WORKBENCH CAPTION BLOWOUT! Page 1

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Radio World®

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NewBay Media

Radio World, now in its 32nd year of serving radio engineers and managers.

Are FM Translators A Lock for AM Stations?

FCC Considers Rule Change as AM Stations Seek Relief

by Randy J. Stine

WASHINGTON Hundreds of AM broadcasters eventually could take advantage of proposed rules changes that will allow them to retransmit their programming on FM translators, industry analysts say.

However, they also believe the interest level will exceed the number of opportunities available.

Some deals between FM translator owners and some AM station owners are already being made since the FCC has been accepting and processing since last year, requests for special temporary authority to allow AM stations to rebroadcast their signals on FM translators. Only the use of existing FM translators, not new ones, is allowed under such

See TRANSLATORS, page 8 ▶

'Freedom Radio' Plays Out in Iraq

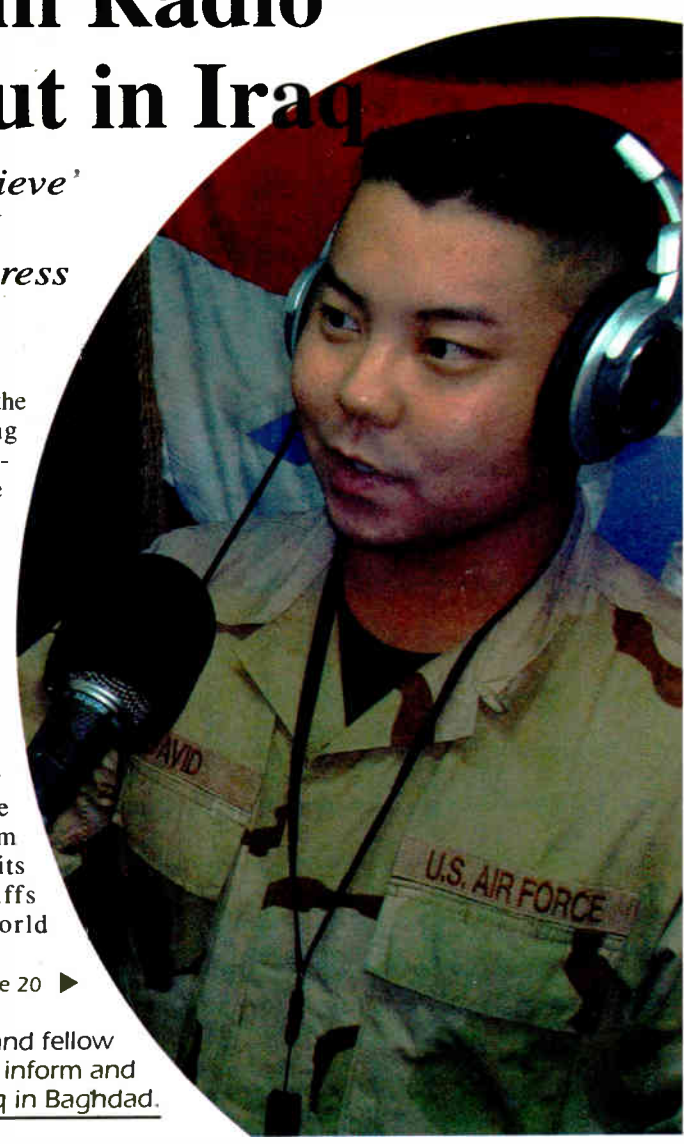
From a 'Make-Believe' Compound, AFN-I Eases Real-War Stress

by John Merli

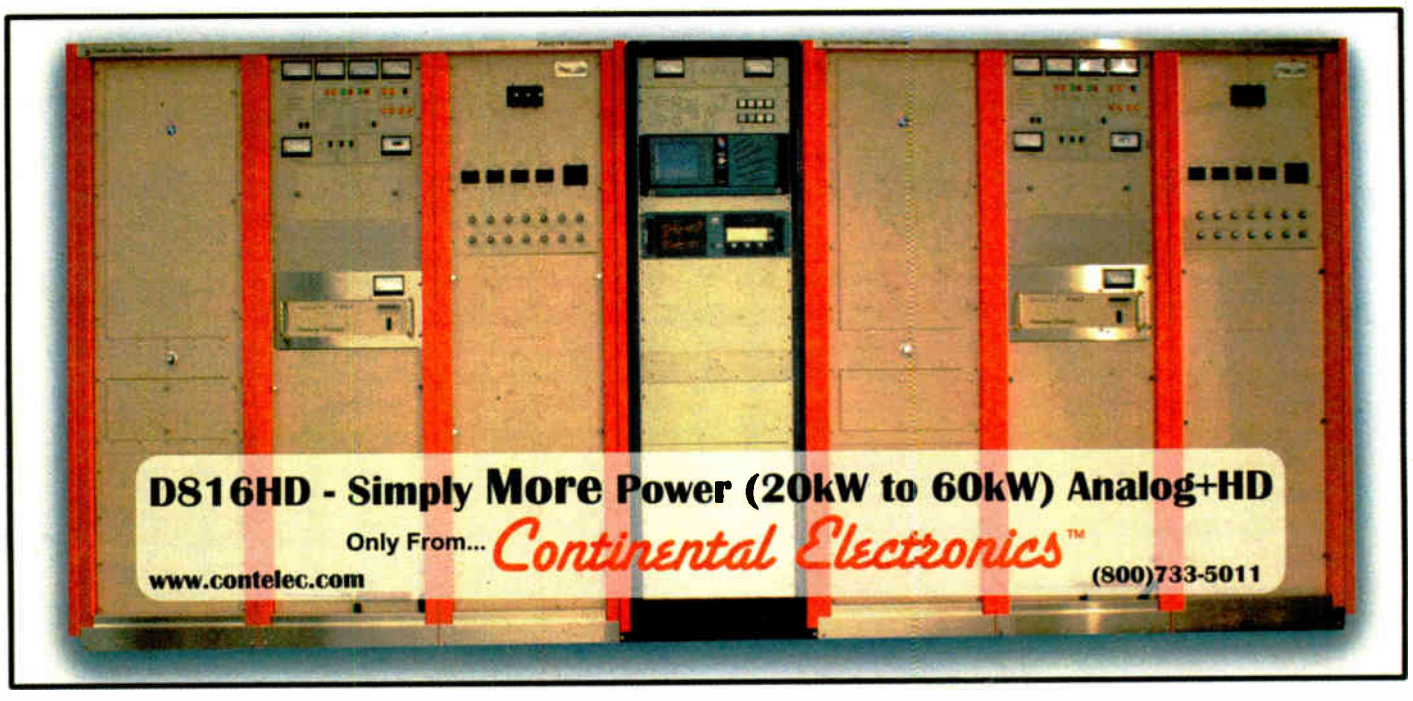
While broadcasters around the world have focused on telling folks back home what's happening on the ground in the war in Iraq, the uniformed reporters and on-air personalities of the Armed Forces Network-Iraq in Baghdad have a more urgent audience to serve: the soldiers, sailors, airmen and marines of the multinational force on or near the front lines.

Day and night, its military and diplomatic audiences tune into what is dubbed "Freedom Radio," broadcasting from its make-believe "Ocean Cliffs Compound" in the real-world scorching desert of Iraq.

See WAR ZONE, page 20 ▶



Staff Sgt. J.D. David and fellow servicemen and women inform and entertain via AFN-Iraq in Baghdad.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World Radio History

NEWS WATCH

Cross-Ownership In Question After FCC Eases Rule

WASHINGTON Observers were waiting in December to see if Congress would follow through on its threat to overturn a partial relaxation of the FCC's cross-ownership ban.

Media observers predicted the issue would be reviewed by a federal appeals court in the New Year. Indeed, on the day the FCC voted to ease, advocacy group Media Access Project promised to take the issue to court.

In a speech on the Senate floor after the vote, Sen. Byron Dorgan, D-N.D., described as "arrogant" the decision to hold the vote despite mostly Democratic lawmakers' direction to delay; he promised that the Senate would pass a "Resolution of Disapproval."

The White House, meanwhile, backed Chairman Kevin Martin's decision to relax the ban. In a letter to Senate Majority Leader Harry Reid, D-Nev., Secretary of Commerce Carlos Guiterrez stated, "Proposed rule revisions are the product of exhaustive review and consultation with the public."

In a 3-2 party-line vote, Martin and the agency's other Republicans relaxed the newspaper-broadcast cross-ownership rules for the nation's 20 largest markets.

The change partially lifts the 32-year-old ban that prevents one entity from both a daily newspaper and either a TV or an AM or FM radio station in one market, assuming certain criteria are met.

It mainly affects the top 20 Nielsen Designated Market Areas. In the other 190 media markets, a company could ask the FCC to allow the change, but a merger would have to pass certain tests.

Critics say those tests are vague and the hurdles low, and the change would lead to consolidation beyond the largest markets. Proponents characterize the change as modest and say it's time to change the rule, the only media ownership rule left untouched by the 1996 Telecom Act.

Christmas present?

The Dec. 18 vote was dramatic and contentious, complete with protestors periodically interrupting the proceedings.

Democratic Commissioners Michael Copps and Jonathan Adelstein called the item a Christmas present to the nation's largest conglomerates that would actually lead to more lost newsroom jobs, not diversity of news programming.

GOP commissioners said there would never be agreement on the issue and said the agency is required by Congress to periodically review its ownership rules and determine if they're still in the public interest.

Martin called ownership "the most contentious and divisive issue" to come before agency — one commissioners had been grappling with for a year and a half.

The Third Circuit Court of Appeals, which stayed and then turned back to the commission rules promulgated under Chairman Michael Powell in 2004, had said the cross-ownership ban "was no longer necessary," said Martin.

NAB also considers the changes modest, a step in aligning broadcasting regulations with the realities of today's communications marketplace.

— Leslie Stimson

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Unattended Ops, EAS Questions In Localism Proceeding

WASHINGTON NAB was not so happy with a report on localism and programming adopted by the commission, one that could spark a new list of requirements for broadcasters including 24/7 staffing and quantifiable requirements for public service programming.

Observers said the proposals are most likely to affect the operations of small stations. The report stems from a study that began in 2004 of whether stations are serving the public interest.

It offers proposals in nine broad areas, commission officials told reporters after the December meeting. The question of

See LOCALISM, page 3 ▶

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NEWS MAKER

CCR Supports Relaxing Ownership

Clear Channel Makes a Case to Legislators For Raising the Local Radio Caps

The following are excerpts of Andrew Levin's testimony during a hearing on FCC oversight and media ownership before the House Subcommittee of Telecommunications and the Internet in December.

Levin, Clear Channel Radio executive vice president and chief legal officer, testified in favor of further relaxation of local radio ownership limits. When it met subsequently, the FCC did not change the limits that allow one company to own up to eight stations in the top markets.

It is our view that the current state of the media marketplace — in which Americans have access to a super-abundance of news, information and entertainment options — renders the local radio ownership caps entirely unnecessary and subject, at the very least, to meaningful relaxation.

Today, nearly 12 years after Congress directed increases in the local radio ownership caps, radio stations of all sizes across the nation are once again facing major operating challenges, not only due to ever-increasing competition among local radio stations, but now due to the onslaught of competition from new — and largely unregulated — technology platforms.

In 1996, Congress could not have imagined the dizzying array of digital audio platforms available to consumers today. The country's two satellite operators — XM and Sirius — can now provide listeners with nearly 300 channels of programming in every local market across the country. In 1996, they weren't even licensed to operate.

In 2003, when the FCC last examined the state of competition in the industry, XM and Sirius had less than 1 million subscribers combined. [Five] years later, they boast over 16 million customers. That's an astounding 16-fold increase. Certainly the FCC is legally required to take notice of this seismic shift in the competitive landscape.

Likewise, Congress could not have imagined in 1996 that nearly 110 million iPods and other MP3 players that are used to listen to music instead of radio would be sold by now. And, as you can imagine, iPods have significantly eroded the amount of time spent listening to free radio, and it's getting worse.

In 2007, 70 percent of new cars were delivered to customers iPod-ready. This will hit radio where it hurts the most, given that 50 percent of time spent listening to radio takes place in the car. Those devices did not even exist in 1996.

While Congress may have been able to envision the day when people might listen to music over the Internet, it had no idea that today 30 million people would listen to music services on the Internet every week.

All of these wonderful technologies have one profound thing in common — they are achieving tremendous growth — which we otherwise term "success" — and providing wonderful new services to consumers, but all are doing so in unregulated, market-driven environments. Free radio broadcasters, by contrast, remain shackled by outdated regulations that limit their growth, and their ability to deliver services that consumers want and need.

The numbers more than bear this out: in the five-year period between 2002 and 2006, the average annual growth rate for XM was 161 percent. Sirius grew 430 percent. Apple grew 43 percent. But during that same period, free radio grew less than 1 percent. Moreover, radio industry revenues fell by an average of 8 percent between September 2006 and September 2007. ...

Projections going forward are all flat to down. This is unsustainable. Free, local radio needs regulatory reform now.

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Localism

▶ Continued from page 2

whether stations that have unattended operations can adequately send EAS alerts is being explored (as it is in the further notice for IBOC rules).

Payola, sponsor ID problems and voice-tracking are being reviewed in this proceeding as well. The FCC seeks comments on each of these areas to MB Docket 04-233.

The report also says the agency will look for other ways to help prospective radio licensees identify suitable commercial FM spectrum, "including authorizing the development of software to do so."

NAB said it would be reviewing the proposal once the details were available. The trade group said, "[O]nerous regulations can have the unintended consequence of reducing programming quality. We are confident that any truly objective localism analysis will vindicate the performance of radio and TV broadcasters, and overshadow the shrill voices of those who would regulate broadcasters back to the 1960s."

News Roundup

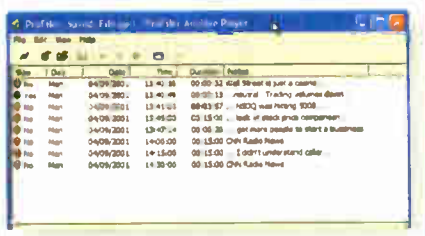
DAHL: The Peter W. Dahl Co., a manufacturer of custom transformers, said it would close. Founder Peter Dahl is retiring due to ill health. He has Parkinson's disease. Dahl said he would like to find buyers for his inventory and the company.

DIVERSITY: New diversity rules from the FCC are meant to help those eligible with access to capital and spectrum availability. With rules voted on in December, the agency aims to kill so-called "no Urban" and "No Hispanic" dictates made by advertisers and agencies that place buys. The commission took several actions including extending construction permit deadlines and adopting a "zero-tolerance" policy for ownership fraud. The rules, when enacted, also require stations renewing licenses to certify that their ad sales contracts do not discriminate on the basis of race or gender.

INNO SUIT: XM and Universal Music Group resolved a lawsuit brought by UMG over the Pioneer Inno, a portable satellite receiver that can record programming, including music. The companies did not disclose terms, but said it covers all receivers in the XM product line that include recording capability. The Inno allows users to select and save a certain amount of songs from the satellite radio channels on the device. UMG and the other labels argue that "cherrypicking" songs is similar to a download and outside the scope of XM's licensing agreement. UMG was to withdraw as a party to the complaint filed by the major record companies against XM in 2006. The satcaster hopes to soon resolve the complaint filed by the other major record labels.

MICROSOFT SYNC: A streaming radio services provider said it performed a test that demonstrates the viability of Microsoft's Sync device, a voice-activated system developed with Microsoft available as a dealer option in Ford-Lincoln-Mercury 2008 vehicles. TheRadio.Com, part of station broker and engineering firm American Media Services, performed the test which involved a Pantech PN-820 cellphone and Dell XPS-1330 laptop, both linked via Bluetooth to the in-dash Sync unit in a 2008 Ford Explorer. The company did another test in San Francisco recently that it said also demonstrates the viability of Internet radio.

TRIBUNE: Tribune completed its going-private transaction under Sam Zell and added Randy Michaels, formerly of Clear Channel, as executive vice president and CEO of interactive and broadcasting.



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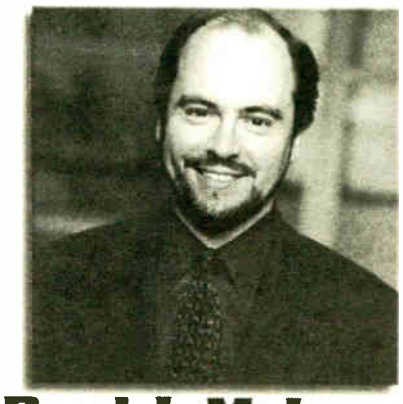
World Radio History

We Need to Mend Some Fences

From the Editor



Paul J. McLane

Broadcasters don't want to pay more than they have to for content, so it's understandable that NAB has been pushing hard against what it calls a "performance tax," mandated compensation for recording artists when songs are played over the air.

The strategy is worth pursuing to NAB because our industry has been built in part on certain assumptions that labels and artists now wish to overthrow. But the association has chosen poor tactics to reach its goals.

Rhetoric on both sides has been heated, sometimes ridiculous; yet the arguments put forward by broadcasters have made me distinctly uneasy because they seem to boil down to this: "We radio stations shouldn't have to pay you performers because you benefit when we play your songs."

Excuse me, but shouldn't it be left to the creator of given content to decide whether he or she wants such a benefit, and to determine under what conditions other commercial entities profit from it?

If I took a recording of Rush Limbaugh off my local radio station and began using it to create a profitable business of my own, both the local station and the national syndicator would be none too pleased; and they'd probably sue me.

I could reply that Rush is an entertainer; that I know better than he does what's good for him; that my exposure of his program to new markets only benefits him; and anyway he makes lots of money already. So why should he be upset?

In truth, though, Rush and the station would be right to go after me. It's their creative work in question, not mine.

This is not a precise analogy because the supply relationship among radio, recording artists and labels is a long one with plenty of precedent, copyright law history and broadcaster lobbying power complicating the fairness question.

And performers are not blameless. For example it's disingenuous of them, after decades of benefiting from our airwaves, to go to Capitol Hill and portray radio as their profit-hungry, faceless corporate ravisher. Artists and labels are talking out of both sides of their mouths about whether radio helps or hurts them; at one point a few months ago, we were even asked to accept the premise that radio airplay *hurts* sales. Please.

Name-calling

So we're now in a situation where two industries that need each other badly are reduced to vicious name-calling. This seems to me a failure of leadership on both sides.

(NAB in December: "After decades of Ebenezer Scrooge-like exploitation of countless artists, RIAA and the foreign-owned record labels are singing a new holiday jingle to offset their failing business model."

The MusicFIRST Coalition, parodying a Christmas poem the next day: "Performers like these bring music to life, yet still NAB continues this strife. 'We promote the artists,' they continually say, as they cash their large checks at the end of the day.")

On basic fairness, the artists seem to have the stronger case. Further, thanks to the tenor of the debate, we now have yet another instance of a national discussion in which the radio business ends up looking like the bad guy. That's saying a lot, given RIAA's heavy-handed reputation.

Consultant/strategist Mark Ramsey raised a related point in his blog: "The entirely correct argument that 'radio sells the music industry's product without charging it for the valuable airtime' involves faceless corporate behemoths on both sides. But the argument that 'radio steals from recording artists and makes a boatload of money' involves individuals — human beings — on one side, and a faceless corporate behemoth on the other. And sympathies among people will always be for people first."

Ramsey said he hopes NAB and our industry's boosters are smart in the way they handle this whole royalty question, but he isn't optimistic. I have similar worries; and I really do regret the tone of the debate. Suggesting that successful musical acts would still be "back in the garage" without radio is demeaning.

I understand this is all about negotiating position. I support broadcasters who aim to keep costs reasonable and I am glad NAB is vigorous in the campaigns it does choose to fight. However, I think broadcasters are pursuing the wrong tactics in this one, and this has helped turned a natural ally into an enemy.

The music/radio relationship should be one of mutual benefit. I find both sides guilty of failing to nurture a healthy sibling bond. Quit beefing and get talking.

Further, any compromise or legislation that results from all this yap should acknowledge that artists have a reasonable interest in determining how their creative work is used and distributed. Or to be more pragmatic about it: Radio should recognize that it eventually will lose this fight and work now to restore a profitable amity with performers rather than damaging that relationship further.

A Radio Road Warrior

In this issue you'll find the first in a series of *Radio Road Warrior* articles by Paul Kaminski, our "Mad Max" of radio news, who will explore radio electronic newsgathering tips, tricks and trends.

As he explains on page 28, the series "is based on the premise that the time to do heavy thinking about what a reporter will have to bring to the field and how the reporter will work in the field is before the reporter actually has to go to the field." The articles are intended for those who buy audio equipment for field staff as well.

Paul knows his topic, spending 150 to 180 days a year on the road. Based in Johnson City, N.Y., he has been reporting for years on auto racing and spot news for stations and major networks including ABC Radio News/Sports, NBC Radio Sports, Associated Press Radio, BBC World Service, CBC Radio Sports, North Carolina News Network and USA Radio Sports.

A graduate of Ithaca College and of the Defense Information School's Print Journalism Program, he is retired from the U.S. Army with 28 years of active and reserve service; he was the last news director for the AFRTS Armed Forces Desert Network in Saudia Arabia during the Gulf War.

He has written for Radio World for 10 years; since 2000 you've also heard him on CBS News Radio, where he contributes on auto racing news and issues; he also produces his own syndicated programs, "Race-Talk" and "Radio-Road-Test."

I asked Paul to identify his favorite newsgathering tool of all time, and he named three:

"The VoiceAct, which replaced a telephone microphone with a microphone and circuitry, and allowed you to do wraps in the field; the JK Audio RemoteMix Sport, which combines the functions of a telephone, handset interface and three-input mixer with limiter and can be used to feed a dial-up POTS, line-level loop and, with an adapter, a cell phone, which replaces the VoiceAct and alligator clips; and the Marantz PMD660 solid-state recorder, which literally shaves minutes from recording, editing and feeding audio."

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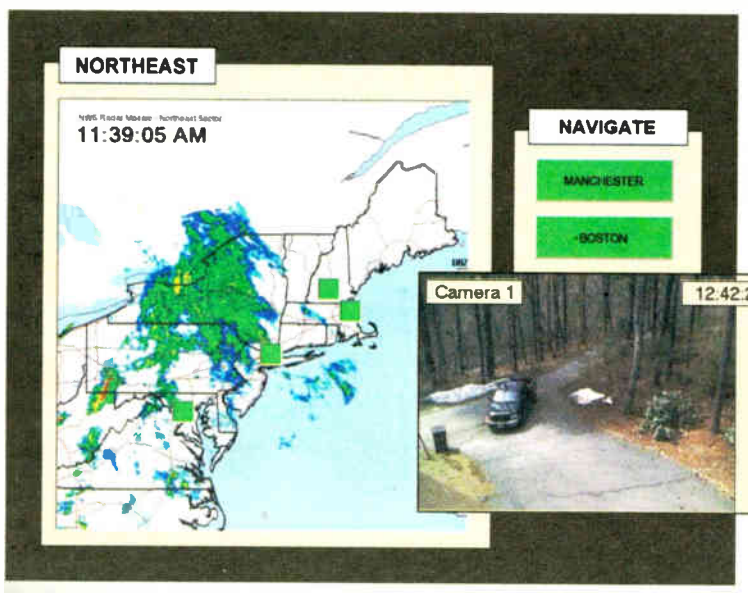

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World Radio History

FCC Rethinks LPFM Assumptions

Translator Debate Broadens; Agency Also Looks at Burdens of Full-Service Stations

by Leslie Stimson

WASHINGTON Saying the environment has changed since it created the low-power FM service eight years ago, the FCC is questioning some assumptions it made early on.

Its latest decisions will affect how it treats full-service FMs and LPFMs in many contexts in future.

In some areas, these changes bring an elevated status to LPFMs. Though it was established as a secondary service, observers believe some of the changes, if they are made permanent, will treat LPFMs almost as a primary service.

The agency also is questioning its FM translator licensing procedures amid complaints of abuse by some organizations. It is grappling with the matter of priority between LPFMs and FM translators in regards to access to new spectrum; but it also raised questions about its broader translator policies beyond the impact on LPFMs.

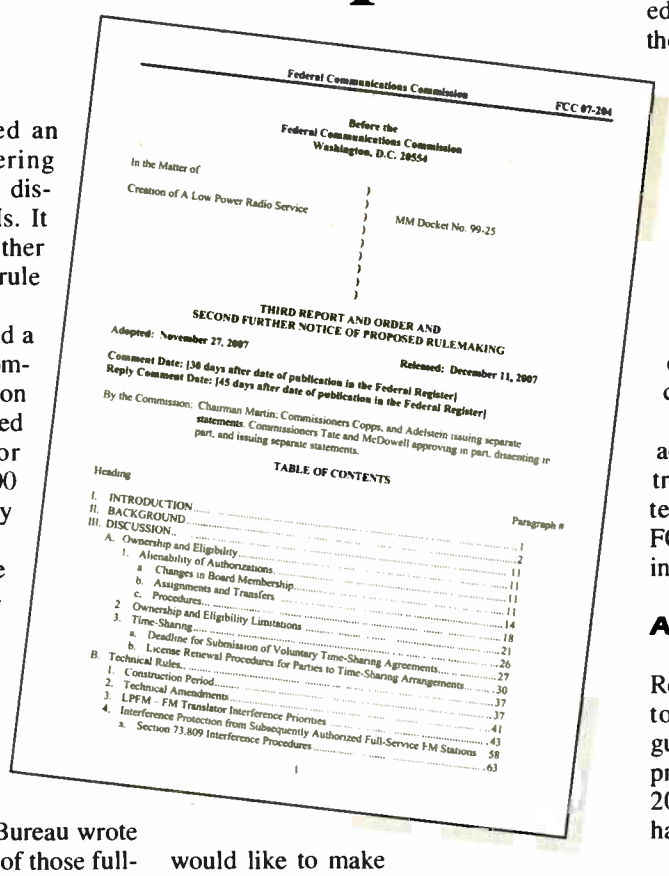
Displacement

Text released in December explained the FCC's Third Report & Order on low-power FM and subsequent Further Notice of Proposed Rulemaking. Its intriguing details give context to some of the decisions commissioners made the month before.

