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### Like a Ton of Bricks

Few people on any side of the streaming royalty issue are happy with the Librarian of Congress these days.

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### Sorry, No Degree

The suspension of a college radio program reflects some disturbing industry trends.

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# Radio World



\$2.50

The Newspaper for Radio Managers and Engineers

July 17, 2002

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### GET YOUR FIBER



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NEWS ANALYSIS

## Pirate Radio Is Still Afloat

*Despite Enforcement Actions and Legalized LPFM, Hundreds of Unlicensed Stations Remain on the Air*

by Naina N. Chernoff

**WASHINGTON** The struggle over access to the public airwaves rages on between unlicensed broadcasters and the FCC.

In spite of crackdowns by commission field agents, the "free radio" movement is as active as ever. In rural areas, mid-sized cities and urban markets throughout the country, experts say hundreds of unlicensed operators are transmitting unauthorized signals.

### Spectrum clash

Call it a clash between the establishment and the disenfranchised, or call it a matter of enforcing the law. But this battle is nothing new. For years, pirate broadcasters have operated stations in unclaimed areas of the FM band or in parts of the spectrum where they interfere with licensed broadcasters.

Recently, the movement has seen change. While some pirates still simply disdain the regulatory authority of the FCC, others now excuse their acts of civil disobedience by claiming they have been shut out of the legal low-power FM class.

Some free-radio operators did not

apply to the commission for an LPFM license because frequencies were not available in their community. Others were eliminated because they were not given amnesty for their pirate activities, according to Pete Tridish, a former Philadelphia-based pirate who serves as a staffer at Prometheus Radio Project, a nonprofit organization that helps launch LPFM broadcasters.

Since the process to legalize the low-power class began more than two years ago, the subsequent lockout of all pirates from the new service has led to a split among free-radio advocates.

Some, like Tridish, dove into LPFM while others continue to broadcast illegally.

Tridish believes the most recent rise of the free-radio movement began in 1987 when Mbanna Kantako, a legally blind man, launched an unlicensed station in his Springfield, Ill., housing

See PIRATES, page 6



## A Radio Museum Is Born

Page 16

## Legacy: The Digital Future—Value Packed



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# ◆ NEWSWATCH ◆

## NAB Urges Daytime AM IBOC

**WASHINGTON** Even as an interim daytime service, IBOC digital radio offers a chance to revitalize AM, according to the NAB. The association has urged the FCC to authorize Iboquity Digital Corp.'s AM IBOC system for daytime operation.

"Such action will provide an immediate and dramatic improvement in daytime AM radio listening, while minimizing potential additional interference and advancing the overall deployment of terrestrial digital radio," NAB wrote in com-

ments filed with the agency.

The NAB agreed with the standards-setting National Radio Systems Committee that authorization of AM IBOC be made for daytime only until the question of nighttime first-adjacent-channel interference is solved.

"Because the IBOC digital sidebands of an AM station share spectrum with the analog signal of a first adjacent AM station, the NRSC report describes first-adjacent-channel capability as a significant issue for AM IBOC," NAB stated.

The association also wrote, "Deployment of IBOC is particularly important for the AM band, which has suffered tremendously from a difficult

RF environment, a high level of interference from various sources, limited receiver performance quality and lack of effective stereo operations."

## Plans Emerge for Univision/HBC

The nation's largest Spanish-language TV broadcaster, Univision Communications Inc., intends to buy the largest U.S. Spanish-language radio group, Hispanic Broadcasting Corp., for \$3.5 billion in stock. The merger, subject to regulatory approval, would allow Univision to add

55 radio stations to its TV, music and Internet properties.

HBC would become Univision's radio division, with the headquarters remaining in Dallas and McHenry Tichenor Jr., chairman, president and CEO, heading the new Univision radio unit.

HBC's largest shareholders, the Tichenor family and Clear Channel Communications, favored the acquisition.

Once the deal closes, Univision shareholders would control approximately 73.5 percent and HBC shareholders 26.5 percent of the combined entity's ownership.

## SBS Sues HBC, Clear Channel

On the heels of the announced acquisition of Hispanic Broadcasting Corp. by Univision, HBC competitor Spanish Broadcasting System filed a lawsuit against HBC and Clear Channel Communications, the largest shareholder in HBC.

SBS alleged that Clear Channel and HBC have "adversely affected SBS' ability to raise capital, depressed SBS' share price" and made acquisitions more difficult for SBS, according to the suit, filed in U.S. District Court for the Southern District of Florida.

SBS said HBC and Clear Channel's goal was to eliminate SBS as a competitive threat.

Clear Channel called the allegations "absurd and unfounded."

"These charges are false and we will, as we always do with frivolous lawsuits, fight vehemently to defend our position," stated Clear Channel CEO Lowry Mays.

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# NEWSWATCH

## Feingold Takes On 'Pay for Play'

**WASHINGTON** As he said he would, Sen. Russ Feingold, D-Wis., introduced a bill in late June to ban what some artists call payola-like practices.

Feingold admitted there was little time on the legislative calendar to get a measure passed in the current session, but he vowed to stick with the issue as long as it takes.

"We have to repair the damage the damage done by unprecedented concentration in this industry. Concentration hurts the diversity of what's played on the radio."

A representative of the American Federation of Television and Radio Artists union said the measure, if passed, corrects what some artists see as a big problem: "Artists can't get access to the airwaves unless they're prepared to buy their way" on the radio.

NAB opposes the measure.

The legislation is called the "Competition in Radio and Concert Industries Act." Feingold said he introduced it because, "I've been hearing from independent radio stations and concert promoters in Wisconsin who are being pushed out by anti-competitive practices, that are, in turn, a result of concentration."

Gene Kimmelman, director of the Washington office for Consumers Union, called the measure "the first step in challenging consolidation in all media, not just radio."

The bill directs the FCC to revoke the license of a station that uses its cross-ownership of promotion services or venues to discriminate against musicians, concert promoters or other radio stations. It would require the FCC to study the effects of consolidation on independent radio stations, concert promoters and consumers and would ban an increase in the local radio ownership limits.

The measure would close what supporters say is a loophole in the FCC's payola regulations — pay for play — to ensure stations are not improperly influenced by the payment, whether directly or indirectly, to the licensee of any radio station unless an appropriate sponsorship ID announcement is made.

When asked how such practices could be proven, Feingold read a quote from rock star Don Henley: "I worry about SFX. They're severely limiting where you can play."

Feingold mentioned Clear Channel's name several times; the company has stated repeatedly that its practices are legal.

Feingold hoped to schedule a hearing by the Senate Commerce Committee.

NAB reacted with strong words.

"The 1996 Telecommunications Act has strengthened the ability of radio to better serve listeners, and we strongly dispute claims that radio has grown more homogeneous in recent years," stated Eddie O. Fritts, president and CEO of the association.

"Separate studies show that radio format diversity is far greater now than six years ago, and Spanish stations in the U.S. now number more than 600, up from fewer than 400 in 1996."

— Leslie Stimson

## Ridge Praises Broadcasters' Public Service

**WASHINGTON** Radio and TV are all right in Tom Ridge's book.

The director of the Office of Homeland Security addressed broadcasters assembled for NAB's "Service to America Summit" in June.

"After 9/11, you didn't just report the news. You calmed fears."

Ridge credited broadcasters with giving up ad revenues in the wake of the attacks, at a time when such revenue was scarce.



Office of Homeland Security Director Tom Ridge thanks broadcasters for their efforts on and after Sept. 11.

Of the OHS, which President Bush has urged Congress to raise to a Cabinet-level position, Ridge said that although the country can never eliminate the threat of terrorism, it can significantly reduce the nation's vulnerability to it over time.

Commercial radio and TV contributed nearly \$10 billion in public service in 2001, including \$1 billion in Sept. 11 relief efforts, according to NAB. The figure is derived from donated airtime and funds for charity and disaster aid.

## FCC to Combine Media Ownership

**WASHINGTON** The FCC plans to bundle all of the media ownership proceedings into one big combination with the goal of issuing new rules by the spring of 2003.

Of the rules involved, two affect radio: local radio ownership rules and the TV-radio combo ownership restrictions.

Why do all six together?

The commission staff thought it would be easier, and made sense to have a single framework from which to review all the rules, said Media Bureau Chief Ken Ferree.

"It would be hard to make progress if we did the rules separately. Also, it doesn't do the industry any good" to review the rules separately, he said.

Agency Chairman Michael Powell says he wants to do it right and have the commission gather any information it might need to defend new rules in court if necessary.

He told the Los Angeles Times that no final action on media ownership rules is likely until early next year.

Included in the commission's efforts will be outside and in-house studies of how consumers use

media, how advertisers use media and a history of ownership compared to what exists today. The public will get a chance to see these studies when the agency issues them for public comment, likely this fall.

Some members of Congress have urged the agency to act quickly on media ownership issues.

Excerpts of public comments filed on radio ownership rules appear on page 8.

— Leslie Stimson



FCC Media Bureau Chief Ken Ferree

Photo by Leslie Stimson

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# Welcome News Every Two Weeks

"I always thoroughly enjoy your magazine and look forward to receiving it."

This is a sentiment I hear often. Now I have in front of me a recent survey from our Webmaster, including more-detailed comments from readers about Radio World.

These are remarks from radio professionals who visited our Web site to sign up for our Readers' Choice Awards. They provide helpful insights into what readers want, and what they like, in our pages.

One can't draw *too* many conclusions from such a survey. This is a self-selecting population of respondents. Anyone who responds to invitations here is already inclined to like what we do.

But knowing that radio people, particularly engineers, can be plenty vocal when they don't like something, I am pleased with these comments. The remarks also give insight into the problems and challenges you face in working in radio today.

"Keep up the book reviews. I've purchased a few of the books you have

reviewed," one reader wrote. "Also, SBE is a joke. I have a Gen Class FCC license and was an SBE member but couldn't get a job if my life depended on it."

Another wrote, "As a NCE FM college station, it is an invaluable resource when it comes to getting to know the industry, its current issues and what its future is. The whole station reads it."

## Useful

More readers said their stations are *not* streaming than said they are. And they said this even before the recent royalty ruling.

"We have considered streaming, but will not until the licensing fee issues are solved," one reader wrote. "Digital IBOC is one of the hot topics now, so any emphasis on this is welcome. Please include list prices (of equipment). Welcome to Skip Pizzi."

Of those responding, 96 percent (!) said Radio World was "valuable" or "extremely valuable" to them as a source for industry news and information. Almost three-quarters said we help

them in their careers.

About 40 percent are owners, presidents and GMs; engineers constitute almost the same percentage.

The popularity of our sections, in descending order: *News and Features*; *Buyer's Guide*; *Studio Sessions*; *Internet Radio*; *GM Journal*. But even the least-read section is important to a large percentage of respondents.

Technology, of course, continues to appeal to our readers.

"I love the tech stuff. Seeing all of the new products really keeps me in touch." "Great resource for the radio industry. Couldn't know what I know without it. Extremely resourceful!"

Numerous readers complimented us: "Excellent publication." "I enjoy RW very much and always look forward to each issue." "Keep up the good work!" "Don't change a thing! From the Editor, ARP, all the other features, best radio news publication in the country!"

## 'A pain'

Among those reading Radio World are some new broadcasters who don't quite feel they are part of the family yet.

"We are one of the new LPFMs," wrote one. "I have been involved with radio for over 30 years. LPFM was not the wish of the NAB; but now that we are here, we will be a voice in many cities/towns etc."

This same writer spoke in support of the National Association of Low-Power Broadcasters, a trade group for LP radio and TV.

"But you are the best choice for info other than the NALPB," he told us. "I hope that you will consider helping us in years to come. Most of your readers are NAB, and we are considered a pain. We would not be here if the big companies had not been able to go above the 12-station limit."

Another reader says Radio World is a family affair. He produces a daily cut-in for a state Labor Department, airing on a big-city AM, and does cut-ins and a half-hour weekly program for another

## From the Editor



**Paul J. McLane**

station. His spouse does production and is traffic manager for a cable company.

"I have an extensive radio background, as does my wife," he told us. "We read Radio World each issue and look forward to it."

Another respondent tells us, "I take equipment reviews with a grain of salt, given the publication's heavy dependence on advertising from manufacturers and distributors."

I respect his healthy skepticism about printed content; I practice it myself as a consumer. But I also note that 96 percent of the respondents said our reviews are "important" or "somewhat important" to them in making a buying decision. And three-quarters have either the final say or some role in the purchase of equipment.

What would readers like more of? Suggestions include stories on marketing, new technology planning, programming, digital legalities, new ways of selling radio ads, funding sources and government relations.

"How to get the FCC back to granting CPs," one requested. "A music section so that MDs can stretch out on new artists," said another. "I would like to see more articles featuring small radio stations making news in their area," wrote a third.

Thanks to all who took the time to comment. Your loyalty and your critical consumption of Radio World are what keep us going. Please send ideas to me at [radioworld@imaspub.com](mailto:radioworld@imaspub.com).

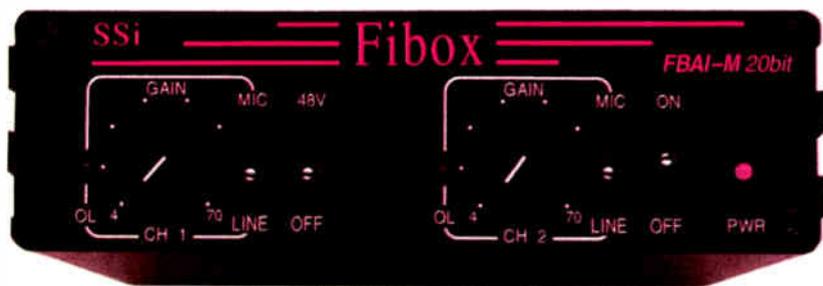


Brian J. Hill of Williamsport, Pa., an engineer for the Sabre Radio Group, wins a fine prize in our Readers' Choice Sweepstakes: a Fibox digital fiber-optic audio transmission system worth \$1,963.

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GUEST COMMENTARY

# Time for a Shared IBOC Vision

by Dale Mowry

The author is vice president of transmission systems for Harris Corp., Broadcast Communications Division.

Often, the best way to prepare for the future is to learn from the past. And now, on the brink of IBOC DAB, perhaps one of the most relevant lessons for our industry comes from another industry's sea change nearly a century ago.

When Henry Ford founded the Ford Motor Company in 1903, there were already more than 80 car companies in the United States. Each and every one of them could build a car, and each and every one of them had a desire to succeed. Yet today only Ford remains a household name.

Why? What enabled Ford to succeed when others — all with the same technology and desire — could not?

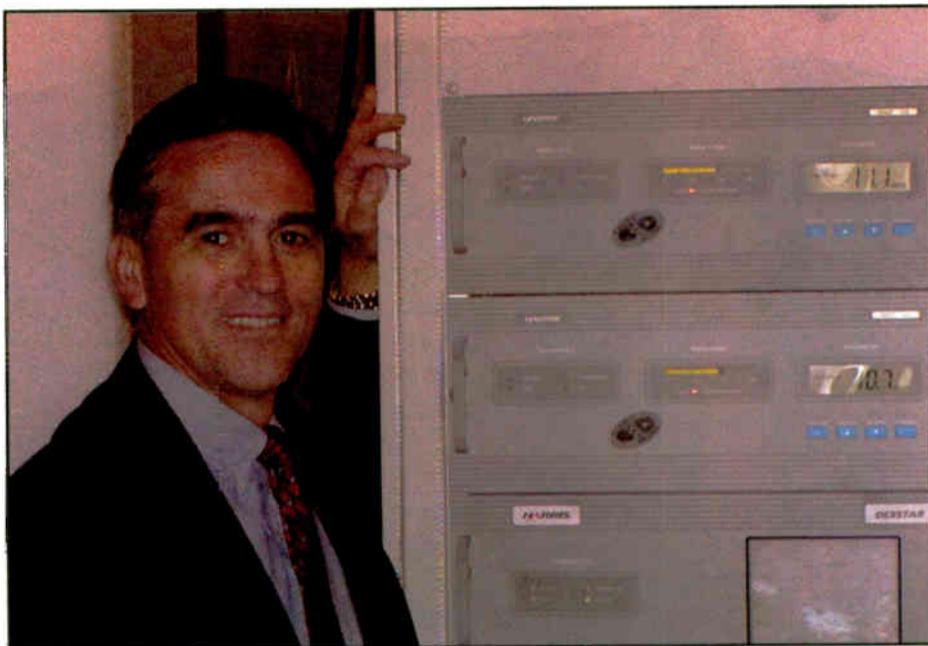
### Big picture

With the 20-20 hindsight of history, the answer seems obvious: Ford took a long-term view while his competitors did not. They saw cars as they initially were: toys for the wealthy who, after all, were the only ones who could afford them.

Ford, on the other hand, grasped the Big Picture and envisioned cars for what they could be: the catalyst for a mobile society and an essential commodity for the masses that would transform our world.

In the end, Ford's Big Picture vision not only guided how he approached his business, but it also ensured a long and healthy future for that business.

Today the radio broadcast industry is in a similar position. Within the next few months, IBOC DAB implementation will begin — the biggest change to radio since its inception. And our ability to adopt a common Big Picture



Dale Mowry

vision could prove to make all of the difference in the world.

For starters, we need to share an understanding that IBOC is the enabling technology that could make radio a dominant force in the fast-growing wireless information industry — if we let it.

From the perspective of others who are trying to get a foothold in this high-potential market, radio is already in a unique and enviable position. Radio already has a solid infrastructure in place and a strong market presence upon which to build. The required technology already exists and the price of entry should be affordable for typical stations — especially when amortized over 10 or more years. And I believe the final regulatory and technical issues will be resolved within the next few months.

In short, there should be nothing to

keep radio from succeeding in this highly lucrative market, as long as we in the industry are willing to grasp the Big Picture and envision IBOC for what it could be — a catalyst for radio's full participation in the digital communications era.

Adopting a shared vision is only the first step. The second is aggressively to

communicate the benefits to audiences nationwide.

We need to help listeners understand that IBOC will give them much more than improved sound. We need to build excitement that IBOC will deliver far more useful, more personal and more timely information than ever before.

### Informing consumers

IBOC will enable traffic updates when listeners need them and baseball scores for favorite teams after each inning — services that will also create exciting new opportunities for targeted advertising. And this is only the tip of the iceberg. (And no, listeners won't have to "read" the radio while barreling down the interstate at 65 miles per hour, because voice synthesis makes this unnecessary.)

We also need to let listeners know that we're not talking about science fiction: the technology is already available and proven.

But we need to get the message out now.

During and since NAB, Harris has talked with many broadcasters, and it's become clear that a growing cross-section already has this Big Picture vision. This group is now looking for the most practical and cost-effective way to implement the technology.

Now it's time for all of us to embrace a Big Picture vision, because if we don't, we may miss our biggest opportunity since radio began: the opportunity to be a leader in the digital wireless information age.

RW welcomes other points of view.

DIGITAL NEWS

## DRM Earns Endorsement

**GENEVA** Digital Radio Mondiale's digital audio broadcasting technology for overseas shortwave, medium-wave and long-wave has been endorsed by the International Electrotechnical Committee.

The group published its DRM Publicly Available Specification, PAS 62272-1. DRM's digital AM system uses existing frequencies and bandwidth across the globe.

The IEC approval, together with DRM's previous certifications by the International Telecommunications Union and the European Telecommunications Standards Institute, puts DRM a step closer to its planned 2003 launch.

The DRM Consortium is made up of 73 broadcasters, network operators, manufacturers and researchers who joined forces in 1998 to create a digital system for the broadcasting bands below 30 MHz.

## Chrysler Gets Specific About Sirius

**NEW YORK** Chrysler Group will offer Sirius Satellite Radio as a dealer-installed option in several 2003 cars, trucks, SUVs and minivans this fall, including:

- ChryslerPT Cruiser, Sebring Sedan and Convertible, 300M, Concorde, Voyager, Town and Country;
- Dodge Stratus Sedan, Dakota, Durango, Ram, Intrepid, Neon, Caravan and Grand Caravan; and
- Jeep Liberty and Grand Cherokee.

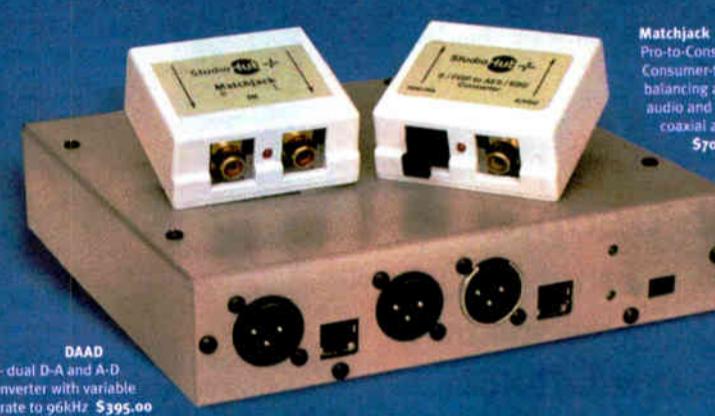
The suggested retail price will be \$299 plus labor, and a Sirius subscription is \$12.95 per month.

Chrysler Group also announced the availability of factory installation of satellite radio for the 2003 model 300M.

— Leslie Stimson

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## Pirates

► Continued from page 1 project on 106.7 MHz.

Fined by the FCC multiple times, the station, Human Rights Radio, still is broadcasting without a license. Kantako has refused to pay the fines, Tridish said.

In the 1990s, others followed Kantako's example of unlicensed broadcasting. Hundreds of stations popped up around the country. The FCC shut down many of these illegal operators, but the issue of community radio took a higher profile.

### Free radio divided?

In 1999, then-FCC Chairman William Kennard proposed a new class of lower-power FM stations, arguing that they would offer more diversity and more access to local groups that were unable to get on the airwaves otherwise.

**The people who are shut out of LPFM are still in the same position.**

— Pete Tridish

Some participants believe that, having grown into a nationwide civil disobedience campaign against what they view as corporate control of the airwaves, micropower broadcasters were the catalyst that spurred the LPFM initiative. The FCC did so, according to this school of thought, in order to assert its control of the airwaves and divide the free-radio movement.

When the agency proposed the LPFM rules in early 2000, the FCC intended to allow "rehabilitated" former pirates to apply for the new licenses.

These rehabilitated applicants were defined as those who heeded Kennard's call to halt broadcasting by February 1999 or after being instructed to do so by the commission.

But legislation passed by Congress later that year withdrew this provision and forbade anyone who had ever operated a pirate station from receiving an LPFM license. NAB saw this as a victory for existing owners, who didn't want to see pirates rewarded for breaking the law.

The licensing issue continues to be debated in the courts. Last winter, a federal appeals court in Washington ruled that the ban on former pirates as LPFM operators is unconstitutional but decided that the FCC may reject pirates on a case-by-case basis. This May, the same circuit court agreed to rehear the case following a request by the FCC.

The FCC has yet to approve any LPFM applications filed by former pirates.

During the four application windows, the FCC collected roughly 3,000 applications for LPFM licenses. As of mid-June, the FCC had licensed 16 stations and granted 295 construction permits out of a pool of 600 applications accepted by the commission that did not conflict with other applications nor contain serious errors.

### Seeking equal rights

Another issue is the number of legal LPFM licenses available. Congressionally-mandated interference protection rules, when applied, resulted in fewer LPFM allocations than advocates had hoped for.

This year, the FCC is expected to study whether third-adjacent-channel protections are actually needed for LPFM. If the protections are found to be unnecessary, more frequencies could become available.

Steven Dunifer, founder of pirate sta-

tion Free Radio Berkeley, said the agency's enforcement of the third-adjacent-channel protection rule is contradictory because full-power stations in urban areas have second-adjacent-channel protections.

"Low-power stations can't be more of a problem," he said. "What happened to equal protection under the law?"

Dunifer, who still uses the Free Radio Berkeley name, now creates equipment kits for low-watt stations and provides broadcast training. (Dunifer's former station in Berkeley, Calif., reorganized and took on a different name after his injunction; it continues to broadcast.)

He believes the FCC's regulatory structure does not comply with the First Amendment. His own case before the Ninth Circuit Court of Appeals, in which he challenged the FCC's regulations for licensing low-power broadcasters, was rejected because he had never applied to the agency for a license or a waiver from licensing requirements. Dunifer is under a permanent injunction banning him from radio broadcasting. He said he still wants the commission to address those concerns.

C. Patrick Roberts, president of the Florida Association of Broadcasters, takes a different view on unlicensed broadcasters: Pirates have broken the law and should not be granted licenses by the FCC.

"These guys don't care about power requirements at all," he said.

Roberts' state has had significant problems with unlicensed operators. For years, low-watt pirate stations have interfered with the signals of licensed broadcasters in parts of the Miami-Fort Lauderdale area.

As in any market, Florida lacks sufficient spectrum for everyone who would want a station license. But given the region's terrain, low-watt pirate signals can travel far and pose interference for licensed FM broadcasters, he said.

"In a state that's flat, the signal can go forever. There's nothing to obstruct it."

Though FCC engineers in that area monitor the situation and listener complaints are filed with the commission frequently, Roberts said it's not easy to get a pirate off the air permanently. After being caught and having their equipment seized, he said, some pirates

See PIRATES, page 7 ►

# Pirates

► Continued from page 6

just start up in a new location using inexpensive equipment.

NAB spokesman Dennis Wharton said pirates around the country operate that way. "It's a common problem that seems to have no end."

Wharton said the NAB still believes unlicensed broadcasters have no right to use the public airwaves, especially in areas where they cause interference to licensed broadcasters or air traffic control towers.

Though there is no central data source on the number of pirates operating at any given time, Dunifer estimates hundreds of unlicensed stations are broadcasting in small towns and cities. The top urban markets, he said, are Los Angeles, New York, Chicago, Seattle and Atlanta.

If the FCC finds someone is violating the federal law against operating an unlicensed station, the agency's Enforcement Bureau first issues a non-punitive letter to violators, asking them to stop operations. The commission reports that 90 percent of those operators halt broadcasts soon after receiving such a letter.

In May, the Enforcement Bureau announced that 300 unlicensed stations had been shut down in the last 18 months in the United States. In addition, pirates have been jailed and convicted of criminal charges.

In May 2001, New York-based pirate Ibar Mohamed was arrested for operating an unlicensed station in two boroughs. In September 2001, a Richmond, Va., pirate named Khalid Kubweza was convicted of operating a station from his home after allegedly ignoring repeated warnings.

