set to trigger on one or four consecutive clipped samples.

The manufacturer's suggested retail price for the UV51 is \$3,100. A 7.1 version, also using the Ultra-VU displays, is available for \$3,900.

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



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Sicon-8 Adds Event Scheduler, Logging

CircuitWerkes says its Sicon-8 dial-up remote control with speech capability offers new functions such as logging and an event scheduler. Additionally, a Web server is included, and hardware is expandable to 32 channels instead of 16 by adding up to three additional SX-8 expander chassis. Each SX-8 adds eight additional channels of metering, status and control.

Up to 128 events can be scheduled through the year 2099. They may be single events or recur by time, day, month or year. Simple action sequences also can be scheduled. The Sicon-8 logs and stores data periodically for a week in a text file that can be viewed online or saved. Time and event functions can be accessed via Web server, dial-up functions or the local serial port. Logging is available via serial or Ethernet only.

The Sicon-8's I/O, including eight channels of relay, are featured on the main board. Metering, status and control connections are on de-pluggable screw terminals.

The Web server gives access to the metering control and basic setup functions, and supports up to nine simultaneous users with four access levels. The Web server requires a Java-capable Web browser to operate and works on multiple operating systems and browsers. The dial-up control is based on CircuitWerkes' voice recording technology,



which lets users record their own messages in any language.

The Sicon-8 uses SPDT 5 Amp relays for most of its control functions. The company says relays, telephone interface, Web server and voice codec are on replaceable daughter assemblies to facilitate field servicing. Metering accepts + or -12 V inputs and is auto-calibrating and auto-ranging, easing setup. Status inputs are optocoupled for isolation. In addition to onboard relays, the Sicon-8 controls X-10 devices, allowing the user to operate devices in other areas without direct wiring.

The company says a Windows-based client, the Siconcontroller, is being developed, and will provide multi-site operation and advanced control and setup functions.

For more information, contact CircuitWerkes in Florida at (352) 335-6555 or visit www.circuitwerkes.com.



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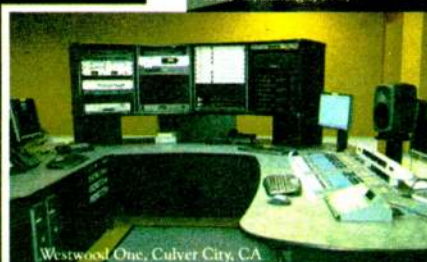
"The Omnirax design makes these studios incredible for talent and operators on both sides of the console."

"Our furniture from you not only fit into our budget and timeline, it was very well constructed and looked beautiful. I expect to be outfitting many more facilities with Omnirax..."

"I was impressed with the exceptional care given packaging for shipment. A few very large and potentially fragile components made it cross-country completely unscathed"

"I wholeheartedly recommend Omnirax to everyone."

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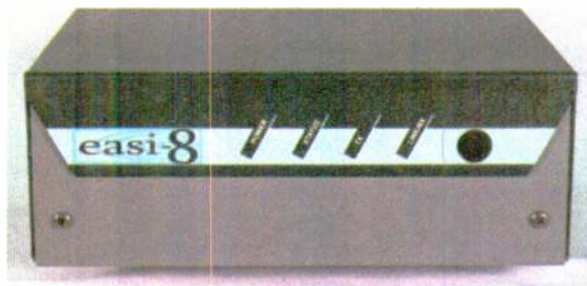
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TECH UPDATES

WIT Offers Ethernet-Based Remote Monitoring System

The easi-8 remote monitoring and control system from WIT Inc. uses an Ethernet connection to report conditions associated with equipment being monitored. Unit setup and access can be from any Web browser.

The company says the product's small size, easy wiring setup and low cost make it suitable for distributed remote monitoring applications. It is designed for placement on, adjacent to or inside equipment cabinets.



