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A Cough Every 1.7 Minutes
 Brian Clark's contribution to radio engineering science: The Hackometer.

AES Abroad
 Mel Lambert takes a stroll around the AES show in Amsterdam.

In This Issue Page 43



Radio World

The Newspaper for Radio Managers and Engineers

July 18, 2001

INSIDE

ENGINEERING

▼ Was the BBC's move to yank North American shortwave a major goof — or very smart planning?
 Page 8

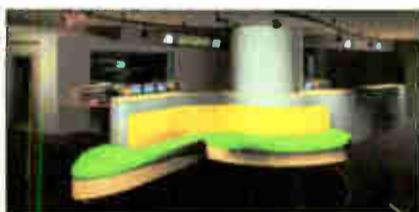
▼ How times have changed! Check out the engineering organization at a New York radio station of the 1940s.
 Page 12

GM JOURNAL

▼ Barry Umansky helps your radio station operate more efficiently — and provide a better product.
 Page 27



INTERNET RADIO



▼ Eight stories above Broadway, eYada.com originates five channels of Internet talk radio from a new facility.
 Page 35

FLASH! ANOTHER WINNER



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Federal News Radio Fills Online Niche

Web Station Targeted to Federal Workers Seen as A Success Amidst General Streaming Uncertainty

by Randy J. Stine

At a time when online broadcast success stories are few, Federal News Radio, the streaming offshoot of WTOP(AM-FM), Washington, seems to be an exception.

Now known as Federal News Radio, the Web-only radio station attracts thousands of cyber listeners daily and is profitable at a time when other broadcasters search for

viable economic models for their Internet projects.

What makes Federal News Radio unique is its intended audience. It targets the thousands of United States government workers, not only in the nation's capital but around the world.

The station has seen steady growth in listener levels since its Feb. 22, 2000, See WTOP2, page 5 ▶



Federal News Radio's Marlis Majerus

First LPFM Is on the Air

by Leslie Stimson

ALEXANDRIA, La. Low-power FM is now a reality.

KCJM-LP, a broadcast educational station licensed to Alexandria, La., is on the air. The FCC believes it is the first of the new class of low-power FM stations to begin service.

The 100 W station began broadcasting June 21 on 107.9 MHz with an Special Temporary Authority while the FCC was processing its license, which the station expected to receive by the end of June.

KCJM aims to teach broadcasting to young people ages 12-24. It was built with a budget of about \$24,000.

Teaching facility

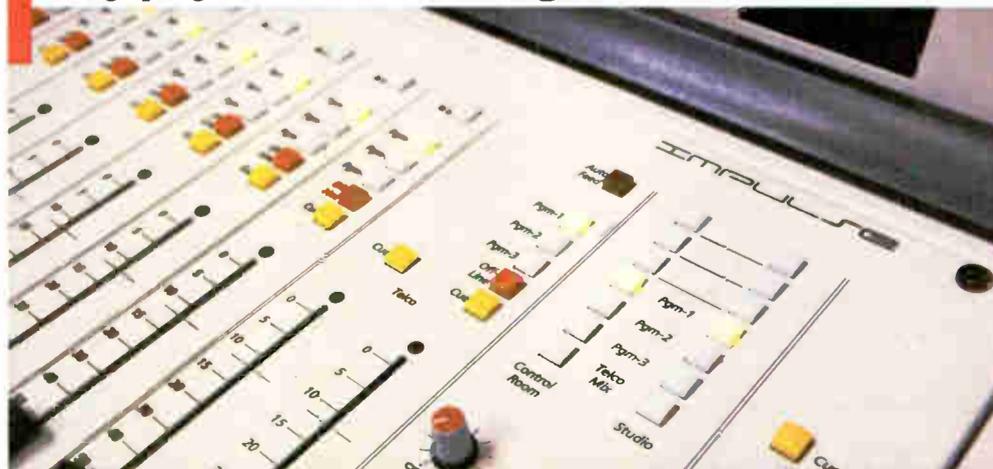
Tony Grey, program consultant with Chicago's Standard Broadcasters, fronted the funds for the frequency search, application process and construction. He is chairman of the presumptive licensee, nonprofit community group MNM Community Development.

MNM is also working with community groups that have LPFM applications pending for stations in Baton Rouge, New Orleans, Kansas City and Buffalo, among others.

"Kids will be trained in all aspects of the industry," said Grey, who was busy

See LPFM, page 7 ▶

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◆ NEWS WATCH ◆

Disney Cuts Through July

ABC Radio parent Disney Co. plans to reduce its global workforce by 4,000 by the end of this month. Some of the cuts are voluntary and some are involuntary. In June, Disney confirmed it planned to lay off about 1,000 employees after about 3,000 employees took advantage of severance packages offered earlier this year.

The terminations were to continue to the end of July.

Disney would not say how many jobs would be lost in each division, only that the cuts would affect all of its divisions, including ABC Radio and the Walt Disney Internet Group.

In March, Disney said it would cut its 120,000-member worldwide work force. At that time, Disney President and COO Bob Iger and Chairman and CEO Michael Eisner sent employees a memo stating the economy had become "more challenging" and that Disney had to find ways to run its divisions "more productively."

The layoffs are expected to save Disney up to \$400 million in annual operating expenses.

Citadel to Appeal Indecency Fine

Citadel Broadcasting Co. planned to appeal an FCC decision that the company

is apparently liable for an indecency fine of \$7,000 against one of its stations, KKMGM(FM), Pueblo, Colo.

The FCC followed up on a listener complaint about rapper Eminem's "The Real Slim Shady." The station doesn't deny it aired the song more than 400 times from May through July of 2000, outside the so-called indecency "safe harbor" of between 10 p.m. to 6 a.m. But KKMGM officials stated that the station aired a cleaned-up version of the song, not the original.

What the listener turned into the FCC, stated KKMGM, were lyrics from an Internet Web site, not a transcription of what really aired.

But the commission said the song was not sufficiently cleaned up and

efined the station anyway. It said the cleaned-up version still contained "unmistakable offensive sexual references" ... "in conjunction with sexual expletives that appear intended to pander and shock."

NAB Endorses IBOC; Feels Infinity Loss

WASHINGTON NAB Radio Executive Vice President John David told NAB Radio Board members meeting in June that while radio membership remains at a "near-record" level, new members have not offset the financial impact of the loss of the approximately 180 Infinity stations just before the spring show.

The Radio Board has also passed a resolution urging the FCC to adopt in-band, on-channel as the single digital audio broadcasting technology standard for terrestrial radio.

IBOC-developer iBiquity Digital Corp. told board members it expects to deliver FM test results to the National Radio Systems Committee and FCC in September and AM test results in early 2002.

Federated Media President John Dille and Hubbard Radio Group President Virginia Morris are the new NAB Radio Board chair and vice chair respectively. Both were elected at the semi-annual NAB board meeting.

Index

FEATURES	
BBC Fans Suffer SW Withdrawal by Tom Vernon	8
NEC and Flexible Metallic Conduit by Charles S. Fitch	10
Do You Remember When?	12
Who Put the Zip in Speaker Wire? by Steve Lampen	16
Workbench: Take This Rod and Shove It! by John Bisset	19
GM JOURNAL	
Plan Now for Holiday Promotions by Mark Lapidus	23
How to Succeed in Tough Times by Vincent M. Ditingo	23
NABEF Honors Service to America Partnership by Laura Dely	26
Competition — A Mid-Year Review by Barry D. Umansky	27
New Jersey DJ Breaks Guinness Record by Laura Dely	31
INTERNET RADIO	
Times Square Is eYada's New Home by Scott Fybus	35
Internet Radio to Grow Big and Strong? by Craig Johnston	35
Radio Trusted, But Not Internet by Mike Mahone & Dave Casper	39
STUDIO SESSIONS	
Audio, Radio Toys in Amsterdam by Mel Lambert	43
Proposed Theory of Radio Hacks by Brian Clark	43
Fish Are Gonna What in Your Bed? Alan R. Peterson	45
OPINION	
	54

AUDIOARTS DIGITAL D-70



The D-70 digital console from AUDIOARTS not only utilizes the latest in digital technology and chip sets, it can be ordered with a serial interface that lets it integrate with most popular automation systems and station routers; it even has WHEATSTONE's exclusive VDIP® software setup system.

Plug-in modules let you have any combination of mic, analog or digital line inputs, and four stereo busses give you plenty of flexibility (each has both digital and analog outputs). And with sample rate conversion on all the digital inputs plus selectable console clock rates of 32, 44.1 or 48KHz (and an optional external house sync) the D-70 can fit right in with all your facility's present equipment.



WHEATSTONE'S VDIP® Virtual Dipswitch Software lets you configure D-70 input channels with a laptop computer. Once configured console runs stand-alone.

With a compact, tabletop-mount footprint and a modular rear connector system that utilizes plug-in submodules for easy analog-to-digital field switches, the D-70 can be configured onsite quickly and easily. On the functional side, fullscale digital peak plus simultaneous VU metering, LED illumination everywhere, built-in machine interface, automatic timer and clock (stand-alone or ESE slave) all come standard, along with separate control room and studio source selection plus built in talk-back. You can even order the D-70 console with a SUPERPHONE module to support two callers with automatic digitally generated mix-minus. Both digital and analog line selector panels are also available.

THE D-70 DIGITAL AUDIO CONSOLE—benefit from WHEATSTONE's experience—at an AUDIOARTS price!

Station Public Service Honored

by Leslie Stimson

WASHINGTON Twenty-one graduates of NAB's Education Foundation Broadcast Leadership Training Program were honored in June as part of NAB's Service to America Summit.

The summit recognizes stations doing extraordinary community service efforts.

The graduates come from a variety of station backgrounds. During a 10-month period, they gain the skills needed to assess, purchase, own and operate radio

and TV stations.

In July, NABF planned to announce the students for the next class.

Summit activities before the graduation included panel discussions on media diversity and on local news stories going national.

Limited coverage

TV news coverage of women and minorities is limited and too often based on stereotypes, said black and Hispanic leaders and broadcasters during the summit.

understand we should be there," said panelist and graduate, Rita O'Neil, general manager, WCSC-TV, Charleston, S.C.

Participants in the leadership program work weekends for 10 months learning about all aspects of buying and running a station, and they spend a lot of time talking to media brokers and barkers.

The idea for the program began three years ago in response to a challenge to

Radio Engineers Attend Regional ARMA Show

COLUMBIA, Md. Engineers should "buy smart" to save trouble later. That was the message from suppliers who took part in a panel discussion at a meeting of SBE chapters from Washington, Baltimore, Philadelphia and Ft. Meade, Md.

The meeting was held during the fourth annual convention of the American Radio Manufacturers Association in Columbia, Md., in May.



LPB's David Strode and Stuart McRae of Scott Studios Corp.

Other sessions covered efficient audio file transfer and storage, proposed EAS event and location code changes and radio's transition to digital.

About 200 people from the Mid-Atlantic area attended.

Jeff Detweiler, iBiquity Digital Corp. broadcast technical manager, focused on conversion costs for stations under the proposed in-band, on-channel digital audio broadcasting system.



Robin and Vince Fiola organized the event.

For AM stations, he estimated conversion costs at \$27,000 to \$187,000. For FM stations using low-level DAB combining, costs were estimated at \$94,000 to \$215,000; and for those choosing high-level combining, \$68,000 to \$118,000.

ARMA President Vince Fiola of Studio Technology is planning another show next year in the Baltimore-Washington region. There are tentative discussions for another regional show later this year in the south or northeast, he said.

"If your company won't spend the money to send you to NAB, come here," said Fiola.

— Leslie Stimson

"Studies show that people who only know us through TV had negative impressions of Latinos," said Raul Yzaguirre, one of the NABEF leadership graduates and CEO of National Council of La Raza, a Hispanic think tank.



Juan Williams (left), host of NPR's 'Talk of the Nation,' moderated a panel discussion on diversity in media.

He also said there are lots of populations in this country who are not on TV, "and therefore they don't exist."

All the panelists said radio station consolidation had led to few ownership opportunities.

"Somehow we've got to make people

broadcasters from then-FCC Chairman Bill Kennard to improve media ownership diversity.

Broadcasters that contribute to NABEF and who have representatives on the board include Cox Radio, Bonneville

See SERVICE, page 7



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Headlines, bylines and deadlines from around the world of radio ...

Admit it, you've always thought it wouldn't be too hard to make an FM antenna. Just grab a couple of coat hangers and stick 'em up on a pole.

This photo, which made the online rounds in recent weeks, comes courtesy of Wayne Blackwelder, an engineer at Broadcast Works. The engineering and consulting company provides technical support to radio stations. He said low-power FM was the inspiration.



**NEW LOW POWER FM ANTENNAS
AVAILABLE WITH OR WITHOUT RADOMES**

Is this your next FM antenna?

"LPFM was a running joke at the NAB convention, so this gag is a culmination of all the jokes I heard," Blackwelder told Radio World's Michael Hedrick.

"A lot of people I talked to, manufacturer reps, station engineers, consultants and others, think of LPFM as a Mickey Mouse-type nuisance. For them it isn't about competition on the airwaves but creating more clutter.

"I'm not for or against LPFM — I just thought it was a good opportunity to make a joke. It's just done in fun."

Rumor has it that the antenna test range is located in a coat closet.

★★★

Congratulations to Barry D. Umansky, who writes the column *Broadcast Law Review* in Radio World.

The former deputy general counsel of the National Association of Broadcasters has changed law firms; he now is with the communications practice group at Thompson Hine LLP in Washington.