The FCC has established an interim policy for considering short-spacing waivers and a displacement policy for LPFMs. It is taking comments on whether these should be permanent rule changes.

In January of 2007, it lifted a freeze on the filing of FM community-of-license modification proposals and it implemented streamlined procedures for such proposals; more than 200 applications subsequently were filed.

Citing that interest, the agency says it has now identified about 40 LPFMs that are at risk for displacement; LPFM advocates cite some 250 other LPFMs at risk for signal degradation should the full-power station applications be granted.



Federal Communications Commission FCC 07-204

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of

Creation of A Low Power Radio Service) MM Docket No. 99-25

THIRD REPORT AND ORDER AND
SECOND FURTHER NOTICE OF PROPOSED RULEMAKING

Adopted: November 27, 2007 Released: December 11, 2007

Comment Date: [30 days after date of publication in the Federal Register]
Reply Comment Date: [45 days after date of publication in the Federal Register]

By the Commission: Chairman Martin; Commissioners Copps, and Adelstein issuing separate statements. Commissioners Tate and McDowell approving in part, dissenting in part, and issuing separate statements.

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In such cases, the Media Bureau wrote that it appreciates the efforts of those full-service broadcasters that provided technical or financial assistance to LPFMs that needed to make facility mods to remain on the air.

Some full-service stations have agreed to short-spacings to avoid displacing LPFMs, according to the agency, which would like to make short-spacing waiver requests and assistance accommodations a policy.

The FCC "tentatively" has concluded that a full-service station must help LPFMs — financially and technically — when the full-service station's proposed upgrade or move-in would cause interference to the LPFM or displace the lower-power station.

The covered expenses would be limited to the LPFM's transmission system, the FCC initially has decided.

Also in such cases, the LPFM may seek a second-adjacent short-spacing waiver in connection with an application proposing operations on a new channel.

In cases where no other technical remedies can be found to minimize or eliminate interference to an LPFM, the FCC "would favor those LPFMs" that have regularly provided eight hours a day of local programming over an application for a full-power station move-in.

It's important to note that all the actions taken on LPFM vs. full-service, translator priority and interference are temporary, legal experts believe. The FCC seeks further comment before crafting final rules.

A question of priority

NAB said it agreed with the Republican commissioners, who objected to the adoption of interim processing guidelines; these critics said the FCC had previously rejected the waiver policy in 2005 and also that the changes had not had adequate public notice.

Commissioner Deborah Tate could find no justification for a policy shift, noting that "low-power FM licensees provide a great service to their communities, but they accept their license knowing that they are a secondary service."

On translators, the commission earlier

See LPFM, page 6 ▶

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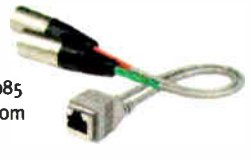

World Radio History

LPFM

▶ Continued from page 5

had asked whether and under what circumstances LPFMs should have priority over "prior-filed" FM translator applications. Both are secondary services and the first-filed currently gets priority.

Arguments break down into two possible theories supporting a change in its rule, the FCC said.

The first theory is that LPFM provides a preferable service because the rules require them to be locally owned and permit local program origination, while translators rebroadcast satellite-delivered national programming.

Some advocates, such as Prometheus Radio Project, support priority status but only for LPFMs that originate local programming; others, such as The Amherst Alliance, advocate priority over translators that rebroadcast the signals of nonlocal stations.

NAB, NPR, state broadcast associations and local noncoms pressed the commission to retain its interference protection rules, arguing there's no simple way to distinguish preferred stations or programming. Broadcasters also say the notion that program origination or ownership correlates to more desirable programming is unfounded.

Public radio commenters reminded the FCC that translators are a critical part of the public radio infrastructure.

The second possible basis for changing its priority rule, the FCC said, would be because "priority status for LPFM applications is necessary to overcome the preclusive impact of more than 13,000 technical proposals filed during the 2003 Auction No. 83 FM translator window."

Some organizations told the FCC LPFMs are not entitled to special consideration because they had first crack at applying for new stations in the 2000–01 LPFM filing window. Translator advocates said their last opportunity (before 2003) had been in 1997.

Public radio commenters reminded the FCC that translators are a critical part of the public radio infrastructure.

The Station Resource Group, an alliance of 45 public broadcasters operating about 170 stations, told the commission the reason LPFMs get squeezed out of opportunity is "a maxed out spectrum situation" that prevents any broadcasters — NCE or commercial, translators or LPFM stations — from obtaining new licenses in virtually all major markets and many medium-sized ones.

The FCC agreed about the spectrum problem and said it needs to consider whether Auction 83 thwarts its goal to provide both LPFM and translator applicants fair access to new spectrum.

Spectrum demand keeps rising, the agency said, noting for instance that the number of applications filed during the AM new and major change windows had increased from 258 in 2000 to more than 1,300 just four years later.

Also there were about 1,850 licensed FM translators and co-channel boosters operating as of September 1990; as of Dec. 31, 1997, shortly after the commission imposed a freeze on new nonreserved band translator filings, about 2,880 translators were operating nationally. By early 2005 it was around 3,900.

Given these issues, the FCC said it needs more information to make a decision on the LPFM vs. translator priority issue and it invited further comments.

However, it did take some bold steps in its decision.

The commission is questioning the integrity of its own FM translator licensing procedures. It will now cap at 10 the number of short-form applications it will process for any given company seeking FM translators.

It mentioned that some 7,000 applications were still pending from Auction 83 but said this new cap will affect only a very small number of applicants. It will give those who have more than 10 applications pending an opportunity to decide their priorities.

Spectrum squeeze

Commenting on this "mass dismissal" of applications, the commission said it was mindful of the costs those filers have incurred said that processing all 7,000 would frustrate its attempts to get new LPFMs on the band and that it's apparent that translator filings "have precluded or diminished LPFM filing opportunities in many communities."

It counted 861 filers that submitted 13,377 translator proposals. Eighty percent of those applicants filed for 10 or fewer, while the remaining 20 percent filed for a lot more, some for up to 50 translators or more. And Radio Assist Ministries and Edgewater Broadcasting, which are commonly owned, filed for the most; those entities asked for more than 4,200 translators just between them, according to the FCC.

Edgewater told the FCC the agency had received no LPFM applications to serve many of the areas specified in its translator filings, and it argued that vast areas of the country remain available for new LPFMs.

But the next LPFM application window may provide "the last meaningful opportunity" to expand the service in spectrum-congested areas, the FCC noted; in contract, the commission expects "significant filing activity in many future translator windows."

Even if its current translator process is lawful, the FCC wondered whether it is fair.

"The rapid flipping of hundreds of permits acquired through the window process for substantial consideration does suggest that our current procedures may be insufficient to deter speculative conduct," the FCC wrote.

"[I]t appears that our assumption that our competitive bidding procedures would deter speculative filings has proven to be unfounded in the Auction No. 83 context."

Spectrum squeeze

In addition to limiting further processing of applications submitted during the auction to 10 per entity for short-form applications only, the commission said it would process the approximately 100 pending but frozen singleton long-form applications without regard to the limit.

The Media Bureau expected to issue a notice for a settlement window.

The agency also said it would change its rules to allow permittees with CPs about to expire to apply for an 18-month extension. Noting that its initial assumption that building LPFMs would require less time than full-power stations "has proved overly optimistic," it said.

Many advocates favored a 36-month construction period, putting LPFM on an even footing with full-power stations. However Prometheus suggested a better approach was the 18-month extension once an applicant demonstrated a good-faith effort to get the station built. The extension gives LPFM permittees to build, yet prevents spectrum warehousing, the FCC said.

Comments to MM Docket 99-25 were due 30 days after Federal Register publication, which had not occurred as of late December.

NEWSWATCH

Mobile Video Space Heats Up

MELBOURNE, Fla. More video competition for radio in the car may be ahead. LG, Harris Broadcast and Kenwood plan a technology demo of mobile video at the upcoming NAB Show, following a CES presentation this month. This demo is more advanced than one held last year, officials said, because it will involve chip-based devices rather than engineering prototypes.

Dave Glidden, vice president of marketing communications for Harris, said the approach is unique, an in-band system for over-the-air television broadcasters that consumers would need a special receiver to see and hear.

In-car receivers are Kenwood's part of the effort, although LG and Harris are hoping the technology can be approved for use in cellphone and other handheld devices.

The digital system takes some of the bandwidth of the terrestrial service and allocates it to mobile service, he said, so the mobile standard must be "harmonized" with the fixed DTV standard.

Harris has been working with LG and its Zenith Labs to test the system on several TV stations to ensure it doesn't interfere with over-the-air TV reception. Several mobile video standards are competing at the Advanced Television Systems Committee, according to Glidden.

Assuming the standard is approved, the necessary equipment — such as the exciter, video encoding multiplexer and receiver — conceivably could be on the market later this year.

World Radio History

Shark, shown interviewing BERT MCCRACKEN, lead singer for THE USED, says: "When Comrex told me that their internal code name for ACCESS was "THE NEXT BIG THING" I got it right away. This IS BIG – I was live, on the air, in places I could NEVER have gone with regular old technology. THANKS COMREX!"

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World Radio History

Translators

▶ Continued from page 1

an arrangement.

The FCC in a proposal of rulemaking in the fall (MB Docket # 07-172) sought public comment on whether to allow AMs to own and operate FM translators as a fill-in service in an area that is the lesser of a circle 25 miles from a transmitter site or within the 3 mV/m daytime service contour.

Advocates of the rulemaking say the public's perception is that AM is outdated and the service needs this help. Add the potential for IBOC nighttime interference further reducing the coverage of many small AM stations, and supporters say allowing AMs to rebroadcast original programming better allows them to serve their local communities. Specifically, daytimers and those with severe limitations on nighttime operations would benefit.

Slam dunk?

A broadcast translator receives a signal and retransmits it on a different frequency via a low-power transmitter — typically 1 watt to 250 watts — to extend the range of the original broadcast station. More than 4,100 FM translators and boosters are licensed to operate in the United States, according to the FCC.

Several communications attorneys contacted for this story say they expect the agency to amend its rules.

"This is about as close to a slam dunk as you can get that the FCC will ultimately modify its rules to permit AM stations to rebroadcast on FM translators. Since the FCC has already authorized through the STA process multiple rebroadcast situations, to some degree, the bell has already rung," said Harry Cole, of Fletcher, Heald & Hildreth and an RW contributor.

AM broadcasters should be aware of what FM translator applications are pending in their area and to the extent they can, be prepared to purchase a translator construction permit if the applications are eventually granted.

— John Garziglia, Womble Carlyle

John Garziglia of Womble Carlyle Sandridge & Rice said, "Since the [FCC] Audio Division is already granting STAs for AM stations to be carried on FM translators, it sure looks they'll be willing to change the rules. However, the process at the FCC has been moving molasses-slow. The commission took over a year to release the Notice of Proposed Rule-making, then another three months to publish it."

The NAB has lobbied hard for the changes, saying they will mitigate coverage problems and promote competition, diversity and localism.

"Allowing AM stations to utilize FM translators will provide AM stations an opportunity to better serve their local community," said Dennis Wharton, vice president of communications for NAB.

"The rule change is needed to assist AM stations that are facing increasing interference due to both manmade and geographic obstacles."

NAB has staunchly sought to protect broadcast spectrum and is on record as being opposed to any additional interference that could be caused by new low-power FM stations. However, the lobbying group believes the proposed translator rulemaking does not create a potential increase of interference on the FM band.

"If anything, (the FCC proposal) underscores the importance of ensuring interference-free radio service," Wharton said.

The NPRM as written only allows existing or applied-for translators to be fed by AM broadcasts, to avoid creating additional interference worries, industry experts say.

Flood

A 2003 FM translator filing window attracted some 13,000 applications. Some 7,000 of those from Auction 83 are still pending, according to the FCC's Audio Division. However, the FCC put a cap on the amount of applications it will process for each entity. See LPFM story, page 5.

The commission is unlikely to launch another FM translator filing window opening additional opportunities for AM broadcasters anytime, given the flood of applications from Auction 83, sources say. In addition, the FCC's recent actions on low-power FM rules could signal limited FM translator growth in the future.

The FCC indicated in its LPFM Third Report & Order, released in December, that it will consider ways to reassess the co-equal, secondary status of LPFM and translator stations. Currently, the first proposed facility of either service has priority over any subsequent application filings.

Industry experts predict there will be a number of new FM translators coming online in the next few years as a result of the 2003 window, but maybe not enough to satisfy the interest level of AM broadcasters.

"AM broadcasters should be aware of what FM translator applications are pending in their area and to the extent they can, be prepared to purchase a translator construction permit if the applications are eventually granted," said Garziglia.

One communications attorney said, "With the commission's new twists on secondary services, we may be in for a spell of dueling banjos," as new rules for both LPFM and FM translators are determined.

"It is possible the FCC will try to give some kind of priority for LPFM stations over FM translators," said Garziglia.

Cole agrees the change in LPFM rules will result in fewer opportunities for FM translator hopefuls.

"The FCC seems to perceive LPFM and FM translators as enemies, so any advancement of LPFM interests would ordinarily be expected to mean some corresponding curtailment of translators' interests," Cole said.

Garvey Schubert Barer's John Crigler said one of the drawbacks of the new FM translator proposal is the scarcity of spectrum for new translators and the intense competition for that spectrum by established commercial and non-commercial broadcasters.

"With the some of the interference rules lifted for LPFM, the competition will ratchet up even further. LPFM advocates see every translator as a lost opportunity for a new LPFM station," Crigler added.

Strong interest

Industry analysts say there is a high level of interest among AM licensees eager to explore new opportunities with FM translators. In comments to the FCC, several AM licensees wrote about being able to better serve their communities as a result of the proposed changes.

Robert Bierman, owner of WCHM (AM) in Clarkesville, Ga., said the substantial increase of manmade interference to AM broadcast sources has hurt his station.

"The interference has dramatically reduced both our daytime and nighttime coverage, making it difficult for many people in our primary service contours to listen without objectionable interference.

"The use of FM translators to overcome the increasing limitations to many AM stations would be of great service, particularly in smaller communities," Bierman wrote in his public comments.

Another AM broadcaster said the rules change would "level the playing field" and allow AM stations to compete with FMs.

"I own and operate a 1 kW AM radio station in Cairo, Ga. Our station went on the air in 1949 when there were fewer radio stations and therefore, little interference. Since that time ... we have noticed that our signal is no longer the clear voice of our community," Jeff Lovett, owner of WGRA(AM) wrote in his comments.

"If we were able to provide programming on a limited power FM channel ... we could bring a real community radio station, owned and operated by people who live in our hometown, to thousands of people who will never switch over to AM," Lovett concluded.

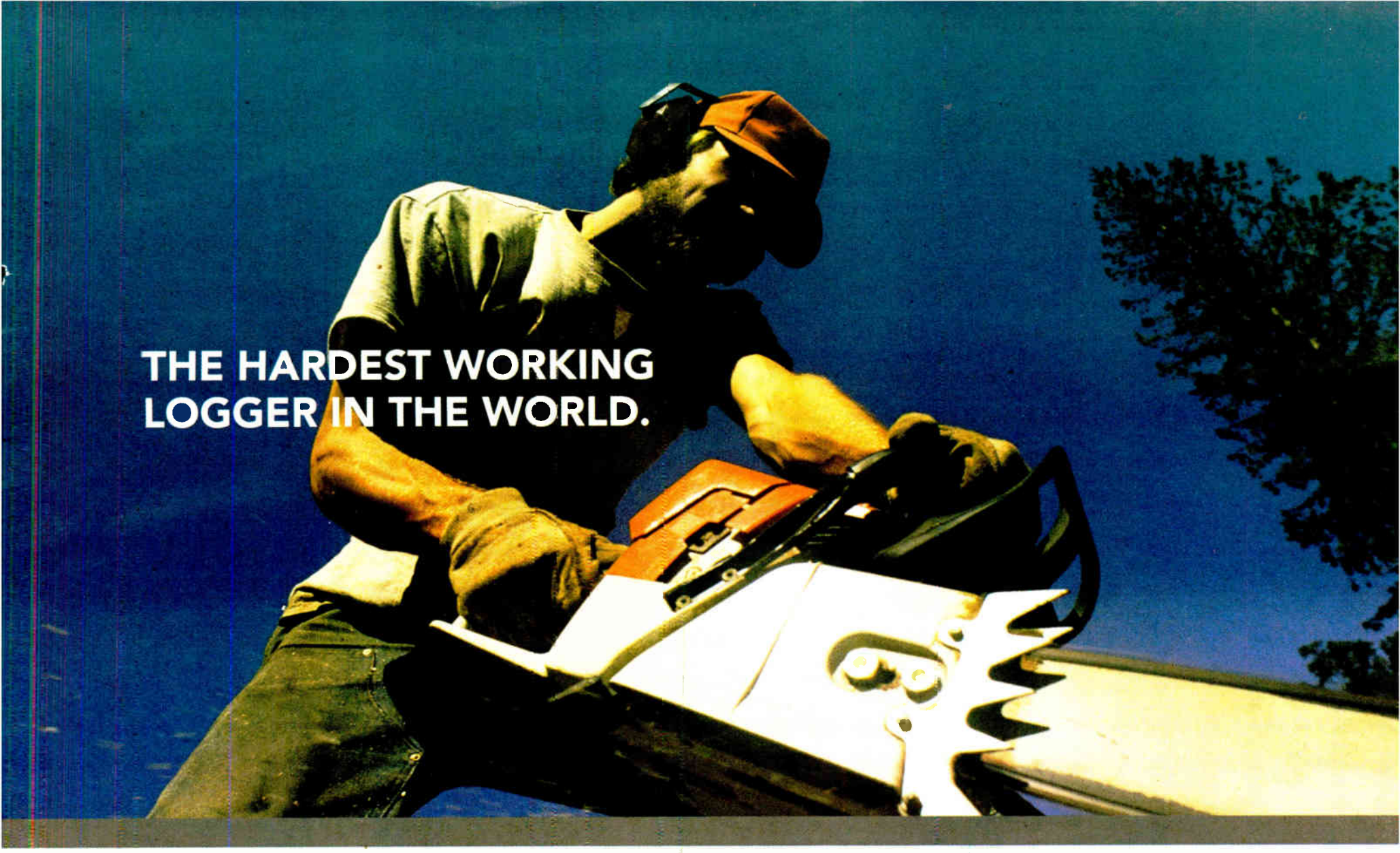
As part of the rule process, the commission will also decide if it should cap the number of translators an AM station can employ.

"We feel a limit of five translators for any one AM station is appropriate," wrote Clyde Scott Jr., president of Colquitt Community Radio, a Georgia not-for-profit corporation.

Reply comments to FCC Docket # 07-172 to allow FM translators to rebroadcast the signal of AM stations are due Feb. 4.

Most observers expect the FCC to then act quickly to adopt the rules, possibly as early as this summer.

World Radio History



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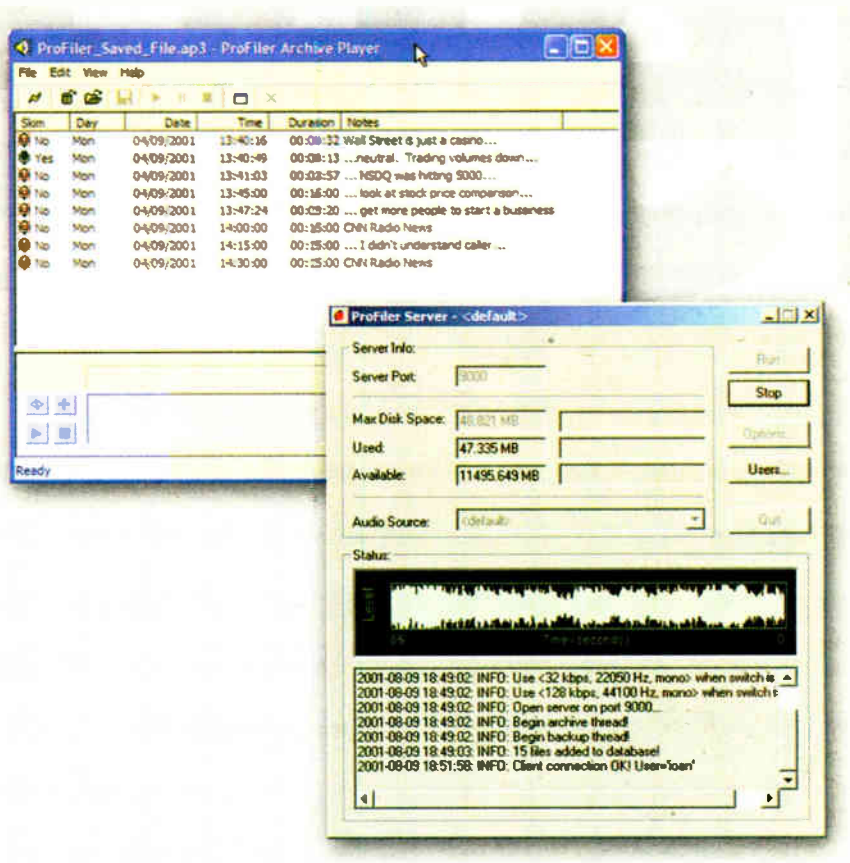

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World Radio History

Who Let the Smoke Out, Uh, Uhhh?

Our Caption Contest Drew Hundreds of Entries. Here Are Some of the Best

by John Bisset

Talk about being overwhelmed. I'm grateful for the hundreds of captions readers sent for our contest a few months back. You have again demonstrated that this column is one of the industry's best read. Thanks for taking the time to show off your ingenuity.

RW's headline for this photo was "Radio Station Has Blowout Ad Sale." Your own ideas numbered in the hundreds. Space won't allow me to print every one, but here's a taste.

Many entries can be grouped into one of three themes: format, technology and food.

Josh Jones of Red River Broadcasting writes, "This is why nobody plays rock and roll on AM any more." He also suggested "Station off-air following format change to hip hop." E-mail contributor Jonry10 proposed, "Well, after all, we are the 'Smokin' Oldies Station.'" Steve Tuzeneu, CBT, offered a programming suggestion: "Smokin' 950 ... today's hottest talk programs."

Chris Oradat of WCLO(AM)/WJVL (FM) in Janesville, Wis., came up with, "WKRP, with music so hot, our tower can't handle it!" Chris also labeled the smoking ATU as "theft deterrent for copper thieves."

Scott Todd at KKMS(AM) wrote, "Marvin the Martian must have gotten really *angry* at our host's comments!"

Hot topics

Dennis Graiani is with WRCR(AM) in New York. He suggested, "I *told* them Hot AC wasn't a good format for AM."

Neil Richter, a board operator with WRCR, came up with "Talk radio ... nothing but a lot of hot air!"

There were many associated with Don Imus. Rev. Robert Biermann likes "Imus said *what*?" Bob Pritchard, a broadcast media coordinator, suggested, "Don Imus has just been selected Pope of the Church of Freedom of Speech." Willie with WFIF(AM) Engineering kept up this theme with, "Looks like Imus is back!"

M. R. Murray is VP/GM for High Country Radio in Colorado; he observed, "Imus must be back on the air." But Leon Amstutz, CBRTE, of Taylor University suggested a comment from the Big Guy: "Don't air that language again! — God."

There were radio and television show themes, too.

Stevie B. at Classic Rock 103.9 suggested a reaction courtesy of Steve Urkel, the television character on the 1990s sitcom "Family Matters" with "Whoops, did I do that?"

We have our share of Trekkies among readers: Remember Kirk's plea, "Scotty, can you give me any more power?" The caption is the chief engineer's classic reply: "Captain, I'm giving you all she's got right now!" suggested by Chuck Woodard of WVOK(AM/FM) in Oxford, Ala.

Photo by John Ramsey

The ATU is on fire, the station is off the air, the GM is heading your way and you are just standing there taking a photo of all this?

Bill Spitzer in Rapid City, S.D., is a long-time Ole and Lena myth spreader. Referring to the ATU: "Dat's one fine carp smoker ya got der, Ole."

(One of Bill's all-time favorites was when Ole posted a sign in his yard that read "Boat Fer Sale." His friends chided him, saying, "You got no boat, Ole. All you got is dat old Chon Deere tractor and dat Moleeen manure spreader."

"Yah," Ole replied, "and dayer boat fer sale!")

Dan Slentz of WHIZ(AM-FM-TV) in Zanesville, Ohio, suggested "D'oh!" Steve Brown of the Minneapolis Radio Rangers was one of many riffing on old, tired DJ crutches like, "WKRP — the big one for fun, with 5,000 constantly cookin' watts!"

We received entries from station managers including Carl Lamar of Canyon Media. He joined the DJ crutch suggestions with "We've got a smokin' *hot* signal here at WKRP!" He added, "Uhhhh ... Houston ... We have a problem!"

Keeping with the NASA theme, Bob Hughes at the Pentagon suggests, "Five seconds from launch and *this* happens!" Bob also included a possible classified ad for the Broadcast Equipment Exchange, too: "For sale: Smoke-tested ATU, needs some work but a great 'fixer upper.'"

Smoke signals

Many, like Mark Voris, emergency coordinator for Dawson County and the president of the Heartland Amateur Radio Association, offered, "What a hot signal" and "factory installed smoke released!"