The easi-8 provides monitoring of eight voltage or binary status inputs, and contains eight Form C relays for control of devices. Multiple units can be synchronized for monitoring of additional channels. Versatile e-mail options are used for reporting conditions.

The unit accepts input voltages ranging from 50 mV to 160 VAC or DC; four "virtual" channels allow indirect power calculations or other functions by computing the product of two metering channels. Relay outputs are rated at 24 VDC, 2 A or 120 VAC, 1 A. A real-time clock and 64 user-defined time-of-day functions add versatility. The unit is powered by an external 12 VDC source; two power supply inputs are provided for redundancy. Connections to the easi-8 are made with space-efficient Phoenix connectors.

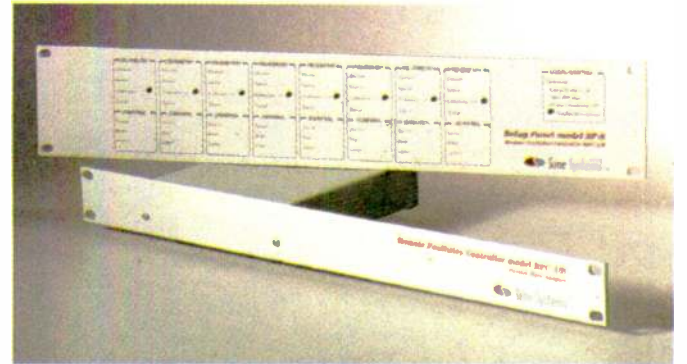
The easi-8 measures 8 x 5.75 x 3 inches. Two units fit side by side in an equipment rack, or a unit can be mounted using the provided brackets. Included is a temperature sensor that monitors temperatures ranging from -25 to +125 degrees C, and a 12V, 12W power supply.

For more information, including pricing, contact WIT Inc. in Utah at (801) 326-1300 or visit www.witinc.net.

RFC-1/B Accessible Through Standard, Cell Phones

Sine Systems' model RFC-1/B remote facilities controller is a transmitter remote control system that can be accessed through a standard telephone or wireless/cellular phone. Telemetry readings are reported with a human (male) voice.

The basic system consists of an RFC-1/B and an RP-8 relay panel that provides eight channels of telemetry and raise/lower control. Eight relay panels can be connected for a maximum of 64 channels. The RFC-1/B can be programmed to perform automatic power/pattern changes and log readings. It also can be programmed to alert station personnel during an alarm condition. For telephone line and telemetry signal surge protection, the company suggests the SP-8 surge protector.



Sine Systems' RFC-1/B, bottom, and RP-8 Relay Panel

The most recent addition to the RFC-1 model line is the SIP-8 status input panel. The device, which occupies one rack unit, connects to the RFC-1 system like a relay panel and provides eight channels of status-only input. These inputs have internal pull-up resistors that are driven by a dry relay closure or open-collector pull-down. The company says the SIP-8 is an inexpensive way to add status sensing capability for sites that need to monitor the on/off status of several signals but do not require control over those devices.

In addition to the SIP-8, the RFC-1 line offers accessories for site monitoring such as the AFS-3 audio failsafe, which monitors a pair of audio inputs and can signal the RFC-1 when audio fails. The ACM-2 AC current monitor is used for sampling tower lights including those with flashing beacons and strobes. The TS-1 temperature sensor provides on-site temperature monitoring.

For more information, including pricing, contact Sine Systems in Nashville at (615) 228-3500 or visit www.sinesystems.com.