Contact him in Washington at (202) 263-4128 or via e-mail to barry.umansky@thompsonhine.com

★★★

Radio's top managers apparently still believe in IBOC.

The NAB Radio Board recently issued a resolution, stating it believes in-band, on-channel digital audio broadcasting technology "holds promise to ensure a digital future for AM and FM broadcasters and their listeners."

The Radio Board acknowledged the "substantial progress" being made in developing IBOC DAB technology and said the industry "recognizes the importance of digital broadcasting technology for improving the technical quality of its service as well as offering opportunities for new services, and urges digital operations as soon as possible."

The owners who make up the board encouraged the NRSC and iBiquity Digital Corp. to complete their tests and evaluations as rapidly as practical. They asked the FCC for an "early decision ... establishing the intention of the FCC to adopt a single tech-

From the Editor



Paul J. McLane

nology standard, and to state its preference for IBOC as the best path to digital terrestrial radio broadcasting pending positive results from the industry's ongoing IBOC DAB test and evaluation efforts."

As I've said before, the time has come for IBOC to prove itself after a decade of promise. I believe the prize is still worth the effort, and radio's group owners seem to concur. 🌐

Our giveaway in the Radio World Silver Sweepstakes this issue is a Maycom HandHeld Flash card recorder, contributed by Bradley Broadcast and Pro Audio.

The winner is consultant Richard K. Phoenix of North Plainfield, N.J. He is involved in Internet Webcasting with a service called "The Album Zone" in London, which is distributed through satellite and Webcast via Radio Caroline in Holland.

The Maycom HandHeld, which earned a Radio World "Cool Stuff" Award last year, is compact, rugged and reliable; it can be set up via the configuration editor for Windows. It has an internal microphone, but you can connect two sources such as a CD player, mixing console or your own mic as well. Through its USB connection, the HandHeld can be ported to your PC for further editing of stored files.

Features include MPEG-2 Layer II and linear processing, illuminated LCD display and rechargeable smart battery pack. The unit operates on standard alkaline batteries.

Audio recording capacity, depending on the size of the Flash card, is up to 6 hours using a 320 MB card at 128 kilobits per second.

Retail value: \$899.



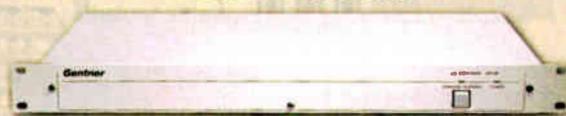
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WTOP2

► Continued from page 1
launch (RW, March 15, 2000). Back then, its name was WTOP2. The name was changed to Federal News Radio in mid-May 2001 to reflect its growing audience outside the beltway.

Federal News Radio had 70,000 listener streams in December 2000 during the height of the presidential election recount coverage, said John Meyer, Federal News Radio Internet development director.

Streaming fresh content

"On average, more than 60,000 streamers listen to the Web station each month. Average TSL (time spent listening) in April was 38 minutes. That's a substantial increase from last year," Meyer said. The station bases those numbers on information furnished by its streaming provider Activate Corp.

Since Federal News Radio is an Internet-only station streaming fresh content and not simply a stream of Bonneville International Corp.'s WTOP(AM-FM), the cyber site was virtually unaffected by the American Federation of Television and Radio Artists dispute earlier this year, Meyer said.

Many radio stations ceased streaming audio over the Internet in April when AFTRA demanded its voice talent be paid extra for commercials that air on terrestrial broadcasts and then are streamed online.

In retrospect, Meyer said the station may have been affected indirectly by the AFTRA dispute. "Listening levels were down a bit in April, but I think part of that is attributable to the fact people thought all radio stations stopped streaming, when in fact we were not affected by that," he said.

What we've done can be replicated elsewhere by highly targeting an audience.

— Jim Farley

With no shortage of government workers in the nation's capital, about 350,000 civilian federal workers, plus another 90,000 military personnel, Federal News Radio (www.federalnewsradio.com) serves a niche audience with federal government news, talk and live briefings from the White House, State Department and the Pentagon. It also runs coverage of House and Senate hearings.

Marlis Majerus is Federal News Radio's news director and programs the station. Reporter Lisa Nurnberger is based on Capitol Hill. Both also file stories for WTOP(AM-FM).

To complement the local content, Federal News Radio uses Associated Press' All News Radio as its framework, said Jim Farley, vice president of news and programming for WTOP(AM-FM) and Federal News Radio.

"With AP we can insert our own blocks with our specific federal content. We are totally focused on covering the

business of the national government and things that affect federal workers. Federal News Radio is also popular among the people they deal with, like lawyers and lobbyists," Farley said.

"We can spend more time with Federal News Radio doing long-form programming like hearings and briefings and in-depth stories, and we cross promote the online station using WTOP(AM-FM) quite a bit," Farley said. "That way we don't interrupt the usual flow of news, talk and weather on the terrestrial stations."

Farley said the original marketing plan for Federal News Radio centered around the well-known WTOP call letters, but evolved into Federal News Radio after the station began receiving e-mail from federal workers from outside the National Capitol area.

FederalNewsRadio.com

part of the WTOP Radio Network

"We realized that not only do we have a sizable federal workforce in D.C., but all over the world. We even have e-mail from the U.S. Embassy in Beijing. Wherever there are feds, we want them," he said.

Federal News Radio advertisers hope to reach the target audience of federal workers. Scott Levy, former director of interactive for Bonneville International, said the goal is to integrate "partners" into the programming.

"Advertisers get involved in a variety of ways. They get a commercial every hour, which is obviously very unique. They also get logo exposure within the

site. They are also involved in promotional mentions on the terrestrial side," Levy said.

Farley said advertisers receive a commercial per hour based on the shorter TSL for Federal News Radio and online audio streams in general. "I think that will be the Internet sales model for the future," he said.

Billing impact

The revenue stream generated by Federal News Radio comes from a base of select advertisers. "They're companies that want to reach federal decision-makers. They consist of information technology companies, GEICO Insurance (Government Employees Insurance Co.), and even a division of the government's General Services Administration," Levy said.

This year's economic slowdown has had little impact on Federal News Radio's billing, Levy said. "Washington

is unique, in that because of the federal government, it's almost recession-proof. Federal News Radio is spinning profits right now," he said.



Levy said revenue numbers for Federal News Radio were not available. BIA Research estimates WTOP(AM-FM) had gross revenues in 2000 of \$24 million.

Dave Garner, chief engineer for Bonneville's Washington operations, said designing Federal News Radio's techni-

a standalone PC, Garner said.

Much of the infrastructure for Federal News Radio's studio was already in place with the radio news operation.

"We knew the newsroom had to function in live-assist mode some of the time. We have a board-op available during the day to switch to alternate audio sources. But, pretty much, the Enco system runs the station," he said.

Tweaked PCs

Audio processing is another thing Garner had to consider in the planning stages. "It's not much different from terrestrial broadcasting. We take the PCs in the plant and tweak the audio somewhat to what sounds best. We use a Symetrix audio processor tuned for a PC, but a lot depends on the soundcard you're using," Garner said.

The only concern early on for Federal News Radio was a connectivity problem for some streamers. "It was (a) reliability issue. The number of simultaneous contacts determines if the pipe will squeeze down and cause interruptions with connectivity." The station streams at 20 kilobits per second.

See WTOP2, page 6 ►

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WTOP2

► Continued from page 5

Streaming services provider Activate Corp. provided Federal News Radio's Webcasts initially. Federal News Radio now streams through LMiV, the Local Media Internet Venture, Garner said. The LMiV is a consortium of broadcasters, including Bonneville, Emmis Communications, Entercom Communications, Jefferson Pilot Communications and Corus Entertainment. Garner called LMiV "an industry-owned Internet operation."

Brian Olinger, news operations director, said the Federal News Radio newsroom uses the AP's Electronic News Production System (ENPS) as the back-

bone of its news operations.

Federal News Radio has three AP ENPS workstations, Olinger said. ENPS allows Federal News Radio reporters, writers and editors to connect all elements of their news operation — scripting, news wires, assigning news coverage, maintaining contact lists and researching archives. ENPS also links newsroom computer systems and broadcast production equipment.

Brand extension

ENPS, for example, allows Nurnberger to dial in and connect from a laptop on Capitol Hill, Olinger said. "She can transfer text and communicate directly with the news center."

Federal News Radio staff uses Cool Edit 2000 for editing audio, Olinger said. "We also have the Cool Edit studio plug-

in which gives us four-track capability for the more extensive pieces our reporters work on. It really helps with the production values," he said.

A big asset to the Federal News Radio newsroom is the ability to tap into all Senate hearing rooms on Capitol Hill.

"All of the feeds go into a hub-room in the basement of the Dirksen Senate Office Building and from there are distributed to different organizations. We just dial into the hub and use an audio switcher (to) get audio from any room we want," Olinger said.

Olinger said the Federal News Radio newsroom operation is treated like any other broadcast outlet. "The method of distribution is different, but running (Federal News Radio) is really no different than a terrestrial station."

Farley said he is surprised other broad-

casters in cities such as Detroit and Hartford have not pursued the idea of streaming stations geared specifically for a specific target audience.

"In Detroit it would be auto news and in Hartford maybe geared toward the insurance industry. What we've done can be replicated elsewhere by highly targeting an audience."

Levy said Bonneville is happy with Federal News Radio's results. The broadcaster is exploring options for a similarly highly focused Internet-only radio station elsewhere.

Program consultant Ed Shane, president of Shane Media, said most news and talk stations are streaming audio. However, the uniqueness of Federal News Radio is what made it a success. An auxiliary broadcast stream is a great way to "extend the brand," Shane said.

"If you go mainstream on your terrestrial stations, why not go niche on your Internet stream? And if you are in a city that has a very specific population or industry, it makes a lot of sense to target them," Shane said.

Shane cited as an example www.energynewslive.com in Houston. Affiliated with Williams Energy Services, the site provides continuous news updates on the energy industry. The stream is not associated with any broadcast group.

The stickier the site, the better.

— Holland Cooke

"It's a good illustration of super serving a particular audience via a Web-only broadcast," he said.

Holland Cooke, news/talk specialist with McVay Media, said what Federal News Radio is doing is innovative and interactive. "The terrestrial radio stations complement the stream and vice versa. It's beneficial both ways. It allows you to drive listeners to the Web site and make them stick. The stickier the site the better. You may never get the huge numbers of listeners, but it's another way to brand the product."

"With the Web you can be two things at once," Cooke said. "What you can do with multiple Internet streams is limitless. You can become a multiplex of sorts. If you have a baseball game preempting Rush Limbaugh on your AM station, put Rush on the Web stream. The versatility of the Web is fascinating."

Being innovative does come with some risk. At least one consultant wonders if Federal News Radio might inadvertently steal TSL from WTOP(AM-FM).

"If they're indeed going after and drawing a very specific audience, it might not impact TSL from the terrestrial stations much. But by having similarly programmed formats you run the chance," said John Lund, president of The Lund Consultants.

Farley said he has seen no evidence of that happening. "Since we launched Federal News Radio, TSL for WTOP(AM-FM) has been slightly up. The strength of WTOP(AM-FM) is drive times, while Federal News Radio has its heaviest listening during the workday," Farley said. ●

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LPFM

► Continued from page 1
staffing the station with volunteers in June.

He said the station had yet to air underwriting announcements, but planned to do so.

Grey hired Leo Ashcraft, chief engineer of MBC Consulting in Mt. Vernon, Texas, to handle the frequency application process and construction.

Ashcraft expected the installation to take three days, but said it took twice as long and ran about \$4,000 over budget.

Unusual STL

The studio is located in an historic building. At the time of installation, the structure was under renovation, and the landlord would not allow the crew to drill holes for cable access to reach the roof.

Eventually, Ashcraft received permission to use the historic Radisson Bentley Hotel across the street as a transmitter site.

"The biggest problem was getting audio across the street," said Ashcraft. In a few months, he expects the station to have equalized phone lines. But that option was not available immediately.

"All of the lines are buried in that area. We couldn't call the phone company (on the weekend), and we only had two more days to do it."

He looked for Part 15 devices to create a temporary studio-transmitter link.

"We found 2.4 GHz links from Radio Shack. They were perfect but they would have to be line of sight, as each end would have to feed each other." Again, roof access was a problem.

His temporary solution was to run the output of the mixer into a \$400 wireless mic system.

Automated

"The STL is around 170 MHz from that wireless mic. We hooked power and audio directly into that, removing the microphone element," said Ashcraft. He joked that the crew called it "Mr. Microphone STL."

"Their budget was small, so we had to come up with solutions out of the norm, otherwise they wouldn't be on the air," he said.

So what does America's first LPFM station have for studio gear? A 16-channel Behringer mixer, doubling as a production studio; a Behringer Ultravoice mic, two RCA 5 carousel CD players and an RCA cassette player.

The programming is running 24 hours a day using the DRS 2006 hard-disk-based automation system

The transmission chain consists of a used Orban Optimod-FM 8200 audio processor purchased from Harris, driving a 250 W exciter-amplifier combo, an FCC Part 73-verified Suono Telecom transmitter. The signal feeds a one-bay, circularly polarized OMB antenna for an ERP of 100 W. ●

Service

► Continued from page 3
International Corp., LIN Television Corp. and Benedek Broadcasting Corp.