Buckley Broadcasting's VP of engineering and fellow RW contributor Tom Ray took to the blackboard: "Students, electronic items run on smoke. As we can clearly see here, when the smoke comes out, the item stops working."

Ernie Swanson, Wisconsin chief engineer for NRG Media, tells readers, "It's tuned for maximum smoke now!"

Cox Radio's Paul Reynolds asked, "All right ... who let the smoke out?" Roger Arnold of Hall Radio suggested "tune for maximum smoke."

Jim Lotspeich is a ham and a retired chief, originally from El Paso, Texas. He

See CAPTIONS, page 12 ▶

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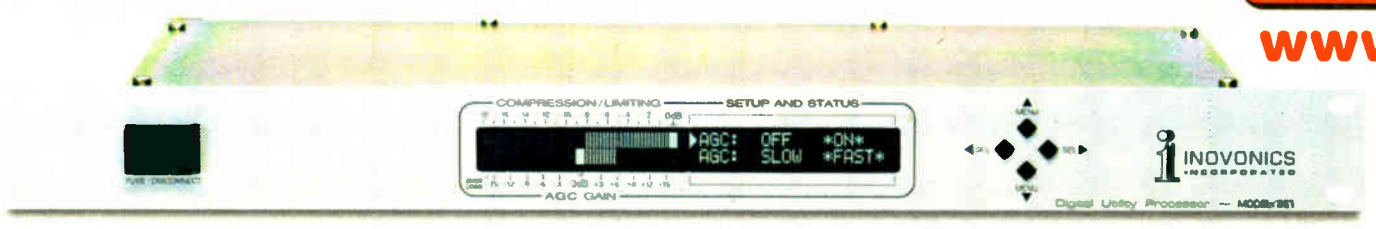

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Chief Engineer
Clear Channel St. Louis

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- Grady Jeffreys,
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World Radio History

Captions

▶ Continued from page 10

spends his days on Lake Travis in Lago Vista. His submissions included a favorite: "What size cap did you say to put in the ATU?"

To our ATU invaders: "Best snake trap around!" And, typical among retired engineers, "I miss letting out the smoke."

Speaking of varmints, Bob Seaberg W3MDM likes, "Mouse 'house-warming,'" where a rodent built a house in a warm inductor, or courtesy of Donald Trump, "You're fired!" Bob then writes, "Now tell us 'the rest of the story.'"

Charlie Brown at Clear Channel Engineering in Hartford commented, "Well ... it's not gonna work now 'cause all the smoke's been let out."

Hal Williams is technical facilities manager at Salem Communications in Camarillo, Calif. His play on words: "Great Murphy's Ghost!"

Richard Miller is with KUAU(AM) 1570 in Maui, Hawaii; he offers, "Time to spend money. It's not FM, so who cares?" and "Darn. It was very *loud*, for a short time!"

Steve Runck is a staff engineer in Fargo, N.D. He wrote, "First-Year Engineering Intern Tunes for Maximum Smoke and Wins Vacation" or in a salute to RF safety, "OK, Charlie, everything's off now. ... Charlie? ... Charlie, where are you?"

George Corso is regional director of engineering for Beasley in Miami; he offered, "A security breach at the smoke factory."

"Dude, like, how is it that we put the magic smoke back in?" was Alan Fisher's entry from Clear Channel Richmond, Va. And Salem Communications' Scott Horner writes: "Ahh, I can here the music playing now: 'Who Let the Smoke Out ... Uhhh ... Uhhh ... Uhhh ... Uhhh ... Hoo ... Who Let the Smoke Out?'

The answer's easy

Consulting engineer Bob Culver of Lohnes and Culver wrote, "John, such an easy task. The ATU is on fire, the station is off the air, the GM is heading your way and you are just standing there taking a photo of all this? The caption is a no-brainer. Use the universal exclamation, short and to the point: 'Oh, $#*@!'"

Another "been there, done that" caption came from Tom Holmes, CE for Cumulus in Columbia, Mo.: "Darn, now I know where I left that screwdriver" and Mitch Rakoff asked, "Anyone seen my Channel Locks?"

From Italy comes a suggestion from hardware-firmware Developer Mario Duchi: "Holy Smoke!"

Kenneth Jones of WATZ(AM)/FM in Alpena, Mich.,

See CAPTIONS, page 22 ▶

"Smoke on the Watt-er" ... "Smoke Pork With Your ATU in 5 Easy Steps!" ... "RF 1, Snake 0"

World Radio History

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World Radio History

HD Radio News

Sangean's HDT-1X

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Radio World | Covering Radio's Digital Transition | January 16, 2008

FIRST PERSON

A Digital Pitch Takes a Personal Touch

VPR Pursues an Active Approach to Explaining Digital Radio to Listeners

by Rich Parker

BURLINGTON, Vt. "Can I get regular FM on an HD radio?" "Why do I need to get a new radio? I already have very good radios."

When Vermont Public Radio made the decision to begin broadcasting in HD, we sensed that it would probably be up to us to promote the new technology to our listeners and — more importantly in Vermont, which is not anywhere near the top 100 markets — to our local electronic retailers.

But VPR is accustomed to initial opposition to new ideas. When our first transmitter was put on the air more than 30 years ago the founders heard things like, "Are you just going to be broadcasting to cows?" or "What makes you think that you'll ever find support for public radio in Vermont?"

Today with a network of eight full-time transmitters and several translators across the state, Web streaming and local support, VPR is a strong and viable statewide network, providing two distinct program services to most of the state.

Questions

When National Public Radio's NPR Labs began championing HD-R multicasting, VPR realized that multicasting could be a big part of our strategy for getting additional services to our listeners while we continued to expand our second analog network across the state.

We also knew that as a public radio station, we had a staff already attuned to customer service, with the ability to bring the HD-R message to our listeners in a meaningful and effective way.

And so it was that almost a year ago, with assistance of the Corporation for Public Broadcasting, Vermont Public Radio embarked on converting what was then our six main transmitters across the state to HD Radio.

It was clear to us that we needed to find a way to answer listeners questions about IBOC, and at the same time effectively promote the new potential of HD Radio and in particular, multicasting.

David Warren, VPR manager of special gifts, and Retta Huttlinger, manager of major gifts, with HD-R receivers and auxiliary antennas used for listener demos.

And promote it we did — with on air spots, Web tiles, press releases and word of mouth. In an industry where naysayers predicted doom and gloom scenarios about consumer acceptance of HD Radio, we knew that as a station it was ultimately up to us to advocate effectively for IBOC, with listeners, and with retailers.

We launched our HD-R and multicast technology in late 2006; but even with extensive promotion on-air, in the local press and on our Web site, listener interest and acceptance of HD could be characterized as only "lukewarm" at best. Among listeners it wasn't really perceived as an added value, and most local retailers had barely heard of HD-R.

But some questions did trickle in — and there were lots of misconceptions about what HD Radio was ("Can I get HD-R on my satellite radio?") and frankly there was even some open hostility about a new service that required purchasing another piece of technology. Ironically, many of the people we talked to also had VCRs *and* DVD players at home.

As a listener-supported public radio station, we already had staff members whose job it is to periodically visit listeners and businesses; who talk to potential donors and underwriters every day to solicit their support and to explain our program offerings. We realized that it would be a relatively simple matter to outfit these employees with HD Radios to take with them to demonstrate HD and multicasting, and in come cases, to loan HD Radio receivers to listeners to try for themselves.

So we took advantage of the "broadcaster specials" offered by Ibiquity Digital and some early adopter sales by retailers; we purchased a few HD-R receivers to loan out to board members and curious listeners.

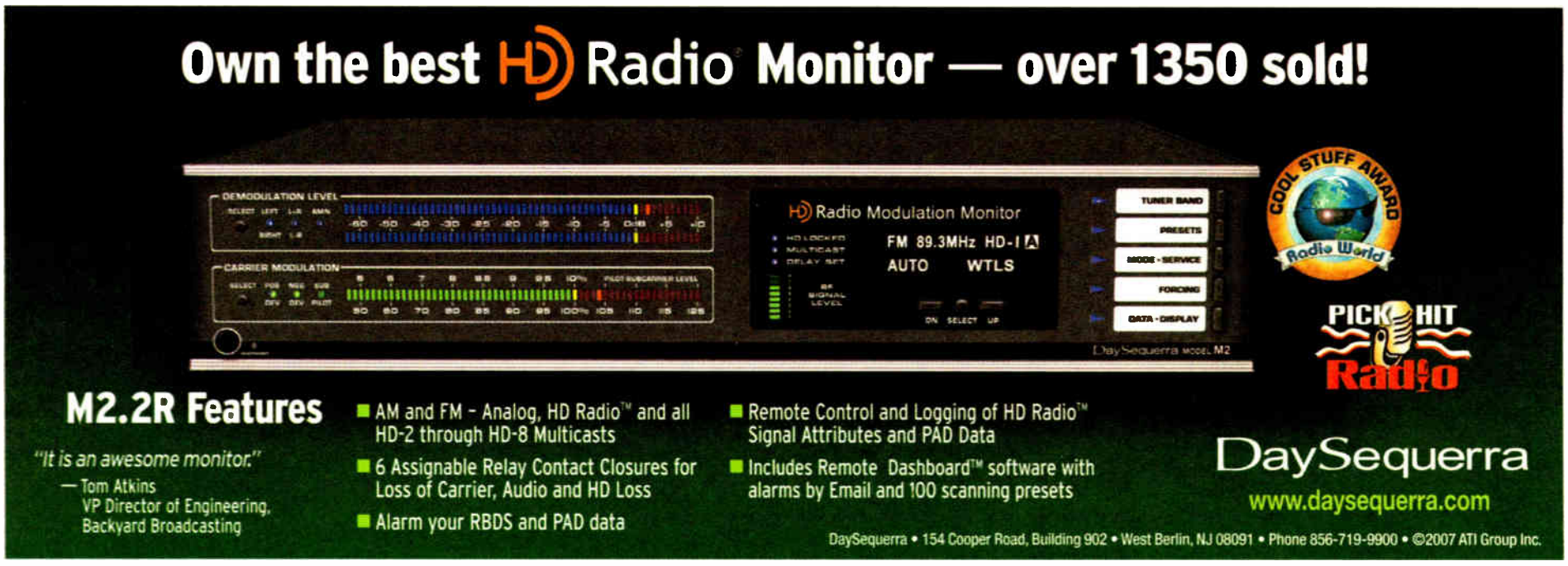
Demos and loaners

At the same time, we were making preparations to divide VPR into two distinct services: one which was to be primarily an all-news and information service, and the other a full-time classical music network. We had been doing extensive promotion about this upcoming change on air, on the Web and in our monthly e-newsletter. In addition, there were ads in the local press and a commentaries and letters to the editor about the proposed changes.

We also have an active community forum, composed of interested listeners who meet at various places across Vermont, to whom we promoted the change in format. In particular, we promoted our multicast channels on HD2, which currently carried VPR Classical, as an option for those listeners who were not going to be able to receive classical music on some of our VPR stations after the format change.

During the transition period before the full format change, we were broadcasting classical music 24/7 on three of our VPR stations across the state and for six hours during the mid-day, and overnight on our

See VPR, page 19 ▶



World Radio History

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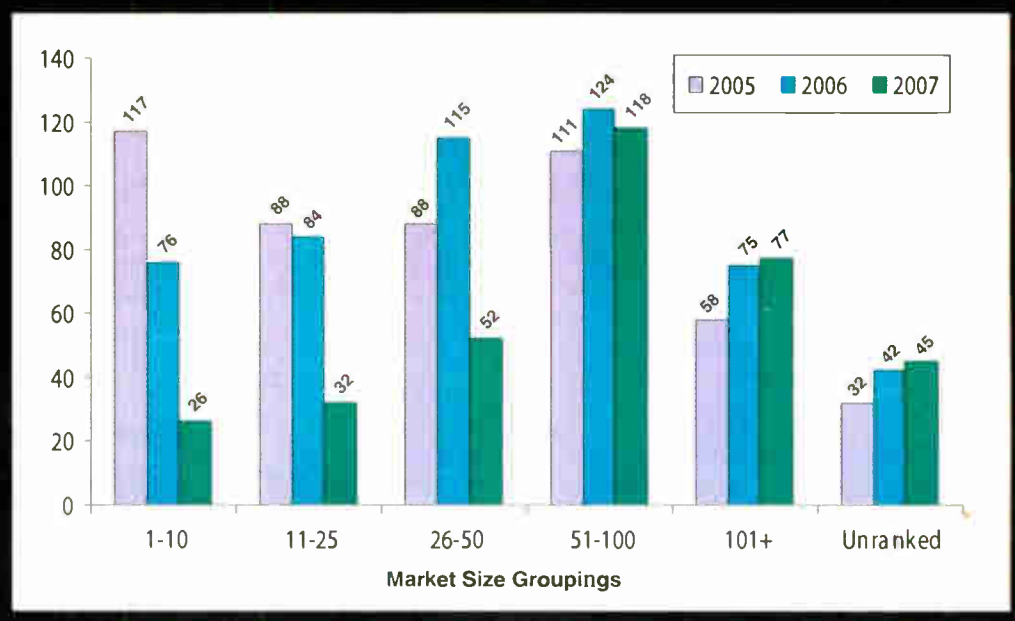
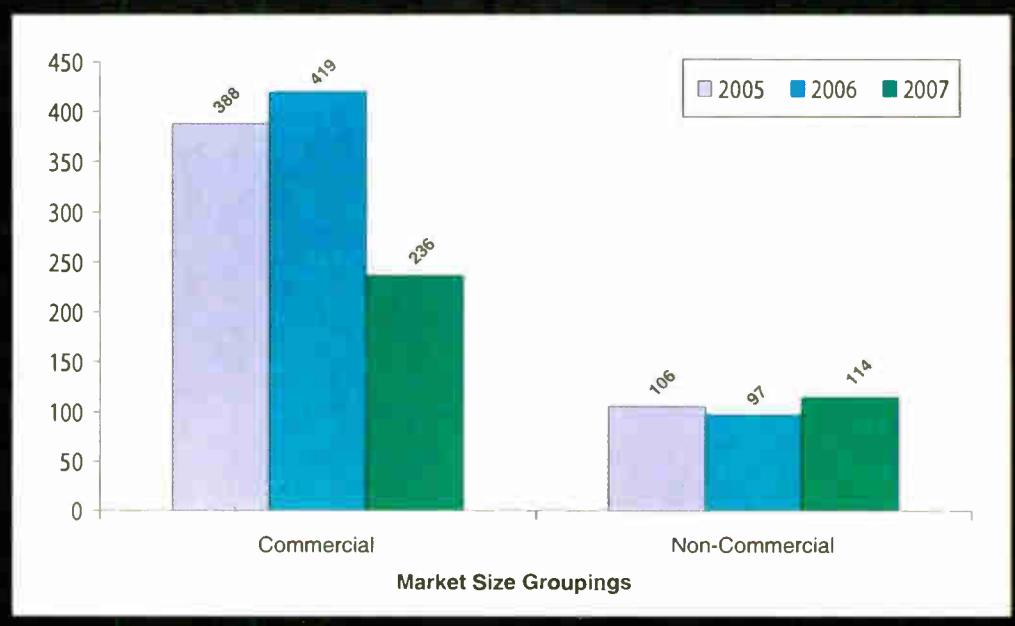
Radio World's HD Radio™ Scoreboard

The HD Radio Scoreboard is compiled by Radio World using information supplied by iBiquity Digital Corp., the HD Digital Radio Alliance. BIA Financial Network and other sources. Data reflect best information as of mid-December. This page is sponsored by Broadcast Electronics. HD Radio is a trademark of iBiquity Digital Corp.

of New HD Radio Stations On-Air By Market Size: 2005-2007
(through mid-December)



of New HD Radio Stations On-Air By Commercial vs. Non-Commercial: 2005-2007
(through mid-December)



Source: Data above is from BIA Financial Network's data service MEDIA Access Pro ™ and also includes Ibiquity information. Visit www.bia.com

HD Radio in Texas

Total stations 935

The HD Radio Bottom Line

	Total Licensed	On the Air	FMs Multicasting
	2,058	1,550	798
Last Month:	2,027	1,525	765
Last Year:	1,629	1,123	527

World Radio History

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

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

Go (con)figure •

Who are these guys? •

Screen play •

Perfect timing • You can't have too much time. That's why Element's unified display system has **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 or elapsed time event timer, a countdown timer (which can act as an on-air cue if they choose), and there's also that big round analog clock right in the center of the screen. (Big Ben chimes not included.) We wanted to make it both logical and easy to change — by the pixel.

Where's Waldo? • It's fun until it's a pretty fun game. But not when when you're in a hurry and definitely not when you're on the air. So every Element fader comes with a big **bold** 10-character LED display right above it to show talent, at a glance, exactly what source is assigned to that fader, if it's input 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 can be sure that these displays are at the perfect angle for either sit-down or stand-up studios.

Options • Clients say they love Element's unlimited customization. We want it. Even by placing an "Options" key over each fader, to give instant access to all the advanced profiles. It makes customizing settings easier than selling fudge cake to Dom DiLouie.

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 roughs. 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 setting 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 shareable 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-based gear you've been lusting after.

Great Phones • We wanted the phones on Element to work like an extension of the board ops themselves. Unfortunately, talent objected to having Ethernet ports implanted in their skulls, so we came up with the next best thing. With Element, jocks never have to take their eyes or hands off the board to use the phones. Element works with any phone system, but it really clicks with the Telos Series 2101, TWOx12, or the new Nx-12, which connects four hybrids plus control with a single Ethernet cable. Status Symbols™ (those cool little information icons) tell talent at a glance whether a line is in use, busy, pre-screened, locked on-air, etc. You can even dial the phone right from the board using the integrated keypad.

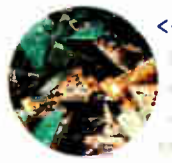
Fried Chicken •

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

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

Element

World Radio History



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

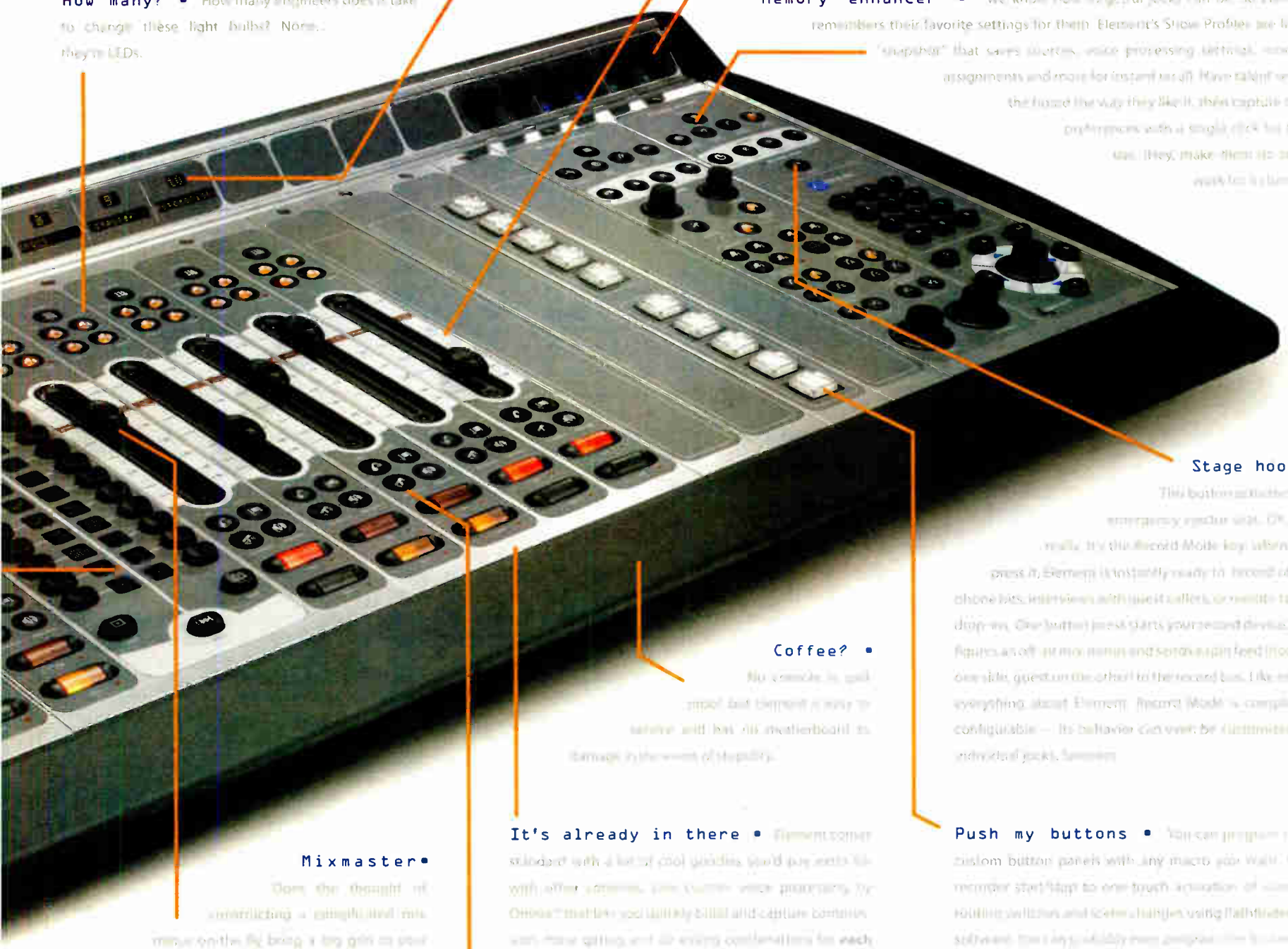
Status Symbols • There are those icons again. (We're in love with icons. It's the Telos way.) These Status Symbols alert talent to phone lines ringing, mix minuses minusing, talkback channels talking, etc. They can even display fader numbers, like you see here. Just one more way Element makes it easy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

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

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

Can I play with your knobs? • Twist 'em, push 'em, make 'em click. Element comes standard with some pretty powerful production features, like per-fader EQ, voice processing and aux sends and returns. Context-sensitive SoftKnobs let production gurus easily tweak these settings, while simultaneously satisfying their tactile fixations. (Don't worry, for on-air use, you can turn off access to all that EQ stuff.)

Memory enhancer • We know how forgetful jocks can be, so Element remembers their favorite settings for them. Element's Show Profiles are like a "snapshot" that saves sources, voice processing settings, monitor assignments and more for instant recall. Have talent set up the board the way they like it, then capture their preferences with a single click for next use. (Hey, make them do some work for its bungs.)



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, sets figures as off-air mix minus and sends a spin feed (most on one side, guest on the other) to the record bus. Like really everything about Element, Record Mode is completely configurable — its behavior can even be customized for individual jocks, Element.

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

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

It's already in there • Element comes standard with a lot of cool goodies you'd pay extra for with other consoles, like custom voice processing by Omnia™ that lets you quickly build and capture combines with more gating and all-asking combinations for **each and every jock** that loads automatically when they recall their personal Show Profiles. (There's even a second "big dink" setting that makes every interim sound like Mike Leader. A fifth of Chivas to the first guy who finds it.)

Talk to me • Need more you-to-you 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. Don't say probably even program one to turn the coffee machine (black, no sugar) those you.

AXIA
A TELOS COMPANY

www.AxiaAudio.com

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

World Radio History

PRODUCT EVALUATION

Sangean HDT-1X Offers Upgrades

A Broadcaster-Friendly HD Radio Gets Some Further Welcome Improvements

by Aaron Read

When Sangean released the HDT-1 component-style HD Radio receiver, it was to the delight of radio engineers. Many of us had been waiting for a radio we could put in our racks to replace a homebrew car receiver or similar jury-rigged solution for our in-house monitoring.

The HDT-1 filled that need and then some, with its stylish design, intuitive controls and large display. It wasn't perfect, though.

Sangean now has released an updated version, the HDT-1X, that adds a few nifty features while maintaining the performance of the original.

Quickly recapping the original and new units, the radio is a component-style tuner. It doesn't have any rackmount hardware but will fit easily in any 2RU space; Sangean says Bradley Broadcast and Pro Audio has fabricated a rack mount kit (2RU rack ears) that retails for just under $20.

The front controls include a large power button, a numeric keypad for presets or direct entry of a frequency and three rocker switches for incremental tuning, seek tuning and seeking only for stations broadcasting in HD-R.

There's also a "band" button to cycle through two sets of FM presets and two sets of AM presets, and an "info" button to cycle through various functions on the display.

The rear has an AC power connection, a coaxial FM antenna jack, a twin-lead AM antenna jack, two unbalanced analog RCA audio outputs and now an optical digital audio output, also unbalanced. A remote control that duplicates most of the front panel's controls is also included.

Sangean seems to want to appeal to radio engineers, and the proof is in the HDT-1X's signal diagnostics and control.

I mentioned the optical digital output; that's one of the main upgrades in the HDT-1X. It's not balanced, but I imagine you could easily convert the optical digital output to balanced AES or whatever format you need.

However, in comparing the optical output to the analog, the optical sounds slightly "brighter," with more high-end treble. It's possible this is a byproduct of my stereo, but this tended to make over-compressed audio sound more "crunchy," especially on our local AM-HD stations.

The display is fairly large, 2.75 inches wide and 1.5 inches tall. It can be cycled through showing the time, a graphical EQ, artist/title in large, call letters and frequency + call letters + artist/title.

It can also show "SSI," which presumably means "Signal Strength Indicator." I'm not sure how useful this meter is, since it seems to vary wildly for no apparent reason. Of course, perceived signal strength also tends to do that. Still, it can be handy to fine-tune your antenna's orientation.