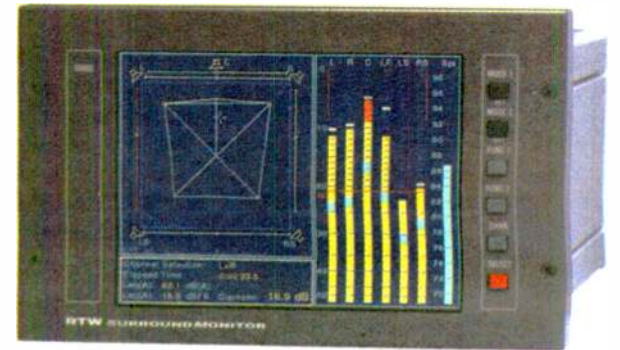
RTW SurroundMonitor Has Analyzer, Display

The RTW SurroundMonitor 10660-VID is a rack-mountable monitoring instrument for multichannel radio applications. It features an integrated surround sound analyzer, with comprehensive display capabilities for stereo and 5.1 surround signals.

The SurroundMonitor 10660-VID has three AES3 signal inputs and a large VGA display, which provides six multistandard peak level meters, a 10-fold correlator display, RTA, SPL/LEQU and dial norm meters, as well as a status monitor. The unit also can be connected to an external VGA monitor.

The integrated surround sound analyzer translates surround audio signals into an easy-to-understand graphical representation that shows the balance between the front and surround channels and among the front left, center and right channels; phantom audio sources; dynamic display of the loudness center of gravity within the surround field; and the phase relationships, among other information.

For more information, contact RTW distributor GMA, LLC in California at (818) 701-6201 or visit www.rtw.de.



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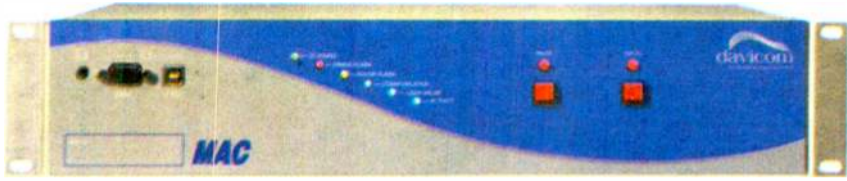
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TECH UPDATES

Bilingual MAC Units Support IP

Davicom, a division of Comlab Inc., says its MAC units remotely monitor and control transmission sites and unattended studios, allowing broadcasters to reduce operating costs and downtime.

MAC units include 128-bit encrypted IP communications (LAN, WAN, Internet) and can accommodate two modems, one as a primary link using landline plus a backup using GSM, for example. Also, up to four users can connect simultaneously to the units.



MAC units are bilingual (one ASCII and one Unicode character set) and allow each user to select the language for MacComm displays, as well as the voice response system. Local dealers can record custom vocabulary into the MAC units, allowing them to "speak" with user-defined phrases.

Each unit has 128 timers, which can be used to program AM day/night pattern changes, or set up multiple alarm-call lists for day/night work shifts or vacations, for example. MAC units also have 128 virtual logic gates and mathematical functions (to program more conditional actions and complex logic operations), and 128 virtual relays. Physical and virtual relays can be configured for latch and follow modes, and variable pause length.

For more information, including pricing, contact Davicom in Quebec at (418) 682-3380 or visit www.davicom.com.

FMHD-1 Simultaneously Decodes HD, FM

The **Belar FMHD-1** is a monitor that decodes HD Radio and analog FM signals at the same time, displaying HD Radio status, configuration, SIS, PAD and time alignment information, as well as audio metering and RF spectrums. The company says the unit's eight analog and six AES/EBU assignable audio outputs provide ample capacity as the broadcaster adds additional audio streams.



The FMHD-1 decodes the analog L/R program and one HD program simultaneously; adding the optional second HD module provides decoding of two HD programs at the same time. This additional monitoring of the main HD program and one supplemental HD program continuously.

In addition to an antenna input for monitoring off the air, the FMHD-1 has two high-level RF inputs for transmitter site operation. Older wideband analog FM monitors out in the field can be connected directly to the FMHD-1's two filtered analog composite outputs. An RJ-45 10/100 Ethernet and RS-232 serial computer interface used in conjunction with the Wizard for Windows PC software allows remote access to the FMHD-1's data and adds graphing and logging functionality.