So far in 2002, FCC field office personnel, working with the officials from local U.S. Attorneys offices, have shut down and seized the equipment of 12 to 15 violators who ignored the non-punitive letters asking them to stop broadcasting.

## Other fish to fry

But for the FCC field offices, finding radio pirates is not the highest priority, according to an agency source. In recent years, staffs and budgets have been shrinking, and field agents are responsible for a host of other duties including homeland security.

Field agents monitor pirate activity in each region and do everything that is required, said the source, including teaming up with members of other federal agencies such as the U.S. Attorney's Office and the U.S. Marshals Service to shut down pirates.

Most complaints are filed by listeners who experience interference from pirate stations when listening to a particular station, the source said. In addition, field agents find pirates by canvassing part of the bandwidth vulnerable to

pirate activity or unoccupied frequencies in each region.

The source said pirates cover all types of programming and interest

get started. For example, Dunifer designs, manufacturers and assembles broadcasting equipment kits, which cost \$2,000 to \$2,500. The kits include a

free-radio broadcasters interested in exercising their right to free speech. "It's an ongoing effort to help grow a grassroots media community," he said.

Previously against LPFM, Dunifer now supports the choice because he believes it empowers communities and indicates that the FCC recognized the importance of community radio.

Like Dunifer, Tridish believes the need for community radio still needs to be addressed by the FCC.

"The people who are shut out of LPFM are still in the same position. The commission hasn't done anything to address their rights," he said. "I think that the commission will eventually have a problem on their hands because there is no legitimate way to start a radio station." ●

## These guys don't care about power requirements at all.

— C. Patrick Roberts

groups, including religious groups, right-wing militia and a small number of ethnic communities.

Groups do not need much capital to

transmitter/exciter, an amplifier, an antenna, dummy load, power supplies, meters, filters, mixers and microphones.

Dunifer also offers training for novice

# Last-minute remotes?

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## Correction

The Web address given for tapes of the NAB session "AM Directional Antenna Essentials" in the June 19 issue was incorrect. The address is [www.mobiltape.com](http://www.mobiltape.com); note there is no "e" in *mobiltape*.

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# Contours, Metros or Coverage?

As the FCC reviews radio ownership limits, it is grappling with a related issue — how to change the method of defining radio markets to fit the modern economic climate.

While many commercial broadcasters agree that they would like the FCC to settle on one standard of measurement, such as service area contours, Arbitron markets or station area coverage, they disagree over which methodology should be chosen. Other broadcast groups suggest that the FCC does not have the authority to make a change.

Station groups, small-town broadcasters and trade associations have made their opinions known to the commission as part of the radio ownership proceeding (RW July 3, page 5).

Here is a sampling of comments:

“In the notice of proposed rulemaking (for the definition of radio markets), the commission suggests that a change in the radio market definition and station counting methodology might be necessary to ‘reconcile’ the congressionally-mandated ownership limits with the market counting methodology. Congress, however, intentionally left the existing methodology in place when it raised the numerical radio ownership caps in the Telecommunications Act of 1996. Therefore, any modification to the methodology runs contrary to congressional intent in enacting the Act. ...

**Arbitron markets should be used to determine whether the acquisition of a radio facility will impede increased diversity and whether it will impede competition.**

— NABOB

“When it increased the radio ownership limits, Congress made clear its intent to encourage radio industry consolidation through deregulation and to leave in place the commission’s existing rules for determining compliance with these limits. Modifying market definition or station-counting methodology in a manner that reduces the number of stations a party may own controverts this intent. Thus, the FCC must leave intact the current market definition and station-counting methodology. ...

“Clear Channel urges the FCC to allow full grandfathering and free transferability of existing combinations, thus respecting the legitimate economic expectations of parties that invested substantial amounts to create station combinations in response to the raised ownership cap ... Commission policy and precedent and notions of fundamental fairness demand that the agency abandon the deferral policy announced in the NPRM, and process all applications pending or filed before the effective date of any new rules using the market definition methodology specified in the current rules.”

Clear Channel Communications  
San Antonio, Texas

“The commission should adopt a single clear, bright-line standard to define local radio markets in measuring competition for all purposes, and DBI urges the commission to adopt the service area contours (1 mV/m or 60 dBu for FM stations and 0.5 mV/m for AM stations) as the definition of a local radio market for all purposes. ...

**The commission should adopt a single clear, bright-line standard to define local radio markets ... and DBI urges the FCC to adopt the service area contours.**

— Davis Broadcasting Inc.

“The service area contours most closely match the actual choices available in any given radio market to a listener or advertiser. And it is the standard used by the commission for other important purposes including interference protection. ...

“The commission should not define markets by determining stations with overlapping principal community contours for some purposes, stations in the

same Arbitron market for other purposes, and stations with service area coverage into a market for other purposes. This lack of a single standard produces arbitrary results and allows for gaming of the commission’s rules.”

Davis Broadcasting Inc.  
Columbus, Ga.

“Viacom Inc. believes that the commission should neither change the methodology that it has used for many years to define radio markets nor revise the way it counts the number of commonly-owned stations in those markets ... the application of the overlapping signal contours methodology has been effective in the overwhelming majority of the assignment and transfer of control applications to which it has been applied since the passage of The Telecommunications Act of 1996. ...

“Modifying the (market definition) rules at this late stage — more than five years after the passage of the 1996 Act — would impose unnecessary competitive restraints on all broadcasters and would hinder their ability to effectively compete in the growing media marketplace. The adoption of a demonstrably

stricter standard to define radio markets would particularly penalize smaller broadcasters by constraining their ability to compete against larger, incumbent station groups in their markets. ...

“In the event that the commission adopts any changes to its existing policy, the commission should make clear that it will permit the transfer of control or

assignment of grandfathered station groups intact, and that the existing rules will continue to apply without exception to all applications pending before the commission.”

Viacom Inc.,  
Parent of Infinity Broadcasting  
New York

“The commission should change its radio market definition to correlate with the Arbitron market. ... Radio stations compete in Arbitron markets. Arbitron audience ratings are the principal factor used by advertisers in deciding on which stations to advertise, and it is advertising revenue which ultimately determines the survival and success of a radio station. ...

“Arbitron markets should be used to determine whether the acquisition of a radio facility will impede increased diversity and whether it will impede competition ... (Defining) radio markets through the current method of reviewing contour overlaps relies upon engineering measures which frequently bear no resemblance to the true Arbitron-based world in which stations operate.”

The National Association of  
Black-Owned Broadcasters Inc.  
Washington

“At least two commissioners have expressed a belief that diversity suffers when several ownership entities within one market operate under different license cap standards ... That the underlying system of rules establishing criteria for ownership entities fails in isolated instances to please all concerned is scant reason to move on to another complicated system as likely as not to have deficiencies of its own. ...

“(We suggest) delaying a final decision on this matter until both the regulators and the unregulated can gauge the effects of the present economic downturn and the arrival of radio from space. Only then will it be clearly discernable if today’s radio companies, as the result of the commission’s ‘contours’ method of computing the dimensions of radio markets, have truly been placed in a situation at odds with economic reality.”

Radio Newburyport, LLC, Licensee  
of WNB(AM)  
Newburyport, Mass. ●

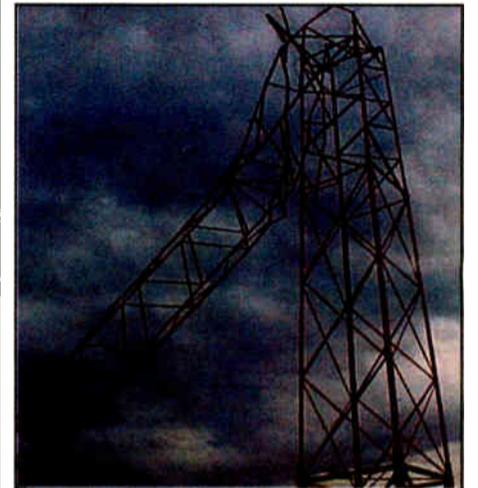
## WENT(AM) Survives Tower Fall

The tower of WENT(AM) in Gloversville, N.Y., fought a tornado, and the tornado won. But thanks to some energetic engineering work and a lot of wire, the station was back on the air two days later.

On Friday, May 31, a tornado churning winds at approximately 110 mph ripped through Fulton and Montgomery Counties in New York, causing extensive damage and knocking over the top section of WENT 1340’s 180-foot free-standing tower. No one was injured.

### Off the air

The station went off the air at 2 p.m., but Chief Engineer Lloyd Smith and his crew got the signal up again at approximately 200 watts on the morning of Sunday, June 2.



“It could have been much worse,” said Smith. “The tornado landed in the field away from our wiring and ground system, so nothing else was hurt that bad.” The storm also missed the nearby studio. “We were able to get back on the air with a whole lot of No. 10 stranded copper wire.”

### Lots of copper wire

The tower, built in 1943 by Pittsburgh steel company Blaw-Knox, almost qualified as a historical landmark. Each side measures 5 feet 8 inches at the base and tapers upward. The station went on the air in 1944, and is owned by Jack Scott, who bought it in 1986. WENT is an adult contemporary, full-service station that provides local news and sports coverage and other community programming.

“The nicest thing people say to me is ‘Gee, you don’t sound like a small-market station,’” said Scott. “Under the circumstance, (the accident) really has worked out okay. We’ve had countless phone calls from people who say they miss us. It was a wakeup call that people rely on us a great deal. It’s really opened our eyes.”

The foundation and bottom third of the tower survived, and the Fred A. Nudd Corp., based in Ontario, N.Y., provided new tower sections for the rebuild. WENT was to go back to full-power, 1,000-watt broadcasting in mid-June.

— Michael Hedrick

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\*\$7580 (USD) MSRP for Omnia 4.5fm model. Prices may be slightly higher outside the US due to duties, taxes and other costs.

## BOOK REVIEW

# Pubcaster Legal Guide Updated

by Naina N. Chernoff

For public radio broadcasters looking for legal advice, the search has become easier.

The National Federation of Community Broadcasters has released an online version of its updated "Public Radio Legal Handbook: A Guide to FCC Rules and Regulations." Anticipating interest in the Internet product, the NFCB released the online handbook before offering the print version, slated for release this summer.

## NFCB's roots

For \$50, NFCB members can scroll through HTML text and find FCC rules of particular interest to noncommercial stations, including rules on governing underwriting, sponsorship or programming, plus links to the text of the regulations. Non-members can access the information for \$75.

The authors of the handbook, public radio veterans Terry Clifford and Tom Thomas, co-founded the NFCB and the Station Resource Group, an alliance of 45 public radio broadcasters.

The handbook marks a return to NFCB's roots. When it was formed in the 1970s, a primary goal of what was then a small group of public radio broadcasters was to develop station training manuals. In addition to helping



This cartoon is part of a print ad for 'Public Radio Legal Handbook,' which has been updated for the first time in 16 years.

General managers can benefit from checklists for filing forms to the FCC, station operations and studio and emergency alert system requirements. The authors also provide stations with forms — a sample sponsor identification declaration and a release form for recording, editing or broadcasting interviews for broadcast.

With "true-to-life" examples, hypothetical situations and question-and-answer sections, Clifford and Thomas illustrate the rationale behind the FCC's rules. The tools are particularly useful in the chapter on underwriting, fundraising and promotion, where the authors employ a question-and-answer format using real-station scenarios.

In that section, the handbook tackles typical situations, for example, whether an on-air discussion of pizzas donated to a station during a pledge drive break violates the FCC underwriting rules. The answer, write the authors, is that the pizza does qualify as an in-kind contribution; the hypothetical station must determine whether the pizza was given in exchange for a on-air mention.

Clifford and Thomas have written out specific language that, if used on air, would break the rules governing underwriting. Many of these impermissible on-air announcements, such as the statements about pricing information, "Mention our call letters and receive a special discount," are common sense for many pubcasters, but they provide a good review or reference for newer station personnel.

## LPFM representation

For stations with questions about sponsorship identification, Clifford and Thomas have included statements that are permissible, such as announcements about an entity that supplied a grant for a program or a short description of the entity.

In addition, the authors have provided examples of when a sponsorship announcement is and is not required. The rule requires stations that agree to accept goods or services free for use on or in connection with programming, to identify the goods or services. More than a dozen hypothetical situations illustrate the rule.

The online resource features a helpful chapter for low-power FM construction permit holders and new licensees. As of May, the commission had issued only 16 licenses out of the 230 construction permits released so far. Many LPFM broadcasters are new to radio and need legal guidance as they build their stations, NFCB says.

As with other chapters, this one provides the history of the fledgling service and provides a clear explanation of the selection process, especially concerning the FCC's procedure for choosing among competing applicants.

Clifford and Thomas offer an easy-to-understand explanation of the point system for LPFM applicants and the FCC procedure for awarding frequencies to applicants with the same number of total points. Many readers will be interested in the latter topic, as the commission has yet to act on up to 1,000 applications that contain discrepancies or have petitions to deny filed against them.

Later this year, NFCB plans to issue a handbook on the ABCs of getting low-power stations off the ground.

To order, go to [www.nfcb.org](http://www.nfcb.org).

## IBOC Q&amp;A

## What's the Hold-up With AM IBOC?

*This is one in a series in which Ibiqity Digital Corp. answers questions about how to implement in-band, on-channel digital audio broadcasting. Vice President of Broadcast Engineering Glynn Walden answers here. Past answers are posted at [www.rwonline.com](http://www.rwonline.com) under the tab "IBOC DAB."*

**Q:** Why has the standards-setting body, the National Radio Systems Committee, endorsed AM IBOC for daytime only, and when will a decision be made about nighttime AM IBOC?

**A:** Ibiqity believes its IBOC system will greatly improve an AM station's offering for both daytime and nighttime. The report issued in April by the NRSC concluded additional information was required for AM IBOC performance at night, before conclusions could be reached about nighttime service.

Impressed with AM IBOC daytime performance, the NRSC encouraged the FCC to move forward with AM IBOC for daytime service, while nighttime tests are planned and conducted. The NRSC elected to bring the benefits of AM IBOC to listeners now, while further tests are completed.

Throughout the summer, Ibiqity will conduct exhaustive studies and tests on the AM band. We anticipate AM IBOC nighttime performance information will be shared with the industry by early fall. Ibiqity's goal is to secure industry endorsement of nighttime AM IBOC before the end of this year.

In order to allow for the introduction of IBOC broadcasts this fall, we (and many others in the radio broadcast and consumer electronics industries) have asked the FCC to issue a decision endorsing Ibiqity's AM and FM IBOC system by September. Ibiqity is also requesting the commission to allow stations to commence digital broadcasts this fall, while the FCC works with the various industries to develop final IBOC rules.



Although initial AM operations would be limited to daytime service, we expect the FCC to authorize nighttime AM service before IBOC receivers are commercially available.

Ibiqity remains focused on ensuring AM IBOC is authorized for nighttime service. As we work to this end, we believe all broadcasters and listeners will best be served by a speedy introduction of IBOC digital broadcast services.

Send your IBOC questions for this column to [radioworld@imaspub.com](mailto:radioworld@imaspub.com). Contact Glynn Walden via e-mail to [info@Ibiqity.com](mailto:info@Ibiqity.com) or fax to (410) 872-1531.

Radio World welcomes other points of view.

stations obtain FCC licenses and setting up the Program Exchange, a way for stations to exchange program tapes, the NFCB services expanded to help stations obtain funding to encourage diversity in the industry.

Though much of the information in the handbook is available through sources on the Web — the Federal Register, the FCC Web site, the Corporation for Public Broadcasting — the attraction of the online version of the Public Radio Legal Handbook is that the information has been consolidated and users can scroll quickly through Web pages to find information.

While the book is a good resource, Clifford and Thomas readily admit when problems, such as when an impromptu FCC inspection yields violations, require the counsel of a live attorney.

The NFCB founders give pubcasters a good view of how the FCC works, which is especially valuable for new stations, such as LPFM licensees.

Beginning with an overview of the commission, Clifford and Thomas give practical advice on everyday situations a station may face — from sending routine filings to the agency to keeping records and logs. Using clear language, the writers lay out the rules that govern noncommercial broadcasting and give readers a quick overview of federal laws, FCC decisions and court cases.

Clifford and Thomas provide the history behind many FCC rules, including the currently suspended equal employment opportunity rules, ownership requirements, station editorials, indecency and obscenity regulations, and license applications. To make it relevant to the handbook's readers, they supply an explanation of the rules' effect on noncommercial stations.



## Radio Systems on Top of the World

by  
**Cliff Mikkelson**  
 Director of Engineering  
 Clear Channel Communications  
 Colorado Springs, Colorado

At the base of America's mountain, Pikes Peak, lie a multitude of radio stations. As is typically the case in our business, these stations are highly competitive in the local market. When the time came for choosing a high quality, reliable and budget friendly studio console, the choice was Radio Systems Millennium and StudioHub system.

At one time, our stations were run down, neglected and being operated with unreliable and maintenance-intensive equipment. After being acquired by a much larger company the decision was made, "tear it all out and start over." To accomplish this we first had to get studios built in a very short period of time. I called Dan Braverman and simply stated; "I'm in an emergency situation and need help!"

With the small talk behind us Dan had a plan. The console arrived before any of the other studio equipment. The advantage here was allowing myself to become familiar with Radio Systems equipment. The result was rewarding. I had been able to read the manual (yes, occasionally we engineers break out the books) and had a game plan in place to eliminate wasted time. The point of reading the manual was important in two ways. First the manual was written very well, easy to understand and second, I had found available options I thought came only in the higher priced consoles.

It just so happened that our stations were the beta site for one very convenient option. This option was called "StudioHub." Since we were one of the first stations to use this system I was very skeptical. Here I had to have myself and my engineers build a studio with an unfamiliar console, equipment that was not yet on the market and in a beta form, have it completed in a very short amount of time and stay under budget. Much to my surprise, it worked - without a hitch. The StudioHub and RS-18 can be a "plug and play" task with the right coordination.

In the beginning, Dan had asked about the remaining studio equipment and the basic configuration. He had prepared all of the cables to the proper length and had formatted ends to match the equipment. As you can visualize, the room went together very quickly and with no punch blocks to worry about. There were no wiring problems or tangled messes. There were mistakes made on our end about placement of equipment. No worry, StudioHub allows you to make changes in minutes rather than hours.

The concern of compatibility with our automation was quickly put to rest. Since our company owns our music automation program, the equipment from Dan HAD to play nicely with our automation system. Without a doubt, we were running fully automated in no time. Turning the console channels on and off with a simple command was easy. Swapping sources was a piece of cake. Running off-site live traffic updates while having an un-manned studio was seamless (unless the traffic person failed to be on time!).

To me one important issue remained. That dreaded word "Failure." Somehow, to this date, no one has made a console "Spill Proof." I know Dan has this in his sights and I am sure he and his staff are working on a resolution. However, soft drinks are great to have while doing a morning show, but faders are prone to failure when beverages are introduced.

This did happen shortly after the installation. Once again the design of the Millennium Console proved worthy. I changed-out the fader during a 4 minute break and had a minute to spare. Yes, I changed a fader out in 3 minutes! The rest of the boards can be changed out in 30 minutes or less. A real working engineer must have designed this system. How many times have you repaired something and wished you had designed it? Take my word for it; this system is easy to work on.

I am currently building yet another studio. Our 5th. The steps have not changed since my first console almost 3 years ago. I call Dan, he asks the questions, and I place the order, and install the equipment. It's that simple. No hassles, no beating around the bush, just results.

It is said that power comes from below. Believe me Dan has a great staff and it shows when help is needed. From technical support to paying the bill, I have never been neglected. With Roger, Jo-Ann and Gerrett, to handle any issues that may pop up, I feel comfortable contacting them any time I have a question. There is another advantage of doing business with Radio Systems. Try calling a major manufacturer and ask to speak with the President. It probably won't happen. You have a much better chance getting in touch with Dan - because he's there and so is his personal touch and expertise. If you have a problem that you don't feel is being resolved, the president of this company will take the time...believe me.

I recently returned from a radio station sponsored Caribbean cruise. Something strange happened. I met up with an Engineer that assisted me on the installation of my first group of Radio Systems' equipment. The unique question he had asked of all subjects we discussed was "how were the Radio Systems' consoles holding up?" I replied "just fine." Here's what my friend had to say; "you know, that Radio System stuff is great. It's inexpensive, it's reliable and best of all... IT WORKS." It seems quite strange that we spoke about Radio Systems with all of the other possibilities of conversation. I think it was just one of the good memories I had to share.

For cost, reliability, and ease of installation, I've chosen Radio Systems equipment.

**radio**  
 SYSTEMS

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# Workbench

Radio World, July 17, 2002

Past columns are archived at [www.rwonline.com/reference-room](http://www.rwonline.com/reference-room)

## Modulation and the Older Tx

by John Bisset

Like it or not, at some point in your career you'll probably need to keep an aging transmitter running.

Among the complaints about older AM rigs is their inability to modulate. The problem usually is traced to weak or "soft" modulator tubes.

Lyle Henry, an SCA consultant in Los Angeles and an international contract engineer, offers an interesting test to verify the modulating capacity of older transmitters.

modulation should be twice the voltage (+6 dB) from 25 percent, and 100 percent should be twice the voltage (+6 dB) from the level at 50-percent modulation.

Lyle reminds you to use a VOM to measure the voltage going into the transmitter from the audio oscillator, and not depend on the metering of the audio oscillator. Some of these built-in meters aren't reading the true output; other oscillators lack a metering function altogether.

This audio test will tell you if the transmitter has a gain compression problem.

old decrepit transmitter should be reasonably flat over that range.

Stan Carter, chief at WJNT(AM) in Jackson, Miss., digs a little deeper. By checking the values of the modulation transformer, the modulation reactor, and the high-voltage capacitors, you'll know that the guts of the modulation circuitry is working properly.

concrete." This company joins the popular VFP ([www.vfpinc.com](http://www.vfpinc.com)) in providing hardened buildings for communication applications such as transmitter sites.

In addition to the aggregate finish, the concrete construction and a steel frame permit using the roof for a generator, as seen in Fig. 2.

This is a leased site with a heavily loaded tower, so Jeff and regional engineer Ben Brintzer specified an ice shield to protect the generator from falling ice. Even cabling conduit from the generator



Fig. 1: The Clear Channel stations in Harrisonburg, Va., used a GFRC Shelter for a new transmitter site. Note the finish around the sign.

Bypassing the processor and feeding the transmitter input with an audio oscillator, measure the voltage (VU) required to modulate the rig at 25, 50 and 100 percent. As you measure, remember that 50-percent

With a scope, you can trace the signal through the transmitter stages. When you feed tones into the transmitter using this method, check the modulation over a frequency range of 100 Hz to 8 kHz. Even an



Fig. 2: The generator is on the roof, protected by an ice shield.

Another point to consider is the feedback resistor "ladders." If these resistors open up, the transmitter's ability to modulate fully will be affected.

is protected with its own ice shield, as seen in Fig. 3, page 17. Dual redundant air conditioners, also seen, keep the inside clean and cool.

★★★

★★★

Jeff Caudell, market engineer for the Harrisonburg, Va., Clear Channel Group, just completed a new transmitter site using GFRC Shelters from Louisiana ([www.gfrc.com](http://www.gfrc.com)), as seen on this page.

GFRC stands for "glass fiber reinforced

Tower light monitoring is like taxes. No one wants to dwell on the subject, but we all have to comply with the rules, or else.

Unfortunately, tower light telemetry See WORKBENCH, page 17 ▶

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## TECH TIPS

# How to Avoid a 'Heat Hoagie'

*A Little After-Factory Modification Helps Dispel Heat From an Important Processor*

by Charles S. Fitch, P.E.

We radio old-timers remember the many racks of hot tube gear that characterized broadcast systems in the 1940s, '50s and '60s.

Reluctantly we accepted the solid-state revolution, mainly because of the promise of cooler, and hence more reliable, operation. Few of us foresaw the high-density equipment packaging allowed by large-scale integrated circuits and microprocessor technology.

Solid-state electronics may be more energy efficient; but the liberated waste heat per cubic inch often is equivalent to that of old tube devices.

## Attacking the problem

Rack heating is worrisome because of the gear density and penchant for device failure. Many solid-state devices have low thresholds of heat-related failure or loss of stability.

Rack heating also affects devices unimagined in the past, such as uninterruptible power supplies. A UPS battery can lose roughly half its life for every 9 degrees above 77 degrees Fahrenheit.

So circumstances haven't changed much. As in days of yore, you still have to get heat out of the racks.

Thermodynamically, you have three choices: move hot air out overall; move cool air in overall; or identify the heat failure points and address only them.

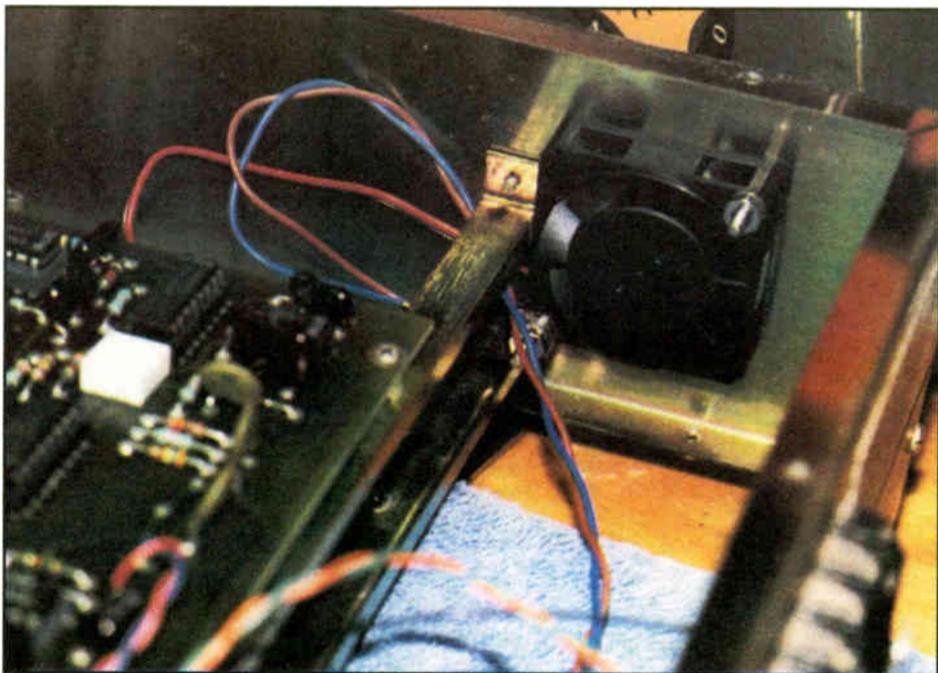


Fig. 2: This view shows the custom fan and regulator.