Another bonus in the HDT-1X's display is the addition of a stereo indicator. A quick scan of the dial didn't reveal any HD-R signals from FM stations that were not in stereo ... even stations obviously broadcasting mono content.

However, on the AM side I noticed news/talker WBZ was choosing to transmit its HD-R signal in mono. I had suspected that the Sangean HDT-1 tuners also decoded the old C-Quam AM stereo signal, and listening with the HDT-1x, to the sole Boston source of AM stereo, confirmed it; the stereo icon appeared about 15 seconds after I tuned to 740 WJIB.

One oddity carries over from the HDT-1. Where some other HD Radios show some combination of station information or artist/title, the Sangean will only show call letters. I have a suspicion that Sangean actually is displaying it "correctly" but other radios might be using a more aesthetically sensible method.

Well-received upgrade?

In the end, this is ultimately just a radio; so how good is the reception? I'd say pretty good.

It's not the most sensitive tuner I've ever owned, but it was able to receive most signals that I expected it to. Interestingly, even some stations that had pretty poor analog reception — and low numbers on the SSI — would switch successfully to HD-R.

To compare it to the original HDT-1, I split the stock FM dipole antenna into both my HDT-1 and the HDT-1X, and found that they both seemed to have the same sensitivity. Similarly, the stock AM loops in about the same location yielded comparably sensitivity (and SSI numbers) for both radios.

Sangean seems to want to appeal to radio engineers, and the proof is in the HDT-1X's signal diagnostics and control.

The original HDT-1 had several interesting signal diagnostics such as Bit Error Rate, carrier-to-noise ratio, FUSE Bit Check, (HD-R) Transmission Mode and station ID. But the 1X adds some broadcaster-friendly tricks: force-analog only, force digital on left, analog on right for time-synchronization purposes, and force mono vs. stereo (only in analog mode). Even in analog-only mode, the display still shows HD Radio PSD information if it's present.

Proving that Sangean *really* aims to please even certain whining reviewers of other HD Radios (see "Directed's Latest Entry-DMHD-1000 Is an 'Add-On' Tuner," RW June 6 and RW Online), the company even added a bright/dim control to the backlight. The backlight shuts off when you power off the unit. Yay!

Conclusion

With the HDT-1X, Sangean has taken an already fairly-broadcaster-friendly HD Radio tuner, and made it even better.

The biggest downside is that it doesn't retain its settings through a loss of AC power. That necessitates a battery back-up/UPS for professional monitoring uses. Similarly, if you're monitoring a multicast channel and the signal is lost for more than a minute or two, the radio defaults to the analog channel.

But remember that compared to radios that do have those features, the HDT-1X is drastically cheaper. Plus, a digital output at all is really nice, and the added analog/digital and forced analog controls are very useful. The stereo indicator rounds out a great package of improvements.

If you've been desiring a house monitor for HD-R that won't break the bank and looks slick, Sangean has delivered the goods.

Aaron Read works at Hobart & William Smith Colleges as the general manager for WEOS(FM), Geneva, N.Y. Find more of his articles at www.friedbagels.com/blog.

Product Capsule:
Sangean HDT-1X HD Radio tuner

Thumbs Up
- ✓ Extensive diagnostic controls
- ✓ Good radio reception
- ✓ Decent budget choice for professional monitoring

Thumbs Down
- ✓ Stays off after AC power outage
- ✓ Loses multicast lock with loss of signal
- ✓ No rackmount hardware

LIST PRICE: $249.99.

Available at dealers including Crutchfield, Listen Up, Bradfords HiFi and J&R Music. See full list at www.sangean.com.

Radio World's HD Radio Scoreboard is published in alternating issues. Selected data is from BIAfn's MEDIA Access Pro™; the scoreboard also uses information supplied by sources including iBiquity Digital Corp., the HD Digital Radio Alliance and RW's own research.
BIA Financial network
MEDIA ACCESS PRO
www.bia.com

World Radio History

VPR

▶ Continued from page 14

five stations that would be converted to news and information services. But it wasn't until this switch was complete that listeners started to gain an active interest in HD Radio.

During the first 60 days after the format change on Oct. 1, 2007, we received nearly 2,500 e-mails, calls and letters. "What happened to the classical music?"

About a quarter of the respondents were thrilled with the changes, another two-thirds were not happy with the changes for one reason or another.

Nearly 1,200 of the unhappy responses came from listeners who no longer had access to classical music on those VPR transmitters that had changed to the news and information format in areas of the state where a VPR Classical analog transmission was not also available. Out of those responses, nearly 300 mentioned HD Radio, so we knew the message had been heard.

But as we began answering the calls and e-mails, we realized that despite our best efforts, many people still did not have a good understanding of what HD Radio was and what multicasting could offer.

Two distinct services

We began a targeted program of promotion and education to highlight the fact that the VPR Classical service was being offered on all of our HD2 stations and that it could provide the service those listeners were now missing.

Part of that involved a major giveaway during our successful pledge drive in November. Listeners were entered into three drawings in which a total of 30 HD Radios were given away.

We also negotiated a deal with receiver manufacturer Radiosophy to feature its low-cost HD 100 model at a discount on our Web site. This gave our listeners the opportunity to experience digital radio for well under $100. In the first month, VPR listeners had purchased nearly 350 HD Radio receivers from that Web promotion alone.

But with all of that effort, the place where the rubber hit the road was in our hands-on demos to listeners of the radios themselves. Through the various "broadcasters deals" made available by Ibiquity Digital, we acquired several more models of HD Radios for listener demos: a Sangean HDT-1 tuner, some RadioShack Accurian HD Radios, some Boston Acoustic Receptor HDs and some Radiosophy HD 100s. The "HD Road Warriors" were on the case!

The most challenging setup was the Sangean tuner, which was placed in a road case with an integrated amplifier speaker setup so that it could be easily transported. In addition, we acquired some Fanfare FM-2G whip antennas, and one of the Crane Reflect "super" dipoles.

Mall installs

As much as the industry doesn't want to talk about it, HD Radio really benefits from a good external antenna. By comparison, when someone buys a satellite radio, it is made very clear to them that they need an external antenna, and that it has to have a clear view to the southern horizon.

We felt that not telling people up front that they might need an additional antenna for IBOC in some areas was misleading, so our HD-R Road Warriors were also outfitted with choices of auxiliary antennas, to be used where needed.

We also brought the full contingent of radios to VPR board meetings and to our community forum meetings across the state. We showed listeners how HD Radio worked and sounded, and explained the benefits of multicasting technology. This was supplemented by the work of our Road Warriors, who took HD radios into listeners' homes and gave hands-on demonstrations of the new technology.

In the abstract, it's hard to get across how revolutionary digital multicasting really is. But once people start to actually see and hear the units, they are excited about getting a radio as soon as they can.

In addition, our engineering staff helps local retailers in setting up antennas and getting retail staff familiar with our HD-R channels as well as the multicasting capabilities of the radios. It is sometimes an uphill battle; the malls often don't allow retailers to install outside antennas; and in its current state, HD Radio really needs to have a good outside antenna in order to be workable inside these metal-enclosed spaces.

But once we have gotten the receivers working in the stores, the retailers report that the radios essentially sell themselves. At least in Vermont, retailers tell us they are now having trouble getting enough radios in stock to satisfy the demand.

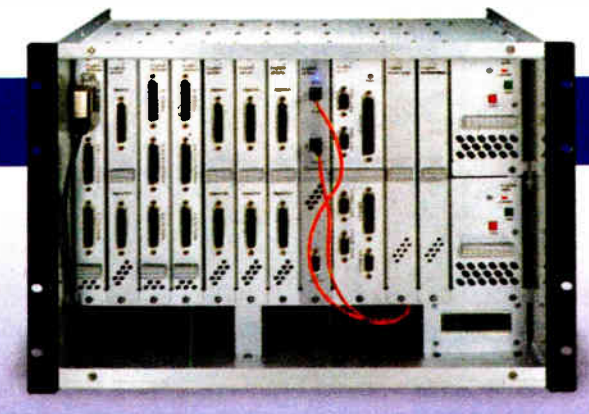
VPR Engineering staff also recently lent their technical expertise in HD Radio receiver installations to a locally-owned and operated Christian Radio network. Christian Ministries in Essex, Vt., was installing a new HD-R system to broadcast a Christian rock music service, previously only available on the Internet, on its HD2 channel for their younger listeners.

VPR's vision is that the greater the demand for HD Radios in our area, the better it will be for everyone in the market. It can help to convince retailers and manufacturers that a market does exist. Plus, when the kids go to school the parents might just tune in to VPR Classical on that HD Radio.

But beyond all the marketing and promotions of HD-R, we know that the key is the personal touch with our listeners. Our HD-R Road Warriors have many stories of grateful listeners who have seen IBOC for themselves, and who have made the jump to buy an HD-R receiver

See VPR, page 27 ▶

$96^2 < \#20K$



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World Radio History

War Zone

▶ Continued from page 1

At AFN-I's studios in the International Zone (also known as the Green Zone), a small crew of public affairs specialists serving as radio/TV producers from the U.S. Air Force and Navy — which rotate with the U.S. Army for AFN duties — tackles an ambitious roster of news and entertainment programming for those in harm's way.

Air Force Staff Sgt. Jason "J.D." David, AFN-I's news director, said the medium of radio is playing a unique role in the combat zone, as radio has for other wars over the past 70 years.

"Radio is certainly the most immediate and effective means to get information out there as quickly as possible, and the music, all the entertainment, as well."

Technical Sgt. Chris Eder interviews entertainer Toby Keith on Freedom Radio at AFN-Iraq studios

FM network

David said his studios are fortunate to be located inside the International Zone with the presence of the multinational force, and not just for security reasons.

"We can check with other forces almost immediately when something big happens. If a bomb goes off somewhere in Iraq and other media are saying it's 'insurgents,' that may not always be the truth. It may be just some random guy out there. People back home depend on [the networks] for coverage, but we're here and so we can see what's happening for ourselves and report to the troops here," said David, who hails from Laurel, Md.

Freedom Radio airs a round-the-clock schedule of news, unclassified troop information, feature stories, and of course music in many genres, much of it requested song-by-song by military personnel in the field.

Much like any other network, Freedom Radio is heard on an array of FM frequencies throughout the region: Baghdad (104.1 and 107.7 MHz); Kirkuk (100.1 and 107.3); Balad (107.3); Mosul (105.1); Q-West (93.3); Sinjar (107.9); Tallil (100.1 and 107.3); and Tikrit (93.3).

But unlike most networks back home, in some areas in the war zone signals are transmitted terrestrially, while in other parts content is fed via an elaborate configuration of satellite and/or microwave systems.

On-air, online

Air Force Staff Sgt. Chuck Greene, in charge of the AFN-I Maintenance Section, said its radio air and production studios are equipped with a Broadcast Electronics AudioVault audio management system for storage and playback. Short audio elements are played from AudioVault or a 360 Systems Short/cut.

Staff Sgt. Chuck Greene works on satellite equipment on the roof of the studios in Baghdad.

The studios use Electro-Voice RE20 mics, Sennheiser HD 280 Pro headphones and Truth B2031As from Behringer; other gear includes JBL Marquis Series speakers in the press conference studio, a Comrex DH22 Digital Hybrid, TASCAM CD-01U Professional CD Players, Leitch FR883 Audio Distribution Amplifier, Furman PL-Pro II power conditioners and ADC audio patch panels.

The considerable digital music resources primarily come from Powergold, whose software helps create, manage and update the various playlists.

Freedom Radio is building a new production studio, where a troublesome audio board will be soon be replaced by a new 1200 series model from Arrakis Systems. The air studio will be upgraded later.

"Our plan is to make them both mirrors so that we can easily switch back and forth between the studios," Greene said. "The way it was set up when we got here would not allow that."

The new studio was designed by Technical Sgt. Jeffrey Hood at the Air Force News Agency at Ramstein Air Base in Germany. After its components arrived at the air base, Hood and Staff Sgt. Randy Garcia wired the equipment rack, installed the software, tested everything and shipped it all to Baghdad.

"Now that the equipment is there, the Maintenance Section for AFN-I will install and build up the new studio and have everything running smoothly for their eventual replacements," Greene said. That work was being done in November.

Other gear in use at the facility, which combines video and audio, includes Avid editing systems, Sony Vegas 7 editing software, a Mackie Onyx 24-4 analog audio mixer console and Sennheiser ew500 G2 wireless lapel mics for press briefings.

AFN, which was created in Europe during World War II and sets up its broadcast shop wherever significant numbers of U.S. military are deployed, maintains two major satellite feed-and-distribution centers in Vicenza, Italy, and Mannheim, Germany.

AFN-I also maintains its own Web site where the troops can make music requests if they're lucky enough to be near a computer. The site is usually accessible to all military and civilian online users at *www.afniraq.army.mil/*.

"Our mission here in Iraq traditionally is to provide useful information to the troops in-theater, along with entertainment similar to what they have back at home," said Air Force Chief Master Sgt. Leniel Garner, AFN-I's station manager, from St. Louis.

"We do have a broader mission, too, where we support the various commercial media back home for news, especially since sometimes our guys are better equipped to get material from [the field] more than a network reporter is."

Despite the trend toward lighter, smaller and far more versatile audio/video electronic media equipment compared to that used in past wars, Air Force Master Sgt. Joy Josephson said just traveling a few miles outside the Green Zone for news is a serious challenge.

Josephson, a native of Gerry, N.Y., has been with AFN for 15 years and now serves as AFN-I's operations manager.

"I can tell you the missions here are the most important that we have now, being able to tell the stories of the multinational [troops] both in Iraq and Kuwait. I see some great broadcast journalism coming out of here."

'He went nuts'

David told Radio World he runs into situations every week that reinforce for him how Freedom Radio affects its mission in the war zone.

"I met an Army reservist from Tennessee recently who's currently stationed in [nearby] Kuwait. He's a truck driver. About 90 percent of his job takes him in and out of Iraq, from Basra down in the south, to Baghdad here in the center, and often up to Mosul in the northern sector.

"As soon as I told him what I did for a living, he went nuts! He told me if he didn't have Freedom Radio, he'd go crazy. He said driving back and forth, up and down Iraq, he looks forward every day to what we air and what we do."

David said one important segment of Freedom Radio's audience works in temporary offices "down-range from [Baghdad], and they work 12-plus hours a day. We know that because they tell us when they contact us to request certain songs. They say, 'You wouldn't believe how long I've been at work. Please play that song for all of us here.' And, of course, we always play it."

Given the widely divergent ages and other demographics of the American, British and other troops in the field (especially since there are a lot of U.S. National Guard personnel serving), Radio Freedom's programming includes nearly every music format — "although come to think of it, we don't really have a folk music show," David said with a laugh.

"But if it's popular back in the States, we usually have it here." Requests come in 24 hours a day, seven days a week, because he said "people are always working in Iraq, night and day."

Andy Carlson, a Navy Mass Communications Specialist 2nd Class who serves as an AFN-I producer/editor, said, "There's a lot more going on in Iraq — other than the bombs and kidnappings — that a lot of people [in the U.S.] are not hearing about. It's not so much that the truth is being obscured, but it's just that not all the story's getting out there." Carlson is a native of Sioux Falls, S.D.

And for the inevitable tragic stories of war, Garner said, "You can't cover up the bad news. If there's something that needs to be reported or discussed, we discuss it up front, or else the bad guys will twist it to say what they want. If it happens to be regrettable — like a bomb goes astray — we strive to report the factual information accurately, without any twisting of the facts."

Ops manager Joy Josephson added, "What we're doing is telling true stories of our service members here that you can't hear or see on NBC or CNN."

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World Radio History

Captions

▶ Continued from page 12

suggested: "One Fired-up ATU!"

"Look ma! Lightning *does* strike twice!" comes from B. J. Patton, traffic director at Clear Channel's WTVN(AM) in Columbus, Ohio. Tom Bruce said, "The accountants ordered the 1 kW unit instead of the 50 kW unit because it was cheaper." (He also risks starting something with his alternate caption, "Aggie engineering!")

Tracey Liston, chief for Ohio AMs WOBL, WDLW and WWMK, offered one of many HD references: "Many AM antenna systems may not pass the HD signal without broadbanding."

Gary Morgan from North Carolina suggested, "I just knew I shouldn't have bought that new ATU from Wal-Mart."

You've got to love Jeff Gallatin's "*I'm* not calling him!" "You brought the marshmallows, right?" and "I saw this at a concert once!" Jeff is with WZXV(FM) in Syracuse, N.Y.

In defense of air talent, many contributed, "Can't blame *this* one on the jocks." And William Sullivan, DOE for Mega Communications, observed, "Smoke signals: another form of wireless."

Supply side

Terry Hollenberg of Harris continued the tuning theme: "What you should expect when tuned for maximum smoke." He added another favorite, "Complete hybrid technology: AM, HD and Smoke Signals."

From Javier Castillo, VP of international sales for LBA Technology, comes, "I asked for the non-smoking section." Thomas Mead of Register Data Systems also asked, "Who let the magic smoke out!?"

My associate on the West Coast, BE's Ellis Terry, and former FCC maven John Reiser both suggested, "There's got to be an easier way to get rid of hornets," while Eventide's Richard Factor complained, "I told you to rub the *lamp*, not the *amp*!"

Harris's Terry Cockerill experienced a similar situation at 5 in the morning in Japan. While tuning up an AM stereo facility years ago, Terry reported, "I think there's a problem in the ATU." Everyone was inside the transmitter building including the antenna engineer, his hands crossed in front of him; he replied sternly, "Antenna is OK." The picture, Terry says, is what everyone saw when they went outside.

SCMS's Bob Mayben offered, "Hot Rocking, Flame Throwing W-K-R-P!" Bob also came close to a winning entry with, "Don't ever play 'Smoke on The Water' again."

Nicotine fix

For the smokers among our readership: "Since the station began their new policy that smoking is only permitted in an old transformer box, only the die-hard smokers haven't kicked the habit." Contributed by Alan Rauchwerger.

Richard Edwards of CityScape observed, "It's getting harder and harder to find a place to smoke a cigarette."

Mark Heller, WGBW in Two Rivers, Wis., wrote, "No smoking in the studios, no smoking in the sales office, no smoking in the bathroom ... we've gotta find a place where nobody goes, and light up. I need my nicotine fix."

Food entered the picture starting with our contingent out of the south, "Does anyone smell barbeque?" submitted by Austin Stinnett, CE for JWS Broadcasting, Cookeville, Tenn. Another favorite was a do-it-yourself show, "Smoke Pork With Your ATU in 5 Easy Steps!" sent by Greg Armstrong, staff engineer with RadiOhio in Columbus.

Mike Rabey, chief for the Entercom Indianapolis cluster, wrote, "Andy quickly discovered the downside to grilling chicken in the ATU coil," and in keeping with still more varmints, "Rocky Raccoon really liked his new crib ... until the next morning, when the AM station signed on."

Z100 NY's Chief Engineer George Marshall suggested a classified ad: "For Sale: One slightly used smokehouse. Best offer." Contract Engineer Allen Branch wrote, "I told you Martha Stewart wouldn't work on AM radio" and how about, "Mouse fricassee!"

"Snake. It's what's for dinner" was contributed by Mark Whitehead, CE of KTTX(FM)/KWHI(AM) in Brenham, Texas. Nathan Miller, CE for Albuquerque's KWFL(FM), asks, "Hot dogs anyone?" D. Gill observes that our picture proved the "mice cookout gets out of control."

David Robinson, an engineer at FBN, called the photo, "One 'hot' dog house ... where we smoke 'em and you get em' while they're *hot*."

Marc Mann from San Diego had a reminder, "Tell the guys in sales they can't use the transmitter site to smoke the ribs for the company picnic," and he writes (don't groan too loudly), "It looks like they finally chose a new FCC commissioner!"

Kevin Thomas, a content provider in Las Vegas, suggested, "Maybe we should just boil the hot dogs." And WTVT(TV)'s Frank Berry wrote, "Chestnuts roasting on an open fire ..."

Who's to blame?

R. Sparks Scott is a contract engineer in Florence, Ore.: "Soon after the corporate chief adjusted the audio processing, the staff began noticing artifacts from the higher levels of compression and limiting."

Bill Hurne, chief for WRMB(FM) in Boynton Beach, Fla., blames it on programming: "What did the PD do this time?"

The contributor of the photo, contract engineer John Ramsey, sent suggestions of his own: "This is what happens when you let the PD be CE," "This is what happens when you let the GM's son-in-law be CE" and finally, "This is what happens when you don't *have* a CE."

Anyone who's done contract engineering can relate to a conversation between a GM and his contract guy, "What do you *mean*

See CAPTIONS, page 24 ▶

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1972
Bob Orban's first of 24 patents issues (U.S. #3,670,106, "Stereo Synthesizer").

June 2007 *
SCMS acquires assets of Major Broadcast Equipment Supplier

2005
Orban Optimod 8500 Third Generation of Digital Processing is released and takes audio processing to a new level of industry setting standard.

1975
OPTIMOD 8000 audio processor introduced for the new FM format. Bob Orban and partner, John Delantoni, set up Orban Associates as a privately held company.

2003
OPTIMOD-FM 8300 is introduced at NAB in Las Vegas. OPTIMOD-PC ships. World's first audio PCI Sound Card with Optimod-class DSP for broadcast signal processing.

2007*
Orban begins shipping the new Optimod 6300 high-quality, multipurpose stereo audio processor for digital radio, digital television, netcasts, STL protection, satellite uplink protection, and digital mastering.
Orban also introduces the all-digital 9300 Optimod-AM audio processor for monophonic AM shortwave, medium wave and long wave broadcasts.

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1976
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2000
Orban Optimod 8400 Second Generation of Digital Processing is released to immediate great reviews and becomes the new industry standard.
Orban Inc. is purchased by CRL from Harman International.

1978
OPTIMOD-AM 9000A offers AM stations a more "FM-like" sound quality and reduced interference.
In modified form, the receiver equalizer and low-pass filter ideas form the basis for the NRSC-1 standard issued in 1987.

1996
First low-priced, all digital processor for FM introduced, OPTIMOD-FM 2200.
The DSE 7000FX introduced with new DSP engine offering on-board effects like reverb, equalization and compression.

1983
OPTIMOD-TV Model 8182A introduced. Adds Hilbert-Transform clippers and a CBS Loudness Controller to the original 8180A.

1991
Orban leads the transition to digital with the first successful DSP-based FM audio processor, OPTIMOD-FM 8200.
Thousands on air around the world.

1987
Orban's first product using micro-processor technology is introduced. The 787A Programmable Mic Processor incorporates equalization, compression, and de-essing in a digitally-controlled analog signal path.

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* Go to http://www.orban.com/about/timeline/ for a full look at Orbans timeline

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World Radio History

GUEST COMMENTARY

Thoughts on the Worldwide AM Market

Author Says Digital Age Presents High-Power Opportunities for Transmitter Makers

by T.E. Yingst

In the March 29, 2006, issue of Radio World, I discussed the size of the present installed base of newly developed medium- and long-wave transmitter lines, and I wrote that the worldwide newly installed power base over a recent 16-year period for tubes and solid-state transmitters was greater than 200 megawatts.

I wrote that a transmitter manufacturer now must have capabilities in the high-power range (50 kW to 2000 kW) to compete as a worldwide supplier; that most medium- and long-wave transmitters have been 100 percent solid-state since about 1995; and that most are ready for the new digital age. The remaining worldwide base must be upgraded to serve this new digital era.

Outlook

So what does the future for amplitude-modulated transmitters look like?

A major goal for AM transmitter makers is to help their clients achieve the status that TV, and to a major extent FM, have in recent years. For broadcasters, the mission now is "content delivery." Global radio therefore must put a new generation of digital transmitters in place so broadcasters can keep pace with the demands of this "content delivery age."

The new generation of AM digital transmitting systems offers higher efficiencies, FM-like audio, lower transmitter average power for the same coverage, more consistent area coverage, special antenna designs, better use of the allocated spectrum, more data and content options, fast payback on investment and extraordinary reliability.

I have researched the worldwide market for long-, medium-, shortwave and very low frequency transmitters, with my emphasis on MW/LW. I find that there are approximately 1,000 MW/LW high-power transmitters installed worldwide.

Recent trends indicate a global sales ratio of 75/25, with 75 percent of the total power sold coming in high-power units and the rest in low-power (50 kW or less). There are about 90 to 150 megawatts in the base of low-power transmitters worldwide, produced by 16,000 total transmitters, with a high percentage of those in the United States and the rest of the Americas. A large number of these sites have transmitters below 10 kW.

There is a base of about 400 megawatts worldwide in shortwave, with a range of 100 kW to 2000 kW for each transmitter.

Cost per watt

My research indicates that about a third to half of the global LW/MW overall power base has been upgraded over a recent 16-year period. By the time that base is entirely updated and replaced, it should be time to start over again unless a more improved technology is introduced and accepted worldwide.

Many new shortwave transmitters use solid-state pulse step modulators, and others in place have been updated with that technology. This base of SW transmitters should be ready for the new modulation approaches with minor upgrade kits.

When we keep track of global transmitter prices over a long period, we can establish an average estimating cost per watt for various power levels and configurations. Using these numbers — in the order of $1.50 to $5 per watt for different levels up to 2000 kW — the long-wave/medium-wave transmitter market is expected to be in the $50 million to $100 million range per year, very roughly $75 million/year, not including ancillary items such as installation, spare parts, resale items, buildings and so forth.

(When one includes transmitters below 10 kW in the analysis, the cost per watt goes up, but only a few megawatts are added to the long-term transmitter base total.)

This may not seem like a large dollar amount each year, which is why quality transmitter manufacturers are limited in number. Ours is a high-technology business within a highly specialized marketplace.