The FMHD-1 retails for \$5,900. The optional second decoder is \$550.

For more information, contact Belar in Pennsylvania at (610) 687-5550 or visit www.belar.com.

DaySequerra Has M2 Software, Market Area Monitor

DaySequerra's Remote Dashboard software v1.2 is available for the company's M2.2 HD radio modulation monitors. It is an application that, used with the M2.2's Ethernet interface, provides remote control and monitoring of AM and FM HD Radio broadcasts, as well as alarm capabilities.

Remote Dashboard allows a remote M2.2 user to simultaneously monitor HD Radio program availability and digital audio presence for MPS (HD1) and multicast HD2 through HD8 broadcasts, along with analog audio presence, analog delay bit and RF carrier signal strength. The complete HD Radio PAD and SIS data package including station descriptions and program song title, artist, album, genre and comments also can be simultaneously displayed, each in its own window.

Alarm capability is provided for Remote Dashboard functions such as analog and digital audio silence sensing; active alarm notification is via e-mail. Logging capa-



bilities are provided for PAD and SIS data, as well as alarm conditions.

Current M2.2 users are asked to e-mail DaySequerra with the serial number of their unit; the Remote Dashboard installation package will be e-mailed to them along with

M2.2 firmware. M2.0 or M2.1 users looking to upgrade to the M2.2 can e-mail the company at support@daysequerra.com.

DaySequerra also offers the Market Area Monitor, which gives diagnostic measurements for HD Radio stations. Small and large operations can record a snapshot of a station's HD Radio output including audio SNR, level and time alignment and audio program samples, as well as cataloging that station's HD Radio data payload. Additional highlights include unattended monitoring.

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

MSD 100C Displays Info on Color LCD

The Master Stereo Display (MSD) 100C from **DK Technologies** displays the audio level, correlation vectors and the correlation between the two audio signals in the stereo signal. The company says it aims the unit, a development of the MSD100, at stations seeking an easy and cost-effective way of monitoring stereo audio signals.

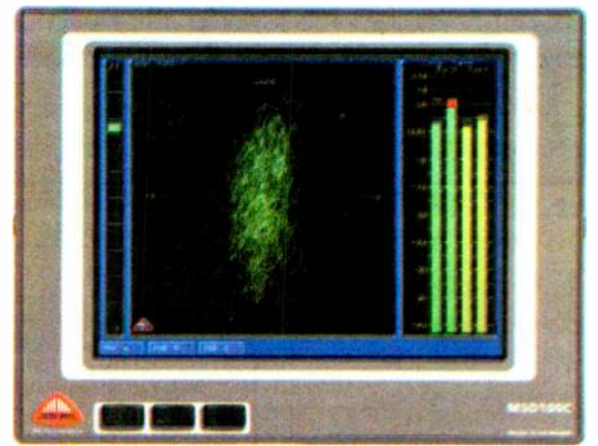
The MSD100C displays information on a bright 6-1/2-inch LCD color display, while a VGA output allows connection to a standard computer screen. It is possible to configure the MSD100C to display any common scale, making it adaptable to all working environments.

Display of the audio levels is as a peak program meter with easily visible level bars. The close spacing of the bars facilitates balancing of the stereo signal. Additionally, users can configure the meter to show overload in a different color.

The MSD100C also features a stereo vectorscope, which provides information on the stereo characteristics of the audio signal. This makes the proper phasing of the stereo image immediately visible and allows the operator to see the width of the stereo image.

The MSD100C takes both analog and digital audio signals as inputs and comes as a standard desktop unit.

For more information, including pricing, contact DK Technologies in California at (800) 421-0888 or visit www.dk-technologies.com.



TCP/IP-INT System Control Offers 16-Bit DSP

RVR Elettronica says the TCP/IP-INT enables the telemetry of RVR equipment remotely, through an Internet network "tunnel" or through a local network.