Renee Poussaint, a former anchor for WJLA-TV in Washington and a former correspondent for CBS and ABC News, told the graduates she got into TV broadcast news after completing a journalism program for minorities at Columbia University. At one time she thought she might want to own a station, but realized she wasn't "temperamentally suited" to it. Although she left commercial broadcasting to work on her own projects, she told graduates, "If mainstream broadcasting is going to change, leaving it is not the answer." ●



Renee Poussaint, former anchor for WJLA-TV, Washington, now owner of an independent TV production firm, spoke to leadership training graduates.

Matrix—

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NEWS ANALYSIS

BBC Fans Suffer SW Withdrawal

Tom Vernon

The BBC's announcement that it would discontinue World Service shortwave service to North America effective July 1 startled many in the international broadcasting and news communities. World Service feeds to Australia, New Zealand and the Pacific also were terminated.

The decision came at a time when shortwave listening and the sale of world-band radios in the United States and Canada are on the increase.

In explaining the decision, Gerald Timmins, head of the Americas Region of the BBC World Service, noted a shift in listener demographics over the past five years.

Other outlets

"Listening to BBC programs through public radio stations has grown considerably, as has hearing them over the Internet," he said. "We now have about 2.5 million FM listeners, and 1.5 million Internet listeners. There are about a million shortwave listeners, but that number has remained static in recent years.

"Our research shows that shortwave listeners are also hearing us via other means."

Soon, World Service broadcasts will be available continuously from the two radio services that will serve the United States, XM Satellite Radio and Sirius Satellite Radio.

"I don't want to lose any shortwave listeners," Timmins said. "I want to encourage them to explore these other options.

"If the alternatives today aren't that attractive, in 12 months to two years they will be. We'll be updating the World Service Web site with news about these alternate delivery methods as the information becomes available."

Timmins suggested that listeners in the United States may still be able to hear English-language World Service broadcasts beamed to other parts of the globe.

Critics of the decision were quick to disagree with many of these points, and there was a rapid reaction on Internet mailing lists and newsgroups devoted to shortwave listening — most of it negative.

Larry Magne, a shortwave broadcasting expert and publisher of Passport to World Band Radio, was among those

who think that there may be some serious flaws in the BBC's thinking.

"When you look at the numbers from world-band receiver manufacturers in North America, which show double-digit increases in sales, you have to wonder where they're coming from when they say shortwave listenership is declining."

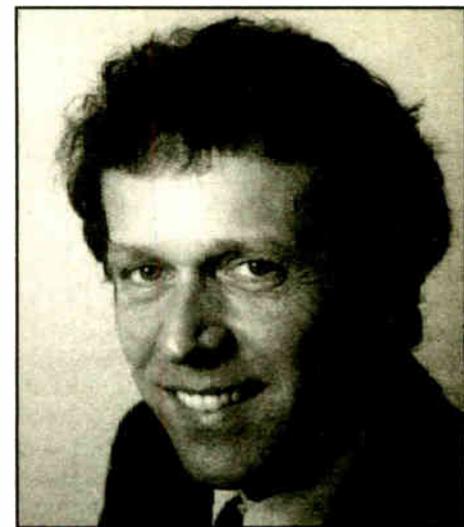
Magne also questioned the BBC's claims of increases in the use of alternative media. While a growing number of people listen to the BBC's Webcasts, there are no reliable figures or estimates as to how large that audience actually is, he said.

misleading, according to Magne. Most of what is rebroadcast on NPR and elsewhere are short segments of programs that complement public radio's own programming.

Magne said, "When full programs are rebroadcast on public radio, it is usually in the wee hours of the morning when there are few listeners."

The typical overnight fare on public radio stations varies by location, but may include programs such as "Outlook," "From Our Own Correspondent," "World of Music" and "Omnibus."

Sirius Satellite Radio and XM Satellite



Gerald Timmins is head of Americas Region at BBC World Service.

There is a romantic relationship between ... listeners of shortwave and the broadcasters. It would be a major mistake on the part of the BBC to alienate them by shutting down broadcasts to North America.

— Esmail Hozour
Grundig/Lextronix

"There is a real limit to what Webcasting can do as long as it is wired," Magne said. "There have been attempts at wired broadcasting going back to the earliest days of radio, and none have been too successful. While there may be some Web listenership, it is not enormous when compared with the shortwave audience."

Critics point out that Web and shortwave demographics tend to differ. Web audiences tend to be at work, and their listening peaks around midday. Most prefer entertainment programming.

Listeners to the BBC and other world-band broadcasts usually listen in the evening hours and on weekends, and prefer serious news programming.

Claims that many listeners now tune into BBC programs on public radio are

Radio plan to offer continuous World Service programming, but this too may be problematic, critics say, pointing out that the subscription radio business model is unproven.

Extra steps

What about coverage? Most World Service programming for the Americas originated at a RCI transmitter site in Sackville, New Brunswick, from a VOA relay station in Delano, Calif., or from a site at Okeechobee, Fla.

While it may be possible to receive English-language World Service broadcasts directed to other parts of the world, those signals would be weaker than that which blanketed North America. Listeners might have to resort to external

antennas and hope for favorable high-frequency propagation to receive BBC broadcasts.

Timmins said the best alternatives for shortwave listeners on the East Coast may be programs from the BBC's Caribbean relay station on Antigua, while West Coast listeners might have luck with signals originating from Singapore.

Also troubled by the BBC's announcement were manufacturers of shortwave receivers.

Esmail Hozour, chief executive officer of Grundig/Lextronix in Redwood City, Calif., said, "The annual unit sales of all makes of shortwave radios in the United States and Canada is well in excess of 1 million. Grundig's North American shortwave sales alone have grown every year since 1991, often at double-digit rates."

The typical shortwave listener has changed considerably from the stereotype of 20 or 30 years ago. Then, electronics hobbyists, amateur radio operators and a few expatriates formed the majority of shortwave listeners. Reliable reception required a large communications receiver, an outdoor antenna and some technical expertise.

Advances in receiver technology helped change this demographic. In particular, the advent of digital tuning, memory presets for regularly tuned stations and smaller size helped to open shortwave listening to a wider audience.

Hozour said today's typical listener is less of a technophile, more interested in the variety of programming available on world-band receivers.

"Ninety-five percent of Grundig's customers are new to shortwave, they had

See BBC, page 14 ▶

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NEC and Flexible Metallic Conduit

Charles S. Fitch

This is one in a series of articles about the National Electrical Code and how it applies in radio station environments. The articles and supporting materials are available online at www.rwonline.com in the reference section.

We come now to one of the most helpful wiring methods: flexible metallic conduit.

The two most common varieties are bare metal, flexible metallic conduit — known in the electrical vernacular as Greenfield — and liquidtight flexible metallic conduit, usually referred to simply as liquidtight.

Smooth inside

Bare metal, flexible metallic typically is constructed out of a continuous series of coiled, interlocking loops of metal, akin to spiral wrap. Liquidtight has nearly the same arrangement except that the metal is covered with a liquid-proof, non-conducting jacket.

Practically speaking, the bare metal variety must depend on the metal spiral to maintain structural integrity. As a result, the interlocking loops, made up of bellowed and bent sheet metal, create ridges and connection shoulders. Wire fed through the conduit can catch on the obstructions. It is not waterproof, hence not normally rated for wet locations.

Liquidtight gets much of its structural rigidity from the covering, so the inside metal wrap typically is smoother; wires are easier to work through.

I consider myself the patron saint of liquidtight; it is my favorite wiring method material. I've specified and installed maybe a thousand miles of this stuff. The extra expense of liquidtight is small. It is aesthetically pleasing; it is easier to handle, work and install; and it provides more durability and protection

and other conduits are, flexible metallic conduit is almost plastic. It's a natural to go between the firmament of your transmitter building and the vibrating platform of your transmitter. You can make that last-mile transition from a ceiling junction box to the racks and equipment below in a neat, official-looking manner.

The NEC covers bare metallic in Article 350, and metallic liquidtight in Article 351, Section A. Let's focus on the use of liquidtight.

I consider myself the patron saint of liquidtight. I've specified and installed maybe a thousand miles of this stuff.

in the average installation.

In general, you can use liquidtight indoors and out, expose it to wet conditions, thread it in and around most everything ... in short, you can use it just about anywhere except where subject to physical damage or temperatures above rating.

As rigid and inflexible as EMT, PVC

Trade sizes of both types start at 3/8-inch and can be obtained in diameters as large as 4 inches.

In part 351-5(a) for liquidtight, the NEC calls for a minimum size of 1/2-inch. So why do they have a 3/8-inch liquidtight?

As often mentioned, the articles of the NEC dictate the manner and means of the application of particular materials and techniques. Occasionally a particular article provides exceptions, defining circumstances in which we can enjoy a little wiggle room.

Although 1/2-inch normally is the minimum allowable size, an exception is made for 3/8-inch liquidtight. This exception permits limited, specific uses such as short leashes (6 feet or less in length) to motors and certain lamp fixtures.

Similarly, the same exception appears earlier in the NEC for metallic flexible conduit, and this article refers

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This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

Radio World encourages our readers to obtain a full copy of the code as a complement to this series and as a future reference.



us back to the earlier complete appearance of the text. In this case, you'll find the details of the 3/8-inch exception at Article 350-10(a).

The most common appearance of 3/8-inch around the station is a short length from a "motor disconnect" switch to an exhaust fan or similar device.

When you use liquidtight to make the transition from something like a transmitter or any item that vibrates, such as an HVAC compressor enclosure, the NEC requires a minimum of 1/2-inch, as these applications aren't mentioned in the 3/8-inch exception.

Also, if the length is more than 6 feet and there are NEC-involved electric wires, you must use 1/2-inch no matter what. The length limitation is the trigger.

Various uses

This brings us again to an important point. The NEC focuses on how materials are to be used for electrical wiring. Most of the material that we have been discussing also can be used for audio, fiber-optic cable and the like without those "electrical" restrictions.

For instance, you may want to route a small run of coax from a satellite dish LNA/B and protect it from the elements within 3/8-inch liquidtight. It might be difficult to pull that lead through 3/8ths over a long distance, but there is no restriction for that coax because it is not covered by the NEC.

When buying liquidtight for electrical use, specify or purchase the type with an integrated, recognized separate grounding/bonding conductor. The coiling of the liquidtight metallic wrap, if used for the bonding ground, tends to present some inductance to the AC flow, particularly if it is high-fault current.

Most liquidtight with this separate ground feature is marked and rated ordinarily for use where the circuit conductors carry 40 amps or so. The potential fault current is within the capability of the integrated grounding conductor.

Even if you choose to run a separate grounding/bonding conductor, you can never have too much ground. Again, the

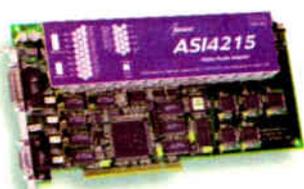
See NEC, page 20 ▶

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Zephyr Xstream. Sometimes the sequel is even better than the original.

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BBC

► Continued from page 8

never listened to the medium before purchasing one of our receivers. Our 15 models of shortwave receivers are targeted to nonhobbyists. These are people who are interested in international news, financial reporting and different cultures," he said.

Romance of shortwave

"There is a romantic relationship between these listeners of shortwave and the broadcasters. It would be a major mistake on the part of the BBC to alienate them by shutting down broadcasts to North America."

Hozour sees streaming media and

shortwave as complementary. Once wireless Internet standards are worked out, he can envision Grundig offering receivers

receiver manufacturer to see North American sales skyrocket in recent years. "Sony's unit sales have increased 30

I don't want to lose any shortwave listeners ... If the alternatives today aren't that attractive, in 12 months to two years they will be.

— Gerald Timmins, BBC

that will tune in AM, FM, shortwave, satellite and IM — Internet Modulation.

Grundig is not the only world-band

percent over the past two years, with the rate of increase being strongest in the last year," said Paul Sabo, marketing manager

for world-band receiver products at Sony of America, Park Ridge, N.J.

It is not certain to what extent the BBC's decision to curtail service to the United States and Canada will affect the sales by suppliers like Sony and Grundig.

Responding to the sales statistics, Timmins said, "You need to understand why some of those people are buying shortwave radios. I suspect that many of the purchases are by international travelers who want to stay in touch.

"If you're going to Cambodia, for example, you absolutely need a shortwave radio to stay connected."

The BBC's recent action might also have a negative impact on the deployment of digital shortwave technology, observers said, although full implementation is several years away.



Larry Magne

North America, with its large number of listeners, might be an ideal test bed for transmitters and receivers, but the BBC service would be out of the picture as a potential driving force for this new technology.

Listeners who wish to voice an opinion about the BBC's decision may do so by calling 44-207-557-1270, or by going to the BBC's Web site at www.BBC.co.uk/worldservice and following links to an e-mail address. 

MARKET PLACE

FM System for Translation

Occasionally, radio engineers are asked to help out with a special kind of transmission application: language interpretation.

Conference Systems Inc. offers the PLS500 series, a line of portable language interpretation equipment.

Director of System Services Patrick Herlihy said, "In the past, similar products designed for other audio applications have been adapted into the language interpretation market and users have had to work around their limitations."

These systems are suitable for tour groups, multicultural churches and schools with non-English speaking students or parents. They find use in corporate boardrooms, international hotels and military training facilities.

These FM wireless systems allow for bi-directional interpretation to be performed from a single interpreter transmission unit.

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News

First Professional MP3 Audio Cards

BSI and AudioScience have teamed up to create soundcards that play four MP3 files simultaneously without a software CODEC. The \$2095 ASI4344 and the \$2795 ASI4346 were available on May 1st, exclusively at BSI.