Still, the market for transmitters, upgrades and systems at all power levels up to the megawatts is expected to be strong for the next 10 to 20 years in long-wave, medium-wave and shortwave — in the order of $100 million to $200 million per year for transmitters alone.

Good outlook

My conclusion here is that AM transmitter suppliers can be a major part of an exciting future for digital radio worldwide. These are exciting times for AM as digital systems like Digital Radio Mondiale and IBOC DAB are tested and implemented.

I've been involved since 1948 in the television, radio and radiofrequency industries at all power levels, up to the highest range in the world. I fell in love with the radio business due to its obvious potential in the late 1980s and a timely association with Hilmer Swanson, the radio transmitter engineer/scientist responsible for all forms of AM modulation techniques including pulse duration modulation, pulse step modulation and the famous digital modulation schemes for radio transmitters.

Looking forward, transmitter manufacturers should learn Swanson's example by investing in experienced leadership, marketing and technical management techniques and manufacturing approaches. They must seek to exceed what the market asks for in performance and reliability.

If AM transmitter suppliers offer competitive improvements over an established, aging and inefficient worldwide installed transmitter base, their prize is a huge market opportunity — mostly international — as broadcasters upgrade to the digital age.

I have developed a chart, using data through NAB2007, with estimates of installed new MW/LW transmitters since 1988, including market share from vendors as varied as Harris, Thomson, Nautel, Transradio, NEC, RIZ and others. I find that a large base does exist for future transmitter upgrades as we enter this new age with all its obvious advantages. The future looks bright even if the rate of replacements remains close to that we've seen recently.

Another notable point is the relationship of AM/FM transmitters to the overall worldwide total radio business; FM digital is leading AM in the United States at present, but it seems obvious to me that digital transmission is the future for AM along with FM.

AM will become a more dominant factor as digital systems are implemented. Potential and exciting use of the 40-channel 26 MHz band for local communications, as proposed by DRM, is only a small part of the digital revolution setting the stage for replacement and/or a large number of upgrades of the large worldwide AM transmitter base over the coming years.

These are exciting times for the worldwide radio industry

The author has been an engineer since 1950 and worked in management of high-tech electronics companies including Harris Broadcast. He welcomes inquiries about his research. Copies of his data can be obtained by e-mailing tey1926@aol.com.

Should I Climb That Live AM Tower?

by Richard Strickland

This is one in a series of Q&As with the author about RF safety; the series is archived at radioworld.com.

Question: Is it safe to climb AM radio towers while the station is on the air?

Answer: In general, "hot" AM antenna climbing is not a good idea. It is only safe when the system is operating at very low power.

If the power into the base of the antenna exceeds 500 Watts, nobody should be allowed to climb the tower. If the power is 200 Watts or less, it is generally safe.

At power levels in between, the risk depends on a couple of factors.

If it is a very tall tower, the energy is distributed over a greater distance, and the risk is much less than for a short tower. Higher frequencies are also worse than low frequencies.

Of course, higher frequencies usually mean shorter towers. But in addition to the impact on the height of the tower, the human body makes a better antenna and absorbs more energy at the high end of the AM band than it does at the low end.

One problem that is difficult to measure without very specialized equipment is induced and contact current.

When a person is on the tower, the body becomes part of the antenna. Current flows through the body as a branch circuit path parallel to the antenna. The current can enter both through contact and indirectly as induced current. The current is likely to enter at the hands and exit at the feet.

The main problem is at the wrists and the ankles. These areas have relatively small cross-sectional areas, and the current density can be extremely high. Specific Absorption Rates (SAR) of more than 100 Watts per kilogram of body mass are possible and have been documented.

When you consider that the FCC's whole body Maximum Permissible Exposure (MPE) limit for Occupational/Controlled exposure is based on limiting whole-body SAR levels to no more than 0.4 Watts per kilogram, you can understand why an SAR level of more than 100 W/kg is a serious problem.

Richard Strickland has presented more than 150 public and private seminars on RF radiation safety and has written numerous articles on this topic. Spotlight on RF Safety appears regularly in Radio World. E-mail questions or suggestions to the author at rstrick@rfsafetysolutions.com.

Captions

▶ Continued from page 22

you don't have a spare ATU in your truck?"

You can tell when engineers have been around the block a time or two: "When I got my CB license and the GM made me CE, I never knew I'd have to fight a fire," or another common favorite, "RF 1, Snake 0."

The picture is the result of an RF contactor's solenoid overheating. Some GMs might say, "Heck, we didn't need that contactor anyway. The station gets out much farther at night without it."

Another caption we can relate to: "Hello, can I speak to Tom King please?" (Tom is president of phasor and ATU manufacturer Kintronic Labs.)

Henry Royse is the president and chief engineer of Royse Radio in Glasgow, Ky. His submission was more like a creative news release: "AM IBOC HOT TOPIC: Smoke billows from the antenna coupling unit of a local AM radio station following repeated switching between digital and analog signals. Whether or not to authorize full-time digital or limit digital to daytime hours has been a topic of heated debate, with several unresolved issues still smoldering. Parties on both sides urge a timely resolution, before the entire AM band goes up in smoke."

Winners

The NAB Store has provided T-shirts for our winners. We thank NAB and encourage you to check out their fun selection of "radio wear," including engineering themes, at *www.nabstore.com* under the Merchandise tab.

In third place is Eric Kehew's caption: "Pop-Pop, Fizz-Fizz, Another Late Night It Is!" Second place goes to Honorary Engineer David Gleason of Univision Radio in Los Angeles for "The ribs look done, but the brisket needs higher positive peaks."

And our winner came up with a cute play on words. Ron Kocher is president of WFBO(LP) in Flagler Beach, Fla., who said: "Smoke on the watt-er!"

World Radio History

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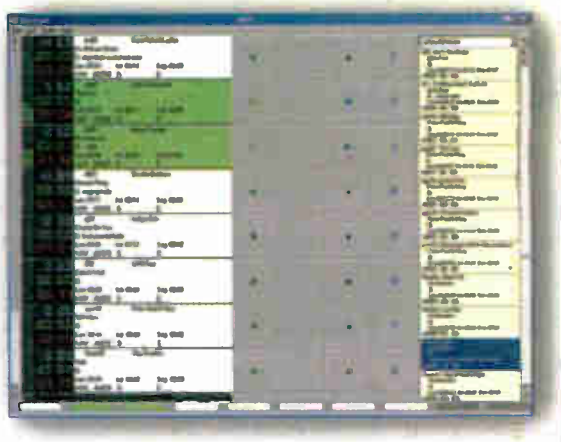

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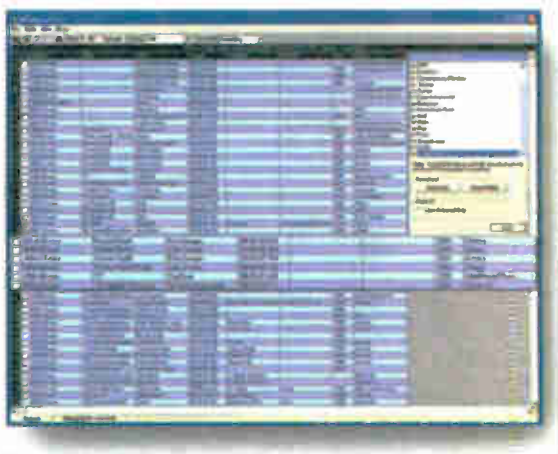

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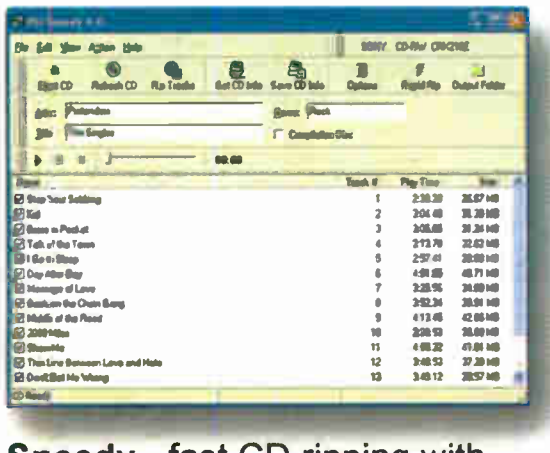

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World Radio History

What Does Net Neutrality Mean to YOU?

It Started With Remarks By a Telco Exec and Became A Major Policy Issue With Multiple Definitions

The Big Picture

Photo: Gary Hayes, BBC

by Skip Pizzi

You've probably heard a lot about Net Neutrality, and may have wondered what it really means. No wonder; it seems to mean a lot of different things to different people.

Although the origin of the term is usually credited to an academic paper in 2003 on Internet quality of service (QoS) and interoperability, it really came to the forefront of telecom policy discussion in November 2005, when Ed Whitacre, then CEO of Southwestern Bell, made comments in a Business Week interview that have subsequently been interpreted in various ways.

Whitacre responded to a question about whether he was concerned about new, Internet-based companies by saying, "Why should they be allowed to use my pipes? The Internet can't be free in that sense, because we and the cable companies have made an investment and for a Google or Yahoo or Vonage or anybody to expect to use these pipes free is nuts!"

To some, his remarks indicated that telcos should be able to charge tiered fees to companies who engage in e-commerce in return for various levels of service — something that is not generally done today, and this was seen as a call for new regulation that would enable it.

Others interpreted his approach less charitably, however, seeing it as Whitacre being envious over how well those e-commerce operators were doing by transacting business on the service providers' networks (while the telcos themselves were struggling).

The underlying sentiment came from a perceived inequity in telcos' and cablecos' heavy investment in infrastructure deployment and maintenance, while the "application" companies sailed to much greater profitability via ever-expanding connectivity, bearing none of the infrastructure burden.

The issue could have ended right there as just another rhetorical outburst, made by an industry insider so jaded that he missed the obvious point that without these application and content companies, the telcos' broadband Internet service would be of little value to consumers, and would not draw the monthly subscription fees they enjoy.

Or perhaps at best, the comments could have sparked discussion that might become the basis for future regulatory relief, new rate plans or retooled business deals.

But subsequent comments from other telco execs — which suddenly became much more likely to receive press coverage and close scrutiny from policy wonks — seemed to reinforce the most nefarious interpretation of Whitacre's original remarks.

Consider the words of another BellSouth spokesman, Jeff Battcher, who said, "During the hurricanes, Google didn't pay to have the DSL restored. We're paying all that money."

Or Verizon's CEO Ivan Seidenberg, who in referring to the same Internet companies told reporters, "We have to make sure they don't sit on our network and chew up our capacity."

These and similar antagonistic comments set off numerous alarm bells, and as consumer and Internet-freedom activists mobilized, the issue snowballed into a policy debate of epic proportions.

That snowball seems to now have split into several separate ones, each of which continues to roll down the Hill on its own discrete course, with ultimate destinations still unknown.

Actions not words

One branch of the debate involves what telcos and other service providers have actually been *doing* (not just saying) that seemed to indicate non-neutral behavior.

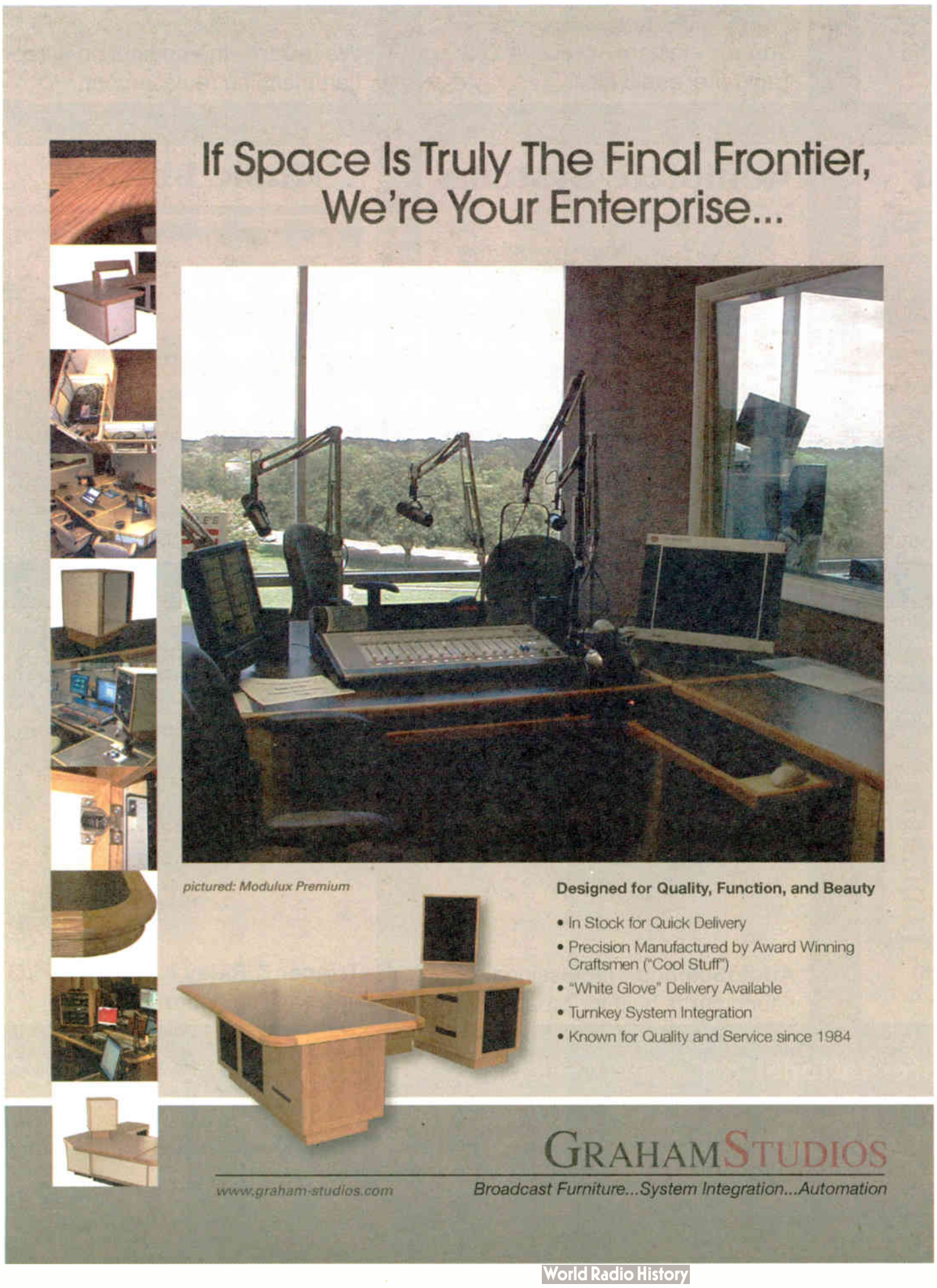
In a celebrated 2005 case, the small Midwestern telco and ISP Madison River Communications blocked VoIP traffic on its customers' DSL service. Complaints were soon filed with the FCC, and the matter was resolved relatively quickly, with the FCC enforcing its existing rules against Madison River's clear abuse.

Many have cited this case as showing that current regulations already provide the necessary safeguards against such activity.

Yet there are other examples that could support the concerns of those who claim more regulation is needed.

Consider the case of AT&T's censorship of a Pearl Jam Webcast from Lollapalooza, where the operator cut the audio feed for about 15 seconds of a song during which lead singer Eddie Vetter's lyrics were expressing anti-Bush sentiments; or that of Verizon's (short-lived) attempt to block

See NEUTRAL, page 27 ▶



World Radio History

Neutral

▶ Continued from page 26

access of abortion rights advocacy group NARAL Pro-Choice League to its mobile text messaging service.

Both of these actions resulted in subsequent PR nightmares for the operator, and their impact fueled the flames of the policy debate.

More recently, Comcast has attempted to block the use of BitTorrent and other P2P file-sharing services by its broadband subscribers, as well as simply cutting off users that the company felt exceeded an unstated limit of downloading.

Generally, these issues have been settled in the marketplace, but this has not stopped many from pointing them out as clear examples of the need for new legislation or regulation ensuring Net Neutrality — particularly given the true or near monopoly on broadband service that some operators may have in a given area.

Others caution that such regulation could have the unintended consequence of curtailing innovation and constraining ongoing broadband deployment.

Meanwhile, the wireless Internet continues to grow in a way that makes it a poster child of sorts for Net Neutrality. The very different nature of wireless broadband networks' gestation (particularly in the U.S.) has caused many to cite it as a perfect example of what could have to the entire Internet if Net Neutrality were to go away.

Wireless broadband is a far less neutral place, with network operators wielding considerably greater control over what and how its customers access Internet content. While some believe this situation is improving via the exertion of market forces, others still feel strongly that additional legislation or regulation is required to provide guarantees that wireless broadband will eventually come to as neutral a position as the wired Internet.

Seeking answers

Perhaps most vexing is that the multiple threads above are often remixed and confused, and the overall scope of the Net Neutrality issue now seems to cover a single, broad range extending from telecom regulatory reform to privacy issues to First Amendment rights to curbs on innovation.

This makes its ultimate solution ever more elusive.

To date, attempts to pass new legislation or regulation on the subject have been largely unsuccessful, but as noted, many instances of non-neutral action have nevertheless been resolved by the marketplace or by regulatory action.

So the overarching question remains one of deciding whether existing protections are adequate, or whether more government intervention is required. This debate likely will continue for some time to come.

Meanwhile, this should not be mistaken for a purely academic or legalistic discussion, or one that has no real impact on the radio business. How the wireless Internet matures will likely have significant bearing on radio's future there.

For example, Verizon currently includes in its acceptable usage agreement with consumers for its EV-DO wireless broadband service a prohibition against using the service for long-term streaming media reception, and enforces this with a monthly cap on data received (in what it otherwise promotes as an *unlimited*, flat-rate service).

If this remains in effect and becomes normal, industry-wide practice, it could seriously inhibit radio broadcasters' use of the wireless Internet as an alternate delivery platform for future services.

Of course, some in radio would like nothing more than to see operational constraints befall broadband wireless Internet, thus thwarting its emergence as a competitive service to traditional radio.

So for better or for worse, the progress of the Net Neutrality debate is important to the radio broadcasting business, just as it is to American citizens at large.

Skip Pizzi is contributing editor of Radio World. Past articles are archived under The Big Picture tab at radioworld.com.

VPR

▶ Continued from page 19

and have never looked back. And as we all know, ultimately it isn't technology, it's the content.

I think that given time, HD Radio will catch on with consumers and retailers alike. I'm old enough to remember going to my grandfather's house and hearing him say in the evening, "Come on kids, the FM station is going to start broadcasting in stereo. Let's turn on the multiplex tuner and listen for a while." It took nearly 15 years for FM to really catch on with consumers and broadcasters, but it's nearly ubiquitous now.

So, yes, it may take some more time for HD Radio to gain wide acceptance, but I don't expect it will take 10–15 years. Meanwhile, here in Vermont we believe in the future of HD Radio, and in particular that "killer app" HD-R multicasting.

VPR is confident that IBOC will continue to be an important part of our future for a long time, so we are working hard to promote the fact that it enables us to super-serve our listeners with the programming choices they really want.

Rich Parker, GSEC, is director of engineering for Vermont Public Radio.

Tell RW about your own company's experiences in implementing HD Radio, including strategies and listener reactions. E-mail to Lstimson@imaspub.com.

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World Radio History

Studio Sessions

We Review
The JK Audio
Daptor Three
Page 31

Case Study: How Do You Lug Your Gear?

by Paul Kaminski

This is the first in a series of quarterly columns about radio electronic newsgathering tips, tricks and trends.

The series is based on the premise that the time to do heavy thinking about what a reporter will have to bring to the field and how the reporter will work in the field is before the reporter actually has to go to the field. What a novel concept for a business that thrives on spontaneity.

With that said, let's look at how reporters organize and transport their gear to and from assignments.

Be prepared

If like me you have been in the business for a few years and you've made more than your share of mistakes or missed the "money quote" because you didn't have a backup item, you tend to bring everything you could possibly need in the field to an assignment — but likely won't.

Common sense dictates that you bring what you need to complete the assignment. Some reporters, like WSB(AM)'s Peter Combs — whom you also will hear on CBS News Radio, covering hurricanes and such — tend to take the ultra-portable backpack route. Others use a variant of the soft-sided briefcase/business case on wheels. I've schlepped too many backpacks in my day, so I use a Zero aluminum case to transport my laptop and basic gear from car to venue.

What you take with you depends on what makes you comfortable and confident. Both comfort and confidence will help you do a better job when you roll up to a venue knowing you're ready for what may happen next.

I talked with Peter just after he stood down from hurricane season; he shared some insights with me.

Peter uses a Dell Computer backpack, which by his calculation weighs 40 to 45 pounds when full of gear.

The Pelican case is light yet strong.

The Zero case sustained only a dent after a 20 foot fall.

"I've had it for about two years, and I can find anything in that pack without looking," he said. That particular bag has a lot of side pouches, which Peter fills with batteries ("You can never have enough"), pigtail connectors, mic and USB cords, etc. He usually carries it by one strap over the shoulder if the walk is short; longer walks have him use both straps over both shoulders.

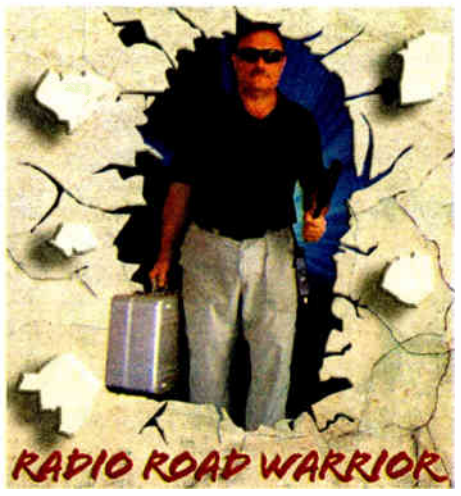
The Bugout bag is made from polyester canvas, providing water resistance.

When he has to go into hurricane areas, Peter wraps each item in plastic before placing it in the backpack. He wears the top half of a rain suit with almost as many pockets as the Dell backpack, so the gear he carries stays dry.

His advice for fellow road warriors: "Remember that you're basically a self-contained broadcast unit out there. Wherever you are, it's a good bet that if you don't have it, you will have to do without it."

You can choose backpacks that range from the drugstore/discount store type to the same style of duty packs carried by soldiers and Marines. A value-priced alternative is the "Bugout" gear made by Piper Gear in Chula Vista, Calif. You've likely seen some of their products if you've seen soldiers and Marines moving through airports.

The Bugout bag is a popular item in the military exchanges and is used to



haul personal gear back and forth. It can be carried like a soft-sided case, and when necessary, the back straps come out so the case can be carried on the back.

Reggie Regala from Piper Gear's marketing division says his company's products may not be the most expensive, "but they are functional and affordable with high-end features. We get input from the people who are using them (in the field), and we listen to that very carefully."

The Bugout bags are made from a polyester canvas, which has some inherent water resistance.

"Because of the zipper," says Regala, "we can't call them waterproof bags. We do design them with a hood over the zipper to keep water away. They will clean up with a damp rag, and for stubborn soil, a little dishwashing soap."

Then there's the Pelican thermoplastic case, somewhat light and very strong. You'll see these with military units moving sensitive and fragile equipment from place to place.

At Soldiers Radio and TV in Washington, we sent soldiers to Saudi Arabia and Kuwait during the Gulf War with a radio news kit (recorder, adapters, single-line Comrex, etc.) that was fitted into a Pelican case — my first experience with these light and strong cases, whose modern-day

See WARRIOR, page 30 ▶

iMediaLogger

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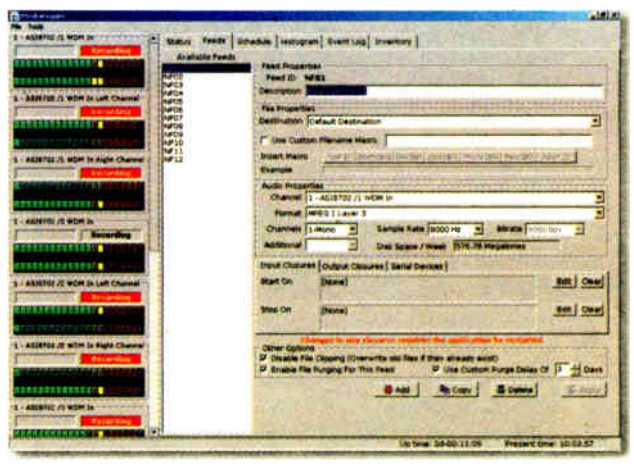

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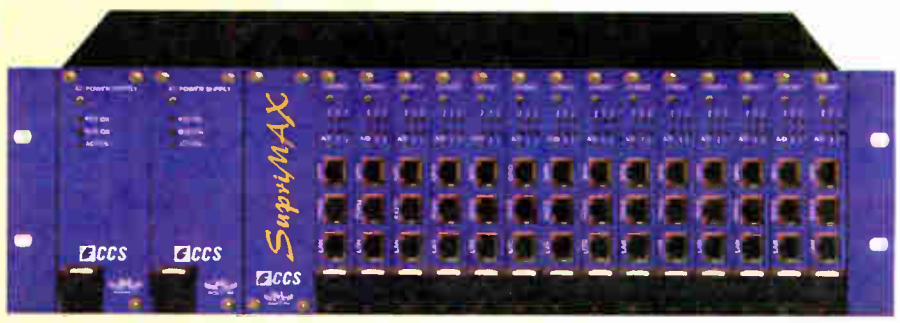

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World Radio History

PRODUCT EVALUATION

P-Solo Ribbon, Naked Eye: A Dynamic Duo

True Systems Preamp With Crowley and Tripp Ribbon Mic Yield Smooth Response, Low Noise

by Ty Ford

You don't find ribbon mics in radio much anymore.