If the furnace runs more than the air conditioner at your station, your best bet probably is to move cool air into the racks. You can grab that cool air from outside, the basement or an air conditioner. Let the racks heat the ambient room space by taking in the cool air and exhausting the warmer air into the surrounding personnel space.

However, if the air conditioner runs more, cool the surrounding space and take that air into the racks and exhaust those calories where you need them or where you won't have to deal with them again — perhaps outside.

The third case is the most interesting and challenging to the station engineer. If you have only one or two items affected by high heat, you can ensure long-term reliability by addressing those individual heat concerns.

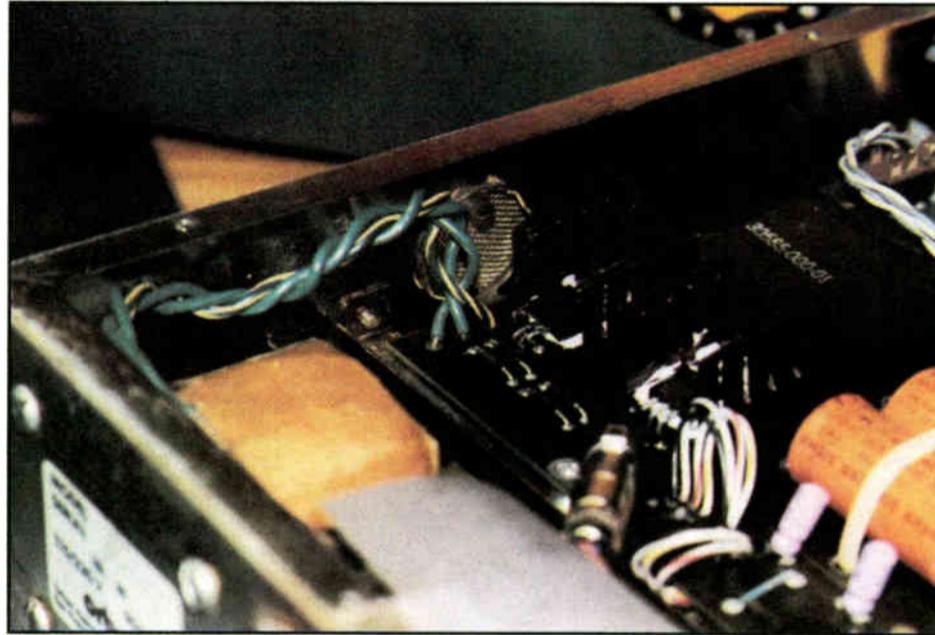


Fig. 1: The author installed a vent, seen near the regulator heat sinks, to reduce heat in an Orban 424 limiter.

An example is an Orban limiter that came to me recently.

This 424 may represent the zenith of analog limiter design. It is stereo, with separately adjustable compressor, limiter

warm in this box. Install a file server under this 424 and a phase monitor above it, and you have created a "heat hoagie" less the mayo.

The failure in this particular Orban unit occurred when the heat sink paste dried out on the regulators. The negative side failed first, doing notable damage before anyone noticed.

Because these regulators contribute the

lion's share of the heat, we seem to have two options: move the regulators outside onto the back panel, which is the pedestrian fix; or lower the heat level around these regulators.

I chose the latter course to maintain RFI immunity and to avoid the problems associated with bringing the unit's voltages outside the box. I installed a small fan and a breather vent.

## No rodents

The 1-inch vent has a metal screen to provide some RFI protection (think Faraday shield) and is adjacent to the heat sinks to provide the coolest rack air available to them. The shield also keeps the mice out. The fan is on the opposite side to pull the air across the unit's componentry and exhaust that hot air as far as possible from the input to avoid thermal oscillation.

This fan is a 12-volt Radio Shack part that requires a 1-1/2-inch hole made, in this case, using a 1-inch conduit punch.

At 12 V, the fan is audible. This processor is in a room with a microphone, so I ran the fan using a downstream three-pin, 9-V regulator, which brought the noise to a whisper.

This unit has a nice expansion feature with the back chassis pre-punched for XLR ins and outs. The fan was positioned as far forward as possible to allow easy installation of these XLRs when desired.

The unit now is the main feed protection processor for a New England super station. This was a satisfactory modification that will ensure many more reliable years of life from a valuable piece of equipment.

Charles S. Fitch, W2IPI, is a registered professional consultant engineer. Reach him via e-mail to [fitchpe@attbi.com](mailto:fitchpe@attbi.com).

# Rubbing Listeners the Wrong Way

*Some Hands-On Research Reveals Deep Tensions and Puts the Finger on Solutions*

On a recent, especially stressful business trip, I was pleasantly surprised to arrive at my hotel and find surprisingly luxurious surroundings. I double-checked the rate as I checked in at the front desk, and yes, indeed I was paying the very reasonable price I thought I had booked. The pleasant and professional front desk attendant assured me that all the U.S. high-end hotels were currently offering competitive rates in an aggressive attempt to lure the business traveler back to their frequently vacant rooms.

## The Big Picture

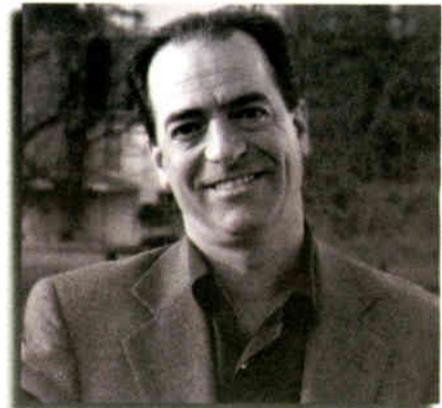


Photo: Gary Hayes, BBC

by Skip Pizzi

The marvels didn't stop there. When I got to my room, I saw a note advertising the hotel's new fitness center, which was offering massages at low "introductory" prices.

## Applying gentle pressure

Normally I wouldn't have given this a second thought, but between the great price and my current condition, I thought, "What the heck, let's give it a try." But I only had about an hour to spare before my next appointment, and I guessed that there was no way they could fit me in on short notice, especially given the demand likely at such popular prices. So I figured I would feel like I tried to take advantage of a good deal, but wouldn't feel guilty for indulging when they couldn't accommodate me.

Surprise again; no problem taking me just when my schedule allowed. Well, now I was committed. I had to do it. Off to the fitness center to find the massage rooms.

The masseuse greeted me with a bit of small talk about how her SUV had been broken into the previous evening, and in addition to a broken window, the losses included her portable CD player and music collection — an important component of the massage therapist's wares. She hadn't yet replaced anything, still waiting for the insurance claim to be processed. She apologized and remarked,

See PIZZI, page 16 ▶

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## GUEST COMMENTARY

# A Radio Museum Is Born

*Vintage Radio and Communications Organization In Connecticut Seeks Support to Build the Dream*

by Chris Watts

*This article is one in a series of occasional stories about museums of broadcasting. It first appeared in Antique Radio Classified. The author is the secretary for the museum.*

The Vintage Radio and Communications Museum of Connecticut has a new, permanent home after drifting around Connecticut for the past 12 years.

In December, the museum completed the purchase of a vacant industrial property in downtown Windsor, about 10 minutes north of Hartford. The 85,000-square-foot mill building is on the National Register of Historic Places and will be converted into space for the museum and additional professional business space.

"This is the realization of a dream 12 years in the making. After many months of hard work, we have been able to secure a deal that gives our museum permanency and gives us the space to turn our museum into a major national tourist attraction," said John Ellsworth, director of the museum.

## Needs

"The finished museum will be an all-encompassing communications museum that will trace the development of electronic communications from Morse Code in 1840 to the computers of today. There isn't a museum like it anywhere in this part of the country, and it will serve as a great educational center for children in the area."

The building has an interesting history.

It was constructed in various stages from 1870 until 1920. It has housed such industries as a gun manufacturer, an electric generator maker, tobacco warehouses and nuclear research facilities. Most recently it was used by Combustion Engineering as warehouse space. The property has been largely vacant for the past two years and was identified by the community as being in one of its key revitalization zones.

The museum will occupy some 30,000 square feet; the remainder of the space will be leased to businesses that want to restore the building in exchange for extreme submarket leases. Over time, the rental income will become an endowment for the museum, funding museum development, staffing and collection upkeep.

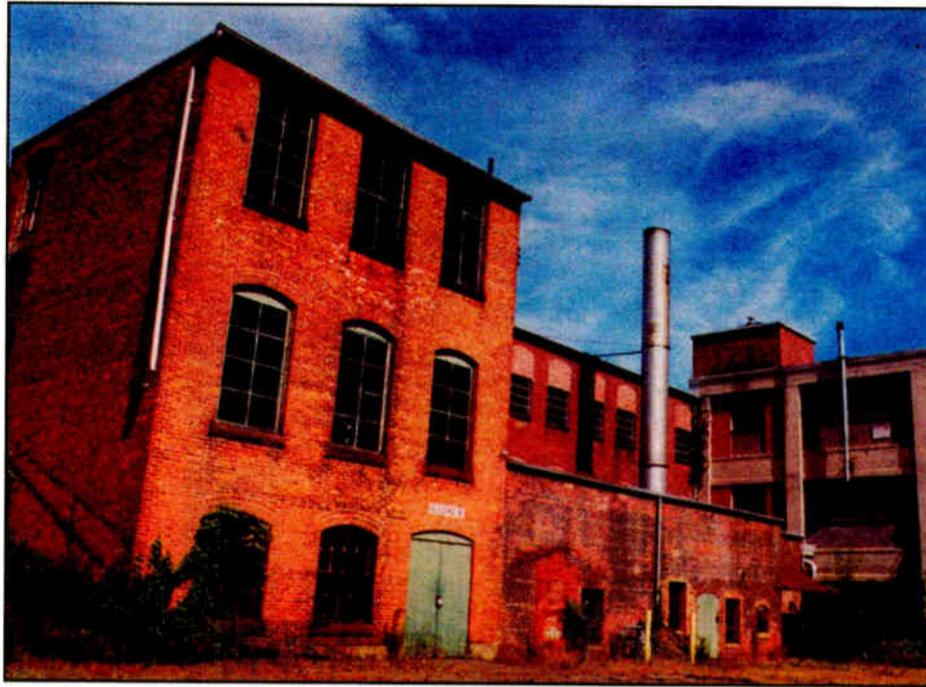
But until that time, the organization is scrambling to raise capital to get the museum going.

"We know that the building of our museum is going to be a major undertaking, but the museum volunteers are ready. We are hoping to recruit more interested parties to help us make this a reality. We need donations of cash, materials, expertise and time," Ellsworth said.

"Our biggest challenge right now is heating and air conditioning, as there is none in the building. We also need to repave the parking lot, convert the building's freight elevator into a public elevator, replace all the windows and hire a permanent full-time director. The estimated cost to fully restore the building tops \$1 million."

The museum is approaching foundations and state and federal sources for

funding to restore the building. However, the majority of the money probably will have to come from private individuals who want to see the museum succeed.



This older brick section of the building will be the new home of the museum.

"According to the latest philanthropic figures, more than 80 percent of all fundraising comes from individual donations, rather than from corporations or foundations," Ellsworth said. "It's going to be a major challenge, but if we can find people who are willing to make donations, even on the scale of \$20 each, it will all add up. We hope that as people hear about our project, they will open their hearts and wallets and make a tax-deductible donation to get this project off the ground."

## Plans

The museum also is seeking material donations of plumbing supplies, electrical work and HVAC equipment. Ellsworth says he hopes some company may be replacing an older HVAC unit that is functional and, instead of throwing it away, will donate the equipment in exchange for a tax write-off.

"We are currently also expanding our board of directors, and developing community outreach programs," said Ellsworth. "We have lots of great ideas for things to turn this museum into a world-class facility."

"When we founded this museum 12 years ago, we never envisioned it would take on a life of its own, but it has," he said. "Through four moves, the museum has grown by leaps and bounds, and now we will have our first-ever permanent home to

See MUSEUM, page 18 ►

## Pizzi

► Continued from page 14

"I guess we'll have to resort to the radio — scary, huh?"

I played along, waiting to hear what else she would say. So far, I had been pretty fortunate, and now I began to realize this could be more interesting than I had expected.

She explained how it had been years since she used the radio as background music for her work, and for that matter, she hardly listened at all anymore. Too many commercials, too much talk, too little music and too much repetition all contributed to her rejection of the medium. So it was with great reluctance that she approached a portable radio in the massage room and attempted to tune in a station.

She asked if I had any preference, and I suggested maybe classical music might be the most appropriate. She agreed, but had no idea where to look. Being in a relatively unfamiliar southern U.S. city myself, I suggested starting at the left-hand side of the dial.

### Digital manipulation

After a few doses of Christian rock, we heard the word "conducted" and both said in tandem, "There's one!" We laughed briefly at the unique association of a single word to a radio format, and she removed her hands from the radio. After about 30 seconds of completing the introduction to Liszt's "Faust Symphony," the announcer gave way to music, which continued in an uninterrupted and quite suitable fashion for the remainder of the half-hour session.

During this time, the masseuse admitted that she had had a client once who preferred to listen to classical radio during a massage, indicating that this was clearly an exception. She remarked that I must be from the local area. I told her I wasn't and asked why she thought so (it certainly wasn't my accent).

She replied in a somewhat incredulous manner, "Well, how did you know where to look for the classical radio station?" It was starting to sink in that maybe the mainstream (and particularly the younger) audience is really not radio-savvy anymore, and the medium is beginning to lose touch with the mass market.

I was talking with a smart, active and highly aware professional; listening to the radio had already become an artifact of an earlier time to her. If she ever had been an avid listener, that taste and acuity had long since atrophied, having been replaced by her embrace of other, more modern media.

Others have recognized this trend, using far more scientific methods of analysis than my massage-room focus group of one. Yet somehow an erroneous belief for a solution has surfaced and taken hold of the industry in a sort of collective hallucina-

tion, which states that all radio has to do is "go digital," and that this migration away from the medium will stop and reverse itself. It couldn't possibly be the programming that is driving audiences away — no, certainly not. It's just that radio's not digital yet. Yeah, that's the ticket ...

In fact, the format proposed for digital conversion of terrestrial radio is inherently designed to maintain as much as possible of the status quo in today's radio. To apply the substantial effort required for such a transition to a system that actively *preserves* what may be slowly killing the medium is madness. Yet somehow this fool's game has taken hold and seems to be moving forward. The sound you hear in the distance may be the death knell of terrestrial radio. The damage that consolidation started could be Ibiquity's to finish off.

**I was talking with a smart, active and highly aware professional; listening to the radio had already become an artifact of an earlier time to her.**

All this was going through my head as I lay there on the table, and I considered launching a homily to describe the current state of affairs in the radio industry to the masseuse. But about that time, her work was beginning to have its desired effect, and suddenly the future of radio didn't seem to matter quite as much to me. (I've since returned to my senses, of course.)

The moral of the story is that sometimes you really have to dig hard to find the answer. I pledge that as your faithful correspondent I will continue to seek out similar tough assignments, and stop at nothing to bring back the report. I hope this piece will help you appreciate the lengths to which we go on your behalf. In fact, next week I'm off to check out the fate of the digital radio transition in Tahiti. This story may warrant an extended period to conduct the proper research, so note to the editors: just hang in there, I'll file something eventually, just as soon as I've properly updated my little paper umbrella collection and run out of sunscreen.

Skip Pizzi is contributing editor of Radio World. 🌐

# Workbench

▶ Continued from page 12

always seems to end up at the bottom of the list. Tower light monitoring can be ugly.

Ray Fantini does contract work for a number of stations on Maryland's Eastern Shore. He has come up with a three-step process in cleaning such messes and shares them with *Workbench* readers.

Almost every incandescent system uses current-sensing transformers placed in line with the feed to the tower. The transformer senses the current pulse when the beacon flashes. The transformer will get a small voltage induced in its secondary every time the beacons flash, as well as a small voltage from the continuously burning obstruction lights.

Perhaps the simplest, though not necessarily the most accurate, method of monitoring is to rectify the voltage from this sampling transformer and send the signal to a metering channel on the remote control. In the days of hard-wired remote control systems, the meter would pulse as the beacon flashed. Another method was to tie the output through a diode to the remote-control status channel, causing the status light to flash.

Nowadays, Burk/Gentner and Sine dialup remote control systems are the norm, and the challenge is to use the sample transformer output to drive a status channel.

Ray's first step is dealing with the sample transformer. To drive a status channel, you need a fairly good output from the transformer, on the order of 3 to 4 volts. Sample transformers are available in several ranges; the lower the current, the higher the output. It's important, therefore, to figure your load into the calculations.

A couple of 600-watt beacon lamps and two 100-watt obstruction lights will only pull about 12 or 13 amps total; therefore, a 50-ampere sample transformer won't give you enough voltage. Ray tried a 30-ampere transformer instead.

Keep in mind that some of these sample transformers have a soldered tap that sets their range. Too low an output? Try looping the wire that passes through the toroid a second time. This doubles the primary sample.

The second step is dealing with the status channel. It wants a DC input, so rectify the transformer sample with a diode (ECG-125).

Next is the need to provide a constant high-level input to the channel. We want the signal to be high the whole time the light is working, but go low when the light has been off for more than 20 or 30 seconds.

Place a good-sized capacitor (470 uF to start) on the status input. Every time the light flashes, the pulse from the transformer via the diode will charge the capacitor and hold the status line high. When the light stops flashing, the pulse will no longer charge the capacitor and it will discharge, dragging the input low.

Ray found that by putting a 50-kohm variable resistor across the charging capacitor, the discharge rate can be controlled. This permits you to adjust the rate so that after the loss of a couple of pulses, the status line is dragged low.

If you're monitoring lights at an AM site, Ray cautions to add a decoupling capacitor across the input of the diode and

status channel. The AM carrier will keep the input high all the time.

The third step is to program the remote control software. The channel needs to be set to mute as a time of day function. Mute the status channel during the day, and set it to generate an alarm when the status line goes low.

Ray was able to reduce all this to a little breadboard. Reach him via e-mail to [rafantini@salisbury.edu](mailto:rafantini@salisbury.edu).

*John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is a district sales manager for Harris Corp. Reach him at (703) 323-8011.*

*Submissions for this column are encouraged, and qualify for SBE recertification credit. Fax your submission to (703) 323-8044, or send e-mail to [jbisset@harris.com](mailto:jbisset@harris.com).*



Fig. 3: Also shielded from ice is the cabling conduit (arrow). Dual air conditioners are visible on the wall.

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# College Radio Program Suspended

*In Minnesota, the Decision to Cut a Degree Track Reflects Larger Concerns About Radio Careers*

by Ken R.

Riverland Community College in Austin, Minn., used to broadcast rock programming 24 hours a day over [www.kerc.net](http://www.kerc.net), which had been the heart of the school's broadcasting course for the last several years.

Now the Internet radio station and the associated classes have been suspended.

Eric Shoars was the lead instructor and general manager of the Internet station. He lost his job.

"The administration tells me that enrollment and placement were not satisfactory," he said. "Everything else about the program was fine. We were ahead of the industry in equipment; the students had access to new learning tools such as Computer Concepts Corp.'s Maestro voice tracking system and (Syntrillium Software's) Cool Edit Pro, which commercial stations in the area don't even have."

## Suspension

College President Dr. Gary Rhodes made the final decision along with Vice President Mike Bequette.

"Technically the radio program is suspended for three years while we assess the situation," said Rhodes. "It may be rejuvenated; but the number of radio jobs in the area for our grads is just very, very low, and that's a concern because our task job is to find employment for grads."

**The number of radio jobs in the area for our grads is just very, very low.**

— Gary Rhodes

Shoars agreed that while the technical term is "suspension," the college is not taking new students and that studio equipment is being sold.

"You combine low radio wages with the fact that we had an 11-percent increase in tuition and our state funding was cut from 49 to 43 percent, so we just had to make a decision on what we could sustain," Rhodes said.

"Eric has done an outstanding job marketing the program, and it would have been in worse shape without someone with his level of enthusiasm."

More numbers entered into the decision. Shoars was trying to expand his recruiting base from the three cities the college serves — Austin, Albert Lea and Owatonna, Minn. — but wider recruitment is more expensive.

"State funding for that was just unavailable," said Shoars, who also has

written occasionally for Radio World.

The program enrollment slipped from a high of 20 students per year at its peak to about six last year.

"It's ironic that if someone got a radio job before they graduated from our program, we couldn't count him/her in our placement rates," he said. "Also, if one of my students graduated here with a two-year degree and went on to a four-year school before entering the industry, we couldn't count that person either, which made our placement numbers look a little worse than they really were."

Ironically, another consideration working against the school is the desirability of the region.

"People in radio here aren't trying to move out of the market," said Shoars. "They like it here and they stay."

Shoars said changes in schools mirror changes in the industry.

"In Minnesota, you probably only have three or four radio programs left in the state. Other than those, a student would have to attend a four-year school and take a broader course including print and TV."

Shoars is on the board of the Minnesota Broadcasters Association, a position from which he can watch industry trends closely.

"With consolidation in radio, there are

fewer positions available; and it's even more competitive because people consider this industry as 'show business,'" he said.

He also said many people take the internship path into radio instead of seeking formal training at the college level.

"If you serve an internship, it costs about the same as a community college, but you don't have to set foot in a classroom," Shoars said. "Community colleges are being phased out."

"We are not doing a very good job as an industry of attracting young people to radio," Shoars said. "It's a video generation today, and many people just don't have that radio passion and commitment."

He also believes that because many



Eric Shoars

might have gone into radio the past now choose the computer industry.

"We have some other technical programs here where the jobs are available but the students just don't see much sex appeal in them," he said. "Everyone wants to get into computers, even though the jobs are available in other areas such as manufacturing. TV and radio are still somewhat attractive, but we just don't have the jobs here."

KERC.net began in 1972 as KAVT(FM), a 10-watt station. In 1992 the license was given to Minnesota State University in Mankato; the unused FM tower remains at Riverland.

At the time of this license transfer, the station became a local cable access station known as MRTC, which stood for Minnesota Riverland Technical College, the former name of Riverland Community College. 1992 also was the year Shoars arrived as an instructor. He found the cable access operation unsatisfactory because few people could hear the students.

See COLLEGE, page 20 ▶



Gary Rhodes

radio stations now use voice tracking, overnight and weekend time slots that had served as proving grounds for announcers are no longer available.

Rhodes believes many people who

## Museum

▶ Continued from page 16  
develop our displays.

"Collectors from around the country who are looking for safe and permanent housing for their collections will now be able to share their items with the world. Schools and universities from around the area will have a treasure trove of historical communications data at their fingertips. I am extremely excited about the possibilities that this new location offers us, and I hope that enthusiasm will be contagious."

Among the anticipated displays at the museum will be a community FM radio station, serving the Windsor area; an amphitheatre that will double a community meeting room; a tour of audio communications history from early radio development through recording equipment and telephone; a tour of visual communications history starting with television and moving up through motion pictures and modern computers; a look behind the industrial technology that enabled the development of modern communications; extensive hands-on displays; a historical recordings archive with listening stations; a regional broadcasters' hall of fame; and a complete communications reference library unmatched anywhere in the world.

If you are interesting in making a tax-deductible donation to help the museum restore its new home, mail a check to The Vintage Radio and Communications Museum of Connecticut, 33 Mechanic Street, Windsor, CT 06095, or visit [www.national-](http://www.national-communicationsmuseum.org)



Space is available for expansion.

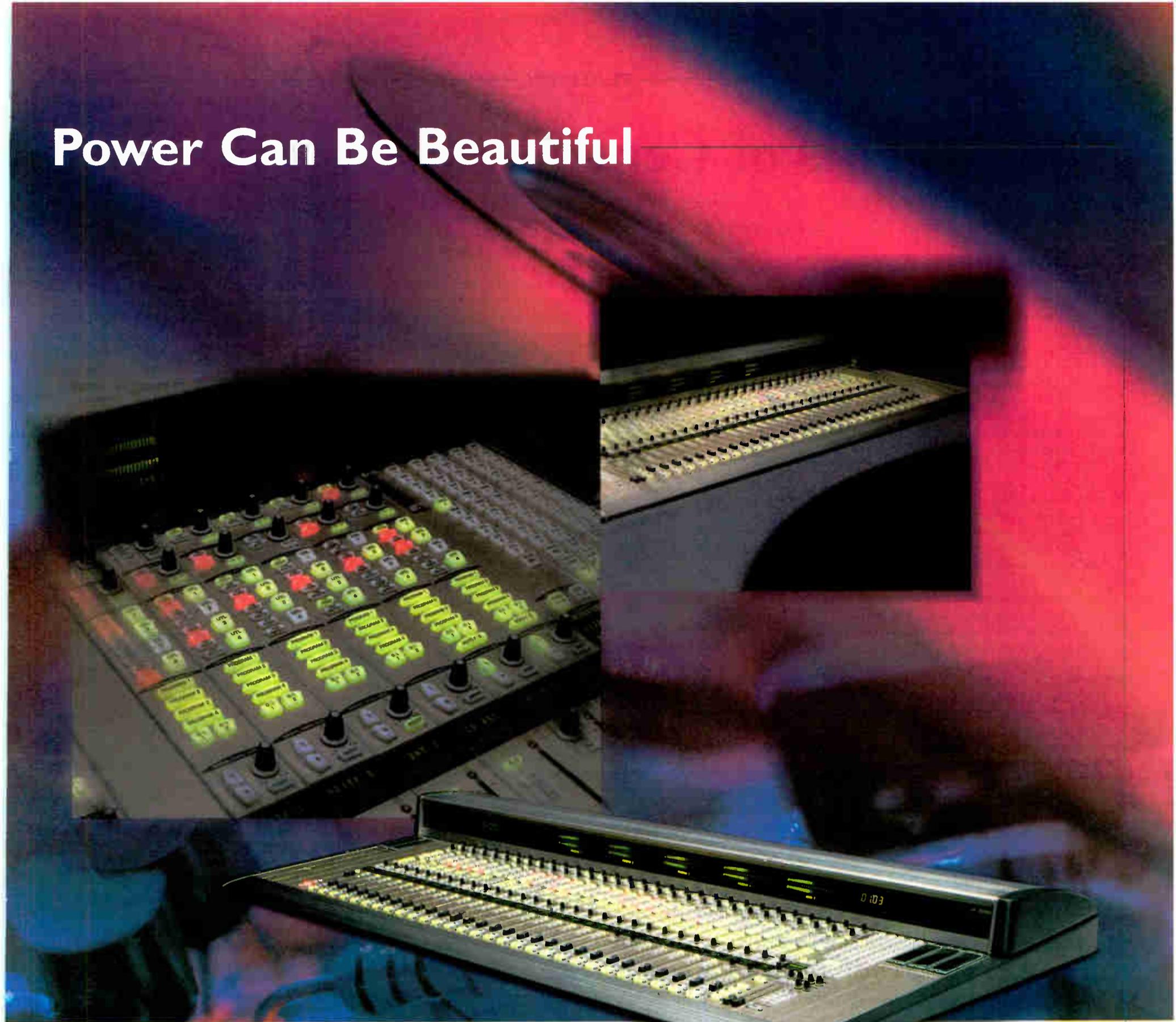
[communicationsmuseum.org](http://communicationsmuseum.org).