This is the first time a professional audio company has created devices specifically for the MP3 format. The two cards decompress audio files on their own hardware so the processor doesn't have to. With these cards, the skipping and slowness that plague broadcasters with MP3 files have been eliminated.

The concept of decompressing audio on an audio card has been used with other formats, however the Fraunhofer Institute has controlled the CODECs for the MP3 format. Putting the CODEC on the card vastly improves PC performance, so playing multiple MP3 files simultaneously will be no different to your PC than playing multiple linear files.

"Our corporate mission is to respond to customer requests. AudioScience has a record of leadership in the digital audio market. When BSI and AudioScience formed the concept of combining our hardware with MP3 technology it made sense for both of us," says AudioScience President Richard Gross.

"The radio industry has been heading towards an audio card like this one ever since the MP3 format became popular. Broadcasters wanted to use MP3 files, but could not get the consistent sound they needed," says Ron Burley, BSI President. "We were happy to have AudioScience as a partner in this because of their record of creating products users want, rather than finding customers for the cards they decided to make."

BSI will be the exclusive distributor of the new audio cards. And only BSI will distribute the upgrades to two other cards, the ASI4334 and the ASI4336, allowing them to play triple MP3 files. The \$200 upgrades allow you to buy the earlier card with upgrade for the same cost.

"WaveCart is really an awesome tool. When I trained our weekend board-ops, who had no radio experience, it took only about 15 minutes before they had a real grasp on it."

Clive Millett
KKVV- Las Vegas, NV

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Tip

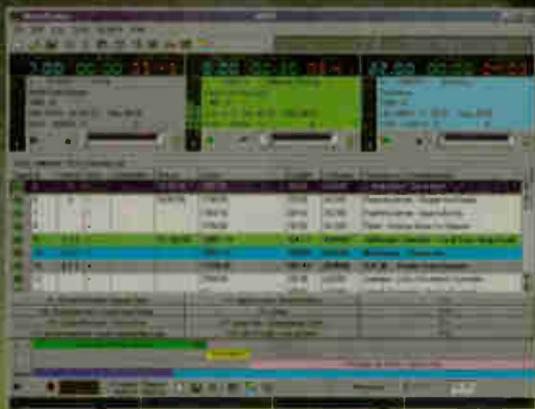
Online Tech Data

If the net clock for your station is locked in the PD's office or you can't find the wiring diagram for your audio switcher, you'll probably find the info you need at www.bsiusa.com/support. The BSI web support area has a database that includes wiring instructions for connecting to external devices, whether or not you're using BSI software! It also includes network program & tone clocks. You'll also find complete online manuals for all BSI programs.

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User File

WJIL - Dan Kolenda

Dan Kolenda visited BSI for WaveStation Weekend in February. "I thoroughly enjoyed it. It's so good to be able to see BSI President Ron Burley demonstrate things. Reading the manual is great, but being able to see him do it, the lights just all come on. He really wants to help us, instead of just trying to sell a product. Ron kept saying that BSI was a user-driven company, and you can really feel that from what he says to you."



Dan has been using WaveStation for a while now. Although he was familiar with the product, there was more to learn. "I've always had a little bit of reluctance to try new things because I might go off the air. WaveStation Weekend really raised my confidence level. I don't mind experimenting more now. And the technology has changed so much that this really brought me up to date. I also think it's good to ask for a roommate," he says, "I planned to go, not for a vacation, but to learn. My roommate and I sat in our room and just bounced ideas off each other."

The thing Dan liked most about the \$1499 WaveStation Weekend was the personal aspect. "I really enjoyed talking to the different technicians. I've talked with them before over the phone, but being able to sit down and pick their brains was worth its weight in gold."

Send us your story.

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WIRED FOR SOUND

Who Put the Zip in Speaker Wire?

Steve Lampen

Well, I've been writing this column for almost four years. You'd think I would run out of things to say about wire and cable.

Oh, no. There's lots to talk about. And one subject I have never talked about in depth is speaker cable.

Among the Internet newsgroupies I talk to, there is no other wire and cable subject that stirs up more mud than speaker cable. So, let me spend the next few columns trying to calm the waters and maybe filter out the truth from the snake oil.

Speaker cable conducts the output of an amplifier to a speaker. What we want is a cable that conducts the electricity to the speaker and has no effect on the signal. Well, of course, this is impossible. There will always be some kind of effect.

The real question is, what effects are they? And, which effects have an audible result?

Golden ears

After all, we're talking about "hearing" the results. And this is the crux of the problem.

While I can tell you the resistance or capacitance of the cable (and a dozen

other parameters), there is no current way to correlate these measurable effects into what you hear. Especially when the high-end crowd talk about 'soundstage' or 'detail' or a myriad of similar terms, there is no known laboratory process that will tell us the electrical parameters that cause these effects, or even if these effects exist at all.

In fact, while those high-end folks are arguing that point, let me tell you a story about a friend of mine. He is quite well known in the high-end audio community, but I have omitted names here to protect both the innocent *and* the guilty.

This friend was determined to see if a panel of highly-qualified judges could tell the difference between speaker cables. He took some 12 AWG zip cord and a number of other exotic speaker cables, you know, the ones which cost dozens or hundreds of dollars per foot.

He used a top-of-the-line amp, speakers and top-quality source material. All these choices were approved by his panel, as was the source material. He laid the cables out on the floor, in full view of the panel, and started by hooking up the 12 AWG zip cord. He had the panel listen for a few minutes to a number of selections, using 12 AWG zip as the "reference."

Then he had his assistants go behind each speaker, and behind the power amp, to change the cable. And, of course, when they got to the expensive cables, well, the soundstage, the detail, it was dramatic! They played the same selections through each of the cables. While some of the panel members preferred one cable over another, they all agreed that they left the 12 AWG in the dust.

My friend told me the names and qualifications of the panel members, some of whom had advanced degrees. Others had spent their lives working in the professional audio industry. These were the tops of their craft. At the end of the test, they thanked my friend for such an enlightening experience.

My friend said he didn't have the heart (or guts) to tell them what really happened. Each time the assistants went behind the speakers and amplifier to change cables, they had done nothing. *The entire time the panel was listening to the 12 AWG zip cord.*

See LAMPEN, page 20 ►

What We Can Measure in Speaker Cable

Resistance (in ohms):

This effect turns electrical flow into heat. It affects all frequencies equally. Changing the size (gauge) of the conductor changes its resistance. Resistance usually is specified per unit length (i.e., 100 feet, 100 meters, 1,000 feet etc.) and is additive.

Capacitance (in picofarads):

With speaker cables that are paired, or coaxial, the two conductors with insulation in between form a capacitor. Capacitors hold an electrical charge. The capacitance is small and measured in picofarads. It is additive and usually displayed per foot or per meter and must be multiplied by the actual cable length to get the total capacitance. Capacitance affects the signal level and is frequency-dependant. The higher the frequency, the greater the reactance caused by the capacitance and the greater the signal loss.

Inductance (in microhenries):

Inductance is the ability to hold a magnetic charge. All conductors have inductance. It is also frequency-dependent but is in series with the cable, as opposed to capacitance, which is in parallel. The inductance of a cable is small, and the effect is cancelled out by the capacitance. Therefore, inductance rarely is specified in manufactured cables.

Impedance (in ohms):

The total of resistance, capacitance and inductance. As frequencies get higher, resistance becomes less and less of a factor. At frequencies above 10 MHz or so, only capacitance and inductance are left, so the impedance settles to a "characteristic" value.

Skin Effect (in inches):

As frequencies get higher, the signal tends to travel on the outside or "skin" of a conductor. A minor effect for analog audio, skin effect isn't a major factor until well into the Megahertz.

Copper Purity (in percent):

While some high-end aficionados require high purity, such as "six nines" (i.e. 99.9999 percent), most cable manufactured domestically uses ASTM B115 ETP copper, which is 99.95 percent pure.

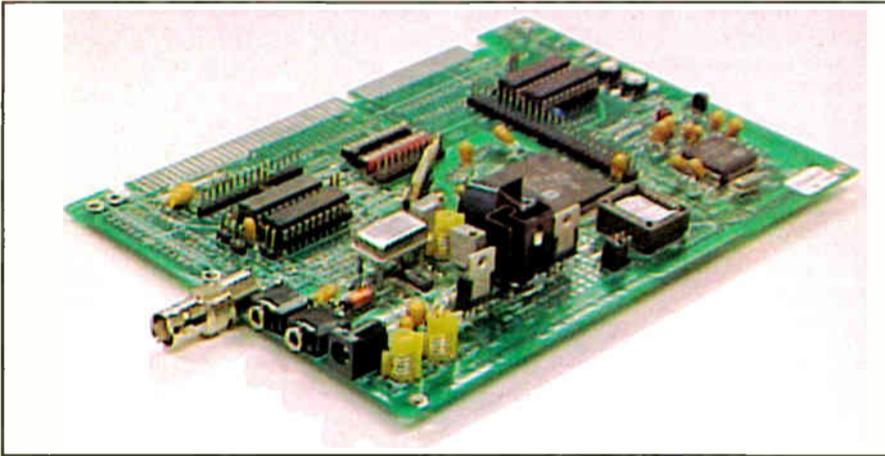
MARKET PLACE

Crown CardCast PC-Based Transmitter

The Crown Cardcast System, introduced at NAB2001, is touted as the industry's first PC-based transmitter.

The module plugs into a PC and provides a digitally processed 250 mW output suitable for FM nearcasting needs such as language translation, hearing reinforcement, dorm entertainment, auditoriums and hospitals. The system can be managed with a variety of available software programs.

Cardcast accepts line-level analog audio input. The basic module provides a digital stereo generator and software-switchable gain as well as automatic gain control.



Prototype of the CardCast

Frequency agile, the system can be switched at 100 kHz intervals between 72-108 MHz. The frequency is software-selectable by the user. No license is required, the company said, if the system is operated as designed — into the antenna supplied. Any other use, Crown said, may make it noncompliant with FCC rules and make the operator subject to federal penalties.

Projected range of the patent-pending system is 100 to 300 feet, depending on the quality of the receiver and the presence of walls and obstacles.

Cardcast will be available in the fall.

For information contact the company at (219) 262-8900 or visit www.crownbroadcast.com.

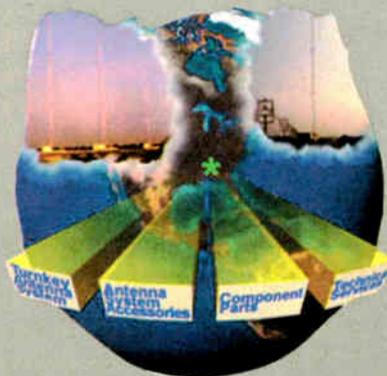
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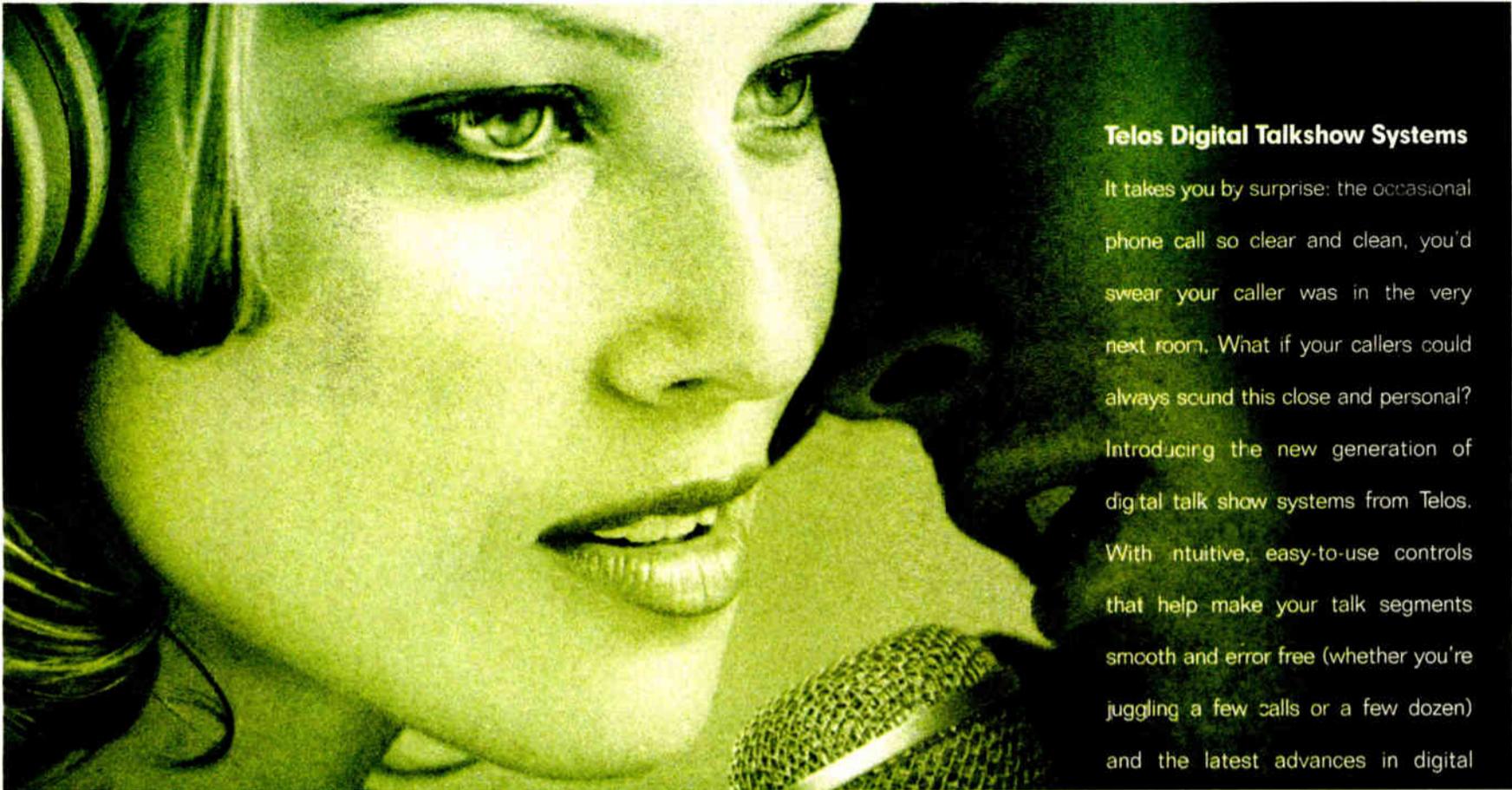
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Workbench

Radio World, July 18, 2001

Take This Rod and Shove It!