In the late '60s and early '70s, the first two stations I worked for used RCA 77DX ribbon mics everywhere. Years later, in 1977, while working at WBAL/WIYY, I found a treasure trove of 77DX mics stored in a credenza, no longer in use; the stations had gone to Shure SM7s.

Over the last 10 years I've found the idea of ribbon mics usually is more appealing than the actual use of them. Each time I've compared my 77DX or beyerdynamic M160, they have lost to other mics.

Ribbon mics need a preamp with lots of gain. Ribbon mics also do not have the high-frequency extension of a good condenser, usually fading at 10 kHz with little if any above 12 kHz. That was okay when AM radio was king, but FM's 15 kHz frequency response changed all that. However, any tide eventually changes.

If you are a closet ribbon mic fan, you'll want to check out Crowley and Tripp's Naked Eye ribbon mic ($829) and the True Systems P-Solo Ribbon preamp ($745). The two are being packaged together for $1,265 as an arrangement between the two companies to offer these units at an attractive price, and for good reason. They match particularly well.

Features

The Naked Eye is a relatively small figure of eight ribbon. It comprises an aluminum ribbon, motor and custom-wound oversized and well-shielded transformer in a steel body.

I usually like to wander around inside mics to see how and how well they are built, but the sealed screws under the base label were not to be disturbed.

The front and back sides of the mic offer two different frequency response curves, not by offsetting the ribbon, but by using acoustic baffling to mechanically alter the response. The Naked Eye package includes the mic, a handsome wooden box and an arty but functional mic clip.

The P-Solo Ribbon preamp is a simple, well made, metal desktop box with drilled vent holes for passive cross-ventilation, weighing five pounds and about the size of a Digidesign Mbox. The internal power supply is mounted on a card as far away from the audio circuits as possible. The large input knob has a decidedly smooth feel when rotated.

The P-Solo Ribbon is a single-channel preamp with a balanced dual servo transformer-less input range switch, 80 Hz high-pass filter, internal AC supply (no line lump or wall wart), XLR balanced low impedance mic and 1/4-inch unbalanced high-impedance instrument inputs and balanced XLR plus 1/4-inch TRS parallel outputs. Double outputs ease feeding two destinations at the same time. The frequency response is listed at 1.5 Hz to 500 kHz (–3 dB), with a maximum input level of +25 dBu and a maximum output level of +31 dBu.

In use

Matching a mic with the right preamp is part science and part black magic. The

Naked Eye and P-Solo Ribbon combo work quite well together, although they were not co-designed. The result is a smooth, clear response and very low noise.

Of the two sides, I liked the front sound better. It's thick, rich and pleasant, and even though it is the darker of the two, it has more high frequencies than I expected. Even after playback, in my headphones, the back sounds a little scooped in the upper bass or low mids. I couldn't hear the scooping while listening to playback over speakers. It's there, but it's that subtle.

The Naked Eye is no more susceptible to popping than any other good studio mic. If you need a pop filter on the mic you are using now, you'll need one on this mic as well.

I found the high frequencies sufficient, while not as abundant or high in frequency as with a condenser mic. Against the massive number of cheap condenser mics on the market, the P-Solo Ribbon and Naked Eye combo is surprisingly quiet and smooth.

I also recorded voice tracks using the Naked Eye and a GML preamp. The Naked Eye was a little brighter and not quite as thick in the upper bass/low midrange. I actually preferred the P-Solo over the GML with this mic.

My RCA 77DX also sounded better going through the P-Solo ribbon preamp than it did through my GML preamp, so True Systems is obviously doing a little magic. My beyerdynamic M160 hypercardioid ribbon mic sounded a lot nicer than my RCA 77DX when using the P-Solo ribbon preamp, but the Naked Eye mic was more balanced and brighter.

During mixdown, the RCA 77DX through the P-Solo Ribbon was out of the running without EQ. Pulling out 3–4 dB in a wide Q at 100 Hz and adding a +4 broad bump ramping up from 500 Hz to a plateau at 2 kHz to 5 kHz gave it plenty of meat and plenty of top. The M160 also required EQ. I applied a rising HF shelf starting at about 1 kHz going up about 4dB to a plateau at 5 kHz.

The figure of eight pattern of the Naked Eye will pick up as much on the backside of the mic as the front. If you have a boxy, splashy room full of noisy gear, or a multi-person morning show, you will probably have problems with the rear lobe picking up unwanted voices. How did they do it in the old days? Big drape-lined studios with tall ceilings and multiple talent leaning in to deliver their lines to the same mic, of course!

Using the 1/4-inch unbalanced P-Solo input mutes the XLR input and offers some interesting possibilities. If you bring musicians in to play live, getting good sound in a small studio can be tough. With a couple of P-Solo preamps around, you can directly plug in guitars, entire pedal effects boards or keyboards or even consumer

recorder/players. I tried this with both my acoustic and electric guitars and they sounded fine.

Conclusion

If you have the right acoustical environment and are trying to create a different on-air voice sound, the Naked Eye/P-Solo Ribbon combo may give it to you. And with the smooth top end, you'll be able to smack the compressors and limiters without splatter. Even with the backside "gotchas," the Naked Eye and P-Solo Ribbon combo is a sweet-sounding one. Both companies appear to be on to something.

To its credit, Crowley and Tripp have successfully reinvented the figure of eight ribbon mic. I wonder how it would do with a cardioid or hypercardioid ribbon. True Systems earned its stripes with the P-Solo Ribbon preamp. It's a quality piece and getting good, quiet gain for ribbon mics is not easy.

Ty Ford is a frequent contributor to Radio World.

Product Capsule:

True Systems P-Solo Ribbon Preamp With Crowley and Tripp Naked Eye Ribbon Mic

Thumbs Up

- ✓ Great-sounding combination of mic and pre-amp
- ✓ Smooth, clear response
- ✓ Very low noise

Thumbs Down

- ✓ Figure of eight pattern may be a problem in some situations

PRICE: $1,265

CONTACT: *Crowley and Tripp at (508) 231-4515 or visit* www.soundwaveresearch.com; *True Systems at (520) 721-2735 or visit* www.true-systems.com.

Warrior

▶ Continued from page 28

models reportedly have survived a hit with an improvised explosive device in Iraq.

Soldiers Radio and TV Chief Engineer Gene Gunderson says those cases allow him "to pack a large quantity of equipment and supplies for support." Care and maintenance are fairly straightforward: "a wipe down with a damp rag, and some TLC and a little preservative for the plastic."

Gunderson has a note for those who travel by air and want to take what they need but keep the weight down: "If they must consider weight, equipment and flexibility, it (the Pelican case) is a product to look at." Pelican cases come with wheels as an option.

Travelin' tight

I'll share a personal experience about cases. I had been given a Zero aluminum tool case a few years ago. I figured out how to pack a laptop and its peripherals, along with a flash-card recorder, two microphones, cords, adapters and a JK Audio RemoteMix Sport and its peripherals into the case.

One day at the Secaucus Junction train station in New Jersey, my Zero case, loaded with equipment, came loose from the strap which fastened it to a suitcase. The case slid and fell from the top of the stairs on the train platform to the bottom of the stairs.

If I had my gear in a soft-sided suitcase, I would likely have spent a few thousand dollars to repair or replace a laptop and recorders, which likely would have been in figurative and literal pieces after that 20 foot fall. The sole result was a dent in the corners of the Zero case, and some scratches.

Carrying the case, about 30–35 pounds loaded, helps me to get some exercise, so there's a side benefit as well.

Zero cases are drawn from a single sheet of aluminum over a die. The process uses 440 tons of pressure to rearrange the hi-tensile aluminum, without adding wrinkles or distortion in the finished surface. The cases provide 360 degree protection, as the entire case is made from aluminum. Other cases may just be reinforced at the corners.

Aluminum provides corrosion resistance, high strength to weight ratio and shielding against more than moisture, dust and extreme temperatures — Zero cases can provide some protection against RFI/EMI interference. Maintain them with some industrial cleanser and a rag to get rid of the scuffs. Zero cases also come with optional wheels.

How do you keep a big case organized? You use little packs and bags to organize the loose stuff so everything fits comfortably. What style of small packs you use is up to you. It helps when, not if, you are selected by the Transportation Security Administration for follow-up

World Radio History

PRODUCT EVALUATION

Add Daptor Three to Remote Gear Arsenal

Feed Mixer Output Into JK Audio's Wireless Interface, Connect with Cellphone to Ease Remotes

by Edward C. Dulaney

Every so often a device comes along that makes you want to say, "Why didn't I think of that?" Joe Klinger at JK Audio has developed such a device.

Called Daptor Three, this little black box transmits audio over a Bluetooth link. What that means for the average user is that they can take the output of a mixer, feed it into the Daptor Three and connect with their wireless phone for a fast, easy remote broadcast.

I took the unit home with me, and connected it up to the output of my Autogram MiniMix-8 that I use for production at my house. I then took the audio from the Daptor Three and connected it to my external "Air Monitor" input. This gave me a good testing platform for evaluating the audio quality of the Daptor Three.

Connecting the Daptor Three with a cellphone is a pretty straightforward operation. Simply configure your cellphone to look for a Bluetooth adapter, and hold the silver button on the Daptor Three down for about five seconds. Doing so will signal the Daptor Three that you wish to sync it with another Bluetooth device. Within about 30 seconds my phone signalled that it had located the Daptor Three and was ready to connect.

Testing, testing

I then started recording the audio from my home studio into a computer at my workplace. Oh, the marvels of modern technology.

From my home I could bring up a VNC connection to a production computer, start the recording and then listen to what I recorded as an MP3 file. What I heard on the recording that I made amazed me. The quality was much better than a typical cellphone call. There was a bit of digital "grunge" on the connection, but that has to be expected over any CDMA or GSM cellular connection.

Do not, however, expect to broadcast a music segment using this box. As is typical with cellphone calls, music does not transmit over the connection with any level of fidelity at all. Anyone who has listened to music-on-hold sources while on a cellphone knows how poorly music sounds.

That brings me to another small problem with the Daptor Three. If you are using the return channel as a simple IFB, then you should experience no problems whatsoever. If, however, you try and send music down the return channel it will cause some significant problems.

With most cellular providers, the bandwidth available on any given call is divided between the two connected parties. If the station is sending music down the IFB channel, the audio from the remote back to the studio will have significant audio degradation. This isn't a limit of the Daptor Three, but a limitation of cellular providers.

The next test I tried was configuring the Daptor Three to talk to a USB Bluetooth interface on my PC. Just as with my cellular phone connection, the PC's adapter easily synced with the Daptor Three. Unfortunately, my USB adapter would not permit me to send audio from the Daptor Three to the PC at full 20 kHz bandwidth. I was limited to 3.4 kHz. According to Klinger, the newer version of PC Bluetooth adapters will not have this limitation.

I could, however, send high-quality audio from my PC to the Daptor Three. While there were some slight artifacts on the audio, the quality was more than acceptable for general use. I can see this being used to get audio from laptop computers into a production board without having to run wires out of the laptop.

The only real downside I found with the Daptor Three was the lack of a mic-level input on the box. The audio must be fed into the unit at line level. This omission precludes its use as a man-on-the-street interview box.

According to Klinger, "Adding a mic input means adding a mic pot ... and probably a decent headphone amp and level pot. We've learned from experience that it's never as simple as you would hope." Perhaps the folks at JK Audio will consider something like this in the future.

The Daptor Three started shipping in August and will likely still go through a refinement or two. Klinger already has indicated that an upgrade will be available when the Bluetooth technology for bidirectional Hi-Fi audio using a PC adapter is available.

He observes that the trend has been for PC manufacturers to support only a "headphone" mode with their USB and PCMCIA adapters, but he also has said, "We are working to reverse the trend by offering (at no cost) a software update that will allow either 'cellphone' emulation, or headset emulation." It is clear to me that JK Audio is willing to do everything possible to stay one step ahead of the technology curve.

Overall I'd recommend this little box to anyone who needs another useful tool in their arsenal of remote gear. For those days when the sales guy sells a remote at the annual cow-herding festival in PawPaw County, this might just be the device you need to pull that remote together.

Ed Dulaney is the chief engineer for Crawford Broadcasting in Denver.

screening at airports.

Small packs can provide a degree of padding too. You also can use the foam inserts that come in hard-sided cases, if you only carry a few but relatively fragile items.

The next edition of Radio Road Warrior will deal with getting audio in and out of a PCS digital flip or brick handheld cell phone; the analog bag phones are going away. We'll look at the problem and bring you real-world solutions that can mean the difference between getting on the air, and not.

Don't hesitate to contact me at *motorsportsradio@msrpk.com* if you have a problem you'd like for us and our readers to solve, or an idea for a future column; those ideas and comments help us focus on the tips, tricks and trends that are important to you, our readers.

Paul Kaminski is the news director for the Motor Sports Radio Network and reports for CBS News Radio. He has been a Radio World contributor since 1997.

Product Capsule:

JK Audio Daptor Three Wireless Audio Interface

Thumbs Up

- ✓ Bluetooth link eases remote broadcasts
- ✓ Audio quality trumps that of typical cellphone call

Thumbs Down

- ✓ Lack of a mic-level input on the box
- ✓ Music does not transmit over the connection
- ✓ Sending music down the return channel causes problems

PRICE: $415

CONTACT: *JK Audio at (800) 552-8346 or visit* www.jkaudio.com.

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World Radio History

USER REPORT

Record 16 Stereo, 32 Mono Streams at Once

iProFiler Uses Ethernet Connection to Axia Network Instead of Sound Cards to Deliver Audio to PC

by Iain Grant
Manager of Broadcast Operations
XM Canada

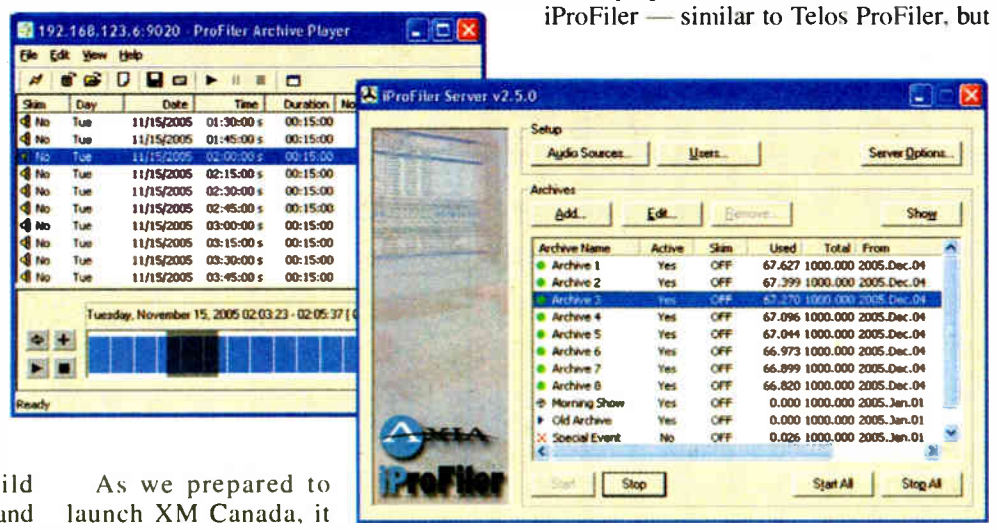
TORONTO Elton Trueblood said, "Faith is not belief without proof, but trust without reservation." For me Axia isn't a broadcast audio solution, it's more of a religion, offering answers, solutions and peace of mind — isn't that half the requirement?

I was sold on the **Axia** platform from the moment I saw it. Throughout my career I've worn many hats, including host, producer, technical producer and engineer, and I knew I was on to a solution that would benefit everyone. During our system design phase, I listened to requirements and knew that I could confidently agree to meet any build request with the combination of Axia and Pathfinder, the system's routing software.

Confidently, I should say, right up until our "audio logging" discussion.

Preparing for launch

Stop me if you've heard this one before: Budgets are tight, space is at a premium, deadlines are measured in minutes, not weeks and you assumed the request made in the latest meeting was a joke and started laughing, only to realize everyone else around the table has a straight face. Sound familiar?



As we prepared to launch XM Canada, it became apparent that satisfying our license and programming requirements would necessitate the continuous capture of at least 32 channels of audio, plus archiving them for a month or more. With most logging software able to log two or four streams of audio, I found myself considering a wall of eight or 10 PCs running multiple software copies with multiple sound cards, hard drives, wiring harnesses and more.

For our initial launch I chose Telos ProFiler. Using four streams per server I captured our eight Canadian channels on two PCs, but I needed more.

Tyler Everitt at our supplier, Pippin Technical, offered a heads-up that Axia had a project on the back burner called iProFiler — similar to Telos ProFiler, but this product used an Ethernet connection to an Axia network instead of sound cards to deliver the audio to the computer. This allowed for 16 stereo or 32 mono streams to be recorded simultaneously.

This was exactly what I needed, and because I needed it yesterday Axia came to the table and rapidly stepped up the development process. XM prides itself on being leaders at the forefront of technology, and we quickly knew we had partnered with an infrastructure provider able to respond to unique needs and listen to customer feedback.

From the moment the software arrived it was obvious the loggers would be a production tool as well as a means of archiving. I configured three copies of the software on three PCs. Our Toronto and Montreal broadcast facilities weren't finished by the time we launched so the loggers acted as stand-alone units, three PCs, one router and 24 radios all in a corner of the building covered by a tarp. There was no real wiring involved so it all fit in a 3 foot rack unit.

From a configuration standpoint, the software is limited only by your imagination. As well as logging our off-air channels 24/7, we also record skimmer streams from each studio. The configurable recording schedule captures streams like network newscasts, and by using the configurable GPIO on each channel you also can activate the recording with closures.

Using multiple log-in configurations, our programming and traffic department can access the time-stamped MP3 off-air audio; program directors can go through specially configured on-air skimmer streams; the newsroom can monitor various captured news broadcasts; and engineering can pinpoint on-air anomalies at a moments notice. And because the entire system is IP-based, this can all be done from the office, home or anywhere in the world.

Channel audio is stored in time-stamped MP3 blocks. The length of these blocks is user-configurable, from one minute to 24 hours, independently, for each channel. The software also will FTP files to a server for backup or distribution.

Three modes of logging are offered: Continuous, Skimming (records only when activated) and Smart Skimming (changes bit rate when activated). The Skimming options also offer a configurable pre- and post-roll time delay feature, so you don't lose audio due to a last-minute mic activation.

Is it reliable? Our iProFiler servers have now been up and running (aside from the time spent to perform periodic free software upgrades) for 2-1/2 years. Two of my audio streams have been logging content since Jan. 1, 2006.

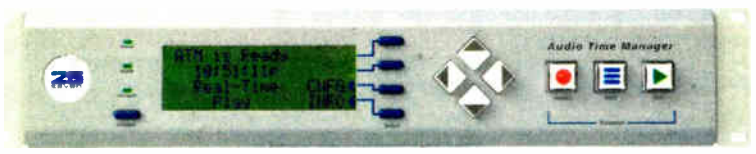
Axia iProFiler has become an integral tool in meeting many of XM's unique challenges. What was originally intended as a way of meeting licensing commitments has become a flexible center for program archiving that evolved into many other uses as well. Having these kinds of resources available from a company like Axia makes heading into those project meetings a lot easier.

Axia Audio's iProFiler retails for $1,095.

For more information, contact Axia Audio at (216) 241-7225 or visit www.axiaaudio.com.

Change the way you think about the clock...

AUDIO TIME MANAGER doesn't just shift time, it shifts the clock paradigm. Imagine inserting an extra traffic report in a network show, with no loss of content. Imagine backtiming into the network perfectly every time, even when breaking local news means you're running long. Imagine eliminating make-goods. Now shift your thinking about time, because your old clock just got a new face.



"The 25-Seven Systems box is an amazing device and leaves all others in its dust. It's truly the **SECRET WEAPON** to make your station sound tighter, time shift segments and never miss a network cue again. We're still finding new and creative ways to use the 25/7 every week."

-Gabe Hobbs
Senior Vice-President of Programming, News/Talk/Sports
Clear Channel Radio

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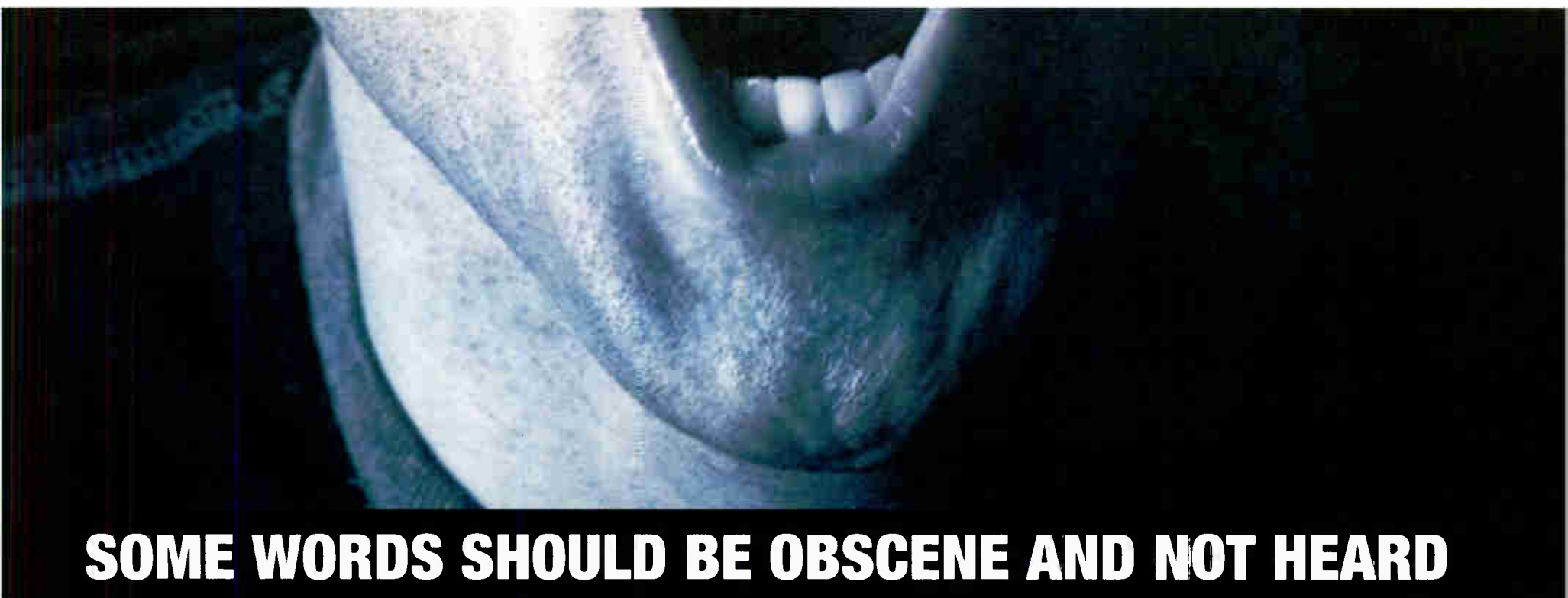

SOME WORDS SHOULD BE OBSCENE AND NOT HEARD

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

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

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

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

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

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World Radio History

TECH UPDATES

Logitek Consoles Offer Delays Up to 14 Seconds

Logitek's Artisan, Mosaic and Remora consoles offer multiple delays of up to 14 seconds each, provided via the SharcAttack multi-DSP processor card, a plug-in card for Logitek's Audio Engine router.

In addition to providing delay operations, the SharcAttack card enables users to perform on-board EQ and dynamics processing functions.

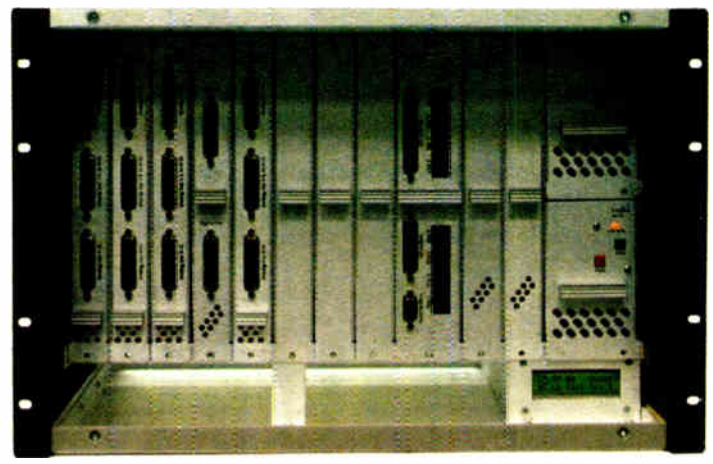
Each SharcAttack card includes two stereo profanity delays with a maximum delay of 14 seconds each. An Audio Engine can accommodate two SharcAttack cards, permitting operation of up to four independent profanity delays. Delay length is user-adjustable.

Dump functions can be set up in multiple steps, permitting partial or full dumps of the delay buffer; machine start and stop commands also can be linked to the delays. A bar graph with numeric display of the delay length is provided on Logitek's console control surfaces (Remora, Mosaic and Artisan). Fill, Empty and Dump functions may be programmed into the control surface soft-keys or activated via external buttons.

The delays also can be controlled from a PC via Logitek's vScreen program or the vDelay IP client program.

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

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



Logitek Audio Engine

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Welcome to the place where creativity originates, inspiration comes alive and dreams become reality.