Museum Director John Ellsworth is reachable at (860) 673-0518 or via e-mail to [radioctr@aol.com](mailto:radioctr@aol.com).

At this writing the museum awaits an expected certificate of occupancy from the town.

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GUEST COMMENTARY

# The Benefits of Centralization

*A Supplier Asks: With the Rise of Satellite, Will Terrestrial Radio Have to Reinvent Itself?*

by Thomas Hultquist

*The author is product marketing manager for Encoda Systems Inc.*

New digital satellite radio companies are blanketing the United States with music and talk radio programming in the hope that their newly launched pay-radio services achieve the same stellar success experienced by satellite television broadcasting.

More than 100 channels of music and talk radio offer crystal-clear, digital-quality sound from coast to coast and boast some familiar top-notch programming and on-air talent, as well as music from just about every genre imaginable.

Although the subscriber base is still in its early growth stages, the satellite radio model presents new challenges that terrestrial radio broadcasters will need to address within their own operations if they are to compete.

## Income

The most critical issues are those of advertising dollars, the lifeblood of the traditional radio broadcast operation, offset by enhanced productivity and cost reductions. A facility's capacity for managing these factors, particularly with the rise of the centralized satellite model, may determine that operation's ability to survive as competition grows.

**Traditional broadcast facilities must streamline their operations in order to continue providing a product that's appealing to both listeners and advertisers.**

A fundamental distinction — other than signal distribution method — between satellite radio and the bulk of terrestrial broadcasters is that many local broadcasters simply do not enjoy the same economies of scale inherent in the new satellite operations. Satellite radio facilities recognize cost savings in nearly every area of operation, including advertising, sales, production, engineering, accounting and administration.

The first and most obvious concern for terrestrial broadcasters is that of broadcast signal quality. Not only does satellite radio offer a clean, digital sound, but it also provides an uninterrupted signal, virtually anywhere. What's more, the state-of-the-art production facilities that create satellite radio programming have the benefit of the latest equipment, enabling them to provide a polished sound for every channel.

Slicker sound effects, more-advanced clip playback systems and unique branding tools add to satellite radio's ability to make its mark in mainstream listening audiences that contain advertiser's target markets. Local stations, therefore, may

face an uphill battle competing with the quality of the digital signal, signal coverage and sophisticated production facilities of satellite radio.



Encoda Systems supplied large-scale automation and management systems to XM Satellite Radio. Shown: XM's Broadcast Operations Center.

Programming content presents a second challenge for local broadcasters. On a programming level, local stations clear-

ly have the advantage in providing in-depth local coverage of news, weather, sports and traffic. On-air talent also creates a local link with the community and allows for discussion of current events, politics and other close-to-home topics.

However, what satellite radio currently lacks in local color, service and information, it may more than compensate for with a broad range of syndicated programming, exclusive interviews, concerts and event coverage — which satellite radio can afford — as well as broader music libraries.

What complicates the picture is that the satellite radio companies are now buying programming that would historically have been sold to terrestrial stations. In addition, some local stations are creating the content for the satellite radio providers.

A third challenge for local radio broadcasters is the cost of doing business as an independent operation.

There are three business models: fully centralized, fully decentralized and distributed business models which lie somewhere in between.

As part of a centralized operation, a

station can take advantage of cost-saving traffic and automation systems shared with other stations in the broadcast group. From production and engineering, to sales and accounting, a centralized operation can afford to hire staff from a skilled talent pool because fewer people are needed to look after playout of a

## greater number of channels.

Administrative overhead, as well as hardware and software costs, also can be reduced through centralization. Other operational cost-saving measures include electronic delivery of contracts and invoices. Does it really make sense if you have 100 stations to duplicate the cost by almost 100-fold? This would represent the fully decentralized model whereby costs are replicated for each station.

## College

► Continued from page 18

In November 1999, the station went on the Internet as [www.kerc.net](http://www.kerc.net).

As of mid-June the Internet station was still running on automation, but was scheduled to disappear shortly.

"Everyone got on the air, and not just to be heard within a few blocks," Shoars said of the online station. "They could audition live for anyone in any market on the Internet. We treated the students like they were working for a real radio station. Everything we did in the classroom could be applied instantly on the air."

Among the Riverland graduates working in the field is Dean Lickteig, program director of KCZQ(FM) in Cresco, Iowa, who was pleased with his training.

"I graduated in 2001 and would rate the program a '10,'" he said. "Eric gave us the keys to the station and we were responsible for controlling all aspects of the operation."

But Lickteig is realistic about the pressures and lack of glamour in the industry.

"I think what scares some of these young kids is that they know they're not going to be making a lot of money right

A hybrid, or distributed business model, may be the best approach. All programming, traffic, business and automation functions could be located in one or a few locations with sales, news, on-air talent and transmission staying close to their local audience.

Finally, and most important, is the issue of the advertising sales model. As in other segments of broadcasting, radio stations have been affected by the slowing economy and the aftermath of September 2001. Satellite radio can be expected to present serious competition to local stations for national spot revenue.

At the local spot level, there may be the potential for satellite companies to use their repeaters to perform local ad insertion. At that point, the national satellite companies could, in essence, be able to compete one-on-one with local stations for local spot dollars.

## Targeted

Targetcasting is yet another example of why some advertisers might find satellite radio to be a more attractive buy than local. Targetcasting allows particular advertising copy to be directed to satellite receivers identified by psychographic information including listener age, gender, education, etc.

As the radio broadcast industry shifts to meet the challenges presented by up-and-coming alternatives to terrestrial broadcasting, traditional broadcast facilities must streamline their operations in order to continue providing a product that's appealing to both listeners and advertisers.

Centralization within broadcast groups and automation of traffic and playout systems will offer money, time and resource savings; professional facility integration; thorough engineering and operational training; detailed and complete documentation; first-class, accurate channel delivery; maximum operation efficiency; and a platform for future growth.

*Encoda Systems Inc. provides technology solutions for electronic media markets.*

*RW welcomes other points of view via e-mail to [radioworld@imaspub.com](mailto:radioworld@imaspub.com) or write to the address on the inside last page.*

away. The other thing that scares them is the complicated nature of the jobs out there," he said.

"It's not just reading time and temperature. It's production, it's constructing playlists and hard work. They are just not going to be stars right away."

Now that he no longer has his teaching position, where is Shoars headed?

"Someone of a higher authority has a plan for me, but He's not sharing it with me yet," Shoars said. "I'm not sure if I'll get back into education or into radio, but the industry is in my blood."

Shoars has a theory that the biggest broadcast groups eventually may choose to set up their own schools, which would train students at no cost. In exchange for the training, the groups would use these employees at whatever cluster the companies chose during a contract period of several years.

"Anyone can train a board op, but compelling radio is more difficult to teach," Shoars said. "The thing that will keep listeners is real content, not just two hours of non-stop rock."

Addressing a not-so-tongue-in-cheek appeal to the chairman and CEO of Clear Channel Communications, Shoars said, "Mr. Mays, if you need someone to run a broadcast school, I'm your guy." 🌐

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When you order a BSI system this July, you can choose up to 500 songs to be pre-loaded onto your hard drive. All you have to do is download the MusicStore selection software and you'll have over 30,000 songs to choose from in formats across the board. We have Oldies, Dance, AC, CHR, Pop, Urban, Mainstream Rock, Country, European, Alternative and much more. We even have a large selection of holiday songs.

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## Series 210

\$19,999



The BSI Series 210 is a state-of-the-art, 2 PC broadcast system. We use Dell 2500 servers with a 17" flat-panel in production and a 17" touch screen in the air studio.

We have included all of the software and hardware you need for full automation (satellite and music on hard drive), live assist, or even live broadcasting.

Simian digital automation is at the heart of the system, combining with WaveCart digital cart machine, Stinger instant audio, Speedy CD-to-PC dubbing and WebConnect Pro remote control to make an amazing digital studio. In addition to BSI software, we include new Cool Edit Pro 2.0, pcAnywhere 10.0, and an AudioScience 4346 sound card for each PC. The quadruple-play sound cards also have triggers and switching capabilities, so you don't need any additional hardware.

The BSI Series 110 consists of two Dell PowerEdge 500 servers, with a 15" touchscreen in the air studio and a 15" flat-panel for the production studio.

This system is perfect for a combination of live-assist and hard drive automation. Satellite automation is also available.

Simian digital automation, WaveCart digital cart machine, Stinger instant audio and Speedy CD-to-PC dubbing are included, as well as pcAnywhere 10.0 from Symantec and Cool Edit 2000 from Syntrillium.

We have also installed two AudioScience 4344 soundcards with on-board MP3 decoding.

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## TECH TIPS

# Economical Backup Supports KGCB

by Mark Parthé-Hills

As a contract engineer for several AM and FM stations in the central Arizona area, I am called upon to perform many interesting and sometimes seemingly impossible tasks.

One of these tasks was for a local Christian station, KGCB(FM) at 90.9 MHz in Prescott. KGCB is a full-power FM with a signal that covers most of the central part of the state. The station needed a backup for its transmitter, which is located on a 7,500-foot, snowy mountain supplied with unreliable AC power.

This design had to be automatic, maintenance-free and, above all, cheap and reliable.

Because it takes a fair amount of power to run the Continental 816 and the costs and maintenance for a large generator would be prohibitive, this option was not considered.

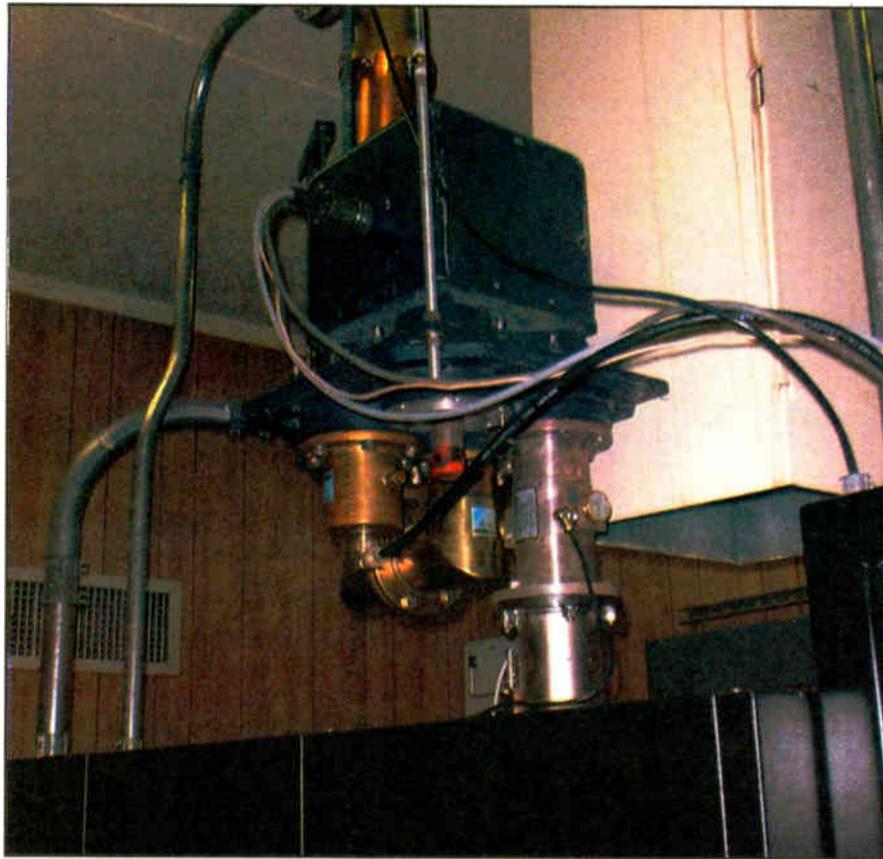
## Low power

Tests showed that the main coverage area in Prescott could be covered with the 30 watts provided by the exciter. We looked into putting in an independent low-power backup system, but the costs were still out of the allowed budget.

After discussions with management, the team decided to find a way to put the exciter on the air and provide AC power for it when the main power goes out. This function would have to be automatic; the studio is manned only during the day, and we all know that problems happen only when no one is around.

The first problem was to find a way to power the exciter and the remote control.

A small generator would work, but I wanted a maintenance-free system — a



A small coax switch changes the exciter RF output from the transmitter a 3-1/8-inch coax switch, which serves the antenna.

challenge in an environment of zero-degree nights and two feet of snow in winter. They don't always run when you need them to.

Broadcast engineering is my main business, but my wife and I also consult and sell products for solar electric systems for homes. One product we sell is the AC inverter line from Trace (now Xantrex). The company makes sizes from 500 watts

to 5 kW. These units are reliable and can run for years without being maintained. The inverter will switch automatically to its internal AC fast enough so equipment does not reset.

Backup power needs were figured to be no more than 300 watts, so a rather small unit could be used. A Trace DR1524 was selected for this project. It requires a 24-volt DC input and can provide just over 1 kilowatt of continuous AC power for as long as the batteries last.

It has a good onboard charger, so it has no need for outboard chargers and the associated wiring. The larger unit was selected to allow a larger backup transmitter in the future.

With a 300-watt estimated load, the inverter should draw a paltry 5 amps of DC from the batteries. Four 100-amp-hour, 12-volt Trojan sealed lead acid batteries were selected and would be installed in an all-metal NEMA cabinet.

With 200 amp hours of capacity, this would provide about 18 hours of runtime. Actual tests came out to 220 watts of AC load and the inverter drew a little

over 5 amps.

A large UPS was ruled out because the AC is a square wave rather than modified sine wave; run times are short; there is no control over the battery charger; and the Trace units have a history of long life without self-destructing.

The next problem: how to get the exciter to the antenna.

## Protection

Here is the design approach: When power fails, the inverter comes on and provides AC to the exciter and remote control. At the same time, a small coax switch changes the exciter RF output from the transmitter to a port on a 3-1/8-inch coax switch. The big switch flips over and puts the exciter RF into the antenna.

Special modifications were made to the inverter to provide logic control; when the power is lost, it tells the coax switches to change over. The "on" LED in the inverter is used to control an optocoupler that controls a relay circuit that mutes the exciter, changes both coax switches and unmutes the exciter after the switches have changed.

Interlocking is provided so the transmitter cannot go on the air when the coax switch has changed over to the exciter mode.

When AC power is restored to the building, the inverter delays for 30 seconds before it switches back to normal AC, the LED goes off and the circuit flips the coax switches back to normal. The delay allows for those five-second power dumps that are all too common.

Even though the circuit is automatic, we set up the Burk remote control to put the exciter on the air manually should the transmitter itself fail but the building still have power. Interlocks provide protection so the coax switch cannot be changed for any reason unless the plate voltage is off. The exciter coax switch changes during the time that the exciter is muted, so the RF output never runs into an open cable.

After four months of service, we've encountered no problems with this system. The "KISS" rule was incorporated throughout this project, and the owners of the station were happy with the coverage and the fact that no maintenance is needed.

With good scrounging skills, I was able to build and install this system for \$7,500. Even with a new 3-1/8-coax switch, a similar system could be installed for less than \$10,000.

Mark and Carol Hills own and operate Marca Electric. They provide contract audio, video and RF services to stations in the central Arizona area. Reach him at [marcaelectric@mwaz.com](mailto:marcaelectric@mwaz.com).



The Model DR1524 Trace unit requires a 24-volt DC input and can provide 1 kilowatt of continuous AC power.

## MARKET PLACE

### Statmon Touts IP for Facility Control

The Axxess product suite, made by Statmon Technologies, uses Internet Protocol for broadcast facility management, including transmitter and studio management and control, EAS remote operation and SNMP monitoring. It runs on an entry-level PC using Windows 2000 Professional.

Axxess allows automated operation in which event- and time-driven analysis can perform triage and provide corrective action. Unlimited channels of status, analog and control at each site are available.

Features include multisite capability; drill-down display; serial interface to most transmitters; Web compatibility; event logging; alarms management; cus-

tomization; virtual channels; and multi-user operation.

Events, log-ins, notes and analog readings are recorded in comma-delineated files that can be extracted to MS Access or Excel for graphing and trend analysis or time/date-stamped and printed for reports.

The alarm call management design lets the user identify major and minor alarms using color coding, set an alarm hierarchy and respond to a problem alarm rather than every alarm caused by the problem.

Contact the company in California at (310) 288-4580 or visit the company Web site at [www.statmon.com](http://www.statmon.com).



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# The Spot Player Wanted by Thousands of Jocks

Buttons auto-load from the log as spots end. At the end of a stop set, a jingle, liner, memo or CD title appears on the next line. It can auto-start if desired.

At the right, you get 20 sets of 20 Hot Buttons. They play jingles, beds, PSAs and comedy instantly. Hot Keys have labels that say what they play and countdowns until they end. You can stack Hot Buttons into mini-schedules for automatic sequencing.

Spot Box is complete. It comes with a production rack computer including "cart" recorder, multi-track editor, CD ripper and importer from most digital systems.

Several Spot Boxes can be networked together to play the same spots.

Scott also offers Hot Box, with 400 sets of 40 Instant Play buttons or Scott Studios' Music Box for music and spots from hard drive. Go to [www.SpotBox.Info](http://www.SpotBox.Info) on the Internet, call Scott toll-free for a free demonstration, or see it at the Seattle NAB Radio Show in Booth 801.

**Scott Studios**  
**888-GET-SCOTT**



Scott Studios' Spot Box is 10" x 13" size (the size of this tabloid page). Scott Studios' Spot Box is shown above at 75% of actual size. Start buttons are as wide as a quarter and as tall as a nickel.

Announcers want a way to play spots with the simplicity of carts, but without flutter, hiss, broken or missing tapes. Thousands of jocks are uncomfortable with computers, mice and keyboards in the air studio. Scott's new Spot Box is the answer: 40 buttons to instantly play commercials, jingles and sound effects. Spot Box buttons look like colorful 1-inch-wide LCD displays from cell phones.

Four buttons left to right show the sponsor name, end cue, length, voice, cut number and logged time for spots. The advertiser name is also on an LCD at the top of the unit.

Spot Box connects to your traffic computer and auto-loads logged recordings. Cuts can also load by 10-key or by name from alphabetical Cart Walls.

Traffic gets a report showing exact times, names and numbers for every aired spot. Most billing software can import this report for automatic affidavits.

Spots play to four separate console faders for perfect level control, or they can combine to one if desired.

A timer counts down as spots play. You start other cuts or use Scott's Cruise Control for an auto-start of the next spot from the log.

## Venture Capital: Tight But There

by Frank Montero

The major obstacle that most small and minority-owned broadcasters face in acquiring new radio stations is access to capital.

In an effort to facilitate access, over the last decade venture capital groups have formed and grown with the goal of making resources available to such businesses.

While this assessment rings true

today, it was actually the opening paragraph of an article I wrote for Radio World back in March of 1995, titled "Venture Capital Remains Feasible Option for Many."

Shortly thereafter, the Telecommunications Act of 1996 was signed into law and therein began one of the greatest feeding and consolidation frenzies in the history of the radio industry. However, the frenzy appears to be over and the market is trying to

recover from a recession and the effects of the Sept. 11 tragedies.

Increasingly once again, the investment environment for radio has tightened.

In a recent study released by the BIA Financial Network, "Radio Transactions 2001: Where Did All the Deals Go?" (RW, July 3), radio industry analyst Mark Fratrick writes, "With the pronounced slowdowns in the overall economy and especially in the advertising marketplace, radio station transaction activity came to a screeching stop in 2001. After several years of previously unimaginable numbers of stations sold for breathtaking prices, the number, and more significantly, the total value of radio stations that were sold in 2001 noticeably decreased."

At the same time, there has been talk on the street that venture capital, which was plentiful during the dot-com surge and in the aftermath of the '96 TC Act, has completely dried up.

### Looking up

Although consolidation and the slowing economy have decreased the number of radio transactions in the market, many small radio operators and analysts remain optimistic that there are opportunities for those who are prepared and informed about the strategies for obtaining capital. As such, the government and industry



A. Jerome Fowlkes

analysts recently set out to spread the word that the deals (and the capital) are still out there for those who are willing to look.

On May 2, the FCC's Office of Communications Business Opportunities, which is the office of the FCC charged with assisting and promoting opportunities for small businesses in broadcasting and telecommunications, held a Small Business Financing Seminar to put forth the word that many financing options remain available to small entrepreneurs looking to enter or grow in broadcasting and other communications industries.

The seminar comprised two panels, one featuring venture capitalists and

### Radio Reaches High Earners And Well-Educated

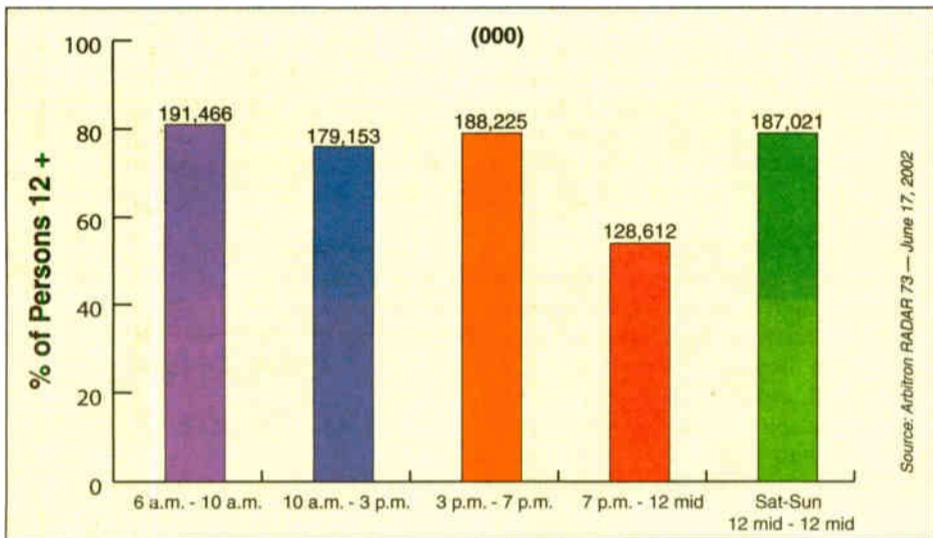
Radio held its own as a mainstay medium this past year. That's the word from RADAR, the radio network and national audience measurement service of Arbitron Inc.

Estimates reveal radio reached all demographics in all locations, both in and out of home.

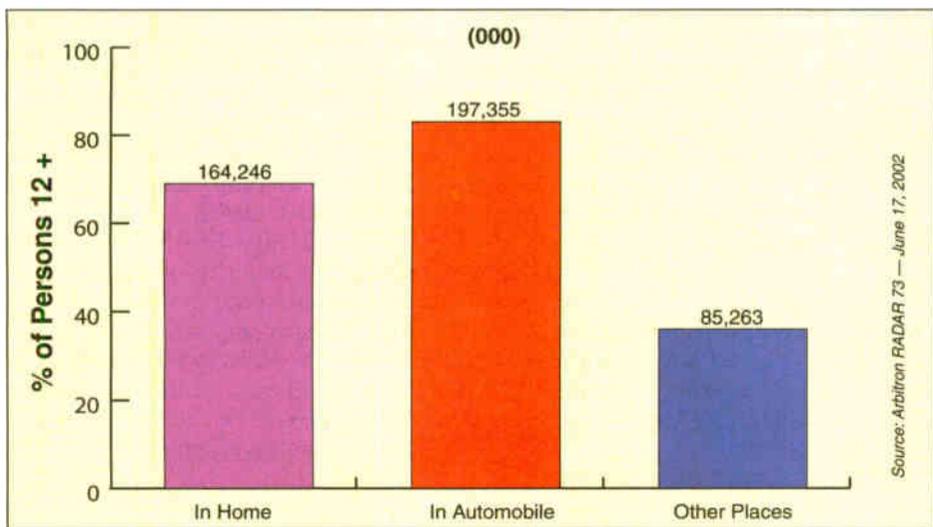
The RADAR 73 Radio Usage Report indicated that over the course of a typical week, radio reached 98 percent of adults 18-plus who hold professional/manageri-

al positions and who live in a household with an income of \$50,000 or more. Additionally, statistics show that 98 percent of college graduates listened to radio, while 93 percent of folks who did not go to college listened to radio over the course of a week.

Over the course of a week, radio reaches 226 million people, or 95 percent of all persons aged 12 and older. On weekends, 79 percent of persons 12-plus tune to radio.



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Radio Listening by Location

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PROMO POWER

# Is Your Brand Growing on the Web?

by Mark Lapidus

"I can't understand why our Web site traffic has leveled off," a general manager recently told me.

"In the beginning, we had great pageviews and unique users. Every month, we'd log more and more visitors. These days, our numbers seem to be completely flat or even down. Does the dot-com bust mean that radio station Web sites are over, too? I just don't feel the same way about the Internet that I did two years ago."

First, let's address the obvious.

## End in sight?

No, the dot-com bust doesn't mean the end for radio or anyone else in entertainment. It only means the end to bad business plans. All statistics indicate that actual Web site and e-mail traffic continues to rise.

Making money on Web traffic won't be the focus of this particular article; we can tackle that another time. Let's consider the content of radio station Web sites and how we continue to drive traffic.