John Bisset

Great summertime weather means it's time to follow through with the ground-rod projects we talked about in the March 30 issue. Since then, my mailbox has been filled with solutions to sinking a 10-foot ground rod successfully.

It seems everyone has been down the "step ladder and sledge hammer" road!

Here are some other worthwhile suggestions.

Both Paul Kaminski at Motor Sports Radio and Dave Cass from WJDF(FM) in Orange, Mass., suggested my old favorite, the W.W. Grainger catalog, for solving your problem.

Dave pointed out that Grainger sells several bits identified as ground rod drivers. The SDS shanks may or may not fit jackhammers, but the 1-1/8-inch hex shank will. As for using a jackhammer for this job, Dave admits he's no expert,

but suggests that the hammer be throttled way back, to drive the rod rather than bend it.

Fairmont Tools, on the Web at www.fairmont.textron.com, makes a hydraulic post and ground rod driver. These work more or less like a jackhammer, but slower. Keep in mind that this tool requires a hydraulic power source, whereas the jackhammer needs compressed air.

★ ★ ★

Paul Kaminski referenced the same pages in the Grainger catalog, and suggests every engineer add a copy of their catalog to their reference library. The catalog includes HVAC, plumbing, electrical, safety and security items useful for today's chief to handle all the problems inherent to running radio stations.

Paul got his indoctrination to Grainger

when they sponsored a race car on NASCAR's Busch series, and Paul covered the media function!

Jon Banks, a contract engineer in Colorado, once hired a contractor friend to drive ground rods. He used an electric "chipping hammer," which came with a cup shaped attachment, in addition to the chisel point. It's been Jon's experience that these tools generally are available at rental shops. In Jon's case, the contractor drove eight 8-foot rods in less than half an hour.

House" (www.pbs.org). On one show, they demonstrated the installation of lightning protection on a house. The contractor was shown driving the ground rod into the soil, next to the service meter, using a hammer drill and a stepladder. It appeared to Bob that they didn't use a bit, rather they just opened the chuck of the drill enough to accept the end of the ground rod.

Using a chuck to drive the rod brings up a good point from Dave Remund, VP of Engineering for Regent Communications. Dave has a friend who runs an equipment rental yard, and recently they talked about driving ground rods with a jackhammer. He confirmed that contrac-

My mailbox has been filled with solutions to sinking a 10-foot ground rod successfully.

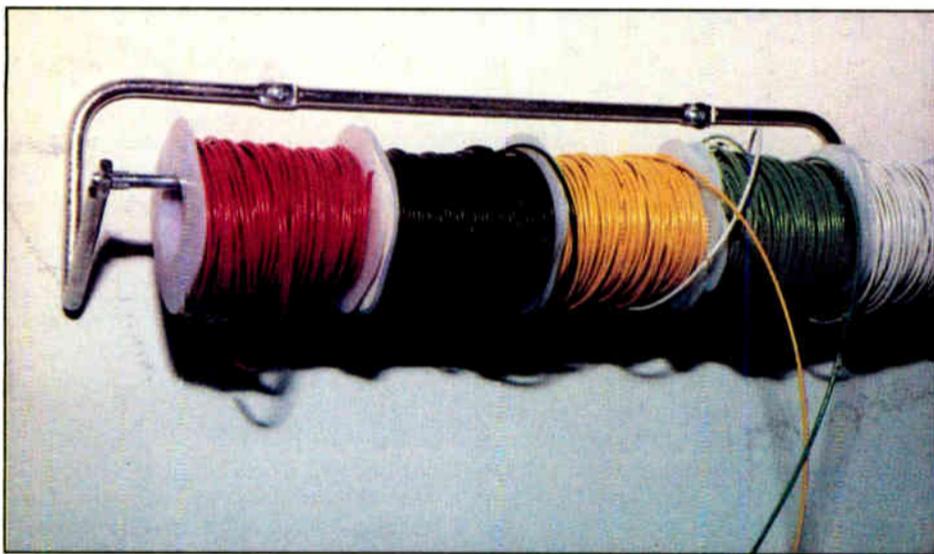


Fig. 1: A paper towel holder could do this job.

Tom Oaklund of KPBS(FM) has seen electricians use rotary hammers, such as the Makita HR4000C or HR5000. These are 1-9/16-inch and 2-inch-capacity tools that can be set to hammer or hammer-and-rotate.

To drive the rods, the tool is set for hammer only, and the rod positioned loosely inside the chuck. Two guys then hang from the tool handles, one on each side, to provide the weight to sink the rod. San Diego is home to some pretty rocky soil, but the method worked well to sink two 10-foot ground rods.

Speaking of PBS, Bob Johnson of NASC in Poughkeepsie, N.Y., suggests contacting the PBS feature "This Old

tors don't use a special bit, though one is available.

However, Dave points out the advantage to the bit: the ground rod driver bit is formed into a conical cup, similar to the bit Jon Banks described. Its purpose is to stop the end of the ground rod tip from flaring out as it is driven.

If you just use the hammer or the chuck of a hammer drill, you must stop and remove the hammer from the rod periodically to check for flaring. If the flaring goes too far, it will be difficult to remove the hammer from the rod. Dave's rental equipment friend has gotten pretty adept to removing the 3- to 4-inch pieces

See WORKBENCH, page 20 ▶

NEW! DigiStor II is here!

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We Build Solutions

Lampen

► Continued from page 16

What does this mean? It means that, like life, we hear what we want to hear.

If we think the hundred-dollar-a-foot wire is being used, then that's what it should sound like. It's not like the thousand-dollar tire on your Ferrari. If someone substitutes a 4-for-\$100 cheapie tire, one sharp curve and you'll know there's something wrong.

What you hear

Our ears are interpretive. They are not something we can measure. How very few of us have "perfect pitch" and can even tell the frequency we are hearing.

Does this mean that all wire sounds the same? No, it means that the measurable differences in wire do not always correlate with what we hear. That being said, I would also say that I could easily design two cables that would sound dramatically different. In fact, you could do such a test yourself.

For instance, if I had two speaker cables, and one was 20 pF per foot, and

the other 1,000 pF per foot, I guarantee that you could hear the difference. If I compared 20 pF per foot to 30, I doubt any human could hear the difference.

Likewise, if you ran down 10 feet of cable to one speaker, and 1,000 feet to the other, I would bet you could hear that difference too. And it would be more than just resistance (signal level).

But these are gross differences. What we're talking about are subtle differences, or maybe even differences that can't be measured. If you change the jacket of a cable from PVC to Teflon, does it make a difference in how it sounds? Not according to anyone in the lab. But ask some high-end audio folks! For every two of them, you will get three opinions.

So what's in a speaker cable, what electrical effects does it create and which of these effects make a difference? Next time, we'll start examining the basic "laboratory" list of measurable parameters.

Steve Lampen is technology specialist, multimedia products for Belden Electronics Division in San Francisco. His book "Wire, Cable, and Fiber Optics for Video and Audio Engineers" is published by McGraw-Hill. Reach him at shlampen@aol.com.

NEC

► Continued from page 10
upgrade cost is small.

Like all genuine commercial-grade electrical wiring material, liquidtight's ratings are printed clearly on the outside covering. This text should include the manufacturer's name, trade size, category or type and additional details such as the current and use limitations of any integrated grounding conductor.

This information on electrical material is critical for use and maintenance. Don't let anyone paint over this important data.

Carlton

Another variety of liquidtight flexible conduit is nonmetallic, covered in Article 351, Section B.

Most people recognize this wiring method material by the brand name Carlton. We don't see much of it in broadcast; it has no shielding to help isolate the circuitry from RF and induction-type noise. Like spiral wrap, however, it is a great help in dressing up noncritical system wires.

Like other conduits and raceways we have discussed, there are "fill" limits for flexible metal conduit. Tables for these maximum fills can be found in Appendix C, including my favorite table, C7, for metallic liquidtight.

A word of caution: Unlike EMT and other uncomplicated material that is relatively consistent from manufacturer to manufacturer, liquidtight varies. Be sure to purchase the connectors made for your brand of liquidtight. Various brands are not always interchangeable.

Next time we'll take a breather and give a general overview of what the NEC is and where it figures in the insuring, permitting and inspection process, along with some typical violations.

Charles S. Fitch, W2IPI, is a registered professional consultant engineer, a member of the AFCCE, a senior member of the SBE, lifetime CPBE, licensed electrical contractor, station owner and former director of engineering of WTIC-TV in Hartford, Conn., and WSHS-TV in Marlborough, Mass. Reach him via e-mail to FitchPE@home.com.

Workbench

► Continued from page 19

of ground rod that protrude from the hammer when they are returned.

★ ★ ★

What's a paper towel holder to do? Hold wire, of course.

Figure 1, page 19, shows a typical small-reel holder; however, a similar paper towel holder is about one-tenth the price. The center rod can be removed

mats made by ESD Systems. Their type P 0.125 material is conductive, and wears well under a chair.

In a control room, where personnel are not normally grounded through personal protective devices like wrist straps or heel straps, preventing static build-up is even more important than the dissipation or conduction. ESD Systems has a Sta-Proof Carpet Protector, which can be applied effectively for this purpose. Unlike spraying diluted fabric softener, this product lasts about nine months under normal use. For details, contact www.esdsystems.com.



Fig. 2: The output insulator on this coupling network burned to the case, and eventually self-extinguished.

easily to add or remove wire spools.

★ ★ ★

The holder keeps your project wire reels organized and easily accessible. Add this to the toilet paper holder that holds a roll of your favorite solder.

Next thing you know, someone will come up with a modification to a bagel slicer to facilitate cutting coax! I know, I know, you don't need any more ideas!

★ ★ ★

Peter Burk of the remote control company that bears his name weighs in on the recent static mat discussion.

Peter writes that while an aluminum plate is an effective solution, it should be grounded through a high resistance, to prevent an arc if someone steps on it with a charge, and for electrical safety. Anything from 100k to 1 meg is appropriate.

A more convenient solution is the

Keeping a close eye on your AM towers will pay off. Inspect the base of each tower at least monthly.

Figure 2 demonstrates how the inspection will pay off: the output insulator on this coupling network burned to the case, and eventually self-extinguished. The carbon trace ensured there would be future problems, however — on the weekend, or in the middle of drive time, of course.

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.



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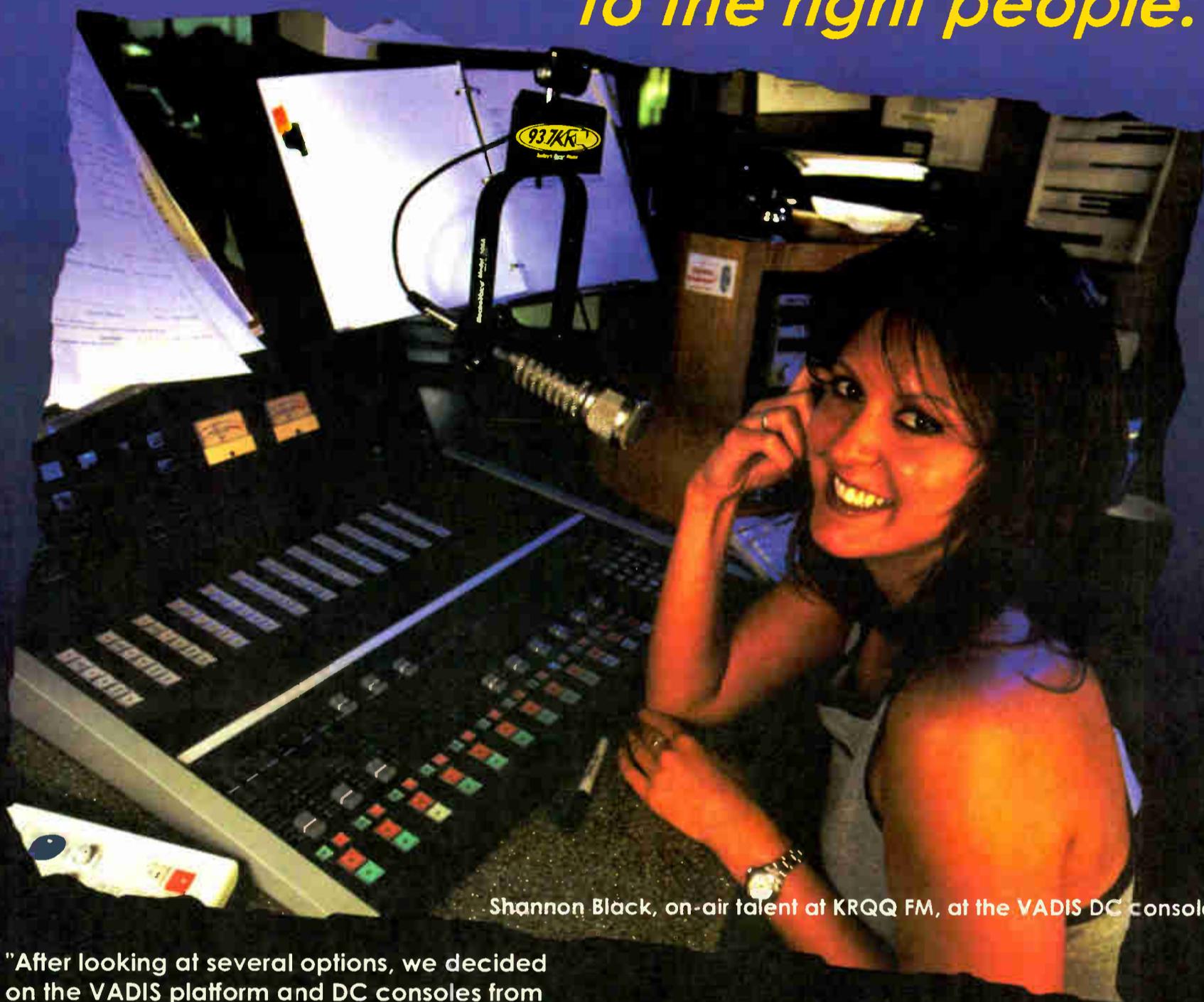
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*"You just have to speak
to the right people."*



Shannon Black, on-air talent at KRQQ FM, at the VADIS DC console.