If you create, manage, finance, distribute or deliver content today then you're part of the ever expanding and evolving Broader-casting℠ industry. Whatever your role, you need to stay abreast of the latest technology trends like 3D, IPTV, mobile video and social media. Attend the NAB Show this year and you'll see why it's **THE** world's marketplace for product introduction and the single greatest gathering of content professionals. In fact, it's the most comprehensive display of digital communications technologies—more than twice as large as any comparable event—and that equals more value. More tools. More techniques. More connections.

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Journalists Can Use Burli Audio As It Records

Burli's News Logger records multiple audio streams in various audio formats. One stream can be split into any number of copies, each in their own format, according to the company. And journalists can use the audio while it is being recorded.

Users can constantly record an audio satellite feed with the News Logger and when there's breaking news, the news team can access the audio with a mouse click. Additional applications include recording the competition, or recording your own air feed so your newsroom has access to any interview from every program the moment it airs. Whatever is recorded is immediately available to reporters.

Features include drag-and-drop functionality from the main screen. Find audio by feed, time, markers or preset markers and drag it into your work. Burli says transferring audio from separate logger applications is not necessary.

Additionally, the logger audio is available across the newsroom network once recorded, so audio from a live news event can be edited and included in a bulletin just after it happens. Burli lets the user decide whether to write the audio to the recording workstation or a dedicated media server, but either way it is accessible to users across the network. Burli manages the audio data, deleting it once it's no longer needed.

While logging, News Logger can add markers to an audio stream when it detects the tones or contact closures that sometimes indicate the beginning and end of audio feeds. Or it can add markers at a preset time; the start of a given talk show, for instance.

Additionally, users can add markers manually in real time when they hear something significant in a press conference, for example. The logger can be scheduled to start and stop recording based on clock time, external trigger, audio threshold or some combination.

Burli says News Logger is a tool for journalists, but because it can play audio while it is still recording it, News Logger can be used to time-shift broadcasts. News Logger also can be used as a skimmer for the studio microphone or newsroom telephone.

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

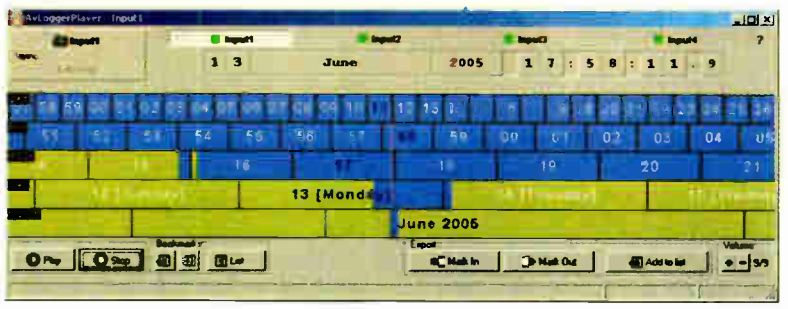
World Radio History

TECH UPDATES

AVLogger Captures Multiple Sources at Once

The **Broadcast Electronics** AVLogger captures multiple audio sources at different compression rates and formats, for retrieval from any station PC with a browser. It is suitable for broadcasters who need to be able to capture one or more than one audio source simultaneously.

BE's logging and archiving application records multiple sources at the same time using compression rates and coding formats such as PCM and MP3. It can record audio feeds from the console or off the air, and at a predetermined time or based on events.



For example, while AVLogger is logging the off-air program in MP3 at a sample rate of 128 kbps mono, it can record another log of the open mic channel at 256 kbps, plus capture the morning show in uncompressed PCM.

AVLogger is offered as an integrated application with BE's AudioVault digital studio system, or it can be purchased as a stand-alone application.

Broadcasters can log off-air audio 24/7, plus perform other capture functions as required, such as recording a commercial client's ad campaign as an affidavit of when and how spots ran.

The application has an event toggle for logging audio by event, such as the opening or closing of a microphone. It also has a timeline menu that offers logging by month, day, hour, minute and second. Its navigation tools enable broadcasters to find the right audio passage, and its export tools provide file transfers to formats compatible with major audio editors.

AVLogger audio files can be archived to removable media, or placed on a network for easy retrieval. Station personnel have immediate access to recorded audio from their desktop PCs and can switch between logged audio at various stations using the system's shortcut feature.

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

RCS Tracker Offers Flex Skim Technology

RCS Tracker records airchecks, recycles promotions, saves entire shows and keep tabs on the competition. Users can access data from a log to pinpoint specific breaks, bits or spots; and review from an Internet-ready computer. VU meters monitor the current status of a recording.

According to the company, RCS Tracker's flex skim technology skims

TRACKER®

radio programming in the traditional "destructive" sense, using momentary closures. Alternatively, non-destructive skimming records marks while preserving the entire show without gaps.

Users can monitor and review multiple stations via Web browser; pinpoint and review audio elements using XML export ability; maintain/monitor airchecks and prove the right spot played at the right time on the right day; and retain as much of a station's audio as needed, using compressed or non-compressed audio formats.

The system records from one to four sources simultaneously, mono or stereo. RCS Tracker uses multiple bit-rate storage on a "per recording channel," while recording length/times are user-configurable. RCS

Tracker can be configured to work with most analog or digital audio sources, including automation systems, satellite receivers and switchers.

Users also can organize recordings by channel or time. These recordings can be accessed via network or remotely via Web page, with direct playback from a browser.

For more information, including pricing, contact RCS at (914) 428-4600 or visit www.rcsworks.com.

Write to RW

Send e-mail to *radioworld@imaspub.com* with "Letter to the Editor" in the subject field; fax to (703) 820-3245; or mail to Reader's Forum, Radio World, 5827 Columbia Pike, Third Floor, Falls Church, VA 22041.

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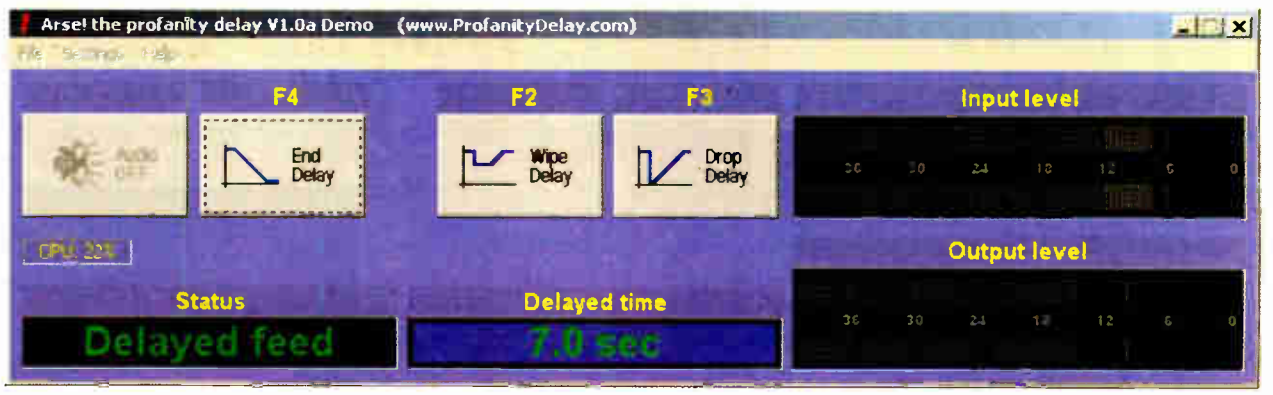


Arse! Profanity Delay for Windows PCs

It's like being able to 'edit' a LIVE show!

between 2 and 30 seconds of stereo broadcast-quality delay ■ simple to use, even for presenter self-operation ■ builds delay inaudibly using algorithms optimised for speech or music ■ or can build delay by playing your filler audio for you automatically ■ countdowns to cue points on build/edit/drop delay

At only $1,250(US) Arse! Delay is the most advanced Profanity Delay available today.

Download a trial version for free... and see Arse! Delay for yourself...

WWW.PROFANITYDELAY.COM

Arse! Delay is a product of MDOUK, tel. +44 121 256 0200, email: sales@profanitydelay.com

World Radio History

USER REPORT

Time Stands Still for WLS With ATM

25-Seven Enables Stations to Hold, Pause Network News Until They are Ready to Play, Rejoin Event

by Kipper McGee
Program Director
WLS(AM)

CHICAGO With increased demands to do "more with less," why should time be any different?

Programmers and salespeople alike are challenged to find new and unique ways to more fully monetize each waking hour. WLS(AM) has discovered previously untapped opportunities with the Audio Time Manager unit developed by Geoff Steadman and his team at **25-Seven Systems**.

Unlike so many of the "incremental" improvements common to our industry, 25-Seven has been a "leapfrog" experience for WLS, taking the idea of time management to a new level.

While there are other time compression devices, the "old-generation" boxes primarily had one function: to squeeze the time of program content to allow the insertion of more commercial units.

25-Seven's approach combines the best virtues of traditional time compression, with an intuitive, flexible, user-friendly interface that allows your radio station to make time stand still with two buttons: pause and play.

As a bona fide button-pusher, I will entrust it to those far more technologically savvy than I to describe the elegant algorithms and other wizardry that happens inside this magic box. From a user standpoint, I'm delighted to share some of the ways WLS has been able to put this device to work for fun, ratings and revenue.

In the world of Arbitron diaries, top-of-mind recall is the name of the game. However this broadcast fundamental can be most challenging during breaking news coverage, particularly when carrying network or news pool content, or sharing with a TV partner, etc.

From spontaneous events such as impromptu media conferences to planned events such as the State of the Union address, stations typically had two choices: ignore station identification; or "stomp" over the existing audio to affirm to your listeners that they were listening to your station.

Just push play

With 25-Seven, it's a matter of hitting Pause at the end of a sentence or other natural break, dropping in your call letters and brief explanation, then hitting Play and rejoining the event without missing a beat.

Even in the burgeoning PPM world, identifying your station, while perhaps no longer necessary for Arbitron measurement, will be as important as ever to ensure "mental credit" for future tune-ins.

Every once in a while even the best producer can use a little help to "beat the clock." 25-Seven helps us ensure a seamless sound.

For example, WLS News does live "whip-arounds" featuring our top local stories before joining the ABC Network at the top of the hour. While our news team is very clock conscious, sometimes a developing story requires evolving description.

If this causes us to run a bit long, no worries; 25-Seven will "hold" the network news until we hit Play for seamless integration.

This is particularly valuable when breaking national stories require developing status reports. We no longer have to cut a talk segment short to "hit a post," but rather can now pause the network report until we are ready to play it.

Whether it's several seconds or a couple minutes, this power gives us control over our content, and how we integrate it with content from other outside sources.

Perhaps one of the most exciting (and profitable!) uses has been in the realm of sports. 25-Seven has given us several opportunities during network play-by-play.

First, some networks are less sensitive than others to the need for "station identification" other than at the top of the hour. 25-Seven ensures you can drop in call letters, positioning statements, event program cross-plugs in and around commercial breaks without missing a beat. Hit Pause, insert your element and then resume by hitting Play.

Second, we have found that our popular pre-game/post-game host Chet Coppock can be a valuable addition during the game as well.

At the end of each quarter of football, and during period breaks during basketball, Chet is able to give a quick recap from a local perspective, while promoting ahead to his next post game, pre game, etc. — all by hitting Pause, then Play. While we have yet to fully exploit the sales advantages of this resource, we have proven that it can be done for fun and profit.

For those who may object to this technique on the grounds that it disrupts those who wish to listen to radio play-by-play while watching TV, let me share our findings.

First, more and more, PBP is tending to be an "either/or" phenomenon. Those who can watch on TV do. Those who are in a car or other place without television listen on radio.

Second, in these days of HD latency, station delays and the variances between satellite providers vs. cable among other factors, true multimedia synchronization has gone the way of crystal set radios.

Whether it is news, sports or simple time compression, 25-Seven has added more than just extra time to the WLS toolbox.

The ATM retails for $7,950.

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

USER REPORT

OMT Smooths WTOP Transition to MD

iMediaLogger Solves Issues With Recorded Sound Not Fixed by Reel-to-MiniDisc Transition

by Brian Oliger
Newsroom Technical Manager
WTOP/WFED/3WT Radio
Bonneville International Corp.

WASHINGTON With more than a million listeners per week, WTOP(FM) Radio is "Washington's news, traffic and weather station" serving the nation's capital, southern Maryland, northern Virginia and the entire mid-Atlantic region.

Combined with Talk Radio 3WT (1500 AM/107.7 FM) and Federal News Radio WFED(AM), WTOP is the flagship of the Bonneville International group of stations in Washington.

As manager of newsroom technical operations for the group, I am always on the lookout for new tools and technologies that will enhance our on-air product, and help our reporters, anchors, editors, writers and operations staff deliver up-to-the-minute news, traffic, weather and sports more productively. One such tool we have come to depend on heavily over the past five years is the iMediaLogger from **OMT Technologies**.

The computer-based multi-channel recording system is highly customizable and allows multiple end users to access audio files on any PC from a simple and intuitive Web-based interface. At the time I first saw the iMediaLogger in action in 2001 on a visit to WCBS in New York, I knew it could improve the workflow at WTOP.

One at a time

We had just replaced the aging Otari 5050 reel-to-reel tape recorders in WTOP's Master Control with new Sony MDS-E12 MiniDisc machines to constantly record our air signal, network feeds, studio output feeds and just about any other audio that passed through the plant.

While transitioning from reel-to-reel to MiniDiscs resulted in tremendous savings of rack space and recording media, it didn't solve some of the basic problems we dealt with on a day-to-day basis, specifically that recorded sound could only be used by one person at a time. It had to be re-recorded in real time in order to be edited on a computer; and it was too easily lost through accidents or machine malfunction.

Imagine, in the digital age, sound being lost because it was physically misplaced.

Furthermore, when our editors and desk staff needed to turn around a live interview or news segment quickly for rebroadcast, they would record the segment off-air on their computer, tying up the machine and leaving them unable to do much else until they finished recording.

Brian Oliger stands with the iMediaLogger rack at WTOP.

The iMediaLogger solved all of these problems and brought with it new capabilities we simply didn't have before. I bought our first iMediaLogger with eight audio input channels in 2002 and immediately set it up to record WTOP's off-air feed in both 10-minute and 60-minute MP3 files. The initial setup to accomplish this took about three or four minutes, and immediately our desk staff no longer needed to record our air feed. It was like giving them their computer back for a substantial portion of every hour.

Next, I set up the iMediaLogger to record our CBS and AP network feeds in 15-minute files. This meant those feeds

See OMT, page 38 ▶

World Radio History

DSPXtreme

AUDIO PROCESSOR

Extreme PROCESSING

The DSPXtreme is the newest addition to BW Broadcast's DSPX range of audio processors and we've included a few new features you wouldn't normally expect in an audio processor.

The first thing you will notice is the 2RU form factor which now includes two colour screens - one of which is touch sensitive. As well as looking great, the touch screen removes the need for jogwheels, joysticks and buttons allowing you to navigate, setup and control the DSPXtreme with a touch of your finger.

Behind the stylish front panel you'll find we've included more of the features that have made the DSPX range of processors among the best in the world. If you don't need all the features, no problem, the DSPXtreme is available in four different versions with tailored hardware and programming features: FM, AM, CD, HD.

For quality FM stereo broadcasting, the DSPXtreme-FM includes the world class stereo encoder found in the DSPX and DSPXtra. As well as the standard processing features you'd expect in a top-line processor, the DSPXtreme-FM has dual output paths allowing HD and FM services to be processed simultaneously without compromise. Simulcasting of FM and HD service is not a problem using the diversity delay feature.

With 6-Bands of audio limiting, distortion controlled clipping and look-ahead limiting you will have everything you need at your fingertips to create your own distinct sound for broadcasting or audio production.

Remote configuration and monitoring is simple with numerous connectivity options. These include an Ethernet port for LAN or WAN access, an RS232 serial port and an 802.11 (WIFI) Wireless interface. If you don't require a full user interface a remote trigger port is available that allows preset selection through contact closures.

You want more? No problem. The DSPXtreme has a flexible 'flash' upgradeable architecture which means that as we continue to make enhancements and add features, you can continue to reap the rewards. You can simply download the upgrades from our website.

www.**bwbroadcast**.com

BW BROADCAST

World Radio History

TECH UPDATES

MDOUK Delays Display Captured, Output Audio

The **MDOUK** Broadcast Delay can delay a complete program for network or satellite broadcast when shifting across geographical time zones, for example.

Users can delay a live feed in order to cue it to fit in with a network schedule; delay audio being used for simulcast programming between TV and radio stations; or use the broadcast delay to improve synchronization between sound and pictures.

The screen shows audio levels for both the captured audio and the output (delayed) audio. The counter at the bottom of the screen allows for an easy setup of the required delay, according to MDOUK.

The delayed audio is stored on the hard disk of the computer. The company says the disk needs just enough space to hold the total delay due to the way the Broadcast Delay cleans up after itself.

The system offers two operation modes: Preset Delay and Manual Start. In Preset Delay mode, set the delay and start the system. The mode provides a fixed audio delay as is generally used for delaying programs distributed over network or satellite; syndicated programs for different time zones, for instance.

In Manual Start, the user captures the feed and starts playback of the delayed audio independent of each other. This can be used to cue an external or live feed with the rest of the network programming.

A demo version is available for download on the company's Web site.

MDOUK also offers the Arse! profanity delay for Windows PCs. The PC screen lets users see the system status at all times, with audio meters, delay status and other operational detail laid out in large, clear areas.

Operate Arse! with a standard mouse, or assign hotkeys to each function for even quicker access. Chosen hotkeys will be shown directly above the corresponding button.

Large meters with peak indicators and dB scale show the input and output (delayed) signal level. Two large indicators show the current mode and delay in seconds; and the colored bar behind the Delayed Time display makes it easy to see where you are at a glance, according to MDOUK.

Arse! software retails for $970. The company also offers a free 30-day trial of Arse! that is a fully functional version.

For more information, contact MDOUK at sales@broadcastdelay.com *or visit* www.broadcastdelay.com.

OMT

▶ Continued from page 36

no longer needed to be recorded on MiniDisc and could be accessed much faster — even before the entire feed was finished — by anyone in the newsroom, including news managers who wanted to hear what sound the network was sending. Soon the production and sales departments realized they could grab instant airchecks for clients from the iMediaLogger's handy Web interface using the same air feed the newsroom used.

I have added three more iMediaLoggers over the past five years as our needs have grown. When we started a new talk station at the beginning of 2006, I knew we needed to add another iMediaLogger to give our producers the ability to easily create best-of shows, delay-broadcast syndicated network programming and create highlight packages of Washington Nationals baseball, Navy football and George Washington University basketball games (and now, Washington Capitals hockey games).

In addition, we now record multiple satellite channels from our networks plus the air feeds of all three stations in the group in both 10- and 60-minute MP3 files. The 10-minute files are usually used for re-purposing material on the air, while the 60-minute files are archived to DVD-R for later use when creating end-of-year contest entries for Murrows and other awards.

Another application we have found for our iMediaLoggers is to automate the audio offerings on our Web sites. Because iMediaLogger is so flexible, allowing you to save different audio feeds in different formats at varying bit rates and in different locations, I was able to set up a logger to record long-form talk shows, then save those files to a specific location where an FTP program grabs them and automatically uploads them to our Web site content management system.

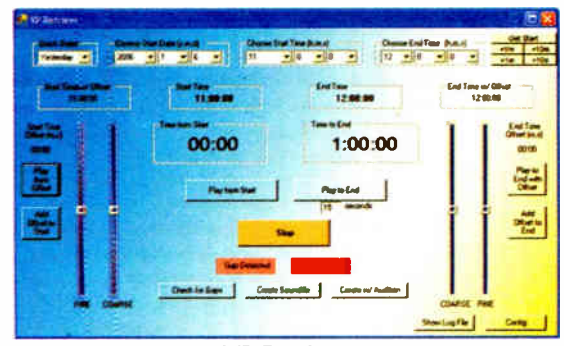
The process of recording, saving and uploading these long-form programming blocks used to require considerable time by a Web editor. Thanks to iMediaLogger and an FTP program capable of scheduled, unattended operation, this entire process now happens with no human intervention whatsoever.

As we complete a $2 million renovation of the WTOP newsroom, I have added a fourth iMediaLogger and wired its eight inputs to eight outputs of our in-house audio routing system. Using an input/output router, our technical operators can now send any audio in the house to any of eight logger input channels. Needless to say, the old Otari 5050s and even the MiniDisc recorders are gone.

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

50 kW Software Has Time Stretch, Logging Systems

Fifty Thousand Watt Software is shipping Shoehorn, a time stretch program suitable for radio production work.



VP-Retrieve

In its most common application, the company says Shoehorn makes recordings fit into a specified time slot without changing the pitch. For instance, ads can be made to fit into 30- and 60-second time slots, and shows can be made to fit into half-hour and one-hour time slots. Shoehorn also can be used to create the fast-talking "fine print" at the end of some ads, such as the legalese of a car lease.

Additionally, Shoehorn performs pitch shifting without changing the recording length. Time stretching and pitch shifting can be done independently, or both at the same time. A dual transport allows for auditioning both the "before" and "after" so that it is easy to compare.

Highlights include DIRAC technology, which enables natural-sounding time stretch that is free of artifacts, according to the company.

Shoehorn runs under Windows and costs $39. A free 30-day trial is available for download on the company Web site.

Fifty Thousand Watt Software also offers the Voice From the Past audio logging system. It comes in two programs: VP-Record and VP-Retrieve.

With VP-Record, the user supplies an audio source and designates a sound file folder. VP-Record records audio in CD quality; the recording is done in one-minute sound files so that, in the event of a hardware or power failure, no more than 60 seconds of recorded material is lost.

VP-Retrieve retrieves the recorded audio from anywhere on the network. It has a user interface that designates a time period to retrieve, and controls that audition the retrieved audio so that it can be correctly trimmed at the start and end of the desired event.

For more information, including pricing, contact Fifty Thousand Watt Software at (763) 390-4046 or visit www.50kws.com.

Digital Juke Box Has Loggers For Single-, Multi-Station Markets

The **Digital Juke Box** single-station Audio Logger records audio signals for one stereo station or two mono stations. The user defines the record quality, record hours and record mode, such as high-quality for "best of" shows. It comes with a custom player that can playback logged audio from any PC connected to the network at the station.

Audio Logger requires Windows XP, any speed above 1.5 GHz, 256 MB memory and at least a 40 GB hard drive. Also required are audio cards such as Sound Blaster Live. It retails for $149.

Digital Jukebox also offers Audio Logger Deluxe for $299. It records up to eight radio stations in mono on a single PC. It records to MP3, WAV, OGG or WMA files. Users can select days, hours, record sample rate and bit rate. Also user-selectable is the record length of files: 15, 30 or 60 minutes.

For more information, contact Digital Juke Box at (888) ON-AIR-99 (662-4799) or visit www.digitaljukebox.com.

Coming up in Buyer's Guide

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February 13

Audio Production & Creation

March 12

Microphones & Audio Monitors

April 9

World Radio History

Control Freaks

WVRC-8

The WVRC-8 provides a cost-effective, one rack-unit solution for web based and/or recordable voice response dial-up transmitter site control. The WVRC-8 was designed from a user's point of view. System expansion may be accomplished by cascading multiple WVRC-8's on the same telephone line and/or Ethernet switch. Future external add-on products may be attached via the BT-Link expansion port.

WVRC-4

The WVRC-4 provides a cost-effective, half-rack solution for web based and/or recordable voice response dial-up transmitter site control. The WVRC-4 was designed from a user's point of view. System expansion may be accomplished by cascading multiple WVRC-4's on the same telephone line and/or Ethernet switch. Supplied with plug-in euroblock screw terminals.

ESS-1

The ESS-1 provides a cost-effective, small profile solution for standard serial-to-Ethernet connectivity. Designed with the broadcaster in mind, the ESS-1 is equipped with extensive RFI protection. It is ideal for applications requiring data support for both RS- 232 and RS-422 communications. The small profile of the ESS-1 makes installation hassle-free.

SRC-16

The Broadcast Tools © SRC-16 is a computer interface to the real world offering connection through an RS-232, RS-422 or RS-485 serial port with baud rates up to 38400. The SRC-16 can notify your PC software program that any of 16 optically isolated inputs has been opened or closed and allows your software to control sixteen SPDT, 1-amp relays.

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SRC-2/SRC-2x

The tiny TOOLS SRC-2 interfaces two optically isolated inputs and two SPST relays to an RS-232 or USB port, while the SRC-2x does this via a 10/100baseT Ethernet port. Both the SRC-2 and SRC-2x can notify a user s PC software program that any of two optically isolated inputs have been opened or closed and allows your software to control two SPST, 1-amp relays.The SRC-2 communicates using RS-232 at baud rates up to 9600 and the SRC-2x via 10/100baseT Ethernet. The SRC-2tx) is powered by a surge protected internal power supply. Either unit may be rack mounted on the optional RA-1 mounting shelf.

VAD-2 Plus

The tiny TOOLS™ VAD-2 Plus is a user programmable two input multi-number voice/pager auto dialer with integrated stereo silence sensor, temperature sensor and power failure port designed for dial out paging and/or voice message notification.

DTD-16

The tiny TOOLS DTD-16 is a full-featured DTMF tone/sequence decoder that is user programmable to decode up to four tone sequences or a single tone and assign it to any one of four relays, twelve open collectors and/or the RS-232 serial port. The DTD-16 may be set on a desktop, mounted on a wall or up to four units mounted on the RA-1, Rack-Able mounting shelf.

DTE-16

The tiny TOOLS DTE-16 is a feature rich DTMF tone/sequence encoder that is user programmable to encode up to four tone sequences or a single tone via any one of 16 contact closure inputs and/or the RS-232 serial port. The DTE-16 may be set on a desktop, wall mounted or up to four units mounted on the RA-1, Rack-Able mounting shelf.