The TCP/IP-INT features a 16-bit DSP. Using an ADSL router, interfaced via an RS-232 connection with a standard PC browser, it allows the monitoring of equipment readings.

Additionally, it can receive start and stop commands and can send alarms by e-mail.

Connected equipment is identifiable by means of a static address or, through a DNS server, with a name.

In systems of more than one piece of equipment, the TCP/IP interface makes it possible to create a small local network connected to a hub, applying a TCP/IP interface to all equipment with a serial port.

Hub configuration with a modem, operating in self-answer mode, allows logins via PSTN, GPS or GPRS connections.

User ID and password access guarantee system security.

For more information, including pricing, contact RVR USA at (305) 471-9091 or visit www.rvrusa.com.



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◆ READER'S FORUM ◆

You Ought to Know

I loved Craig Baker's article ("Your Ads Should Attract, Engage and Persuade," Oct. 11).

Thanks for some keen insight and for reminding us of what we ought to know but forget, and more often, what we neglect.

Scott Walker
Production/Continuity Manager
Clear Channel Radio
Lynchburg, Va.

Moving the AM Band

I just read Fred Lundgren's guest commentary ("Dump AM IBOC, Move the AM Band," Oct. 11). This makes more sense than the best design of an IBOC system you could find anywhere.

The biggest issue is whether the consumer radio manufacturers could (or would) cost effectively make a wide-band receiver for this. However, because it makes more sense than IBOC itself, it'll never happen.

Allan A. Augustyn
Engineer
Radio Results Network
Escanaba, Mich.

Fred Lundgren's suggestion to eliminate TV Channels 2 thru 6 was a good one, but for another reason: Non-commercial FM stations have to protect TV Channel 6, and this frequently imposes severe restrictions on the FM applicant. This restriction applies to all non-commercial FM channels.

This means that a non-commercial FM at 91.9 has a restriction, but a commercial FM station on the adjacent 92.1 frequency has no restriction.

Stanley Swanson
Yuma, Ariz.

Thanks for the Gates Memories

The article about the Gates BC-1 did indeed bring a few thoughts to mind ("Gates Built a 1 kW Classic," Oct. 11). My first experience with a BC-1G was at my first full-time job in broadcasting.

I was a college student when a local station took delivery of a BC-500, which was a BC-1G with just one 833 in the final amplifier stage. I helped the chief engineer muscle it into place inside the transmitter building. A short while later, the station was sold, and a new chief engineer arrived. There are a few folks around who will remember the late Steve Broomell, a very colorful character who solved problems in clever ways that only he could have imagined.

Steve had worked at CBS Labs and had been involved in the Volumax and Audimax audio processors, and he had worked for Parker Gates as the product manager for one of the Gates/Harris FM transmitters. His knowledge of audio and RF was considerable. Steve modified the BC-500 to be a BC-1G by simply buying the necessary hardware to mount one more 833 lamp on the rail and turning it on.

I finished college and went to work

managing a photo-finishing plant in another city. Two years later, I decided to return to college, and a few months after that, became the chief engineer of the same station.

In the meantime, Steve had moved to another city and another station. I had charge of the Broomell-modified BC-1G, and of an FM station he'd put on the air (another story). Even though I had played with transmitters a good deal as a ham radio operator, I learned a great deal about radio transmitters during that time. Because Steve had installed the additional 833, the final amplifier tubes loafed at 500 watts. I never had to replace them.

When the time came to do a formal proof of performance, I had a few things to learn. I read the FCC rules, looked up older proofs, modeled my work after them, and only had to replace a pair of 807s to get the audio distortion down to acceptable levels. The transmitter just sat there and ran. I never had to baby-sit a transmitter through warming up of pesky mercury vapor rectifier tubes, as the BC-1G had solid-state rectifiers.

I was a college student when a local station took delivery of a BC-500. I helped the chief engineer muscle it into place.