"After looking at several options, we decided on the VADIS platform and DC consoles from KLOTZ," says John Decker, Chief Engineer, Capstar Communications, Tucson. "Why? First, our install would be much faster since most of the plant wiring could be reduced to a simple Ethernet line and a fiber optic cable connecting each room with our rack room.

"Secondly, all four stations were to be housed in the same facility, and we had to share audio sources all around the plant. This is a function that is part of the KLOTZ system. Our entire plant is now based on a digital audio 'backbone' that provides an improved audio signal.

"We also purchased five DC consoles. The air talent finds the DC consoles simple to operate. They can put any source in our plant on any fader of the console with a simple LCD button in the meter bridge. Giving the operator the ability to call up any source to a fader is great since each operator prefers a different arrangement of sources on the console."

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Taking care of today's broadcasting needs while moving toward a digital future is a tough juggling act. You need to maintain and, perhaps, upgrade current systems. Maybe you're even contemplating complete station makeovers. Fortunately there's a company with the resources and dexterity to help you maintain your balance: Harris.

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Whether you need single-channel, multi-channel, or news solutions, Harris has a scalable automation solution to fit your precise requirements.

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- TV - UHF, VHF, DTV, DVB-T
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- STL - single to multiple site linking

Systems

Who but Harris offers everything from a single console to the design and installation of entire radio, TV, and mobile studios? Come see our line of DTV products to help you manage your entire system.

Service

Harris installs, maintains and repairs everything it sells. And our broadcast training centers are available to make your team as self-reliant as possible.

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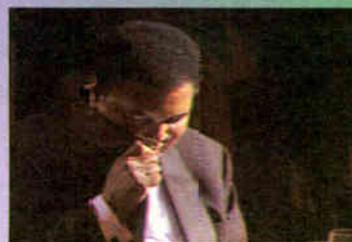
SERVICE

SYSTEMS

AUTOMATION

TRANSMISSION

GM Journal



Service to America
See Page 26

Radio World

Resource for Business, Programming & Sales

July 18, 2001

PROMO POWER

Plan Now for Holiday Promotions

Mark Lapidus

It's July and you're thinking about ... snow!

Of course I know you're not trying to find your gloves today, but if you'd like to pick up some extra dough from holiday promotions this year, it is time to focus on fourth quarter.

Fact is, it takes months to sell the best

of promotions to clients, so if you approach them by August for December, your odds of success increase greatly. Many promotions also take time to gather materials and information. Here's a short list of fourth-quarter gems from my files. Tailor them by adding a local twist!

Start collecting drumsticks from drummers in your format now. Visit every concert this summer and if necessary, call

managers and record labels for more. You're going to need at least six pairs to do your "Drum Sticks For Thanksgiving" auction.

This makes a terrific morning show promotion and it's even better if you can do the auction live on your Web site. This allows you to show off the nice box frames you've obtained for displaying the sticks. If you've got muscle with the labels, fly in a famous drummer for a Thanksgiving meal with the top bidder.

Nothing to do after dinner? How about *Turkey Bowling*? All you need are frozen turkeys, pins and an aisle at a supermarket. If you can't find a supermarket that will buy this potential TV news story, try a bar, car dealer or shopping mall.

The bird

Everyone wants to do it — now anyone can: "Give the Boss the Bird." Listeners either call or e-mail to explain why their boss deserves a free bird for Thanksgiving.

If you can give the boss two birds, he can then offer one to his favorite homeless shelter.

There are several AM radio stations around the U.S. who have aired the "Christmas Wish" promotion for years. It will work on virtually any format and like most promotions of this nature, you can add a Web component if you choose to do so.

Hook up with an agency that places children in local foster homes. You're going to interview these kids to find out what presents they'd like for the holidays. Air audio of the kids and transcribe the wishes for the Web (with photos).

You then air the calls of people phoning to grant the wish, thanking them for their generosity.

There are two methods of gift collection: Have listeners bring them by your

See PROMO, page 32 ▶

MANAGEMENT CORNER

How to Succeed in Tough Times

It Has Been a While Since Station Managers Had to Navigate Through an Economic Correction

Vincent M. Ditingo

Where has all the money gone?

This is certainly an appropriate question for group owners to ask following months of depressed advertising sales. In fact, according to the Radio Advertising Bureau, sales revenues for radio (local and national spot combined) during the first quarter of 2001 fell 7 percent compared to the previous year.

The squeeze

There is no question that the battle lines have been drawn between radio and other media for the dwindling amount of advertising monies that seemed so readily available 12 to 18 months ago.

But to survive the latest down market, all front-line radio executives, particularly those commission-driven sales managers and account executives experiencing their initial financial setback, first should understand the dynamics surrounding such a situation.

When examining first-quarter business further, we find local radio off by

See DITINGO page 24 ▶

STATION SERVICES

Lucky Caller Wins \$2 Million

Two-million-dollar "Birthday Game" winner Stacy Chester poses with a check and staff from Cox Radio's Atlanta CHR, WBTS(FM) "The Beat" 95.5 and American Hole 'n One President and CEO Mick Luckhurst. Chester won the big cash when she was the 95th caller and had the "correct" birthday on "Woody & The Morning Show" in April.

WBTS insured the contest through American Media & Special Promotions, a division of AHNO.

For more information about the Birthday Game or other contests, contact American Media in Atlanta at (888) 323-2257 or visit at www.ahnogames.com.



(From Left) Katie Reid, WBTS General Sales Manager; Jennifer Hobby, WBTS Morning Show Producer; 'Woody & The Morning Show' Host Woody, Chester's Husband Wes; Winner Stacy Chester and Mick Luckhurst

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Ditingo

► Continued from page 23

just 3 percent with national dipping by a significant 20 percent. In March alone, the RAB reports that local advertising dollars fell by 6 percent and national by 23 percent over March 2000.

However, given the current down advertising cycle, direct comparisons to 2000 are difficult because of the record amount of dollars spent on radio that year, which climbed 12 percent over 1999 to just under \$20 billion, and nearly double the total since 1994.

Bust

The first half of 2000 was exceptional, fueled by a flurry of activity from new Internet companies, especially in the national advertising sector.

In March 2000, for example, local ad spending was up 15 percent, but national sales jumped a whopping 40 percent over the previous year.

But reflecting the slowing pace of the overall economy — the U.S. economy grew by only 1 percent in fourth quarter 2000 and by just 1.3 percent in Q1 2001 — radio advertising slacked off by year's end, with a 2-percent drop in total radio revenue by last December.

In general, an examination of advertising activities will go a long way in helping stations target specific accounts and agencies. A key indicator here is how product categories, including traditional radio spenders, are pacing on the

national level during the second quarter.

This kind of data can assist local radio sales personnel in understanding corporate advertising trends that filter down to regional and local retailers, franchisers and store outlets.

Both categories were pacing ahead of second quarter 2000, about 15 percent and 5 percent, respectively. (All percentages are approximate. Analysis excludes categories with less than \$1 million in billings per quarter.)

being hit particularly hard during this economic downturn, Interep estimates that all national reps combined must bill at least \$1.6 billion during the second half of 2001 to achieve a positive gain for the year.

To put that number into perspective, consider that RAB reports national spot business at just under \$3.6 billion for the year 2000.

One of the main components to Interep's new business turnaround initiative is a plan for company sellers and senior executives to target a minimum of two non-radio or moderate radio advertisers for new business development.

Guild also said Interep plans to invest \$200,000 to Arbitron's recently unveiled Radio Effectiveness Lab, a program designed to make radio more saleable to advertisers by providing them with more quantifiable data on the impact of radio advertising. The funds match Arbitron's investment in the research lab.

Sound fundamentals

Back in 1991, the last time that radio revenues were in decline, the industry was still regulated and therefore didn't have the demographically rich station clusters that the new group owners hold today.

This is *the* fundamental idea that will help radio broadcasters weather the economic troughs of 2001. Simply stated, consolidation allows station operators to maximize cash flow margins of properties more effectively than in the last economic downturn.

In 1991, before there was any duopoly ruling, the radio industry registered a decline in overall revenues of 2.8 percent.

The following year, the FCC issued its first duopoly decision, allowing broadcasters ownership of two AM and FM stations per market instead of one each. That helped them compete more efficiently with other media, most notably local newspapers and television.

Since the Telecommunications Act of 1996, radio has experienced both single and double-digit annual revenues ever since. (See accompanying chart.)

Double-Digit Growth

Radio's Trend in Annual Revenue, 1990-2000 (in millions)

Year	Network	National	Local	Total	Percent Change
2000	\$998	\$3,596	\$15,223	\$19,817	+12.1
1999	878	3,211	13,592	17,681	+14.6
1998	739	2,768	11,923	15,430	+11.9
1997	646	2,407	10,741	13,794	+11.1
1996	465	2,093	9,854	12,412	+ 8.2
1995	426	1,920	9,124	11,470	+ 7.8
1994	411	1,867	8,374	10,652	+11.1
1993	407	1,629	7,532	9,568	+ 9.3
1992	377	1,479	6,899	8,755	+ 1.0
1991	440	1,575	6,578	8,591	- 2.8
1990	433	1,626	6,780	8,839	+ 5.0

Source: RAB

To that end, an Interep analysis by product category of national dollars already spent in the second quarter, as of May 18, and those dollars committed on the books for the remainder of the quarter shows two key radio advertising categories: telecommunications and retail stores.

Among the other categories pacing ahead in the analysis are restaurants (15 percent) and clothing/shoes (10 percent). Among the biggest gainers is the home video marketplace, up 35 percent over last year.

Conversely, the biggest decline in national business by product category include investment firms, off by 65 percent, soft drinks/waters/beverages, a long-time traditional radio advertising segment, down by 75 percent and the dot.com companies, which were off by 85 percent.

As noted, while the latter was a relatively new entrant to the national advertising arena, its sudden drop heightens radio's present-day economic woes.

And what happened to automotive ad dollars, historically one of radio's top-three advertising categories, during the second quarter? According to Interep's analysis, it's another prime category

Remember: In 1991, before there was any duopoly ruling, the radio industry registered a decline in overall revenues of 2.8 percent.

lagging behind last year's pace. Domestic automotive dollars dipped a noticeable 35 percent while foreign automotive was off by 5 percent.

In an effort to stem the deflated advertising tide, Interep Chairman and CEO Ralph Guild said his company would undertake a \$1.5 billion initiative to increase both national spot and overall radio revenue during the next 18 months.

"We can't afford to wait," said Guild. According to Guild, the program is designed to spearhead a quick turnaround for the entire radio advertising market, with a growth goal of 8 percent for 2002.

As for national business, which is

"As a result of consolidation, radio has secured a more professional perception among advertisers, investors and competing media," said Mark O'Brien, executive vice president of BIA Financial Network.

"Years ago, radio was a small business. Now, it is a very big business with big money and big talent. In general, it is a much better business," he said. "And in a down market, there is less clutter and less competition to get the (advertising) message out."

Vincent M. Ditingo is an assistant professor and coordinator of the radio program at the New York Institute of Technology. Contact him via e-mail at VDitingo@aol.com.

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NABEF Honors Service to America Partnership

It was a night filled with stars and bold-print names — celebrities, senators, commissioners, Olympic champions, radio and TV executives, con-

gressmen and Muhammad Ali. The boxer, who NAB President and CEO Edward O. Fritts said "has the most famous face on earth," was pre-

sented with the evening's ultimate honor, the Service to America Leadership award.

The black-tie crowd heard Ali's wife Lonnie deliver his acceptance speech. She said his "pretty face was always camera-ready."

On the big screen behind her, the audience saw Ali's trembling hand move, slowly but deliberately, to his lapel which he turned up to hide that face for a beat. The crowd clapped and roared. In the photo, Ali joins in the laughter.

The room fell silent as Ali made his way to the stage and addressed the crowd. His voice, weakened by Parkinson's disease, was unmistakably his: raspy, soft but forceful.