Time Sync Plus

The tiny TOOLS Time Sync Plus provides four separate GPS time referenced outputs. The first is an SPST relay. The second output is an active high driver with a 100 ms pulse each second, while the third output is a 4800-baud RS-232 serial port providing a time zone adjustable hours, minute and seconds time code. The forth output provides an active high driver in the ESE TC89 or 90 serial time code format. Indicator LED's are provided. A Garmin 12 Channel GPS receiver with embedded antenna is suppled.

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TECH UPDATE

Eventide Has Software Upgrade for BD600

Eventide's v1.5 software upgrade for its BD600 and BD600E broadcast obscenity delays is available for download at no charge. The company says version 1.5 offers advanced functionality that makes the BD600 and BD600E more flexible and easier to integrate into automated systems.

Added features include Station Break mode, which lets users insert into the audio program a station break or commercial stored on a CompactFlash card, without increasing the show length.

BD600 and BD600E users can send current delay values via RS-232 to drive the external time display or automation system. Other control options for the BD600E include 16 bipolar opto-isolated inputs, which may be configured to drive many BD600 functions; or as general-purpose delay inputs and 16 open-collector outputs that may be configured to display BD600E status indicators or to pass through delayed versions of the inputs.

Version 1.5 also provides the same functionality for the Dump or Sneeze commands in MicroPrecision Delay mode. The Dump function provides Eventide users with a flexible delete segment, adjustable from one second to the full 10 seconds in 1/2 second increments. With v1.5, the MicroPrecision Delay is now adjustable in frame increments as well. The Sneeze command deletes the audio program as long as it is depressed up to the full buffer length.

Additional highlights include a display that can be configured to show the amount of delay used or the amount of delay remaining. The new version also features a front-panel Lock-Out to prevent unauthorized tampering.

Both the BD600 and BD600E feature obscenity delay capabilities of up to 80 seconds. Other features include a Panic function, which stores a WAV file on a CompactFlash card to be played when the Panic button is pressed: Rebuild, which rebuilds the delay buffer after a portion of audio has been removed; and Ramp-to-Zero, which backs out of the delay buffer at the end of a program.

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

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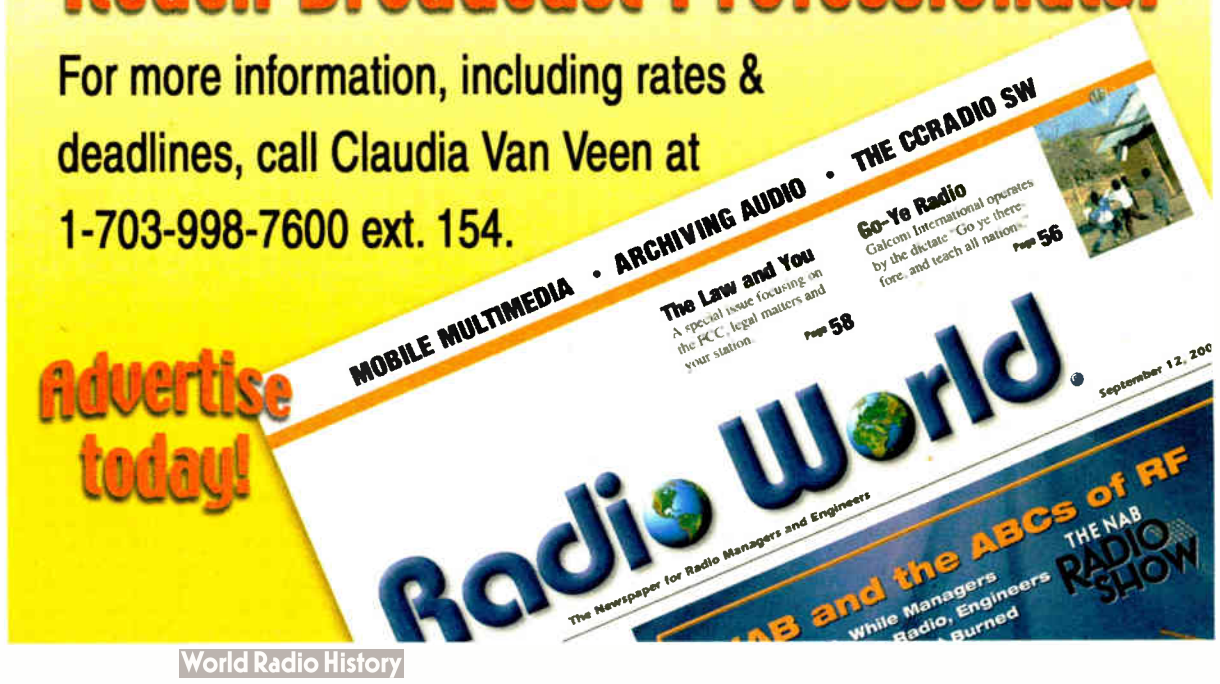

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TECH UPDATES

Sonifex RB-PD2 Has Audio-Stretch Algorithm

Sonifex says its RB-PD2 stereo audio profanity delay will be available in February.

The 1U 19 inch rack-mount features an automatic audio-stretch algorithm that allows between two and 55 seconds of delay to be built up live while "on air," and while maintaining the correct pitch.

Additionally, the delay can be acquired while playing a pre-selected audio file on a CompactFlash memory card. When the program is complete, the audio-shrink algorithm reduces the delay to zero.

The RB-PD2 has balanced analog and AES/EBU digital audio inputs and outputs on three-pin XLR connectors, and provides sample rates up to 48 kHz/24 bit. It can act as a combined A/D and D/A unit, meaning analog inputs can be output as AES/EBU or vice versa.

The delay is initiated by pressing the Build Delay button. A front-panel display shows the amount of delay being built up, up to the amount initially selected.

There are several ways to make sure that any unwanted material is removed from the audio at the outputs. A Cough function, activated from a dedicated button, allows locally generated sounds being presented at the inputs, such as the presenter coughing or equipment switching noises, to be discarded.

The Dump function, also is activated from a front-panel button, has two modes. The first removes a section of audio that has already been buffered by a pre-selected amount. The second plays a pre-selected audio file on the CompactFlash memory card. When the file has finished playing, the delay is then equal to the duration of the file.

The Dump button can be used multiple times to use up the built-up delay, and once used, the unit automatically starts to rebuild the original delay time.

Also, buffered audio can be discarded by pressing and holding the Dump button, which activates the Drop function. At the end of a radio show when you want to broadcast live, the delay can be ramped down by pressing the front-panel Exit Delay button.

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

Danagger LifeLine Offers Time-Stamped Logging

LifeLine by **Danagger Audio Works** is a system for audio program control and protection that features a compact 1U rack-mount chassis with XLR connectors and internal power supply. Three models will be available when the product debuts in March; the company says users can order only the features they need.

It offers integrated A/D, D/A and sample rate conversion up to 24 bit, 216 kHz; silence detection and audio switching for two digital and one stereo analog feed; internal flash player that holds up to 64 GB of broadcast quality backup audio; time-stamped logging of audio failures and cuts played; and up to 12 relays, eight status inputs and four metering inputs on pluggable terminal blocks for Web and/or telco remote control.

Internal audio can be used for inserting local IDs, etc.; and can be daypart-specific. For example, if a feed fails at 7 p.m. on a Thursday, the system plays backup material from a specific directory.

Additional highlights include system control via front-panel LCD and optional Web interface, RS-232 or dial-up DTMF/voice interface.

For more information, contact Danagger Audio Works at (888) 89-AUDIO (892-8346) or visit www.danagger.com.

Keep Air Clean, Seamless With 6100

The AirTools 6100 broadcast audio delay from **Symetrix** is an HD-compatible, 24-bit digital delay unit for live broadcast that prevents unwanted profanity or comments from reaching the airwaves. It offers up to 40 seconds of user-definable delay at 20 kHz range of stereo bandwidth.

When the show begins, press start. The AirTools begins digitally time-stretching the program and creating the reaction window you specify. Then push a button on the unit or a remote control panel to edit unwanted or offensive content. Users select the splicing algorithm for music, spoken word or mixed programming.

A Cough function prevents unwanted noises or necessary breaks from reaching the air. The RC-6000, a desktop remote providing remote status and control over critical functions, also is available.

Features include digital audio I/O, support for a dual window TC89 time code display and RS-232 or RS-485 remote control.

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

Pristine BlackBox Available In English, Spanish

The **Pristine Systems** BlackBox digital audio logger, monitor and alert system is now available in both English and Spanish versions.

With the capability to record up to 16 stereo (32 mono) audio channels in most popular formats, Blackbox is suitable for continuous logging, proof of program content, monitoring your station's performance as well as the competition's and reviewing talent performance.

Time and microphone skimmer modes ease the review of most programming, according to the company. BlackBox also is suitable for recording repeat broadcasts and "Best of" shows.

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

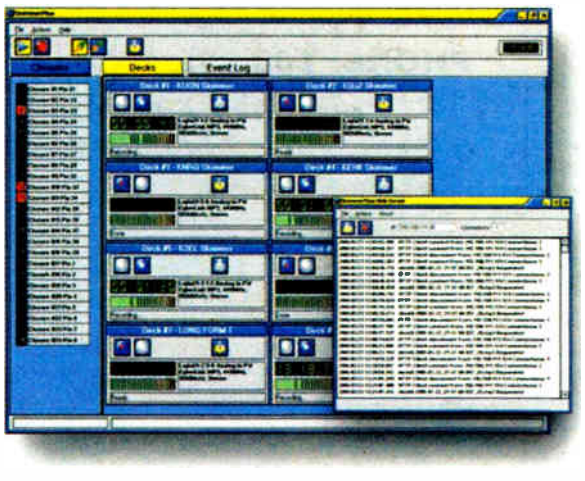
BlackBox can use standard WAV audio devices as well as AudioScience's 87xx series tuner boards. When used with the tuner boards, RF signal strength monitoring, logging and alarm functions are available.

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

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

Perform Airchecks, E-mail Files With SkimmerPlus

SkimmerPlus from **Broadcast Software International** is a tool for audio skimming and/or long-form audio logging of up to eight stereo audio sources. SkimmerPlus also can be used with the ASI range of multiple tuner cards.



SkimmerPlus includes its own Web server so users can listen to airchecks or any other recorded audio using a Web browser and Internet connection. Access is password-protected to keep audio content secure.

The company says it also is suitable for distributed organizations.

The included Web interface enables users to perform airchecks from any Internet-enabled computer and e-mail those files.

Additionally, SkimmerPlus simultaneously creates high-quality and compressed files; supports multiple audio formats such as PCM, MP2 and MP3; allows access to mic checks anywhere on the Internet; automatically manages hard-drive space; offers central skimming for multiple-station clusters; and includes 19 interface motifs for the customization of the application's appearance.

Individually customizable title bars and record features are included for each deck; and users can create and save event logs for customizable unattended recording.

For more information, including pricing, contact BSI at (888) BSI-USA1 (274-8721) or visit www.bsiusa.com.

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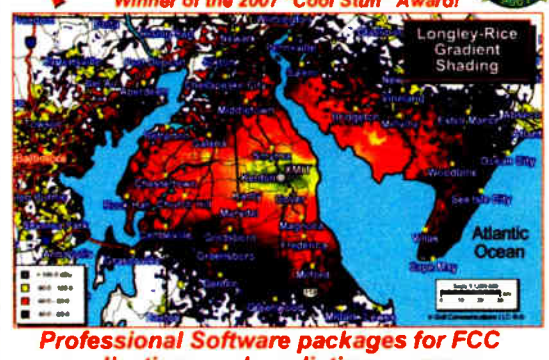

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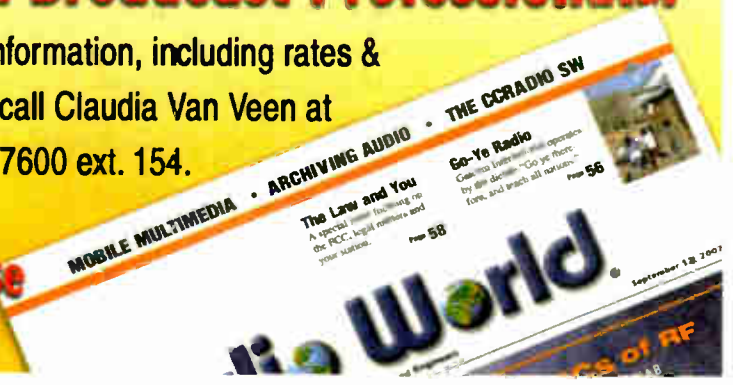

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World Radio History

GUEST COMMENTARY

It's Not the Medium, It's the Message

There Are Those of Us Who Do Want to Keep AM Radio the Way It Is, At Least Modulation-Wise

by Jerry Arnold

Stephen Poole cites his gripes against the anti-IBOC folks, albeit highly dramatized for effect (*Reader's Forum*, Dec. 19).

But I must give him a compliment, for he is one of the first of his kind to recognize that, yes, there are those of us who do want to keep AM radio the way it is, at least modulation-wise.

Does existing AM radio, as he claims, have problems? Of course it does; a bushel basket of them, many of them brought on by broadcasters themselves.

Having worked in radio since 1967, I have witnessed the day when AM was king, and broadcasters went as far as buying and giving out free converters for radios that would convert FM back to AM and put it on the top end of the AM dial, just to get folks to try FM. Then, once we got folks convinced of the many plusses of FM, broadcasters continued to pound away, taking listeners away from AM.

Last year, Radio World published the list of the Marconi Award winners as well as the top 10 billing stations in the nation. The small-market winner of this prestigious award came from a Midwestern market and was a 1 kW AM station. Most FMers would die to have its Arbitron numbers. It led its multi-station market's ratings almost by a 2:1 ratio.

What did it do so differently? Was it leading the way with IBOC? No, it wasn't digital. Looking at the top billing stations, two of the top three, and five of the top 10, were AM stations.

I have pounded this before in Radio World but it usually gets "edited for space" or ignored: It's not the medium, it's the message.

Younger set

The under-35 crowd doesn't listen to radio as much as older folks, as Poole indicated. But his conclusions are off as to why.

Listen to many medium- and large-market FM stations; their way over-processed, highly compressed, repeat-the-same-12-songs format is about as entertaining as listening to the sideband noise from an AM IBOC carrier in an analog receiver.

Then listen to the iPods or other devices the under-35 set uses to listen to their music. There is no similarity in the quality of the audio. And a great deal of this degraded quality is self-imposed.

I don't know if it's a carryover from the early '70s "loudness wars," or just something in human nature that thinks louder equates to more listeners, even at the expense of lowered quality.

Actually, Poole expressing a Eb/N0 of 4.5 is somewhat meaningless until we know what his "acceptable level" of bit error rate is. And using his satellite receiver's Eb/N0 numbers also is misleading due to the fact a satellite dish isn't moving in the real world.

Countless studies have shown a huge percentage of radio listening is done while driving. Multi-path reflections and phase change, quite common in the medium frequency spectrum, would cause a wild swing in Eb/N0 numbers.

And as for being more resistant to interference, some digital receivers, depending on the type of digital modulation will mute the audio when a bit error rate due to even slight interference occurs.

Case in point: the Moseley SL9003Q STL receiver. We are using it in the standard 16 QAM mode with 44.1 KHz sampling rate as our STL for one of our FMs; we had a sudden drop out of our audio. Checking the receiver, the BER alarm LED was lit almost constantly. The input signal meter showed no change in input level over our 2.3 mile path at –50 dBm, a very robust signal.

The problem was traced to a less than careful contract engineer at a competing station who had switched its digital STL's agile frequency from its assigned frequency — which was originally more than 3 MHz above our frequency — downward so that it was 750 kHz above our frequency.

Even though the offending signal was 29 dB (measured) below ours and 750 kHz above our frequency, it was still more than enough to render our system totally useless until we could trace it to the source and correct it.

Had these been older analog STLs, it is doubtful we would have even noticed a problem, or if we did we would have noticed only an increased baseband hiss.

Easy math

I am still wondering about Poole's [comment], "Nighttime AM is a real possibility with HD-R! You daytimers out there with less than 100 watts of nighttime power should be all over HD!"

Poole set the bar at 100 watts, so let's use that, as it makes the math really easy.

We know the required level of the IBOC sideband injection: 30 dB below carrier. So that means the 100 watt *carrier* will have two sidebands running at a whopping 1/10 watt each. Using the 100 watts carrier as the standard, and assuming the employment of a quarter-wave AM radiator with 120 radial ground, the field intensity at 1 mile is only 62 mV/M. Looking at the 1/10 watt left in each sideband yields a field intensity of 1.96 mV/M at 1 mile.

To be fair, as Barry McLarnon pointed out (Dec. 5) the digital sidebands of AM IBOC are actually made up of 25 carriers, each 30 dB below the main carrier, whose power sum would be 14 dB higher, or –16 dBc. Recalculating using (again) Poole's 100 watts yields a whopping 2.6 mV/M in each sideband at 1 mile. Few, if any, present IBOC receivers would give an acceptable reliability percentage at 2.6 mV/M.

See AM, page 46 ▶

Correction

The phone number listed for Bext Inc. in the Dec. 19 article, "TFC2K: 'Beefy,' Broadband and Unbothered," was scheduled to be shut off at the end of 2007.

Contact the company at (619) BEXT-INC (239-8462) or toll-free at (888) BEXT-INC (239-8462).

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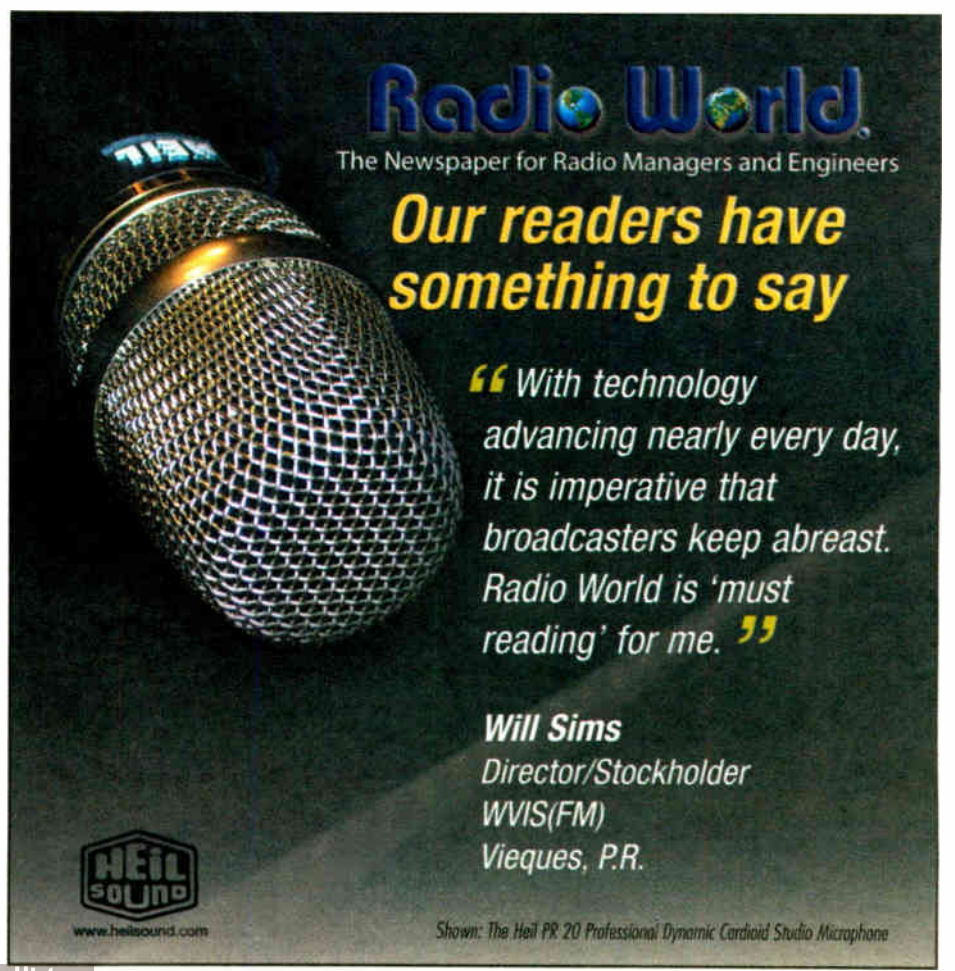

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NewBay Media

Future Imperfect

Another Step Toward Major Revision of EAS

The Second Report and Order on a next-generation Emergency Alert System finally was published in the Federal Register in November, starting countdown to its final acceptance.

The latest action from the FCC is a mixed bag of new requirements in an effort to modernize a system that dates back to the Cold War and the Truman presidency.

It is hard to argue against harnessing the power of broadcasting to speak to the general population in a time of emergency. Radio broadcasters are able to deliver signals to virtually all of the population, and our facilities generally are designed to operate when other systems have broken down or become overloaded.

Indeed, broadcasters repeatedly have shown their ability to respond reliably and responsibly in times of emergency and have often been the only information lifeline available in disasters such as hurricanes, whether or not EAS has been activated.

Yet we feel a sense of dread whenever a mandatory change is proposed, since part of the costs of these new requirements is likely to fall on the broadcasters.

On the plus side, we are pleased that officials recognize that the use of a broadcast relay system to convey emergency information is outdated and unreliable.

The Report and Order encourages use of alternative systems of message delivery and requires adoption of the Common Alerting Protocol, which provides the ability to convey a greater range of information than the EAS messaging protocol and offers the promise of using one messaging system to distribute information to all types of media, not just traditional broadcasters.

Broadcasters will be required, within 180 days of development of emergency standards by the Federal Emergency Management Agency, to install CAP-enabled decoders. The date of publication of the new standards is not yet defined.

Importantly, this new technology should allow the reduction or even elimination of over-the-air emergency test messaging, which serves no useful purpose in a system that no longer relies on information relayed from station to station.

However, what some people view as a benefit of the plan is also an apparent weak point: its dependence on state governments to develop new EAS plans to capitalize on the new technology. Currently, state emergency plans are the only means to distribute emergency information from government agencies to the broadcaster.

If history is any guide, not all states will rise to the challenge equally; some may not "get around" to developing a new plan for some time. While some have well-developed systems to distribute emergency alerts, these states are not in the majority. There is no guarantee that, even after FEMA issues its standards, essential state distribution networks will come into existence within the requisite 180 days.

The outlines of the system are beginning to be drawn. The future EAS is being built right now.

No federal agency can force a state government to commit resources to an emergency plan. But to be successful, FEMA and the FCC must work together and provide extensive guidance and assistance to state governments in implementing this crucial link in the alert system.

This much is clear: EAS is no longer "just a broadcaster thing" but is evolving into a unified public warning system. Broadcasters need to stay involved and make our voice clear to government officials. As one broadcast advocate puts it, let's keep the pressure on the FCC and FEMA to be inclusive in their work, and let's help broadcasters understand that something good is in the works.

The outlines of the system are beginning to be drawn. The future EAS is being built right now. We urge broadcasters to be involved — through SBE, NAB and state broadcast associations — as emergency planners work toward building a system that eliminates unnecessary burdens to the broadcaster while providing its essential public service.

— RW

AM

▶ Continued from page 45

And of course, field intensity is inversely proportional to distance, so unless you lived on the grounds of an AM station running 100 watts carrier at night with normal IBOC injection, your chances of having reliable decoding of the digital components would be slim to none.

All of these calculations were based 100 percent on groundwave with no skywave interference, which would of course worsen the results.

Even the NRSC itself disagrees with Poole's nighttime statement: "At night, digital coverage fell short of the predicted nighttime interference free (NIF) contours and the system blended to analog before reaching this contour. In general, these results demonstrate that the adjacent interference experienced by the test stations during night operation restrict digital coverage." This comes from the DAB Subcommittee Evaluation of Ibiquity IBOC System summary, Page 10, paragraph 2.1.2, adopted Feb. 6, 2002.

My suggestion to improve AM radio, and for that matter FM as well, is to begin by offering listeners programming they actually want to hear, and presented in a way that stops the "listener fatigue" that is all too common today.

This would be a huge step in keeping listeners. It will not, however, be enough. More will have to be done, and perhaps a change in modulation may be necessary on AM. Full backwards compatibility should be the bellwether of any modulation scheme change.

Mr. Poole did conclude in a manner that many of us have grown accustomed to seeing: the "my way or the highway" attitude. He "finds himself increasingly uninterested" in what anyone with an opposing viewpoint has to say. Try as I may, I just can't bring myself to be that callous.

Jerry Arnold is director of engineering, Midwest Communications, Terre Haute, Ind.

◆READER'S FORUM◆

'The Real Knowledge'

At a time when so much of trade journalism in our business is vapid, and informed analysis is completely missing, Radio World remains a valuable source of insight; important viewpoints you see nowhere else. You provide intelligence, in every sense of the word.

Examples I could cite abound, but two recent ones are Skip Pizzi's "The Elephant and the Oak Tree" (Oct. 24) and Guy Wire's "Time of Reckoning Nears for HD Radio" (RW Engineering Extra, Oct. 17).

Pizzi: "The concentration of an entire broadcast industry's transition in the hands of a single corporation brings unprecedented risk."

Wire: "I'm sensing a larger number of industry insiders growing more apprehensive about the rollout and whether HD-R technology can or will ultimately succeed ..."

These two articles go far beyond sentences like these, which jump off the page at a reader to provide thoughtful context and action plans, which elevate critical conversations, which affect anyone who cares about the survival of the audio entertainment business.

Thank you for having the smarts and courage to print in depth all sides of these important views and arguments during this time when so much of the broadcast trade press is consumed by coverage of trivial day-to-day gossip rather than delving into the real knowledge that matters to radio's long-term future. Radio World does it issue after issue.

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