Radio, television, newspapers and magazines have an enormous advantage

in building Web traffic. This advantage is two-fold: We have the ability to promote our sites for next to nothing; and we all already have content. Often this content must be repackaged, but at least it already exists.

**The dot-com bust doesn't mean the end for radio or anyone else in entertainment. It only means the end to bad business plans.**

This is the time when other businesses are struggling with their Web space, so we as an industry should leverage our advantage into becoming important Web brands in the minds of the consumer.

A radio station Web site must be more than just an online color brochure with a bunch of marketing messages. Sadly, this description covers many station sites.

A lot of time goes into the initial

design to make a site look great. But then somehow the ball gets dropped because too much consensus is required to make changes. What usually follows is a frustrated marketing director who realizes that she can't change the con-

tent, but does have the ability to alter what the site says about the station itself. In other words, she can change her marketing messages.

Changing these messages regularly is vital, but the content is the key thing that drives the use, which in turn gives us an audience to hit with our marketing messages.

The best analogy I can think of would be creating a radio station that played back-to-back promos and once in awhile tossed in a song — but that song would also be the same song.

So what can you do to not just maintain page views, but also increase traffic?

Make sure the content is great and refreshed daily. It's terrific if you have a dedicated Webmaster, but even if you just have a part-timer who can spend about an hour per day, he or she can make a significant difference.

If you have limited resources, take advantage of all the auto-refreshed content you can find. Several syndicators offer this type of content, which will change automatically with no effort on your part.

## Elements of success

The service elements you offer on the air should be reflected on your site. If you offer news, weather and traffic on the air, they must be on your site.

You can accomplish this by developing a relationship with your local TV stations and newspapers. Most have their own sites and are willing to push the content your way if you provide either links or a graphic indication that you get the content from them.

For traffic in a major city, take advantage of the cameras that the state or local transportation authority has installed around your area. Do this by building a page of links to all the cameras. When you aggregate the cameras on one page, you'll be providing something nobody else does.

A tip: Daily changes in your home page should be obvious. Users will often glance at a page to see if it has changed. If the art and layout look the same as it did during their last visit, they are unlikely to dig deep or come back often.

What else drives Web traffic? Once you've got the content right, on-air promotion becomes the key to success. You've got to have a lot of frequency of

## Web Site Content And Promotion

So now you've got great content and you're promoting your Web site on the air. What else can you do?

1.) Make sure your listing is coming up on the major Internet search engines. Don't forget Google and Metacrawler. You can do most of this work for free, simply by submitting or resubmitting your Web site(s).

2.) Find a few local Web site partners and exchange links. Again, check with TV and newspapers for partnerships and be sure to link to your sister radio stations.

3.) Include links back to your site from all the e-mail you send out — whether it's to listeners, clients or friends. When they get your e-mail, they're already online and a lot more likely to click through to your Web site.

mentions for your Web site to move the needle. I've been surprised at how low overall awareness is of station Web sites even among P-1 listeners.

To increase your frequency, make sure details about all of your events are on your Web site. All live reads about any event should end with: "Get details and directions at WXXX.com."

Every time you conduct an on-air contest, you should provide a Web component. In other words, after you've congratulated the winner of whatever CD you gave away, you can also say, "If you'd like to take another shot at winning, we're giving away the same CD online at WXXX.com."

Finally, generic co-branded announcements help, like, "It's today's country on WXXX and on WXXX.com."

First there was AM. Then FM. Sure, we can say satellite radio came next. But, let's not forget our own dot-com brand when we talk about innovation in radio.

Mark Lapidus is president, Lapidus Media. Reach him via e-mail to mark.lapidus@yahoo.com.

## Canadians Plan Trade Show

The Canadian Association of Broadcasters will hold its 76th annual convention with the theme "Broadcasting 2002 — Leadership Through Public Service," this fall.

The event will be held at the Vancouver Convention and Exhibition Centre in Vancouver, British Columbia, Oct. 20-22.

The CAB calls itself the collective voice of the majority of Canada's private radio and television stations, networks and specialty services. It develops strategic plans, works to improve the financial health of the industry, and promotes private broadcasting's role as Canada's leading programmer and local service provider.

For registration, visit [www.cab-acr.ca](http://www.cab-acr.ca) and click on the Broadcasting 2002 logo.



# Daily News

THE NAB RADIO SHOW

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Be sure to pick up your copy, distributed Thursday, Friday and Saturday, Sept. 12-14. Each issue will report on new technologies and products as well as everything that's happening on the exhibit floor and in the sessions. If it's show news, you'll find it in the NAB Radio Show Daily News.

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Maximize visibility and drive traffic to your booth by placing an ad in the official NAB Radio Show Daily News.

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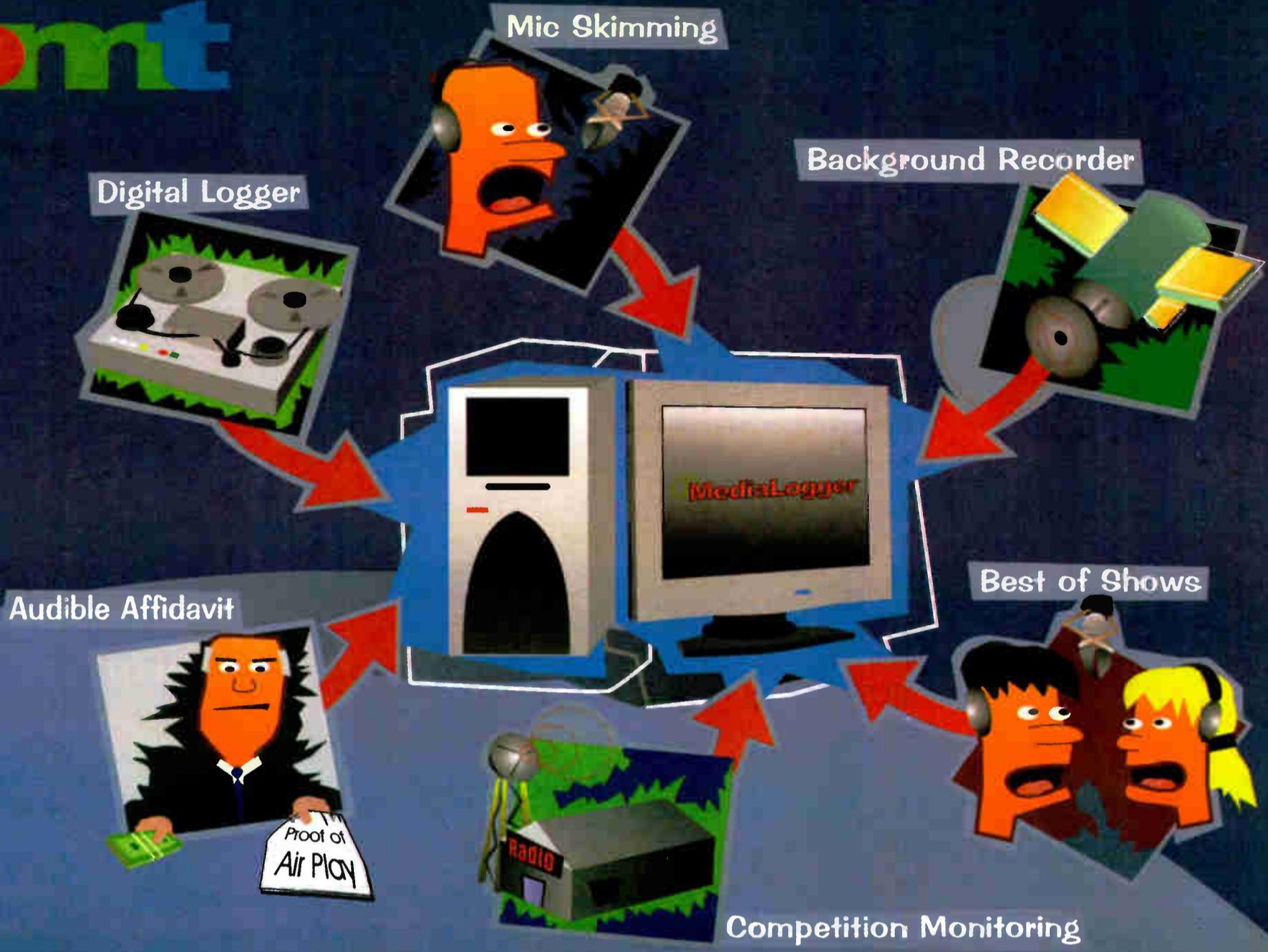
Either way, an advertisement in the NAB Radio Show Daily News reaches key decision makers at one of radio's biggest events of the year.

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For more information, contact Simone Fewell at 703-998-7600, x154 or [sfewell@imaspub.com](mailto:sfewell@imaspub.com).

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(ī-mē'dē-d-ə lô'gər) *definition:* The most complete, affordable, and easy-to-use automated audio recording solution available.

iMediaLogger frees you from the costly maintenance of conventional and outdated equipment used for logging, recording, and skimming including reel to reel, DAT, and VCR recorders with a single computer workstation.

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- access your recordings anytime, from anywhere using its built in web browser interface
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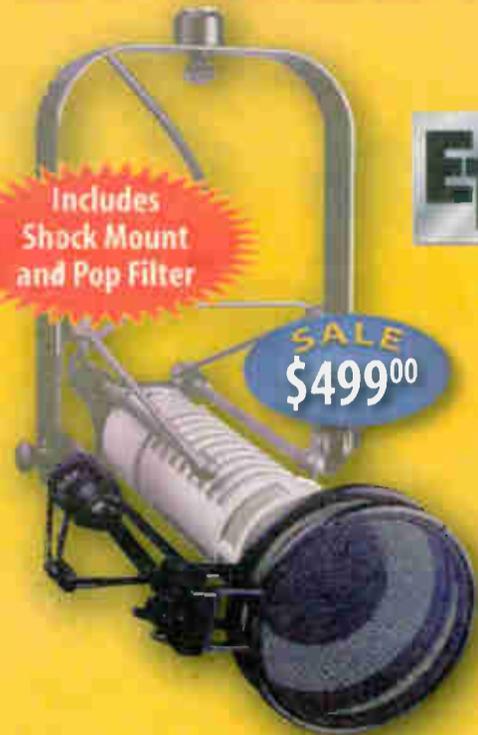


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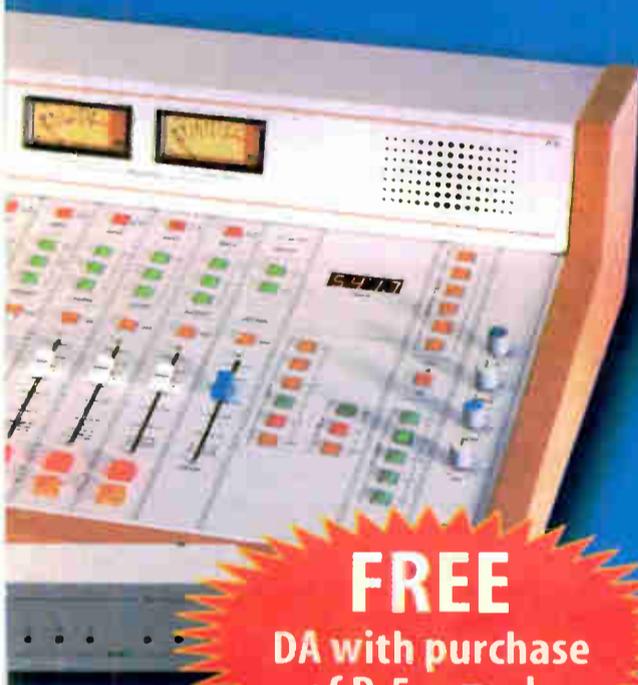
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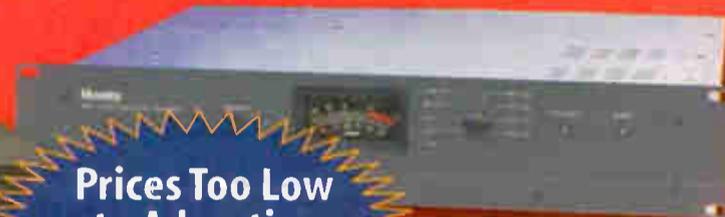
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## Venture Capital

► Continued from page 25

private capital fund representatives, another featuring government representatives. The program was designed to give entrepreneurs the opportunity to learn how to finance their businesses.

Without a doubt, the most interesting panel discussion at the FCC's seminar was made up of representatives of the venture capital community, including the Telecommunications Development Fund (TDF), BIA Financial Network, Syncom Management, Quality Management, Emerging Venture Network and Fairview Venture Management.

Speakers on the second panel included representatives from the Commerce Department, the FCC and the Small Business Administration, who described various governmental training and funding programs.

### Higher hurdles

Ed Shirley of Fairview Venture described his firm as a "fund of funds" which considers telecommunications and media as an attractive area for investment. However, he said, several trends have evolved in the venture capital market.

First, Shirley believes that the hurdles for entrepreneurs are higher than in the past because venture capitalists are forced to be pickier about their investments in today's recovering market.

That dynamic has led venture capi-

tal firms to be more aggressive and require more favorable terms in the deal than had been required during the boom market. Increasingly, according to Shirley, investments are being broken into stages that will be released only after the company has satisfied certain performance milestones. This keeps the entrepreneur on a short leash and puts the pressure on returns.

## Many financing options remain available to small entrepreneurs looking to enter or grow in broadcasting.

Shirley's advice for the entrepreneur is to look for a venture capital firm that brings more than just money to the table, such as core competencies that will add value to the deal and business.

Darrell Williams of the TDF, a \$50 million early-stage venture fund created by the Telecommunications Act of '96, echoed Shirley's observations.

Williams noted that VCs are not risk-takers, but "risk-managers." Whereas two years ago, an early-stage company could get two or three rounds of funding before having a "customer-

facing event," today, according to Williams, most venture funds would limit companies to a single round before they produced any revenue.

Also, most interestingly, Williams stated that if he were an entrepreneur, he would try virtually any other way to get money rather than going to a venture capital fund, the reason being that venture capital is very expensive

compared to other alternatives such as banks.

However, he urged entrepreneurs who did pursue venture capital to stay on it and not get discouraged by initial rejections.

"Stay in their face" was his advice and he admitted that he currently is looking at deals that initially had been turned down a few years ago.

It was also pointed out at the seminar that TDF maintains an excellent Web site at [www.idfund.com](http://www.idfund.com) with tutorials on how to prepare a business plan and how to make a presentation to a venture capital fund.

Such passion was also an important feature for Duane McKnight of Syncom who noted that his venture capital team will look hard at the management of the venture. Syncom, according to McKnight, is looking for "passionate leaders" who will grow the business.

In contrast, A. Jerome Fowlkes of BIA Financial Network, who has worked on several radio broadcasting transactions, noted that the independent thinking of many entrepreneurs can get them into trouble when it comes to getting financed. He identified mistakes that entrepreneurs frequently make, as noted in the sidebar box.

### Deals, dollars

The overall conclusion of the FCC seminar was that deals and money are available, but you have to look hard and be prepared.

In fact, Fowlkes recently authored a study, "Is There Money Out There?" in which he cites a 2002 Pricewaterhouse Coopers survey that found that nearly \$40 billion was invested by venture capital firms in 2001.

Although this number was a significant decrease from the nearly \$100 billion invested in 2000, it nonetheless represented \$306 million invested in the media and entertainment sector in the fourth quarter of 2001 and nearly \$2 billion that went into the media and entertainment industry during all of 2001.

Fowlkes' study notes that if you've listened to reports in the media over the last two years, you might believe that all the venture capital in the world has disappeared. However, statistics show that venture capital firms still make investments in broadcasting, although at a significantly slower rate

## Top Three Mistakes Entrepreneurs Make

According to A. Jerome Fowlkes of BIAfn, entrepreneurs tend to make several mistakes.

First, they frequently want to do it all themselves; in a complicated venture financing, that can be a recipe for disaster.

Second, entrepreneurs frequently wait too long before raising the necessary funds for an acquisition.

You cannot sign a purchase agreement for a radio station, which requires a closing in 60 to 90 days, and only then begin looking for the money. Preparation and review of the business plan, as well as setting up the initial meetings can all take 60 days even before any due diligence is done. Then the paperwork, negotiation and financing take additional time.

Last, entrepreneurs frequently lack a satisfactory exit strategy. This is something with which venture capitalists are always concerned. They want to know how they are going to get their money back with a proper rate of return on their investment.

than in the past.

In his study, Fowlkes reaffirms the points he made at the seminar by identifying four steps in getting access to those venture funding dollars.

First, you must start the fundraising process early. Second, don't go at it alone — assemble a qualified acquisition and fundraising team. Third, develop a comprehensive business plan and financial model. Last, understand the terms and conditions under which capital sources are investing.

To obtain a copy of Fowlkes' study, visit the BIA Web site at [www.bia.com](http://www.bia.com).

If you were unable to attend the FCC Small Business Financing Seminar but would like to know more, contact the FCC's Office of Communications Business Opportunities at (202) 418-0990, or watch an archived video of the entire seminar over the Internet at [www.fcc.gov/realaudio/publicforums.html](http://www.fcc.gov/realaudio/publicforums.html).

Frank Montero is a communications attorney with the Washington office of Shaw Pittman, LLP. He served as the director of the FCC's Office of Communications Business Opportunities and as the co-chair of the Federal Communications Bar Association's Transactional Practice Committee. Contact him at (202) 663-8936 or send e-mail to [frank.motero@shawpittman.com](mailto:frank.motero@shawpittman.com).

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## GUEST COMMENTARY

# McCain's 'Vanity Tax' Is a Bad Idea

by Stan Statham

With a great deal of fanfare and hosannas, a group of self-proclaimed political reformers led by maverick U.S. Sen. John McCain recently announced plans for a brand-new campaign fundraising scheme to impose on the American economy: The Politicians' Vanity Tax.

You didn't hear it phrased that way, but behind the good-government rhetoric underlying the unveiling of the Free Airtime Act is the fact that this legislation would saddle the American economy with a new tax expected to raise \$640 million over the next two years.

The Free Airtime Act is cloaked in the mantle of reform, but, in addition to a number of constitutional problems, its net effect would create a new entitlement: free political commercials, including distorted negative ads, on American radio and television stations.

As broadcasters, one would expect our industry to be opposed to this "free" airtime, since stations throughout the nation would be collecting this new tax for the politicians. We are certainly opposed to this plan, but not for the reasons the politicians will be telling the public.

## Not free

The hard reality is that consumers end up paying for these "free" ads. When broadcasters give away free commercial time to one advertiser, all the others have to make up that cost. The Free Airtime Act will increase the price for other advertisers, who aren't fortunate enough to be federal politicians, thereby driving up costs across our entire state's economy. That means consumers will end up paying more for their children's shoes, food at the supermarket and medicine at the pharmacy.

Furthermore, "free" airtime introduces a dangerous intrusion of govern-

ment into the checks and balances of the broadcasting community. If you like the idea of the government telling stations what you are allowed to watch or listen to in your living room, welcome to Iraq.

A complex formula will be used to calculate who gets time and in what amounts. For example, there are two U.S. senators and some 25 U.S. representatives (plus all the candidates who run against them) whose districts lie within the Los Angeles media market. Are listeners ready to be bombard-

**The Free Airtime Act is cloaked in the mantle of reform, but, in addition to constitutional problems, its net effect would create a new entitlement.**

ed with taxpayer-financed advertising from "unknown" candidates from all political parties when they can't even vote for over 99 percent of them? Although the proposed law would only apply to federal candidates for now, can free time for state and federal candidates be far behind?

McCain and his reform rough riders argue that the public is clamoring for this new subsidy and that stations should donate free airtime as a public service. However, poll after poll shows that consumers would prefer to get their information about political races from broadcast newscasts and candidate debates rather than 30-second commercials.

A survey conducted by national pollster Dick Wirthlin during the 1998 election cycle revealed that 45 percent of the public thought they were getting "just about the right amount" of political information from television broadcasts. While 15 percent thought there should be more, 38 percent thought there already is too much.

## New subsidy

The last industry survey revealed that American broadcast stations had given away \$148 million worth of time

through forums and debates during an election. That doesn't count the time politicians received on news broadcasts. Furthermore, politicians often turn down many more invitations for broadcast debates than they accept.

The politicians yearning for this new subsidy claim that radio and television stations are a scarce resource utilizing "public airwaves" and should be giving something back to their communities. Last year, radio and television broadcasters gave away \$9.9 billion worth of airtime to charitable causes and public service. Would an elected official take free time if they knew it was hurting the local cancer society, homeless shelter or the Big Brothers / Big

Sisters program?

And finally, McCain's proposal doesn't propose to put any limits on radio and television advertising. Viewers and listeners will see and hear all the commercials they can pay for — and all the free ones they are willing to pay for. Guess that's what you call a "win-win situation" — for the politicians, anyway.

In short, the Free Airtime Act is constitutionally dangerous, creates a bureaucratic nightmare of determining which politicians get the free airtime, solves a problem most voters don't think exists, takes away some of free time that now goes to local charities and costs the American consumer money.

That's enough "reform" for one day.

*The author is president and CEO of the California Broadcasters Association, representing the 763 radio and television stations in the state.*

*RW welcomes other points of view.*

## MAB Schedules Annual Summer Retreat and Meeting

There's a new venue for the Michigan Association of Broadcasters' annual meeting and management retreat. The summer event is scheduled for July 25-27 at the Soaring Eagle Resort in Mt. Pleasant.

Organizers have put together sessions, speakers and networking opportunities for attendees along with a banquet featuring the 2002 inductions into the Michigan Broadcasting Hall of Fame.

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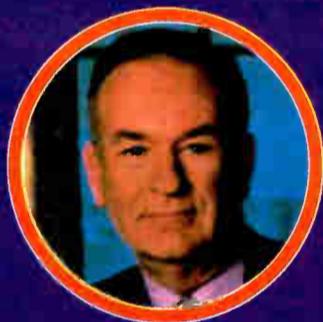
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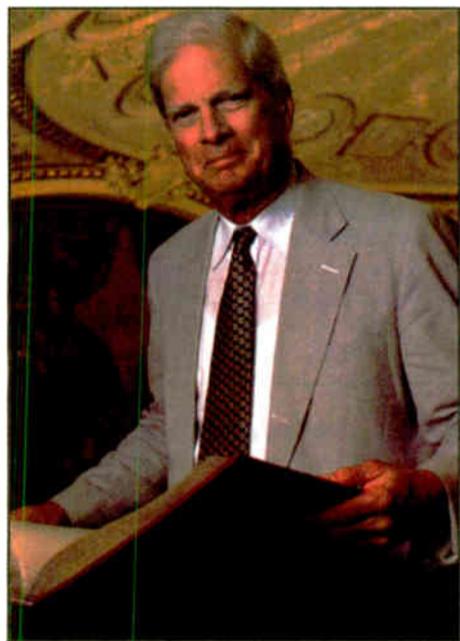
July 17, 2002

## Net Music Rates Firmly Set, for Now

by Craig Johnston

Web Watcher and the rest of Internet radio sat rapt by our PCs on June 21, awaiting Librarian of Congress James Billington's announcement of his determination of the copyright royalties to be paid by Internet radio for music streamed over the Web. A month earlier, Billington rejected rates suggested by the Copyright Arbitration Royalty Panel he had formed.

At precisely the close of business that day, the announcement appeared on the U.S. Copyright Office's Web site.



Librarian of Congress  
James Billington

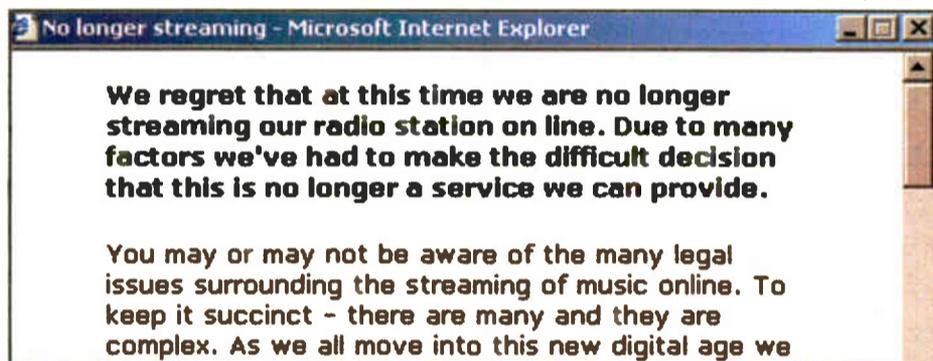
For Internet-only stations, the Librarian's determination was a victory, of sorts: Their fees were halved to the same level the CARP had set for terrestrial radio stations simulcasting their over-the-air signal on the Web. For both, the rates now are set at seven-hundredths of one cent, per song per listener.

Reaction from the National Association of Broadcasters was unambiguous.

"The Librarian's decision places a prohibitive financial burden on radio station streaming, and will likely result in the termination of this fledgling service to listeners. It also perpetuates the hoax that the Copyright Arbitration Royalty Panel process reflects marketplace reality," stated NAB CEO Eddie Fritts.

### Not happy

On the other side, the Recording Industry of America Association, which felt the CARP's originally suggested rates were too low, was not happy with the Librarian's reduction Internet-only rates.



Online visitors to the site of Entercom's Seattle station KIRO(AM) received this notification that streaming had stopped.

"The import of this decision is that artists and record labels will subsidize the Webcasting businesses of multibillion dollar companies like Yahoo, AOL, RealNetworks and Viacom," stated RIAA President Cary Sherman.

In the explanation of his determination of royalty rates, the Librarian said he was constrained by law from rejecting CARP recommendations unless they are arbitrary or contrary to the applicable provisions of the copyright law.

Suggesting that the law itself may be the problem, U.S. Reps. Jay Inslee, D-Wash., and Rick Boucher, D-Va.,



who were critical of the original CARP decision, said they are considering legislative action.

"Unfortunately, these rates are a direct result of the flawed 'willing-buyer/willing-seller' standard that Congress mandated the Librarian of Congress use in determining these rates," the congressmen stated. "Instead of assessing a fair

rate, the flawed standard instead requires the arbitrators to try to replicate willing buyers and willing sellers in an already flawed marketplace."

Web Watcher thinks the Librarian's announcement is only a middle round in a heavyweight fight that will likely go the distance.