He related how he started boxing in Louisville, Ky., which is to be the site of a conflict resolution and humanitarian center that the Alis plan to

build, to be called the Muhammad Ali Center. Most of the night's proceeds were donated to the future center.

KFOG(AM), Susquehanna Radio Corp.'s perennial ratings and revenue leader in San Francisco, won the "Service to America Partnership" award for radio and television.

The station had raised more than \$400,000 for a Bay Area food bank with sales of a private-label CD compiled from KFOG's concerts and events archives.

The "Friend in Need Radio" award went to Hubbard Broadcasting Inc.'s KSTP(FM) for a campaign to help tornado victims following devastating storms in the St. Paul, Minn., area last summer. More than 200 volunteers and trucks full of supplies were donated as a part of the KSTP effort.

— Laura Dely



Muhammad Ali reacts on-screen after his wife Lonnie said her husband's 'pretty face was always camera-ready.' Looking on, from left, are Eddie Fritts, NAB president and CEO; K. James Yager, joint board chairman; and Bruce T. Reese, Bonneville International Corp. president and CEO.

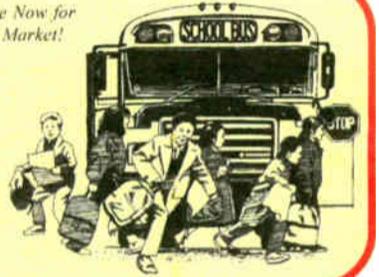
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			6 Stop

00:02:03 [Loop] [Trip] [Unload] [Pause]

Time	Cart	Title	Artist	Length	Intro	End	Type
12:13:07	L002	Liner # 2		00:05			LC
12:13:12	M1012	Photograph	Def Leppard	04:54	:22	F	MUS
12:18:06	M2174	Friends	Elton John	02:20	:05	C	MUS
12:20:26	M1732	Dance The Night	Van Halen	02:47	:13	F	MUS
12:23:13	V026	Voice Track 26		00:12			VTK
12:23:25	DALIVE	SPOT SET		03:00		I	COM
12:26:25	J011	Jingle / Fast		00:06			Jim
12:26:31	M0713	Listen To Her Heart	Tom Petty	02:48	:11	C	MUS
12:29:19	V027	Voice Track 27		00:15			VTK
12:29:34	M2214	Black Friday	Steely Dan	03:40	:12	F	MUS
12:33:14	M0015	All Day Music	War	04:04	:19	F	MUS
12:37:18	L015	Liner # 15		00:15			LC

AUTO STOP EDIT> 00:03:23

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BROADCAST LAW REVIEW

Competition — A Mid-Year Review

Barry D. Umansky

OK, so you're not Lowry Mays or Mel Karmazin.

That doesn't mean that you can't take steps — some right now and some later this year — to become a more significant player in your market.

There are plenty of things that radio broadcasters in markets of all sizes can do that not only are lawful but may provide your operation with a welcome gain in competitiveness.

Ideas

In this edition of our *Broadcast Law Review* column, we offer some of the options you have to operate more efficiently, provide a better and often "multi-channel" product for your advertisers and audience, and grow your broadcast operation.

Some of these steps are pretty straightforward, while others are a bit trickier and should be undertaken only with the guidance of your communications counsel.

Joint Sales and Combo Rates — Maybe it's time to begin a relationship with one or two of the other stations or other media in your town. While these kind of joint sales arrangements ("JSAs") sometimes can be suspect under state or federal antitrust laws, there usually is no problem if these agreements act to enhance rather than stifle competition in a market.

The fewer stations in your market, the more questionable these agreements can be in an antitrust review. And don't enter into these kinds of arrangements with the goal of targeting — and working to drive out of business — a particular station or two.

A radio broadcaster considering a joint sales plan should seek the advice of counsel to avoid setting up and implementing a joint sales system that could be challenged legally by a local competitor.

Also, the FCC recently decided that it would make no change in its policy of not counting JSAs under its "ownership attribution" rules. So, at least for the time being, you shouldn't have to worry about FCC oversight or commission rule compliance from the perspective of the substance of your joint sales deal or combo rate.

However, the FCC does require stations that enter JSAs to place copies of such agreements in the stations' public inspection files (you can cross out all confidential or propriety information) for review by the public and competitors, among others.

Don't limit your joint sales/combo rate horizons to other radio stations. Consider working a deal with a TV or LPTV station, or perhaps with a local cable operation. Each can be a lawful and effective partner in offering your advertisers a multi-channel product coming from a more efficient operation.

Time Brokerage-Type LMAs — To the extent your agreement with another radio station in your market area involves programming instead of just sales issues, you will have to meet the FCC's attribution and public file rules for time-brokerage type Local Marketing Agreements, or LMAs.

In order to do such a deal and comply with FCC rules, you would have to be eligible to be an owner of the station. That is, the commission would

"attribute" an LMA deal with another local station as if you had purchased the station — it doesn't matter whether you are the programmer or the station to be programmed.

So work with your communications lawyer in an analysis of the FCC's radio ownership rules to make sure you're qualified to do an LMA deal.

And no matter what kind of station-to-station cooperative deal you enter, make absolutely sure the relationship does not amount to an unlawful transfer of control of the station. Each station only has one licensee and that licensee is the one entrusted to make licensee decisions; that

licensee ultimately must be the decision maker — particularly in the areas of programming, finance and personnel.

Here too it's important to check with your communications counsel and craft an LMA contract carefully. If not, you run the risk of an FCC lightning strike if someone complains that, for example, you actually have transferred control of the station unlawfully.

Station upgrades

AM Options — If you haven't recently checked out the possibility of a station upgrade, put one on your list of things to do. If you have an AM station, consider

doing measurements during the summer months, when signal-propagation characteristics best support a showing of non-interference if you want to increase your signal in the direction of a co-channel or adjacent-channel station.

Though a fairly expensive proposition, a significant upgrade — at least in the direction of the population you wish to serve — may be possible through the adding of another tower or two to your operation. Again, this is a task that you should discuss with your communications counsel and consulting engineer.

FM Options — For FM stations, check with your communications lawyer and your consulting engineer as to whether you can move to a higher-class channel. In most cases you can employ the FCC's

See BLR, page 30 ▶



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Digital Universe

The newest digital system in Computer Concepts' and Scott Studios' family easily runs satellite formats or music on hard drive and sounds great.

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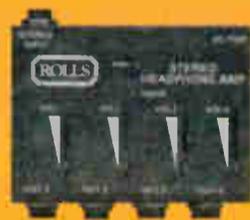
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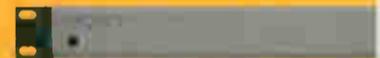
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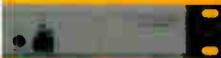
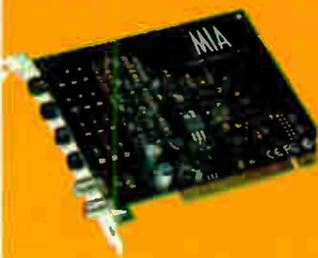


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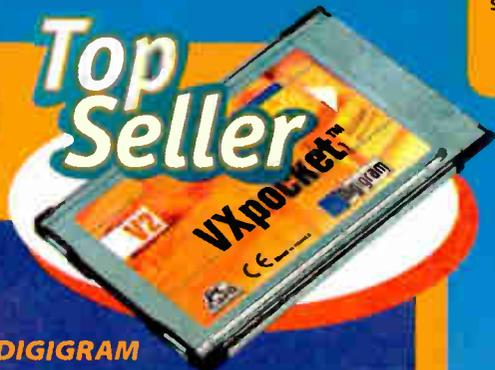
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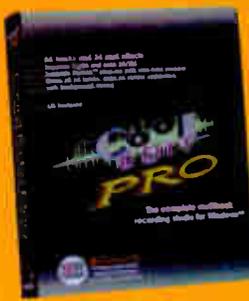
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BLR

► Continued from page 27

"one-step" upgrade process, which saves lots of time and money over the previous system.

Sometimes your upgrade may entail a modification of one or more FM allotments in your vicinity — in order to make your desired FM allotment fit. It can be a complicated process (sometimes called "radio chess," because it usually requires several moves and changes of allotments to make it work), so consult with your communications lawyer and engineer early and often.

Now also might be the time to consider purchasing an existing radio station in your market or somewhere nearby.

Obviously, there are potential economies of scale and profit potential to help justify the purchase price and the expense of

And when it comes to buying stations, don't just focus on radio. You might consider picking up a low-power television

That status means that the low-power facility no longer is a "secondary" service that could be removed from the air if a full-power station were to begin broadcasting on the same or an adjacent channel in the vicinity, or were to increase facilities in a fashion that would require a secondary LPTV station to relocate to a different channel or go dark.

An LPTV can be a great vehicle for adding a video element to your broadcast operation.

Filing for a new station

Don't forget that later this year — unless the FCC timetable slips once again — the commission will have more than 350 FM allotments up for auction. The latest timetable is as follows:

Sept. 24 to Oct. 5 — The window period to submit the FCC Form 175 (which indicates that you want to participate in the auction and specifies the allotments for which you will submit bids).

Nov. 5 — Deadline to submit FCC-specified "upfront payments" to qualify the bidder to participate in the auction.

Dec. 3 — The FCC is to hold a "mock auction" so that applicants can test the software and other aspects of the auction system.

Dec. 5 — The auction begins.

Indeed, now is the time to begin discussions with your communications lawyer about the application/auction process and the strategy you will employ when the auction begins.

Once the auction starts, it proceeds at a brisk pace, with the interval between rounds becoming shorter and shorter as the auction progresses. It is important that broadcasters, their attorneys and their lenders meet soon to ensure that there are no surprises once the auction is underway.

It may be a while before the FCC opens a window for the filing of new and "major change" AM applications. In fact, the FCC still is deeply involved in working through the applications filed during the last AM application window — and that window period was held about 18 months ago.

Perhaps another AM window will open sometime in 2002. Again, these AM "windows" only are for new station or "major change" applications. Most upgrades of AM stations are "minor changes," which may be accomplished at any time.

Final observation

As you can see, there are several ways that broadcasters may employ FCC processes to improve their competitiveness and become more significant players in their markets. Indeed, the range of options open for radio broadcasters is greater than ever before.

Here I've given you only general information on how to take some of these steps. But, when it comes to your actual efforts in filing applications and otherwise dealing with the FCC on such matters, it's essential that you be guided by your own communications counsel who may establish a lawyer/client relationship on these sometimes-tricky issues.

Barry D. Umansky, the former deputy general counsel of the National Association of Broadcasters, now is with the communications practice group at the law firm of Thompson Hine LLP in Washington. Call (202) 263-4128 or send e-mail to barry.umansky@thompsonhine.com.

Later this year — unless the FCC timetable slips once again — the commission will have more than 350 FM allotments up for auction.

going about the process. Even better, there now are tons of stations on or potentially on the market.

(LPTV) station, particularly one that either has or will obtain so-called "Class A" status.

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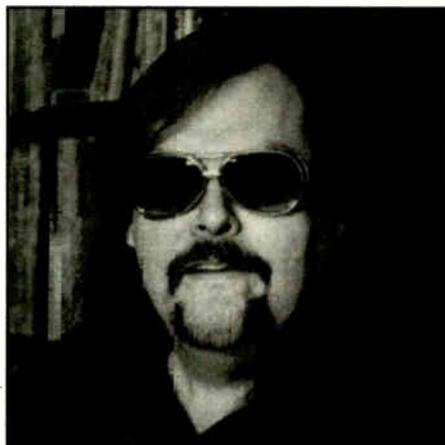


New Jersey DJ Breaks Guinness Record

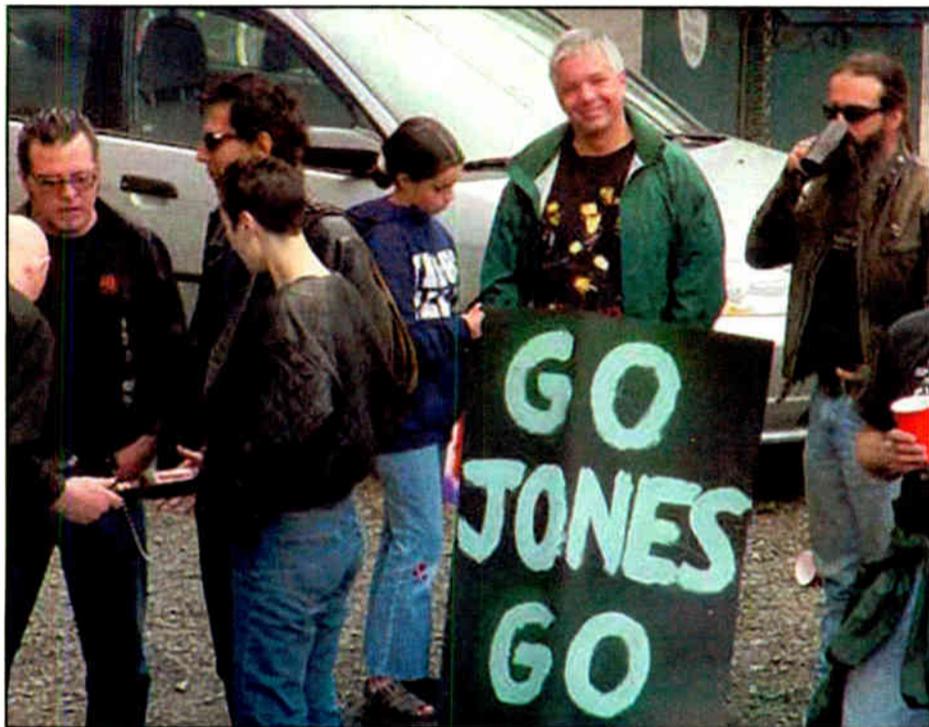
WFMU(FM) DJ Glen Jones shattered the old Guinness World Record for Marathon DJ Broadcast over Memorial Day weekend when he logged 1,000 songs over 100 hours and 42 seconds.