— Tom Norman

I had to replace the motor and its gear assembly one frosty night. Of course, the building was not heated, as the transmitter was sufficient as a heat source. When it was off, the temperature inside the building dropped rapidly, and the tiny space heater inside the shack was about as helpful as a match in providing heat.

Nonetheless, the next morning, when the jock came in to turn on the transmitter and check power, he attempted an adjustment and it moved very rapidly. He asked me if it was broken. I told him it was fixed. The motor and gear reduction mechanism had been slowing down slowly for a couple of years, and the jocks had gotten accustomed to the slow response. The GM asked me if I could slow it down a bit. I suggested he could wait a couple of years and it would slow down by itself.

The last time I saw this transmitter it was in pieces, in the process of being refurbished for use as a standby transmitter. The station had changed to a new operating frequency, and was higher in power, but station management understood the need for a reliable standby in case of failure of the big rig.


Tom Norman, CPBE, KQ7T
Senior Engineer
Burst
Centennial, Colo.

**More Gates Letters
on page 54**

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Andy Eliason
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◆ READER'S FORUM ◆

Gates Memories

Gates offered its 1 kW AM transmitter with a Conelrad option. Switching instantly to 640 or 1240 required an independently tuned final tank. However, the high-voltage plate supply would arc to the 120-volt contactor coil, opening a circuit breaker, every time.

Ample room in the transmitter allowed me to install an identical contactor adjacent to the contactor carrying the high voltage. I strapped the two armatures together with a heavy plastic bar, and rewired the 120-volt switching power to the second contactor's coil. The physical separation eliminated the arc problem. Otherwise I found the transmitter highly reliable — more reliable than Conelrad.

Ron Pasha
Lubec, Maine

Buc, I learned to drive on a 1956 Renault 4-CV, which only ran on two out of the four cylinders (plug wires were switched on the distributor cap). I never learned to fly — does Jet Blue count?

Anyway, I enjoyed your article on the old Gates transmitter. WYBG(AM) in Massena, N.Y., still uses a BC1T and it uses 807s all around, not the 6BG6s you mentioned. Could this be? And they're on printed circuit boards, so it must be a "T." Or do I just have the wrong tubes in it? The 6BG6 is probably an octal, right? We've been using 807s that I get as NOS from the Rochester Hamfest. They last a couple of years, as opposed to the Chinese and Russian ones that only hang in there for a month or so.

Apparently someone had replaced the original mercury vapor rectifiers with a homemade setup using a bunch of diodes on a piece of Lucite. Unfortunately, years before I showed up in 1980, this Lucite had burned up, leaving globs of the stuff on the left side of the cabinet. The globs are still there and it's on the air as a main to this very day. Amazing rigs!

Bob Sauter
Canton, N.Y.

Buc Fitch replies: I have been told that Gates sold a retrofit kit for 807 aficionados and in response to a need for more drive when folks started modulating at 125 percent positive peaks. My vaguest recollection is that Gates sold a 125 percent kit that was this driver board and an extra cap for the hi-v supply to 'reservoir'

more current for the increased positive modulation excursions. That may possibly be what you have.

Buc, your article about the Gates transmitters and the photo of the BC1T brought back a flood of memories from my college days. While a student at Purdue University I worked all four years at WASK(FM), a commercial station in Lafayette, Ind., 1450 kHz., 1 kW daytime, 250 watts at night, non-directional.

At sign-off at midnight, I would push the switch to take the plate off the air as soon as the last note of the national anthem had faded. As I recall, I then later shut down the filaments with the other switch on the front panel.

I remember how fragile I always thought those switches were on the front of the BC-1T. The transmitter I had operated previously — WVMC(FM), 1360 kHz, Mount Carmel, Ill. — was an older Gates (500-250 watts) with front-panel "plunger" switches, as I would call them. You would shove those switches with your whole hand. And the moment my palm depressed that plunger, I would hear WSAI(AM) (then 1360 kHz, Cincinnati) come booming in over the air monitor.