At least one of radio's giants didn't wait for the Librarian's announcement. At the end of May, Entercom Communications Corp. announced it was silencing the last of its station's Internet streams.

"We regret that at this time we are no

See WEB WATCH, page 36 ▶

## Live365.com Prepping To Weather The Changes

by Steve Sullivan

John Jeffrey was not a happy man on the evening of June 20. That afternoon, the Librarian of Congress delivered his final determination on Webcasting royalties. (See story at left.)



John Jeffrey

Jeffrey is executive vice president for strategy and general counsel for Live365.com, an Internet radio station aggregator network. It launched in July 1999, carrying 350 stations. By June 2002, the network boasted upward of 45,000 stations, and was the top-ranked network in Aribtron's Webcast Ratings with more than 8 million aggregate tuning hours as of this past April.

But on June 20, Jeffrey was less

See LIVE365, page 38 ▶

# Olympic Gold

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World Radio History

**MeasureCast: More Web Radio Listeners, Fewer Online Stations**

The May MeasureCast Internet Radio Numbers show a boost in Webcast listeners. Four-point-three million people listened to Webcasters measured by MeasureCast. That's up from 3.9 million in April. The increase is despite a drop in Internet radio stations; MeasureCast measured 1,294 stations in May, down from 1,351 in April and 1,414 stations in March.

According to MeasureCast CEO Ed Hardy, "Consumer interest in and demand for Internet radio continues to grow. During the past 17 months, we have seen only two months during which the total number of hours streamed by Webcasters has dropped."

A total of 38 million hours of programming was streamed in May, up from numbers in both April and March.

The Clear Channel Worldwide network, made up of 199 streaming AM and FM stations, delivered 7.3 million hours of entertainment, making it the leading Internet radio network measured by MeasureCast.

**THE MEASURECAST TOP 10 INTERNET RADIO NETWORKS MAY 2002**

Rank	Network	URL	Total TSL <sup>1</sup> (in hours)	Cume Persons <sup>2</sup>
1	Clear Channel Worldwide	www.clearchannel.com	7,310,581	853,872
2	Radio Free Virgin	www.radiofreevirgin.com	3,714,258	560,027
3	Warp Radio	www.warpradio.com	3,180,325	391,089
4	Stream Audio	www.streamaudio.com	2,425,773	282,016
5	Virgin Radio	www.virginradio.co.uk	2,150,722	285,730
6	Internet Radio Inc.	www.internetradioinc.com	2,082,426	569,589
7	SurferNetwork	www.surfernework.com	1,381,111	110,936
8	New York Times - WQXR	www.wqxr.com/cgi-bin/iowa/index.html	915,629	89,668
9	Standard Broadcasting	No web site	748,303	59,320
10	Public Interactive	www.publicinteractive.com	680,226	125,261

**THE MEASURECAST TOP 10 INTERNET RADIO STATIONS MAY 2002**

Rank	Station	Format	Owner/Network	URL	Total TSL (in hours)	Cume Persons <sup>2</sup>
1	Virgin Radio/1215 AM & 105.8 FM (London, UK)	Hot Adult Contemporary	Virgin Radio New Media	www.virginradio.co.uk	1,589,396	201,240
2	JazzFM/102.2 FM & 100.4 FM (London)	Jazz	Clear Channel World Wide	www.jazzfm.com	1,226,769	229,363
3	WQXR-FM/96.3 (New York)	Classical	New York Times	www.wqxr.com	915,629	89,668
4	KING-FM/98.1 (Seattle)	Classical	Classic Radio Inc. Real Broadcast Networks	www.king.org	585,532	69,689
5	KNAC.COM (Internet-only)	Pure Rock	KNAC.COM	www.knac.com	401,684	49,870
6	WBLS-FM/107.5 (New York)	Hip Hop	Inner City Broadcasting / BroadcastURBAN.com	www.wbbs.com	355,289	28,863
7	3WK Undergroundradio (Internet-only)	Alternative Rock	3WK	www.3wk.com	326,748	68,840
8	Radio Margaritaville (Internet-only)	Classic Rock	Radio Margaritaville	www.radiomargaritaville.com	293,385	40,807
9	WXPB-FM/88.5 (Philadelphia)	Adult Album Alternative	University of Pennsylvania	www.xpn.org	285,977	20,965
10	radioio (Internet-only)	Adult Alternative	radioio.com	www.radioio.com	284,313	69,362

**Notes:**

1. Total TSL (Total Time Spent Listening) is the total number of hours streamed by the broadcaster in the reported time period.
2. Cume Persons is an estimate of the total number of unique listeners who had one or more listening sessions lasting five minutes or longer during the reported time period. This estimate is derived using an algorithm that takes into account unique media player GUIDs, unique IP addresses, and other variables during the reported time period.



**About MeasureCast, Inc.**

MeasureCast, Inc. is the first company to provide Internet broadcasters, advertisers, and media buyers with true third-party audience size and demographic information with the MeasureCast Streaming Audience Measurement Service™. MeasureCast employs patent-pending Active Event Monitoring™, a unique server-side technology, to record the exact number of streams requested from Internet broadcasters' streaming servers. Accurate, secure reports are available to customers within 24 hours of a webcast via a password protected web site. MeasureCast supports Microsoft Windows Media Technologies, RealNetworks RealSystem servers and other proprietary streaming technologies. MeasureCast products and services are available through its direct sales force, and through Nielsen Media Research as part of a strategic partnership with Nielsen Media Research and NetRatings. MeasureCast issues a weekly MeasureCast Top 25™ ranking of Internet radio broadcasters, a weekly MeasureCast Internet Radio Index™, which tracks the growth of on-line radio listening, and a monthly Top 50 ranking of Internet radio broadcasters. For additional information and a demonstration, visit [www.measurecast.com](http://www.measurecast.com). Corporate headquarters is located at 921 SW Washington St., Suite 800, Portland, Oregon 97205.

**Jazz Makes Impact in Arbitron Web Numbers**

Online listeners apparently are hungry for jazz.

Four jazz stations appear among the top 25 Web channels in Arbitron's Webcast ratings for the month of May. They are Jazz FM UK, KPLU-Jazz, JazzRadio.net and KKSJ-FM.

Jazz FM UK was ranked No. 2, KPLU-Jazz was No. 5. New on the list was JazzRadio.net at No. 18. Virgin Radio maintained its top channel ratings spot. New to the Webcast channel ratings was Radioio at number 10. Live365 remains the top network; Clear Channel Worldwide ranked second.

**ARBITRON WEBCAST CHANNEL TOP 10 RATINGS REPORT MAY 2002**

Channel	URL (Corporate Affiliate)	Format	ATH
1 Virgin Radio	www.virginradio.co.uk (SMG plc)	Hot Adult Contemporary	1,321,500
2 Jazz FM UK	www.jazzfm.com (Clear Channel Worldwide)	Jazz	927,800
3 WQXR-FM	www.wqxr.com (New York Times)	Classical	819,400
4 KING-FM	www.king.org (Classic Radio, Inc.)	Classical	593,800
5 KPLU - Jazz	www.kplu.org (Pacific Lutheran University)	Jazz	413,500
6 Radio Margaritaville	www.radiomargaritaville.com (Radio Margaritaville, LLC)	Adult Contemporary	359,000
7 KNAC.COM	www.knac.com (KNAC.COM)	Album Oriented Rock	339,900
8 Ministry of Sound	www.ministryofsound.com (Ministry of Sound)	Electronica	266,100
9 WHZZ-FM	www.z100.com (Clear Channel Worldwide)	Contemporary Hit Radio	263,000
10 Radioio	www.radioio.com (Radioio.com)	Album Adult Alternative	260,800



**Web Watch**

► Continued from page 35

longer streaming our radio station online," read the announcement on Entercom's Seattle talk radio KIRO(AM)'s Web site. "Due to many factors we've had to make the difficult decision that this is no longer a service we can provide."

While the then-unknown copyright royalty rate for music streamed over the Internet was a factor in Entercom's decision, the company's director of Internet operations, Amy Van Hook, told Web Watcher there were other considerations.

**Other factors**

"A lot of the other factors were the reporting requirements, and what they were going to be," she said.

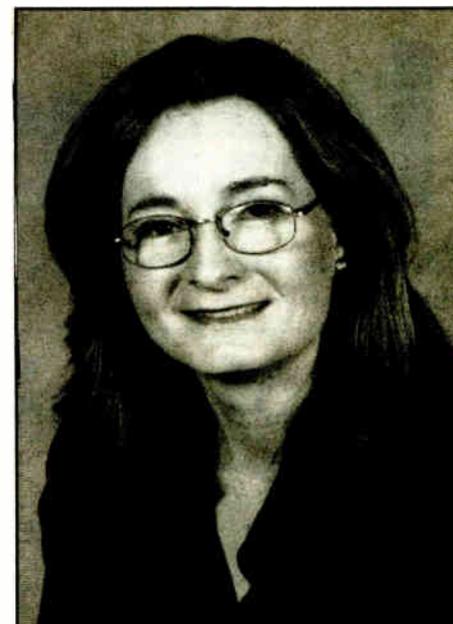
Van Hook also cited the constraints of the Digital Millennium Copyright Act.

"In order to operate under the compulsory license, you had to meet certain criteria of the DMCA: things like not announcing upcoming songs, or telling when a song is going to be played."

She said those rules interfered with programming of Entercom's over-the-air stations.

Entercom stations continue to operate its Web sites, and Van Hook looks forward to the day it can return its streams to the Internet. "We certainly hope that this is temporary."

Even as Entercom and others took their streams down from the Net this spring, Web listenership continued to grow.



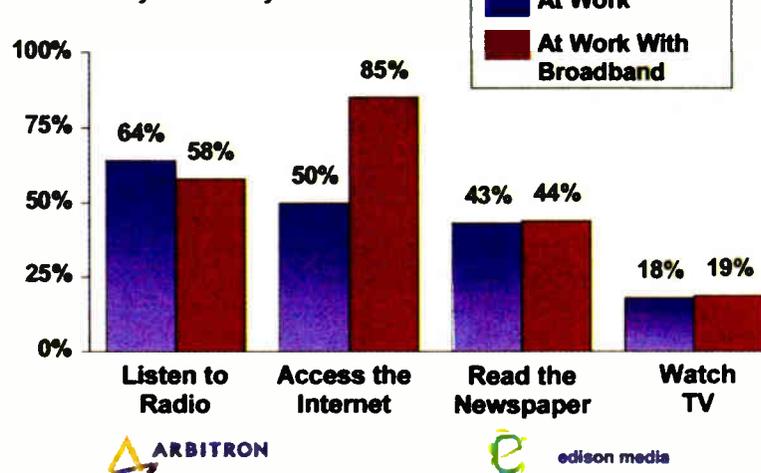
Arbitron's Joan FitzGerald told Ad-Tech attendees she sees advertiser-supported Internet radio becoming a viable business.

350 ad agencies with Webcasting 101, a roadshow to familiarize agencies with the audiences available from Internet radio. In late June, the research company gave its presentation at the Ad-Tech convention in Los Angeles. Among the headlined topics was the Arbitron/Edison Media Research's "Internet 8 Study: Advertising vs. Subscription — Which Streaming Model Will Win?"

Joan FitzGerald, director of marketing and business development, Arbitron Webcast Services, sees multiple streaming media business models winning on the Internet.

**Which Is King Of Media At Work?**

"At work do you currently ever..."



A recent study shows changing media habits at work as broadband connections become available.

MeasureCast Inc.'s number of stations measured fell from 1,351 to 1,294 from April to May, but the number of listeners climbed from 3.9 million to 4.3 million. (See chart, left.) MeasureCast also reported the total number of hours of listening grew from 34 million to 38 million over the same period.

Arbitron Inc.'s May survey had four jazz stations in the Top 25 lineup, with Clear Channel Worldwide's Jazz FM UK occupying the second spot, and Berlin's JazzRadio.net entering the top 25 at the 18th position. (See chart at left.) JazzRadio is a top-rated FM broadcaster in Berlin, with satellite signal distribution to cable systems throughout much of the world.

This spring, Arbitron has presented

"If you look at the cable industry, they have a variety of business models that bring in revenue," FitzGerald told Web Watcher. "And I think that's probably what you're going to see on the Internet as well, a variety of business models, including possibly e-commerce, at some point, making the Internet a viable business opportunity, for music, for entertainment content."

While the Internet 8 study found many consumers willing to pay a small fee for subscription services, FitzGerald also sees a path to success for advertiser-supported Internet radio.

"Each research study that we do shows that more and more Americans have tried streaming media, so these

See WEB WATCH, page 37 ►

## Web Watch

► Continued from page 36

audiences can get very large. And when they do, advertising will become a viable business model."

Arbitron and Edison have focused particularly on the effect broadband access has on an individual's media habits.

"Once you give the person at work broadband, they tend to use more Internet," said FitzGerald. "That all the sudden becomes the king of media at work." (See accompanying chart.) As broadband penetrates more and more homes, she see similar changes in at-home media habits.

Four consultants from McKinsey & Co., a management consulting company, beg to differ with Arbitron about whether broadband will be the savior of advertiser-supported streaming media.



Mark Kersey

Joseph Berchtold, Jeffrey Grass, Bonnie M. Johnson and Elizabeth Stephenson, writing an article titled "Can Broadband Save Internet Media?" in The McKinsey Quarterly, predict ad-supported Internet streaming "won't see sufficient increases in ad revenue to cover production costs. Moreover, variable costs such as marketing and streaming will rise with the number of users.

"A few businesses built around ad sales — those with inherently low content, marketing, or delivery costs or with a strong attraction for hard-to-reach niche consumers — may be able to make it. But the implications for the rest of the Internet media sector are clear: Forget about supporting yourselves with advertising revenues."

For those who do feel broadband can ride to Internet radio's rescue, the question may be whether the cavalry will arrive in time. Web Watcher is enough of a cheapskate to understand that if the price of something goes up, people like him are less likely to buy it. So the latest report from ARS Inc. on consumer broadband pricing gives pause.

ARS found cable broadband Internet service prices rose 4 percent in the first quarter of 2002, from an average of \$43.21 per month in December, to an average of \$44.95 per month in March. Basic ADSL (Asymmetric Digital Subscriber Line) monthly prices increased 1.4 percent over the same time period, from an average of \$51.09 in December, to an average of \$51.82 in March.

ARS Broadband and Cable Industry Analyst Mark Kersey told Web Watcher he's already seeing a slowdown in con-

sumer adoption of broadband.

For the first quarter of 2002, "as monthly prices continued to rise, subscriber growth fell to its lowest level ever on a percentage basis, increasing by just 12 percent from the fourth quarter of 2001. Contrast that with 24-percent growth from the fourth quarter of 2000 to the first quarter of 2001, the year-earlier period, or the 15 percent growth from the third quarter of 2001 to the fourth quarter, the quarter-earlier period."

Kersey said the broadband price increases aren't causing much churn from existing broadband customers. This seems to be in synch with another finding in the Arbitron/Edison Web studies: When consumers get broadband and find out what they can do with it, they love it.

Finally, as advertiser-supported Internet radio operators feel beaten up by

the recent down ad market as well as copyright royalty uncertainties, they can take solace in the knowledge that all is not going well for some Internet music subscription download operations backed by labels either.

### Luring customers

Sony Music Entertainment and Universal Music Group have been retooling their music subscription and download offerings to attract customers. The two labels are addressing both price and breadth of offerings.

The problem the labels face in their on-line offerings is that they're competing with the illegal file sharing sites that make available an essentially unlimited catalog of music for nothing or next to nothing. Despite the Recording Industry Association of America's aggressive

efforts to shut these pirate services down, their results remind Web Watcher of a Whac-A-Mole arcade game: You smack one of the critters with the bat only to see two more spring up.

Universal Music Group is making tens of thousands of songs available for download this summer at 99 cents a song or \$9.99 per album, and giving the customer the opportunity to transfer the downloaded music for playback on a portable devices such as MP3 players.

Sony Music, which has offered music downloads for several years, dropped its price per song from \$1.99 to \$1.49. The other major labels are in the midst of making their own changes as well.

*Craig Johnston is a Seattle-based Internet and Multimedia developer who is a frequent contributor to RW. Reach him via e-mail to [craig@craigjohnston.com](mailto:craig@craigjohnston.com).*

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# Live365

► Continued from page 35

concerned about whether they would remain atop the rankings than he was about whether it would survive at all.

The final determination — Webcasters would be required to pay seven-hundredths of one cent per performance per listener — didn't present the worst-case scenario for Jeffrey and Live365. The Librarian could have stayed with the rate of fourteen-hundredths of one cent per performance per listener that the Copyright Arbitration Royalties Panel (CARP) had recommended earlier this year. Or HE could have increased the fee. Either of those results might have spelled instant doom for the service.

While not doomed, Live365 was definitely wounded by the ruling. And the nimble Jeffrey was preparing to yet again tweak his company's strategy.

Since Radio World spoke to Jeffrey in May 2001, much has changed. While he calls the royalty issue the "elephant in the living room" for the past year, it's hardly the only obstacle the company has faced.

Live365 has weathered a soured economy, a slowdown in technological development and staff cutbacks. In other words, Jeffrey has had to do some tweaking before.

**RW:** What's your reaction to the final determination?

**Jeffrey:** We're very disappointed by the ruling. This is a victory for the big companies, not the small ones. If we can revise our business so that it's not dependent on those small businesses to flourish, then we might be able to succeed.

Back in March, we filed a separate petition and a reply to the copyright holders' petition. We requested and pointed evidence out that said if there was a percentage of revenue as an alternative mechanism to measure the royalty, then we believe that would be a fair way of looking at it and that would allow businesses like ours to grow.

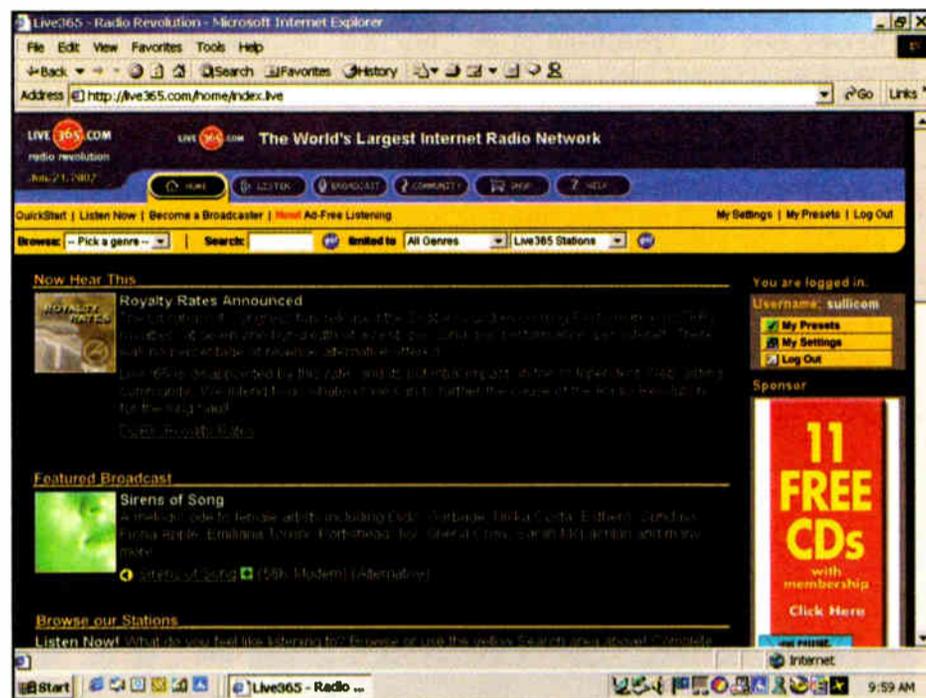
We thought it was fair because that's the way other royalties for sound recording performances are paid throughout the world. And that's the way the similar songwriters' copyright royalties are paid through ASCAP, BMI and SESAC.

But they decided to stay with a performance rate, although cut in half to put us at the same level as terrestrial stations that rebroadcast on the Internet. We saved a million bucks by having the rate cut in half. But on a going-forward basis, it's pretty problematic for us. Now it's going to take us significantly longer to reach break-even.

**RW:** When will that break-even point be here?

**Jeffrey:** We have some rough calculations. It's going to be dependent on some newer revenue streams. We can't exist with the same model and hope that it will all come around.

We have to work on new approaches to making money for the business. We'll have to revitalize our view of how the business works.



The Live365 site told visitors about the Librarian's ruling.

**RW:** Any danger of your investors backing out?

**Jeffrey:** We spoke to the investors right after the decision. They've indicated their intent to move forward, to pay the back royalty and proceed forward as a business.

But I can assure you that they will have a great deal of say in what those revenue models we're building will look like and how fast we'll approach our growth now.

One thing we've been very lucky about is that we had a good vision that we had to be a business. If we hadn't had that, we wouldn't be here. We've had a lot of patience from our investors. And we're hoping for more patience.

**RW:** What things will you do differently right away?

**Jeffrey:** The immediate impact will be felt by the broadcasters who use our back end. They'll be paying higher fees. They'll be paying this royalty administration fee. As a business, we'll have to pass through some of these costs to the users of the service or we won't be able to move forward.

One of the things we'll do is look through the content and make sure we keep as wide a variety as we can. If you

look at it from the dark perspective, Live365 might end up being the winner. That's because if we're able to survive this and move the business forward to profitability, it's very likely that we'll be on the side of it that will be successful.

**RW:** Were you making money?

**Jeffrey:** Advertising has gone from a trickle of a few thousand dollars per month a year ago to where we're predict-

that's been available on Internet radio.

**RW:** What do you think the impact will be on your listenership?

**Jeffrey:** It will affect our ATH as soon as some of our broadcasters go off the directories. We've been growing at a pace of around 12 percent per month for the past two years. We have to look very closely at that to see if that's the right way to go now. We've not retarded growth, but we have not marketed through this entire upswing.

I believe we could have twice as many people listen to Live365 today if we hadn't been afraid of what the royalty might have been. We've got to look very carefully at how we grow and whether we're able to monetize each of the users of the service along the path. We can't just blindly grow and hope the advertising dollars and the other potential revenue streams will just be there.

**RW:** It seems you're always having to drastically rethink your company's strategy. Do you ever regret getting into this?

**Jeffrey:** I came here in July 1999 when the service started. It looked like a fantastic business opportunity then. Today, it still looks like a very good business opportunity. But I would have never believed that the thing that might have challenged the ability of the business to go forward would have been the uncertainty.

In the Digital Millennium Copyright Act, when it was passed by Congress, one of the good things that came out of it was the compulsory license. It really looked like an opportunity to build a business around good congressional intent. They wanted you to be able to use music in a way that would allow you to build a business.

We built a business around that business model. We didn't predict that the bureaucracy would tie it up until now,

ing \$70 to \$75,000 for the month of June. It had been on a sharp curve recently.

A year ago, there was no or very little revenue on the professional side or the personal broadcasting side. Now we've been bringing in upwards of \$45,000. We have hundreds of professional broadcasters now. They're corporations, churches, political groups, city governments and

**We saved a million bucks by having the rate cut in half. But on a going-forward basis, (the decision) is pretty problematic for us.**

— John Jeffrey

individuals who are creating small businesses. They use our professional services. They're able to put their own ads in and leave ads out and provide an experience for their own Web site. They can do things we wouldn't let one of our amateur broadcasters do.

**RW:** Any guess at how many of your stations will go silent?

**Jeffrey:** No. We'll be adding a royalty administration fee that will affect every one of our broadcasters, including some of our founding broadcasters who are still using the service for free. We expect some of them will no longer broadcast. On the professional side, we anticipate that this will be devastating to many of the broadcasters that are trying to operate or build new businesses on the Internet.

We think the real losers are going to be the consumers. They'll lose the breadth

and that only now would we get a decision. And will this decision be final? There will still be an appeal to Congress to repeal the law. And there's a new CARP that starts in January. So it's going to be another year before we know if this is going to be the real royalty rate and whether this is the real rate we should be putting into our business model.

If I have any regrets, it's that I would have predicted that and made a better choice.

I don't think Live365 a year from now will look like Live365 looks today. It's definitely going to be a work in progress for a while.

Writer Steve Sullivan listens to Big Bob's Barndance and the Gregorian Chant channels on Live365. He is executive news editor for multimedia at The Baltimore Sun and a co-founder of the Advanced Interactive Media Group, LLC.

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# Find and Keep Your Web Expert

by Lisa M. Osborn

A talented Web expert on your team is critical in today's competitive digital media environment. With growing responsibility for broadcasters' sites to not only pay for themselves, but also to become money-making ventures, station Webmasters are under a lot of pressure.

"A couple years ago, in the dot-com heyday, our stations couldn't find a Web expert to save their lives," said Terri Simpson, vice president of affiliate relations at LMiV. Today, technical talent is available, but first determine the specific skills you need in a Web expert before conducting a job search.

"If you already have someone on staff who has been developing the Web site, perhaps it would more useful to bring in someone new as a content editor or administrator," Simpson said.

## Go-between

This person would be the liaison between station departments and the Webmaster, finding out what is needed and getting the content together.

When KCBS — Los Angeles radio station Arrow FM — launched its first Web site back in 1994, the station's morning show producer became the first Webmaster. But Dave Van Dyke, who was general manager of the Infinity property at the time, said station experience is not a critical component for a Webmaster to do a good job.

The employee does, however, "need to know enough about the station to be able to communicate its personality onto the Web site. And that has to do with artistic capability."

Peggy Miles, president of Intervox Communications, a digital broadcasting consulting company.

"The Web expert, if qualified, should report to the GM and be accountable for their efforts with revenue or ratings goals set on exposure, profitability or media value."



Peggy Miles testified on Webcasting issues before Congress in 2000.

The pay scale of radio Web experts can vary greatly, depending upon whether the person shoulders profit and loss responsibilities for the site, or if she is going out on sales calls with account executives.

If so, Miles suggests a salary that's a cross between a promotion director and

keting integration," said Miles.

"That means the qualities include a personable sales or promotions type who can put together exciting sales and promotion packages for their Web site. Once that is accomplished, the technical expertise can be hired from anywhere for a very economical fee."

LMiV's Simpson suggests stations may find it hard to attract good talent because no career path is established inside a radio station. "Where do they enter and where do they go?"

One factor that can go a long way in keeping a good Web expert on staff is to help that person have value and growth inside the station, Simpson said. Treat the Web expert with respect and not "as a doormat," which can sometimes happen due to the high-pressure nature of the job.