Those old Gates plunger switches seemed indestructible to this farm kid who really wanted to be operating a Gates instead of a Farmall.

Thanks for the memories.

Max Armstrong
Business/AgriBusiness Broadcaster
WGN Radio
Chicago

Working With Lyons

Please add my kudos and congrats to John Lyons for his "Excellence in Engineering" award ("Big Accomplishments in the Big City," Oct. 11). In my 45-year career in broadcast engineering, I am hard put to think of anyone who deserves it more.

Back in the early '80s while serving as chief engineer for Metromedia at WNEW(AM-FM) in New York, I remember John "stepping up to the bar," and offering, unsolicited, use of a spare 20 kW FM transmitter after our transmitter room at Empire suffered a fire that destroyed our main transmitter.

That's the kind of guy he is.

I also recall it was always a pleasure to

The End' of Radio

A good friend of RW recommended that we watch a recent CBC Newsworld program, "The End," for troubling insights into the future of our industry.

The premise is stated in the program's introduction: "The experts have spoken. Mass media is reported to be on its last legs. A handful of new media entities with remarkably silly names: Blogs, Vlogs, YouTube, Podcasts, and Yahoo! are leading the charge, leaving traditional forms of communications to play catch-up or get left behind." The host explores the fate of mass media and wonders "whether we are nearing a world without television, radio or print." You can watch it at www.cbc.ca/theend.

This kind of program comes along from time to time; but given the prevalence of such commentary about old media, we thought we'd take a look based on our colleague's recommendation. And while the show brings a Canadian viewpoint to the matter, the discussion applies to U.S. media as well.

The radio portion of the program's analysis contains nothing that hasn't been debated in these pages for many years. We found it a shallow overview for consumers, one that brings most of them nothing they don't already know. The program is a series of clips from an odd collection of pros, amateurs and consumers giving their cursory opinions without any real investigation of anyone's claims, certainly nothing very authoritative.

Contrast this to "The Long Tail," which brought fresh analysis and clear thinking to the digital media environment and set a lot of folks straight on things that were previously uncertain; that's why it has had such sustained resonance, as RW's Skip Pizzi wrote in an analysis earlier. We wouldn't put "The End of Radio" in that category, nor recommend it other than to see what some "straight" media coverage of the radio industry is saying.

But that's an important point.

The program's concluding sentence is the most worthy: "What's replacing radio? We don't know yet. It's a time of great experimentation." What bugs us is that given this uncertainty, the programmers of this show, like so many other pundits, maintain the premise (or imply it throughout, given the show's title) that radio is "over," even while they report that nothing else has really caught on yet. This is pop-culture, MTV-style journalism at its worst — although highly styled with hip production values, like anything CBC does. And while we don't disagree with some of what's said, we find the presentation far too simplistic.

That's our moral and why we mention this program today: Perceptions of radio's health and future, particularly among consumers and the investment community, tend to be driven by oversimplified analysis and doomsday generalizations. We've seen a great deal of that lately, and it's why we keep harping on the importance of responding to such analysis with reminders of radio's continued strength: our 260 million weekly listeners, our \$20 billion-plus commercial revenue base, our role in the lives of Americans (every day, not to mention during emergencies), and our industry's efforts to expand and improve its own services. As recent research has shown, the majority of listeners expect their radio consumption to remain steady or increase, even with the explosion of new media, in coming years. So who's "catching up" to whom?

Sure, radio has some real challenges before it. But let's avoid the simplistic doomsday "death of old media" talk, and move aggressively to put out the word of what's right with radio.

— RW



work with John on the Master FM Antenna Committee, with his wonderful wit and even disposition.

The industry is fortunate to have

John, and the world at large needs more like him.

Fred Moore
Inverness, Fla.

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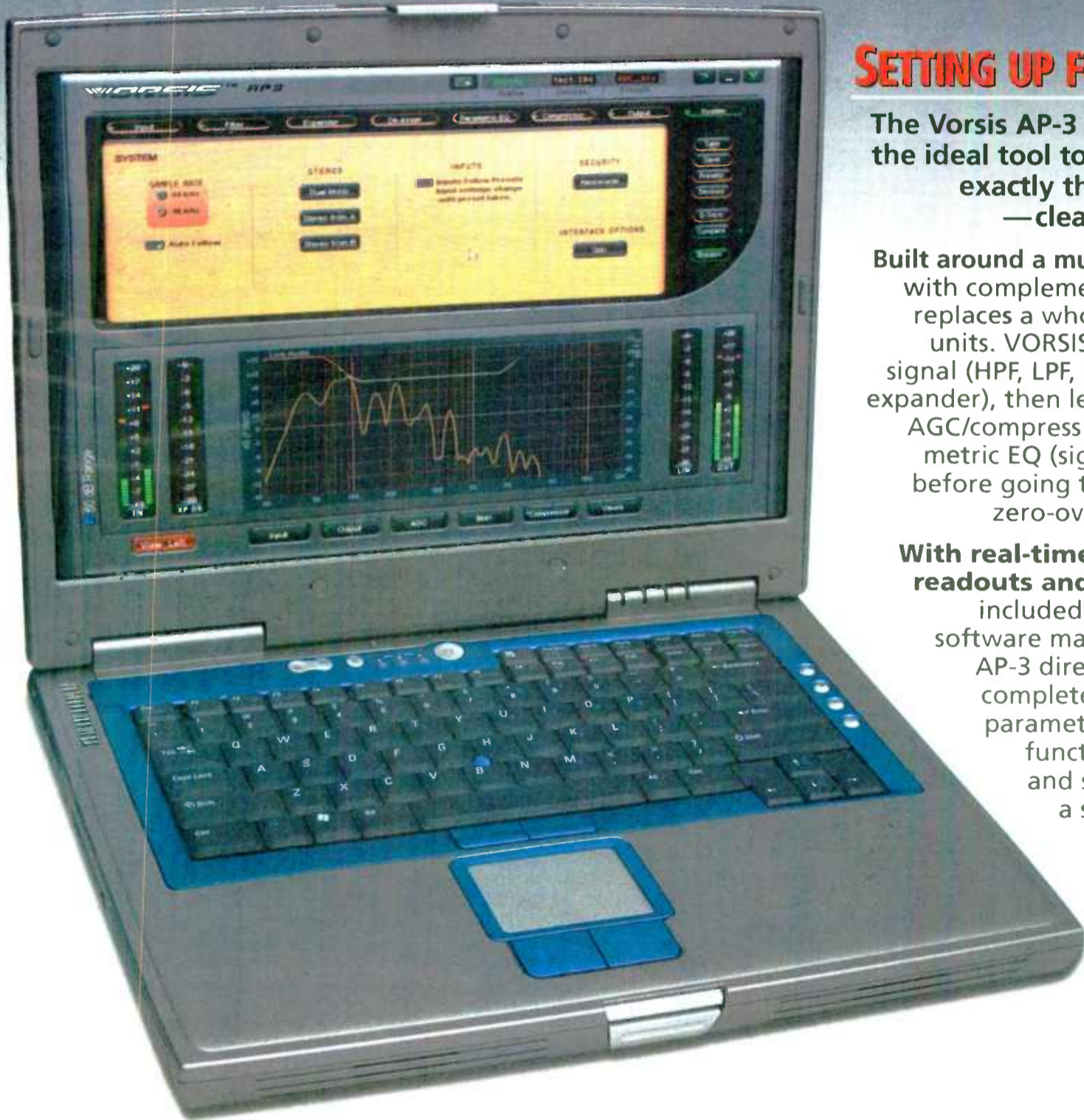
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