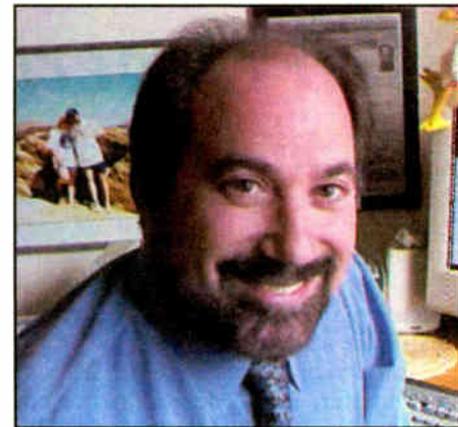
Station staffers can be taught basic Web site building skills to take some of the pressure off the Web expert, enabling staffers to update the site in an urgent situation. In fact, Miles said no one in the station should be exempt from learning these basic skills.

## Monthly mandatory meeting

"Set up a monthly mandatory meeting for a department or the station to learn things like simple HTML, FTP, e-mail etiquette and Web site updating. The GM needs to dictate that this is not something that only the secretaries do — or that people with egos can get away with missing the meetings. It is a necessity of their jobs if they wish to show that they believe in the station," said Miles.

"Every person who is a contributor to on-air programming should contribute to the Web site," said Simpson, who recommends using simplified Web publishing tools that make getting something on the Web site as easy as putting something on the air.

Her affiliate stations have been



Dave Van Dyke

working with the Digital Station 2.0 content management system and Development Toolkit, which allows them to build their sites using simple products like Front Page and Dream Weaver. If your Web expert oversees multiple sites, a critical component to success is incorporating simple tools such as these.

"A Webmaster simply can not respond to five or more stations in real time," said Simpson.

While Van Dyke disagrees with the cookie-cutter approach to building a Web site, he does believe in encouraging station staff to contribute to the site.

In *Arrowfm.com's* case, several members of its on-air team were able to leverage their relationships with musical artists, landing interviews with stars like Pat Benatar and Stevie Nicks on their site.

A good consultant can fill in the gaps that an in-house person is not able to provide. However, Miles says bringing in someone with a broadcasting background and at least fundamental Internet experience is an important factor.

"Look for a consultant with a proven track record of increasing ratings, revenues or media value in the local or national marketplace," said Miles.

Van Dyke said stations should look to a consultant to provide general guidance and information on the latest

See WEB EXPERT, page 40 ▶



Terri Simpson

Another desirable skill, besides the ability to write HTML and other languages that make sites come alive, is experience in database technologies and mass e-mail programs.

Van Dyke said this individual should "exhibit a passion for this job. They need to have a desire to be involved with every aspect of the station."

Passion and interest in creating and maintaining a successful Web presence need to come from the top and filter down through all ranks at the station.

"Without the general manager's sign off and belief in the site, and setting goals, the Web site can stagnate," said

a sales executive's salary/commission.

Where the Web expert is focused solely on the programming aspect of the site, from writing basic HTML to more sophisticated languages, salaries vary greatly, ranging from \$20,000 to \$70,000 annually, depending on the individual's level of expertise and size of market.

Van Dyke said a qualified Web professional can be hired in Los Angeles at a salary of \$40,000 to \$50,000.

"The best Web expert should think of Web activities as a business — a balance of sales to marketing, to exposure and direct marketing and database mar-

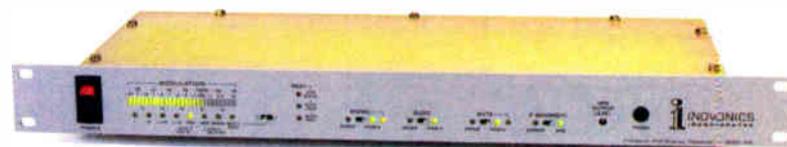
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# Web Expert

► Continued from page 39

Internet trends. "They have a much higher vantage point to be able to see trends and suggest things that are working in other markets," but, he warns, even the best Web consultant can't substitute for having good Web talent inside the station.

Van Dyke, who left KCBS last summer to start RadioMentor Inc., a consulting firm for general managers, hired Intervox's Peggy Miles to set up structure at *Arrowfm.com*.

"Peggy provided guidance in terms of interactivity and the kinds of content that would make (*arrowfm.com*) more interesting. We knew from the

beginning that the site had to be alive and needed to be updated at least twice a day or more. People throw out a newspaper or magazine because it's

expert can lend expertise into the cost and which are the best technologies associated with streaming process.

While wearing many hats, station

## Station staffers can be taught basic Web site building skills to take some of the pressure off the Web expert.

a static entity."

Van Dyke also said he senses great need for a consultant if you are getting into streaming because an outside

Webmasters are not typically taking on responsibility for streaming the station's signal online. That job is being left to the station's engineer and/or pro-

### Tips to Find and Keep Your Station Web Expert

✓ Determine the skills your station requires before interviewing. If you have someone on staff who has been developing the Web site, perhaps the addition of someone new as a content editor/administrator would be useful.

✓ Surf the Internet to find sites you like and find out who created them. Or seek recommendations from managers of Web sites you admire.

✓ Treat your Web expert with respect. Don't set unreasonable deadlines.

✓ Invest in basic Web site training for your staff. In just a few hours, the staff will be able to update the Web site themselves in urgent situations, when the Web expert is busy with other matters.

✓ Have a written plan: Set goals for your site and reward those who meet them.

gram director, or often to an outside company that specializes in streaming technologies.

Lisa Osborn is founder and CEO of Traffic411, which provides real-time traffic maps and information to media Web sites. She has worked as a radio newscaster and traffic reporter in Los Angeles.

Reach her at (310) 821-3639 x141 or via e-mail to Lisa@Traffic411.com.

### NET RADIO SERVICES

### SRS Launches New Technology

SRSWOWcast Technologies, a subsidiary of SRS Labs, announced the availability of professional hardware and software audio products for encoding SRS Labs' surround-sound technology, Circle Surround.

CS encodes up to 6.1 channels of discrete audio for distribution over existing two-channel carriers such as radio and IP, with decoding that is backward-compatible with the installed base of consumer surround-sound receivers.



Products targeted at the professional audio community include a CS software system, a hardware rackmount Professional CS Encoder (model CSE-07) and a hardware rackmount Professional CS Decoder (model CSD-07).

The CS products will be available in analog and digital implementations this summer.

Contact the company in California at (949) 442-1070 or visit the company Web site at [www.srstechologies.com](http://www.srstechologies.com).

# Enter to win one of 26 great prizes in Radio World's reader appreciation contest giveaway!

Dear *Radio World* Reader: Last year, many of the greatest names in our industry teamed up with *Radio World* for a year-long sweepstakes extravaganza that resulted in almost \$50,000 in prizes given away. Due to the overwhelming response from you, we've decided to do it all again in 2002 as a way of showing our appreciation to our loyal readers.

Throughout 2002, *Radio World* will conduct 26 random drawings. Prizes and winners will be announced in every issue of *Radio World*. **That's 26 chances to win!**

To enter the contest you need to complete these three easy steps:

1. Go to our Web site: [www.rwonline.com](http://www.rwonline.com)
2. Click the Readers' Choice icon on our home page.
3. Follow the instructions and fill out the electronic entry form — *that's it, you're done!*



This is your chance to participate in our Readers' Choice program and win great prizes from these fine *Radio World* supporters:



Contest Rules: To enter the drawing, simply register online at [www.rwonline.com/sweeps](http://www.rwonline.com/sweeps). 26 drawings will be held throughout the year. Contest registration expires Dec. 4, 2002. Final contest prize announcement on Jan. 1, 2003. One prize per winner. All contestants MUST reside in the United States and have a valid mailing address. Winners should receive prizes within 30 days of notification; however, actual delivery time may vary and is not guaranteed by IMAS Publishing. Federal, state and local tax laws may apply to prizes and are the sole responsibility of the winner. Employees and affiliates of IMAS Publishing are not eligible.

## Nokia Adds to Reporter Mobility

*Mobile Telephone Includes Enough Features To File News Reports From the Field*

by James Careless

Need a portable audio production unit on the cheap? Take a closer look at your mobile telephone.

The Nokia 9290 Communicator cellular telephone can be used to record audio, write scripts and e-mail both back to a radio studio, where things can be edited together into a finished ready-for-air product.

Really.

Note that Nokia never designed the

9290 to be a portable production unit.

In fact, I came up with the idea somewhat by accident when Nokia brought a Communicator into my office.

### Not what it appears

At first glance, the 9290 looks like a conventional cell phone. It flips open, however, revealing what is essentially a palm-top computer.

On the lower half is a full-function QWERTY keyboard, with a four-way

"arrow key" that serves as a mouse. There also is a microphone for teleconferencing.

In the upper half is a full-color LCD screen, plus four right-side mounted keys for quick access to on-screen features.

Add on a conventional digital cell phone, a built-in voice recorder and removable flash memory cards (up to 64 MB each), and those are the basics of the 9290 hardware.

The software adds a few more features.

The 9290 can send and receive e-mail via wireless at 14.4 kbps. Granted, it is not fast (even compared to dial-up connections these days), but it certainly will do in a pinch.

The 9290 also can browse the Web, including accessing streaming audio in mono.

Add in Microsoft Word and Excel — plus a PowerPoint viewer — and PDA synchronization with either Microsoft Outlook or Lotus Notes, and the result is one powerful cell phone.

But that is just the parts. When taken as a whole, I soon saw how the 9290 could be used for radio.

In its current configuration, the 9290 can be used to record audio as WAV files, direct to its removable memory card.

How much audio can be recorded

depends on the capacity of the card. For instance, with the stock 16 MB card, "we recorded 20 minutes of audio," said Nokia spokesman Keith Nowak.

While not quite broadcast-quality, the teleconferencing microphone of the 9290 does a pretty good job. Basically, the audio it captures is as good as any caught using a high-end teleconferencing device. The pickup is good, too: about 3 to 5 feet, with reasonable dynamic range.

So how would this work for broadcast? Here is the scenario.

First, the reporter uses the teleconferencing microphone to record audio as WAV files. These files are e-mailed directly to the station's server.

Next, the reporter listens to the clips — they are still on the memory card(s) — and writes a script.

For the voicetrack, the reporter now has two options:

It is possible to scroll through the script and to record the voiceover directly with the 9290 — to avoid keyboard noise, the best bet is to use the hands-free headset then e-mail this file back to the station. Or the station can be telephoned and recorded or voiced live over the phone.

Once the audio tracks are on the station server, a few more options become available.

The easiest thing would be for the reporter to e-mail the script and let a

See NOKIA, page 48 ▶

### PRODUCT EVALUATION

## Save Time With Waves Native Restoration

by Read G. Burgan

For seven long years in the 1970s I agonized with the appallingly poor quality of the National Public Radio signal that came to our studios over a Class C telco line. My frustration increased further every time I listened to our neighboring NPR affiliate only 100 miles away receiving the same programming over a Class A line.

Then, literally in a moment, that was changed forever. In 1978 we fired up our brand-new satellite receiver and suddenly our listeners were transported from tin-can audio quality to experiencing Susan Stenberg seemingly sitting in their own living room or car. It was a heady time.

### Meeting new quality criteria

But after the euphoria died away, we began to see that the 50-to-15,000 Hz network quality was a double-edged sword. Now fewer and fewer of the features we submitted to NPR were accepted.

The reason? Our studio facility was not able to produce a sound quality that met the new network criteria. Features that sounded all right on a land-based distribution system sounded downright awful on the new satellite system.

Worse than that, the disparity in technical quality between our own locally produced news and public affairs programs and those of the network became painfully apparent.

The muffled sound of teletype machines, noisy air conditioners, clanking steam

See WAVES, page 42 ▶



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**RW NEWS  
BYTES**

from the editors of

**Radio World**

# Waves

► Continued from page 41  
pipes, the sounds of cars in an adjacent outside parking lot and other building sounds combined to create an ambiance that seemingly shouted, "This isn't as good as the rest of your programming!"

In the decades that have followed, the demand for quality sound has only increased. Just being the loudest station will no longer guarantee a listening audience.



Every commercial, public service announcement, news actuality and sports broadcast we produce in radio needs to have the highest technical quality. And yet forces beyond our control often conspire to undercut our commitment to quality. They include buzzing fluorescent light fixtures, noisy air compressors, traffic sounds, ungrounded outlets and many others.

## Digital software help

How can we make audio made in the real world sound as if it were produced in the best Hollywood studio? In the past dozen years or so, digital restoration software has provided tools that can remove the unwanted sounds that plague most of us.

Until now, however, virtually all digital restoration software has suffered from two problems: a long learning curve and lengthy processing times.

Waves Ltd. has addressed these problems by introducing a digital restoration package called Native Restoration that is easy to learn and can process a WAV file quickly.

Native Restoration is available as a plug-in for either MAC (RTAS, AudioSuite, VST, MAS) or PC (RTAS, AudioSuite, VST, DirectX under Windows 95, 98 or NT). The package contains four plug-ins: X-Click, for removing impulsive noise like pops and clicks; X-Crackle, for removing smaller pops and clicks and some record surface noise; X-Hum, which has eight harmonically linked notch filters that can attenuate ground loop hum by up to -60 dB and a high-pass filter; and X-Noise, for removing broadband noise such as record surface noise and air conditioning sound.

I tested Native Restoration on two PCs equipped with Intel P-III processors (650 and 850 MHz) and the Windows 98 SR II operating system. I used Sound Forge 4.5 as my native host program.

For the purposes of testing, I used a

variety of analog sources including long-play records, 78-rpm records, 16-inch electrical transcriptions and reel-to-reel tape. Unlike other restoration software that I use, Waves Native Restoration required almost no learning curve.

I was able to begin the restoration process after only a few minutes of experimentation. Waves has minimized the number of on-screen controls, and the function of each is intuitive.

For example, X-Noise has controls that are similar to dynamic processors. You set the attack and release times and then adjust the threshold and the degree

to which you want the noise reduction to take effect.

Because the plug-ins can be monitored in real time, it takes little time or effort to establish the best-sounding settings for a particular sound file. In the case of X-Noise, you also create a sound profile by sampling a small amount of the offending noise that you want to remove.

Native Restoration is incredibly fast, and that's no accident. It was designed to minimize the amount of processor overhead required. As a result, I found that I could remove the pops and clicks from a 20-minute stereo 44.1 kHz WAV file in 1:35, and remove the surface noise using X-Noise in 2:11 for a total restoration time of 3:46.

**Waves has minimized the number of on-screen controls, and the function of each is intuitive.**

That compares with a total time of 49:23 to do the same amount of work using the restoration package that I normally use.

How does the final sound compare? I found that the WAV files restored by the Waves package were comparable in quality to the package that I have been using daily over the past several years.

Let's face it: Time is money. In this case, Waves Native Restoration software was able to do in a little more than 3 minutes what it took my usual software more than 49 minutes.

This means that I should be able to do nearly 12 digital restoration projects in the time that it normally takes me to do one. I say nearly 12 projects, because there is time required to adjust the restoration settings for each particular project.

I did have a problem with batch file mode. The current version saves the set-

## Product Capsule:

### Waves Native Restoration Audio Restoration Software

**Thumbs Up**  
 ✓ Minimal learning curve  
 ✓ Easy to use  
 ✓ High-quality restoration  
 ✓ Fast digital restoration

**Thumbs Down**  
 ✓ In Sound Forge, it requires SF 6.0; won't work under earlier versions using the older Direct-X management system

Price: \$1,200

For more information contact Waves in Tennessee at (865) 546-6115 or visit [www.waves.com](http://www.waves.com)

tings for the Noise Profile in a proprietary submenu because some programs don't allow for saving a Noise Profile as a preset; it is a lot larger than tracking knob settings. Because of this, every time you open the module, you have to load an old noise profile from the sub menu. Other Direct-X plug-ins generally save their settings in a way that automatically loads the last used noise profile when you open it.

## Standard profiles

While this is more of a nuisance than anything, this convention causes a more serious problem. I have created a series of "standard" noise profiles that I can apply to sound files with similar noise patterns. This allows me to batch process multiple sound files.

I will often transfer several hours worth of material to be digitally restored during the day, and then have the software batch process all the files over night using the appropriate noise profile.

Because of the way that Waves saves its noise profile settings, it is not possible to run X-Noise using Sound Forge's batch compiler.

Waves, too, was concerned about this problem, and has just introduced version 3.5. After testing the beta version for several days, I was pleased to find that the X-Noise now works with both the Batch

Converter and the Audio Plug-In Chain in Sound Forge.

The disadvantage is that it requires an upgrade to Sound Forge 6.0. This is because version 3.5 is designed to work under the new Direct-X management system incorporated in SF 6.0. Version 3.5 will not work at all under SF 4.5.

Waves' Native Restoration is a high-quality digital restoration package that can provide excellent quality digital restoration in a fraction of the time required by most other restoration software and is easy to learn and apply. I give it an "A plus" and recommend as it a quick and easy way to clean up virtually any audio source at your radio station or production studio.

Read Burgan is a free-lance writer and a former public radio station manager who can be reached at (906) 296-0652 or through e-mail at [rgb@chartermi.net](mailto:rgb@chartermi.net).

## Bonneville Builds in St. Louis

Bonneville International Corp. has consolidated four St. Louis radio stations into a new facility. The studios of heritage country station WIL(FM), smooth jazz WSSM(FM), modern AC WVRV(FM) and adult standards WRTH(AM) had been in two locations that were in poor condition.

The budget for the rebuild, including equipment, studio buildout and office space, was \$4.8 million.

The facility is in City Place, a suburban office complex in an upscale area of St. Louis County. The studios take up the second floor of the combination retail/office building. Other tenants include an upscale restaurant, a high-end audio dealership, a New Balance shoe store and a styling salon.

The space was designed by Bonneville to accommodate its properties.

Klotz Digital sold Bonneville 15 VADIS 220s, six VADIS 880s and 12 D.C. II mixing consoles. Another primary equipment supplier was RF Specialties of Missouri. Because Bonneville wanted to go digital from end to end, it replaced some of its analog exciters.

According to Marshall Rice, director of engineering for the group's operation in St. Louis, the greatest difficulty was dealing with county electrical inspectors.

"It is a new world for low-voltage wiring," Rice said. "Low-voltage wiring has recently come under close scrutiny of county inspectors."

Licensed installers now must be used for fiber and low-voltage runs, he said. Terminations to this cable must be accomplished by licensed installers as well.

"So," Rice said, "essentially we could only supervise the installation and not do any of the physical work. Finding qualified installers is very difficult. We found ourselves in the position of training the very people we were paying to do the install."

However, the company saved money because planners chose to use fiber. Rice said this approach reduced the amount of point-to-point wiring by about 70 percent.

The difficulty and expense would have been much greater, he believes, had the team gone with a standard analog or non-fiber digital installation.

Bonneville installed an RCS Master Control System with 1,600 hours of compressed audio capacity. It also used Telos Systems digital ISDN hybrids and call directors, Voxpro call recorders, Orban Optimod-FM 8400s for audio processing, Moseley Starlink digital STLs and Broadcast Electronics digital exciters.

360 Systems Instant Replay and Short/cut units were installed in each studio, as were Symetrix microphone processors and Røde microphones.

Murray Co. was the general contractor for the buildout and TRI Arkitekts were the architects.

— Michele Kramer Peterson



The WSSM(FM) On Air Studio



The News Studio



Front, from left: John Carey, president of Klotz Digital America; Marshall Rice, director of engineering at Bonneville St. Louis; Jim Worthington, VP/GM at WRTH(AM), WIL(FM). Rear: Bruce T. Reese, president/CEO of Bonneville; John Kijowski, VP/GM WSSM(FM), WVRV(FM); and Chuck Tweedle, Bonneville's senior regional VP/San Francisco and St. Louis.



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# Products & Services SHOWCASE

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**DSC-32/64 Satellite Channel Controller**  
The DSC-32/64 allows complete remote control of two StarGuide II/III, Wegener Unity 4000 or ComStream receivers. An encoder control with a 16 x 2 LCD display provides local control and program descriptions, while external control may be in the form of serial or 64 contact closures. Custom programming is accomplished with a non-dedicated computer.

**SDD-8 Serial Data Director**  
The SDD-8 is a Serial Data Director, with one master RS232 port, and 8 - RS232 target ports that can be selected under software control, from a host computer, or other serial device. The function of the unit is very similar to a mechanical port selection switch (A, B, C, etc.)

**DSC-20 Dual Satellite Controller**  
The DSC-20 adds remote control capability to two StarGuide II/III, Wegener Unity 4000 or ComStream receivers, allowing complete control of receiver functions by serial or contact closures. Customized programming is accomplished with a non-dedicated computer.

**COA-37 Connect O' Adapter 37**  
The Connect O' Adapter 37 provides an effective way to convert the DB-37 connector to removable screw terminals. The COA 37 is designed to plug into the male 37-pin D-Sub connector on any StarGuide II or III Relay Module.

**COA-15 Connect O' Adapter 15**  
The Connect O' Adapter 15 provides an effective way to convert the DB-15 connector to removable screw terminals. The COA 15 is designed to plug into the male 15-pin D-Sub connector on any StarGuide II or III Audio Module.

**COP Connect O' Pad**  
The Connect O' Pad (COP), provides an effective way to connect and adjust the audio outputs on your StarGuide II and III receiver. The COP is equipped with eight position removable screw terminal for connection to the balanced left, right, monaural outputs, audio and chassis ground.

**USC-16/SG Upgrade**  
The USC-16/SG is a firmware upgrade for the USC-16, Universal Satellite Channel Controller. The USC-16/SG is field programmable to switch all functions on StarGuide II / III or other satellite receivers.



PSC-II



DSC-32/64



SDD-8



DSC-20



COA Connect O' Adapter 37



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COP Connect O' Pad

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# We Pause for ... Bloop, Bleep, Bloop

by Alan R. Peterson

I'm not sure if I understand completely why, but I'm kinda in a bust-'em-up mood this time out.

It's just one of those moods when I feel like being contrary, like taking the opposite position in a bar argument just to raise a little dandruff.

The kind of mood that, had I posted this on the Net somewhere, I'd be flamed all the way from here back to the abandoned tower site of my first radio gig.

## Uncle Al ... aarrgh!

I think it began at the awards luncheon at NAB2002, when the cast from "Rowan & Martin's Laugh-In" got inducted into the NAB Hall of Fame. Alan Sues was on the dais as part of the ensemble receiving the award. Ever since he created the character "Uncle Al, the Kiddy's Pal," I have endured that miserable label from unimaginative jocks and desperate comedians.

If I didn't think security would have escorted me out of the building, I might have taken a buttered roll from the table and winged it at him, followed by a heartfelt, "Thanks a lot, Uncle Al!"

Anyway, we all get in that mood from time to time — play the devil's advocate in an argument just to watch your friends' faces turn red. You know you don't really mean it, but it's just too much fun to stop.

So please feel free to give me "whatever," should you feel the need. Drop me your e-mails, write to my boss, tell me I'm nuts. Like I said, I'm in that sort of

a mood right now.

And tonight's Secret Woid is ... station IDs.

I had recently engaged a group in a discussion about the practice at many radio stations to "bury" the legal hourly ID in a stopset. Quite often, the ID is heavily produced with a rapid read, lots of lasers, and the vocals buried under the whole pile.

## New jocks hit the ID as close as possible to the most recent solar eclipse and ask, 'What's a network newscast?'

The ID normally would then be sandwiched between two spots, as inconspicuous as possible.

I have actually heard an instance where the stereo announcer track was flopped out of phase on one channel. In a mono mix — say, on a clock radio — the vocal would have canceled and there would have only been zaps and zings on the air.

The debate took on heat when I brought up the FCC's own rule on the matter. If you are interested enough to follow along, it is under the Part 73 rules, specifically, 73.1201.

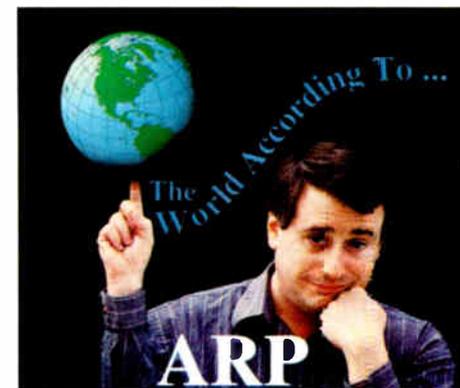
Minus the portions relevant to television, here is the commission's stand on the matter:

*When regularly required, broadcast station identification announcements shall be made at the beginning and ending of each time of operation, and hourly, as close to the hour as feasible, at a natural break in program offerings.*

*Official station identification shall consist of the station's call letters immediately followed by the community or communities specified in its license as the station's location: Provided, that the name of the licensee or the station's frequency or channel number, or both, as stated on the station's license may be inserted between the call letters and station location. No other insertion is permissible.*

*A station may include in its official station identification the name of any additional community or communities, but the community to which the station is licensed must be named first.*

Okay, so what the rule essentially is saying is: yes, you may place the ID as close to the hour as you are able to manage. This should not imply that it is all right to put it 20 minutes before the hour, especially if there is a stopset right



up at :55.

At one time, new jocks used to rejoice in how close they could hit the ID to the hour and still have a seamless segue into the network newscast. Now new jocks hit the ID as close as possible to the most recent solar eclipse and ask, "What's a network newscast?"

The rule also states that a legal ID cannot go something like, "W-A-R-P-FM, the all-Al Peterson station, with another hour of backwards Polka hits, rocking the world's greatest city, Washington, D.C."

## Sorry, guys

First of all, my apologies to the holders of the WARP low-power call sign in Florida and Wyoming; you know I don't mean it. Second, forget a backwards Polka format. They sound the same in both directions.

Most important, the only thing I could get away with between calls and city of license is *maybe* the frequency and the company that runs my laughable little endeavor.

Now let's say I'm running the last of the 250-watt coffeepots in West Armpit, Pennsylvucky, and can somehow eke a receivable signal into the closest geographically attractive metro area — I don't know, maybe Chicago, if the wind is right. You think the first city out of the chute should be Chicago?

Of course not. Put it down the end after North Plebney, Bouganville, Pickle Junction and Monkey's Eyebrow.

See ARP, page 47 ▶

## PRODUCT GUIDE

### Free Delay Lama Chanting Monk

Want some free eye candy for the production room computer screen when things are too quiet? Load up the Delay Lama from Audionerdz.

The Delay Lama is the world's first "virtual singing monk," created by three audio design students and an animation student from the Netherlands.

It is a freeware plug-in instrument for VST host programs such as Steinberg Cubase. A monophonic vocal synthesis engine generates a sound somewhat resembling a Tibetan chanting monk, with real-time control over pitch and vowel sounds. These may be controlled by the X-Y sliders on the screen or via MIDI music keyboard.

At the same time, a 3D animated monk on your screen (shown) reacts directly to your input and alters its mouth position to reflect the vowel position at that moment.

Living up to its name, the Delay Lama also includes a stereo delay for a spacious effect.

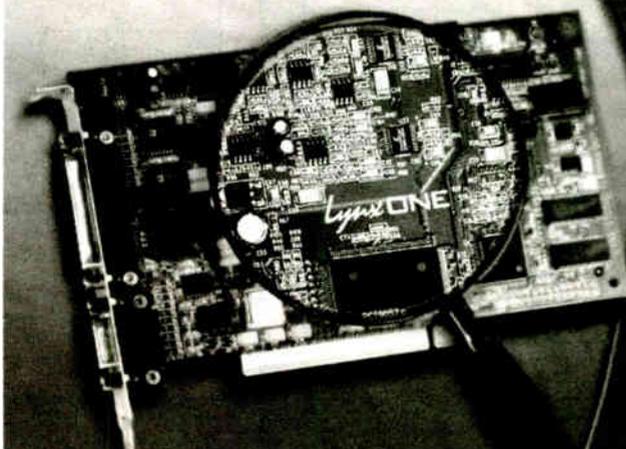
The Delay Lama is free for download from [www.audionerdz.com](http://www.audionerdz.com), with the request from the design group that a donation be encouraged to the International Campaign for Tibet. Two MP3 audio samples also are on the Web site.



— Alan R. Peterson

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## Waves Boosts MaxxStream Line

Waves Ltd. said it is improving its MaxxStream streaming products with models M100 and M200.

MaxxStream integrates audio encoding supporting multiple formats and bit rates with audio capture, processing, archiving and transmission.

According to the company, the new systems feature faster, more robust CPUs.

The M200 is a 2RU unit that supports a Pentium III Tualatin processor running at 1.2 GHz over 133 MHz Front Side Bus, allowing 10 or more concurrent heavy-load streams at consistent performance. It accepts four DSP cards to receive four discrete stereo or eight mono audio feeds, processing and encoding each to two to three individual streams.

The M100 is housed in a 1RU chassis supporting a Pentium III CPU running at 1 GHz over 133 MHz Front Side Bus, allowing eight or more concurrent heavy-load streams. It can be installed with two DSP cards to receive two discrete stereo or four mono audio feeds, encoding each to four individual streams.

For more information contact the company in Tennessee at (865) 546-6115 or visit [www.waves.com](http://www.waves.com).

## Amp Farm 2.0 Supports 96 kHz

Pro Tools HD users will take note of the availability of the Line 6 Amp Farm 2.0 upgrade, which adds compatibility with the HD systems and support for sample rates up to 96 kHz.

A product for digital audio workstation users, Amp Farm has Line 6 TubeTone technology that Digidesign says provides physical models of specific, sought-after classic amplifiers. Amp Farm is suitable for recording guitars in the Pro Tools TDM environment.

To download a free upgrade or purchase Amp Farm 2.0 (\$595), visit [www.digidesign.com](http://www.digidesign.com) and click on Support and Downloads. For a direct link, go to [www.digidesign.com/download/ampfarm.html](http://www.digidesign.com/download/ampfarm.html).

## AETA Shows New Codec at AES Europe

The HifiScoop 3 5AS from AETA is a new version of its HifiScoop ISDN codec.

The "5AS" tag stands for AETA Audio Advanced Automatic Adjustment System and denotes the ability of the unit to recognize incoming call algorithms and to automatically adjust codec configuration.

The unit offers an autoretrial function in the event of connection interruption. HifiScoop 3 also features a 10BaseT interface, which allows remote TCP/IP control and monitoring of one or more HifiScoop 3 5AS units via TeleScoop 2 software.

For information from AETA, contact the company in New Jersey at (973) 659-0555 or visit [www.aetausa.com](http://www.aetausa.com).

### Correction

In the June 19 issue of Radio World the Web address for Associated Broadcast Group was incorrect. The correct Web site is [www.associatedbroadcast.com](http://www.associatedbroadcast.com).

### PRODUCT GUIDE

## Mackie Digital 8 Bus Promo Adds Value

A promotion is being offered to Mackie customers who purchase a Digital 8 Bus console through Sept. 30 at a participating dealer.

Termed the "d8bonanza," the promo provides new d8b customers with \$4,000 worth of free plug-in cards, software and factory rebates. Additional rebates are available if an HDR24/96 hard-disk recorder is purchased with the d8b during the promo period.

The gift pack includes three OPT-8 I/O cards; two UFX cards; software including Acuma Labs plug-ins, a Level 1 reverb plug-in from TC Electronic and a Mackie Mono Delay plug-in; and \$350 in rebate coupons for Antares AutoTune, Drawmer ADX100 and Massenburg EQ plug-ins and Mackie HR824 studio monitors.

The gift pack even includes a free Mackie coffee mug and Starbucks coffee.

Financing is available through the Mackie/Firstcorp Leasing Program.

For more information contact the company in Washington state at (425) 487-4333 or visit [www.mackie.com](http://www.mackie.com). A list of participating dealers is available at [www.mackie.com/d8bonanza](http://www.mackie.com/d8bonanza).



## ARP

► Continued from page 45

So far, so good. Not much cause to whip up a good argument here, right? No, the position I took was that nowhere in the rule does it say that the ID must be *spoken*.

Reread the rule. Go to [www.fcc.gov](http://www.fcc.gov) and look up all of 73.1201.

The key words to be aware of in the rule are "announcements," "stated" and "named." Does it say "spoken?" Is there any mention of the use of a voice? Is there even the use of the term "verbal," which literally means "of words?" Not at all.

Therefore, would it not be just as legal for a station ID to consist of a data burst à la EAS? How about modem chirps? What about Morse code, the way ham repeaters ID themselves? How about spoken in the language of the *!Kung* tribe? In the end, all are ways of expressing the same thing: call letters and city of license.

Because many programmers consider their call signs to be so evil that they must be buried under as much sonic glop as possible, this little loophole in 73.1201 would mean salvation from that futile exercise.

Now they could just run music back-to-back all they want, and a little one-second quack would contain every last bit of data that makes them legally compliant.

### Let the games begin

One of the more literary minded members of the gang I debated with argued that the absolute inflexibility of the phrase, "broadcast station identification *announcements*" made it impossible to mean anything other than a human voice could handle this task.

And why was that? "Because the word 'announcement' implies a process involving speech."

Not necessarily. The Merriam-Webster Online Dictionary defines "announcement" as "a public notification or declaration;" either of which could be expressed in methods other than speech. Sign language or a drawing, perhaps.

I believe another response came along the lines of, "A legal ID is one that can be correctly interpreted and understood by the human ear without the benefit of some intervening technology, such as a modem to reassemble the chirps."

Well, pardon me, Marconi, but wouldn't the radio receiver *itself* be considered as "intervening technology?" It has to reassemble energy in the RF spectrum back into an acoustic form for the human ear to act properly upon it. Few of us were born with diodes in our ears, so bypassing the radio is out of the question.

"All right then," they countered, "it should be in American English."

Right. What about ethnic programming? Korean stations? Spanish stations?

It was fun watching the veins pop out.

"Radio is an audio-only medium," one went on. "What else would there be on the air other than the spoken word?"

Well, you could always ask the developers of RDS and RBDS that one. They seem to do okay getting text over the air

without anyone of us hearing it.

It never got ugly, but it continued to roll along. A working knowledge of today's radio technology had made it possible for me to cover almost all objections.

Finally came the argument that made the entire issue collapse: "Why the hell *wouldn't* an ID be a spoken element?"

Exactly.

### The flash of brilliance (?)

The only reason I got my associates as frothy as I did was to apprise them that somewhere out there, somebody is going to try this just to be different— if they have not already.

Some programming genius, probably the same guy that decided a short, shrill tone preceding a stopset would make listeners pay extra close attention to the spots, will give this a try.

That person's station subsequently will be cited and fined by the commission for botching a month's worth of IDs. The programmer will appeal the fine and call the wording of 73.1201 into question, using the very same jive logic I just did.

This is the same programmer who will rather take the time and expend the effort to make an issue out of a ridiculous point like this than to make a successful radio station happen.

Look around, my friend. Are you sweating too much of the fluff and missing what is really important? Are you really so ashamed of your call letters that you would actually bury them *further* by replacing them with a one-second quack?

So let the debate begin. Am I even slightly right in this matter? Do you have a better argument, pro or con? Do you want to be the one to put it on the air first?

**It never got ugly, but  
it continued to roll along.  
A working knowledge of  
today's radio technology had  
made it possible for me to  
cover almost all objections.**

Don't even approach the FCC to have them change the wording of 73.1201. There is such a thing as an obvious implication, and if it is genuinely not apparent that an ID announcement *on the radio* truly has to be spoken to be understood *on the radio*, then you have some serious reading out of Part 73 ahead of you tonight.

Reach Al at [alanpeterson@earthlink.net](mailto:alanpeterson@earthlink.net).

By the way, *Monkey's Eyebrow* is a real place, near Bandana, Ky. To Al's knowledge, there is no station licensed there, although Paducah stations might come in pretty good. 🍌

# Nokia

► Continued from page 41  
station producer do the rest.

Considering how lean some station staffs are these days, however, there may be a way for the reporter to edit things remotely.

### Web-based editing?

The 9290 does not have an audio editor. However, it does surf the Web, which could be used — with a bit of creative engineering — to handle the task.

First the station needs a Web-accessible audio editor, perhaps a conventional digital editor modified so that it accepts files loaded from the Web and allows itself to be remotely control via a Web browser.

Then, using a password-secured production Web site at the station, the reporter accesses both the e-mailed audio clips and the audio editor.

The report simply logs on to the Web site using the browser on the 9290, edits the report using the connected audio editor and files the resulting story on the station news server.

All that is left is to send the air talent a lead-in script, and the story is covered using nothing but a Nokia 9290 Communicator.

This model is being offered in the Americas. In the rest of the world, Nokia offers the same set of features on its 9210 Communicator phones.

For information about Nokia Communicator mobile telephones, visit [www.nokia.com](http://www.nokia.com).

## PRODUCT GUIDE

### ATI Nanoamp Series Adds Monitor

The Audio Technologies Inc. Nanoamp Series of compact devices can be mixed and matched and used in a variety of ways to solve audio problems.

The AMM200 analog monitor is a stereo line amplifier and monitor with balanced XLR line inputs and amplified outputs, stereo headphone drivers and a stereo LED meter.

The two-color LED meters are switchable for measuring line input or output levels; meter range is -15 dB to 12 dB in 10 3-dB steps. Switched rear panel RCA jacks control of the external self-powered speakers from the headphone amps. Price: \$399.



For more information from Audio Technologies Inc. contact the company in Pennsylvania at (215) 443-0330, (800) 959-0307 or visit [www.atiguys.com](http://www.atiguys.com).

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Pacific Recorders BMX-4-26 console. Fully loaded with 26 modules, very good condition, 3 mic modules w/pan, 3 line modules w/input mode switch, 20 line modules w/input mode & pan, telco monitor module, dual remote input selector module, real time clock, digital timer, overbridge, several remote interface units, molex audio connector panels pre-wired to punch blocks. Separate announcer wedge w/dual headphone jacks & controls, digital timer, BO. M Brown, Brown Broadcast, 3740 SW Cornus St, Portland OR 97219. 505-245-6065.

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Orban 9200 digital AM processor. David Senzig, WWJQ, 5658 143<sup>rd</sup> Ave, Holland MI 49423. 616-394-1260.

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SAMS Project Studio Blueprint by Greg Galluccio, 236 pages; The Studio Business Book by Jim Mandrell, 335 pages, \$25/both. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

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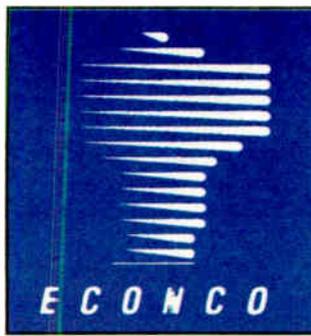
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32	Altronic Research	www.altronic.com
33	Aphex Systems	www.aphex.com
25	Associated Broadcast Group	www.associatedbroadcast.com
44	ATI	www.atiguys.com
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17	Broadcast Electronics	www.marti-electronics.com
31	Broadcast Richardson	www.broadcast-richardson.com
21	Broadcast Software Int'l (BSI)	www.bsiusa.com
44	Broadcast Tools	www.broadcasttools.com
48	BroadcastMATE	www.broadcastmate.com
28, 29	BSW	www.bswusa.com
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48	Circuit Werkes	www.circuitwerkes.com
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# ◆ READER'S FORUM ◆

Radio World, July 17, 2002

## Compressing your audio

I want to thank Jon McClintock for his letter (May 8, "APT and DAB"), pointing out the need to pay attention to what one is doing with regard to bitrate-reduced ("compressed") digital audio. And with digital on-air transmission available via Eureka and DARS (and soon via IBOC), his letter is a timely reminder for broadcasters.

However, Jon's letter left out an important factor: compression ratio. At a compression ratio of 4:1 — a stereo 44.1-kHz sample rate audio signal output at 384 kbps — you can choose almost any codec. At these compression ratios, MPEG's algorithms also offer very good resilience in the face of multiple coding passes.

MPEG's coders, based on sophisticated perceptual analysis, offer much higher coding gain than the simpler ADPCM method used by apt-X. The simplicity of apt-X means it can have a smaller analysis window, permitting lower delay and fewer time-based effects. However, at the very high bit rates proposed by apt-X, real-world experience and careful scientific study have demonstrated that perceptual coders are surely cascaded as well. Researchers have carefully investigated MPEG Layer 2 at over a dozen coding passes and have concluded that very good results are achieved.

AAC's cascadedness has not yet been formally investigated, but there are a number of tools in AAC that should help it to be robust, such as the one called "Temporal Noise Shaping." AAC will produce ITU "indistinguishable quality" as low as 128 kbps and most perceptual coding researchers will tell you that at 384 kbps there is simply such an excess of headroom that you need not worry about much of anything.

Practical considerations — mainly the cost of the transmission medium — usually limit one's options to much higher compression ratios. You have to pay for each of ISDN's channels, so 12:1 compression is common to keep costs reasonable. Since ADPCM is not appropriate for these much higher ratios, the MPEG algorithms are essential.

My point is to make sure that readers understand that this issue is not as simplistic as deciding which algorithm is "best." The choice of algorithm will vary depending upon the source material, the required compression ratio and the number and type of cascaded codecs. For low ratios, MPEG Layer II and apt-X are appropriate. At ratios of 8:1 or higher, MPEG AAC and Layer III offer outstanding performance.

Telos has long advocated a cautious and deliberate approach. The subject is important enough that Steve Church wrote a discussion of this subject for inclusion in the original Zephyr manual back in February 1994: "Use coders only where necessary. Consider the alterna-

tives at each stage. With the cost of hard-disk capacity falling, is it really necessary to crunch at this point?"

Also: "Use the maximum bit rate you can afford at each stage. Hard-disk recorders and other studio equipment often have an option to adjust this. For very critical work remember that the Zephyr may be used in a mode where a mono program is split over two digital network channels.

"And, of course, get the ... Layer III advantage on low bit rate channels."

Over eight years later, Steve's advice is as true as ever — except we now recommend MPEG AAC for maximum advantage. Consider your requirements carefully, and make an informed decision. And use your ears, listening to material typical of your format as your final arbiter.

Rolf Taylor  
Applications Engineer  
Telos Systems  
Cleveland

## CP instead of PC

Skip Pizzi's pieces about IBOC in Radio World have reminded me of another revolutionary development in FM radio broadcasting that happened in the mid-1960s. In both instances, the arrival of new technologies speaks volumes about the overly-cautious and protective nature of the NAB crowd.

During the 1950s and early '60s, the "bean counters" of the radio world banked heavily on their AM signals. FM signals provided unpredictable, patchy coverage, and they often delivered nothing more than a simulcast of an AM signal.

In other instances, classical music, jazz,

folk or other "offbeat" formats were given leeway. In some instances, like that of WJWL, in Georgetown, Del., FM stations were abandoned in this time period due to low revenue and sparse listenership. (When the WJWL ownership signed on with another FM in the 1970s, they had to settle for a Class A signal on the crowded FM dial).

For the most creative minds in radio, the indifference or lack of emphasis on FM radio in the 1950s and early 1960s was a godsend. The "hands-off-from-management" atmosphere was an environment allowing "underground" radio to begin and flourish.

Then, as alternative rock formats were just hitting stride, along came the most significant technical improvement for FM radio: circular polarization, or CP.

Though not a perfect solution to reception problems, CP dramatically improved FM reception in hilly or mountainous terrain and in cities with tall buildings. By the late 1960s, CP was the norm, and through about 1972 the new pioneers on FM radio had the best of both worlds: a high-fidelity signal (for Jimi Hendrix guitar loops and multitracking) and conservative management that was painfully (for them) slow in realizing what CP-enhanced FM could do for their bottom lines.

It was during this time that stations like WBCN in Boston, WNEW(FM) in New York, WMMS in Cleveland, WHFS in Bethesda, KSAN in San Francisco and KDKB in Phoenix blossomed. It was the most creative time radio had seen since the pretelevision era.

Then it all unraveled. Rather quickly, too. Bill Drake arrived in 1973 with his "super stars" format, which was a diluted version of free-form album rock. As

everyone on the FM dial started "tweaking," creativity on the commercial airwaves waned.

When I read about the politics and manipulation involving IBOC, or today's proposed fee structure for tiny Webcasters that will put many of them out of business, I'm reminded again of how painfully conservative the NAB crowd continues to be after all of this time in radio purgatory.

Webcasters provide the best chance we have to break out of the radio doldrums we've been in since the days when program directors started telling their announcers they can only play one or two of the tracks from the latest Eric Clapton album.

There are isolated pockets of inspiration remaining, such as *kpig.com*. KPIG holds onto the spirit of the late-'60s pioneers with a refreshing mix of music augmented by plenty of local production (real and mock commercials for spice) and an irreverent attitude long missing across the dial.

How does KPIG continue in this way? Maybe it's due to its small-market status in the hills of California's "salad bowl" country. It is not constricted like today's large city radio, where today's bean counters are happy to let radio implode with all of their cookie-cutter programming devices.

If the folks running the show today are so sure of their methods, then why are they so hell-bent on supporting IBOC to keep other signals from entering the marketplace? The insecurity is obvious as well as stifling.

Pete Simon  
Radio Producer/Jazz Host  
KUVU(FM)  
Denver

## Where to put the server ...

We enjoyed Al Peterson's article in the May 22 issue of Radio World ("I've Seen Fire & I've Seen Rain").

We thought we'd pass along a picture or two of our technical center, which is adjacent to the lobby of our building and visible through floor-to-ceiling windows. One photo is from the tech center, looking back towards 4th Street in downtown Louisville; the other is back into the lobby of the building.

I promise, there are no air conditioners or drain pipes above the tech center!

Mac Dula, Chief Engineer  
Public Radio Partnership  
WFPL(FM)/WUOL(FM)/WFPK(FM)  
Louisville, Ky.



Al Peterson responds:  
I'm old enough to remember when the studio itself was in the window and the public could wander by and watch the DJ in action.

The old WTAE(AM), Mineola, N.Y., was like that, with the studios in a concourse at Roosevelt Field Shopping Center. Hideously unsafe today, when you think about it. Now we get to walk by and watch the computers.

Maybe it wasn't such a hot idea after all ...

## Write to Us

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## ◆ READER'S FORUM ◆

### Inovonics on the bench

In the *Workbench* column of May 22, John Bisset relates one engineer's encounter with a malfunctioning Inovonics 530 FM Mod-Monitor. The problem was traced to a bad power supply filter capacitor, and the term "off-brand capacitor" was quoted in the text of the article.

Inovonics subscribes to a philosophy of design simplicity in its products. To the extent that performance is never compromised, our wide use of generic and readily available component parts generally is regarded as a benefit whenever field service is required.

The subject filter capacitor was OEM-manufactured for Xicon Corp., a long-time and major United States supplier of passive components headquartered in the Dallas-Ft. Worth area. Additional background on Xicon can be found at [www.xicon-passive.com/companyprofile.html](http://www.xicon-passive.com/companyprofile.html).

*Jim Wood  
President/Chief Engineer  
Inovonics Inc.  
Santa Cruz, Calif.*

### IBOC and classical music

I feel that it is time to bring up what is a big concern to me about IBOC.

I work for one of the few commercial radio stations in the country that broadcasts classical music and tries to do justice to that music with the quality of the sound. I am disturbed by the lack of comment about the audio quality of the IBOC system.

I have heard several demonstrations of IBOC, some in which they compare the IBOC signal to analog, but *never* with good source material. Every demonstration has been either talk or heavily compressed music.

Of course IBOC has the potential to sound better than these formats, simply due to the fact that less compression can be used. However, I have heard no comparisons between lightly compressed analog and IBOC.

I realize that we are the exception, rather than the rule; but is there any great advantage of IBOC to us?

Over the years, WFMT has received several awards and other recognition for its superior audio quality. We get phone calls about audio problems that would not even be audible on most radio stations. We were the first radio station to broad-

cast from a MiniDisc, and listeners were able to hear differences, though subtle, between music from CD and from MD on our air. From the few comments that I have seen regarding audio quality of IBOC, it is probably not as good as MiniDisc, so what is the advantage to my listeners and station?

Also, what effect does the IBOC signal have on an already clean analog signal when heard on a good analog receiver? Again, the comparisons have not been made available to me. However, I suspect that the IBOC signal will have similar results to having an SCA present — namely, increased noise floor and possibly some low-level "birdies" depending on the receiver being used.

While I would gladly welcome a way to eliminate multipath effects, is the trade-off worth it when you lose so much in audio quality? Better receiver design, incorporating multipath cancellation techniques, would improve the multipath while maintaining audio quality and without jeopardizing the quality of the analog signal.

*Gordon Carter, CPBE  
Chief Engineer  
WFMT(FM)  
Chicago*

### Satellite vs. terrestrial

Why do AM and FM broadcasters fear XM and Sirius radio? Disc players in the trunks of cars that play CDs and MP3 CDs offer as much threat. One MP3 CD can hold about 10 hours of music. With computers in every home that has a car (well, almost), and thanks to the massive copyright violations and Internet music piracy of the last five years, anyone can literally have *all* of their favorite songs on a half-dozen CDs. An Apple iPod holds 1,000 songs. Few people I know can even contemplate 1,000 songs.

Don't tell me that radio programming offers entertainment rather than just being a jukebox. People are moving away from radio as an escape from just that sort of "entertainment."

XM and Sirius are run by people who know the sizzle is more important than the steak. They know that the way in which the programming is packaged is as important, if not more so at times, than the content. Their challenge is coming up with the right spectrum of programming for multiple vertical markets that will result in a large enough number of listen-

## Don't Play It Safe

Observations from the AES show in Munich this spring suggest a swifter economic recovery for radio in Europe than in the United States. Exhibitors at the show felt generally optimistic about the pace of recovery, and there were orders to match.

According to a Radio Joint Audience Research Ltd. (RAJAR) survey in the United Kingdom, advertiser investment in radio in the first quarter of the year was up 0.5 percent compared to the same period a year earlier. That performance is similar to numbers here — not awesome, but not a big nosedive, either.

For U.S. radio, the recovery of the previous recession a decade ago went hand in hand with the "merger mania" of the times. A positive benefit from such mergers is that deeper corporate pockets provide money to draw upon during tough times — money to which "mom and pop" stations do not have access.

On the other hand, while large broadcast concerns have resources, they may lack the flexibility smaller companies enjoy. Publicly held corporations must take stockholder concerns into account; privately held companies are more free to try radical moves.

Many hope DAB will inject new life into radio, providing the needed boost to clear the soft recovery financial experts believe we are in; but it will take more than just technology. Yes, XM Satellite Radio is showing early signs of success, but not entirely because of its delivery method. It is working because of programming diversity and innovation.

Home or abroad, the current climate calls for station owners, managers and programmers to be proactive and not simply wait for IBOC, Eureka-147 or any other new technology to grab the ears of listeners.

We need to pull ahead of other media, including the Internet, and emphasize what radio has to offer that they do not.

The strong suits of radio are its primacy and immediacy, as well as the close identification listeners feel with "their" station. The link between a station and the lifestyle of its listeners is a strength upon which we must capitalize.

At the same time, we need to rely less on research and statistics. Playing it safe often makes for boring radio that sounds the same no matter where it is on the air.

Programmers need to follow the gut instincts that originally made radio great. Take risks. Sometimes moving forward requires looking at what worked in the past.

— RW

ers for them to be profitable.

As to their impact on terrestrial broadcasting, in the early 1960s FM penetration was so low it wasn't really considered competitive radio. We all saw what happened there. AM lost due to fidelity and coverage issues.

The satellite radio model is different. Discussions of audio quality are moot because XM is a digitally compressed audio stream, and most AM and FM stations process the bejeebers out of their audio. Some even convert their audio to MP3, playing it to the air.

Satellite radio coverage problems exist to the degree that fill-ins are required (unless you buy into the idea that fill-ins are really a strategy to provide local programming in the future).

So if satellite radio provides equivalent coverage and audio quality, its only possible significant advantages could be better programming, fewer commercials or the "neat new toy that makes AM and FM obsolete" marketing ploy, the best counter strategy to which would be to position these new services as "The Emperor's New Radio Service."

I see XM, Sirius and the others that may follow as a wakeup call for AM and FM broadcasters. If you think of broadcasting not as a programming service sold to an audience but as a service that delivers an audience to advertisers, it becomes easy to accept that terrestrial radio's last stand is their share of listeners in cars. Satellite radio threatens that. Advertising budgets have limitations.

How the market decides will be absolutely fascinating.

*Ty Ford  
President  
Technique Inc.  
Baltimore*

*Ty Ford is a contributor to Radio World.*

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