The four-and-a-half-day champion effort began at 9 p.m. on Friday, May 25 and ended on Tuesday, May 29 around 1 p.m. Jones broke Briton Greg Daines' record of 73 hours and 33 minutes.

During "The Glen Jones Radio Show — the Marathon Edition," the "Today Show" dropped by and Katie Couric interviewed Jones. CNN covered the end of the marathon live for the world to see. Jones also was host to "Kiss" lead singer Gene Simmons and country star Willie Nelson, among many other celebrities and friends along the five-day record-breaking event.



Glen Jones



Glen Jones' acolytes keep a marathon vigil outside WFMU studios.

Taking on the record was more difficult than Jones expected once the Guinness observers explained the regulations. "The rules said I couldn't play anything longer than 6 minutes and I wasn't allowed to leave the studio more than once every eight hours," said Jones. "I had to introduce every song, so there's was no chance of falling asleep at all."

The rules also state that guest commentary could run only one minute at a time and Jones could leave the studio for only 15 minutes every eight hours.

Jones' 15-year, award-winning show is a mix of rock n' roll, stunts and reminiscences about his youth and adulthood in New Jersey. A pro wrestling fan, he has allowed listeners a chance to come to the studio and bash him over the head with a folding chair.

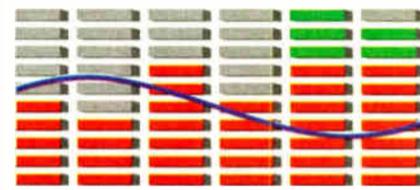
— Laura Dely

STATION SERVICES

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Package pricing is based on custom or syndicated music, market size and quantity of cuts.

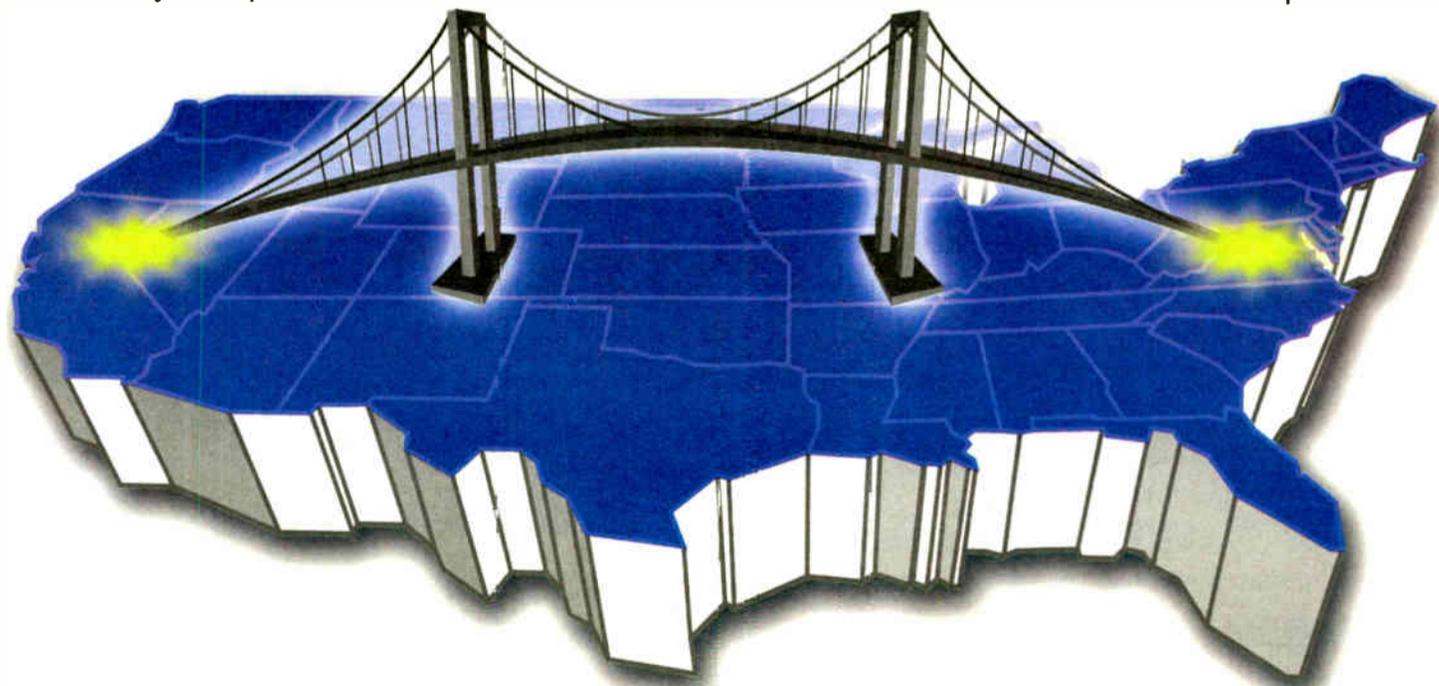
For more information contact Creative Radio in Minnesota at (800) 307-2346 or visit the Web site at www.theradiowarehouse.com.

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STATION SERVICES

EBC's Sales Team Passes RAB Paces

All six EBC Inc. stations' sales and management teams recently completed the Radio Advertising Bureau "Certified Professional Commercial Copywriter" accreditation course.

The course is one of six sales and programming courses that the RAB offers to help members build revenue and retain staffs. The RAB offers the CPCC, a 30- to 60-day correspondence course, to help improve radio commercial copy. All participants must pass a "final exam" in order to be certified by the RAB. The cost for RAB members is \$295 per member-participant.

The EBC group pictured here is gathered at their headquarters in Salina, Kan., which is home to four stations: KSAL(AM), KYEZ(FM), KZBZ(FM) and KSAJ(AM).



The EBC Inc. CPCC awardees are: front row (left to right): Mike Farmer, Jerry Hinrikus, Tim Kolling and Carolyn Carpenter; back row (left to right): Larry Avery, Bob Protzman, Roger Miles, Joyce Reich, Cindy Issitt, Dave Riggert and Deanna Talbott.

Promo

► Continued from page 23
station or have them drop by a check or credit card number with the amount of money they wish to spend and you purchase the present.

It's nice to have a wrap-up party at a kid-friendly restaurant where the children get to meet the folks who made the donations. Be sure and have Santa on hand with lots of sweets and a goodbye goody bag for the kids. And remember to take pictures to post on your Web site.

Carefully work in the client so as to not sound too commercialized: "WWW Christmas Wish is presented in part with a grant from (sponsor)."

Contesting and Christmas

You can invent any number of contests to fit a Christmas theme.

Keep in mind that you want to schedule the contests so that they air before the ratings period is over — plus there's an advantage in doing it early enough in the month — people can focus on it before they're shopping like last-minute maniacs.

Remember that you don't have to be that literal when it comes to executing ideas. For example, you can do the "12 Days of Christmas" without leading up to Christmas. Each day give away a different (and hopefully larger) gift on-air.

Have people register at a sponsor location and by phoning or e-mailing the station. Announce a name at a selected time — they must be listening to win.

You can play this game so that it builds daily too — so that the second-day winner gets the prizes from day one and day two ... the day-three winner gets all the booty from day one, day two and day three — and so forth.

A fun twist for a sports station is call this contest "The 12 Plays of Christmas" and have listeners identify play-by-play moments for prizes.

Wanna do a holiday food drive? Create your own "Canned Film Festival." Listeners pay a reduced amount to get into the movies in exchange for a donation of canned goods.

A lot of us are "Cruisin' For Christmas," so give away free gas, plus road maps with your call letters.

"Gloves For The Homeless" or "Coats For Kids" offer a great community feeling and can make you some holiday non-traditional revenue — listeners are asked to drop off these items at a client location.

Who knows if your listeners have been "Naughty or Nice?" Your morning show, naturally.

This one is best for off-color morning shows who can have their faithful call in to describe what they've done that's so nice to receive a gift of lingerie that is so naughty.

If none of these meet your needs, do a quick brainstorming session now. Be sure and e-mail me your best ideas to share with others — after all, it is the season of giving!

Mark Lapidus is president of Lapidus Media. E-mail him at marklapidus@yahoo.com.

25th Anniversary Silver Sweepstakes

Enter to win one of 25 great prizes in Radio World's reader appreciation contest giveaway!

IMAS Publishing is celebrating 25 years of serving you and the radio broadcast industry. To mark this significant milestone, 25 of radio's leading equipment suppliers have teamed up with Radio World to express their appreciation.

Throughout 2001, Radio World will conduct 25 random drawings. Prizes and winners will be announced in every issue of Radio World all year long.

To become eligible to win, you need to complete these three easy steps:

- 1) Register online at our Web site www.rwonline.com
- 2) Click the Silver Sweepstakes icon on our homepage
- 3) Fill out the electronic entry form — that's it, you're done!

It's your chance to celebrate our Silver Anniversary with these fine Radio World supporters ...



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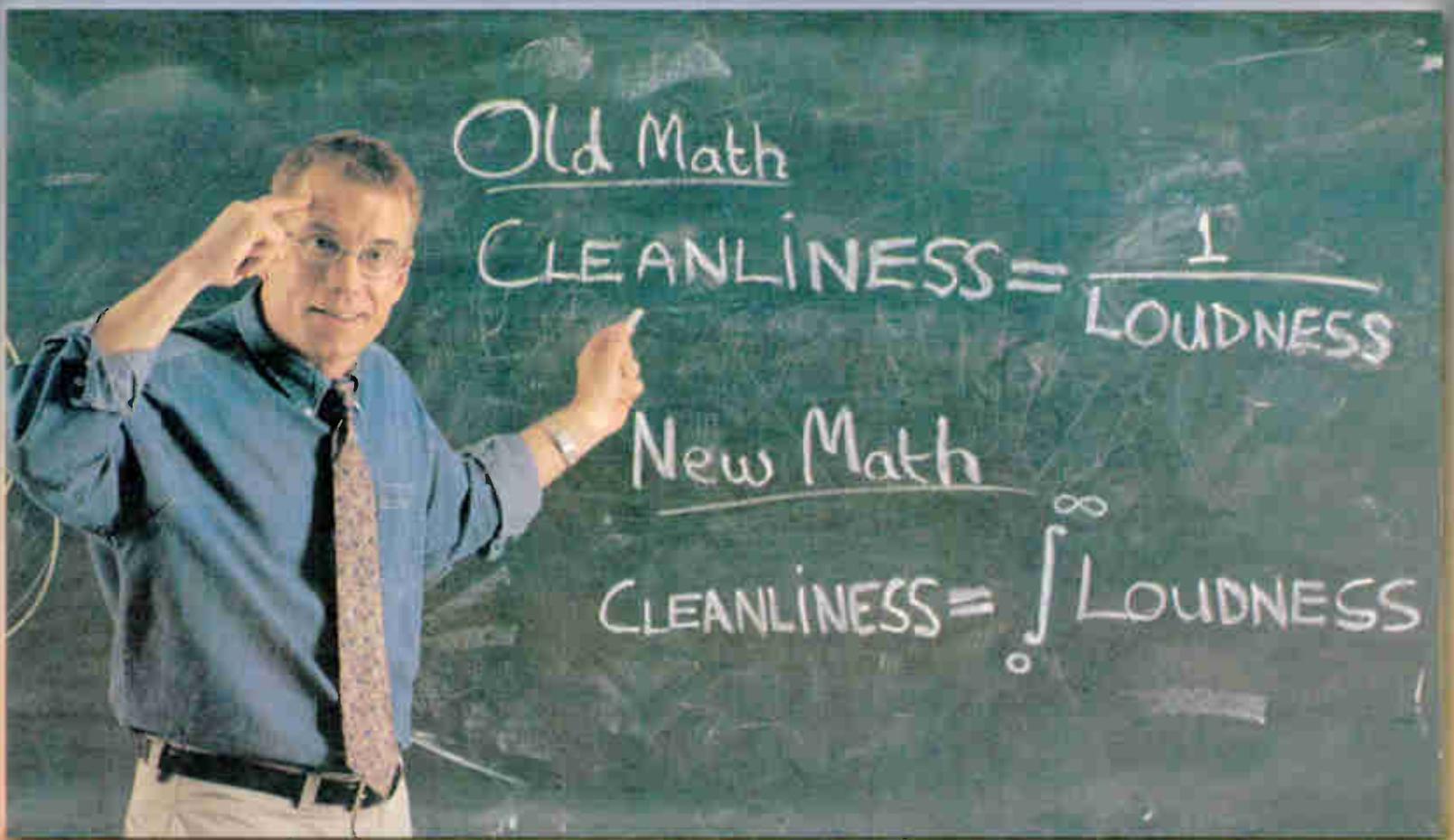


BELAR
Electronic Laboratory, Inc.



Contest Rules: To enter the drawing, simply register online at www.rwonline.com/sweeps. 25 drawings will be held throughout the year. Contest ends December 19, 2001. 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.

Process This!



Introducing

The NEW Aphex 2020MkII



The original Aphex Model 2020 audio processor set the standard for audio quality, loudness and extended coverage. Not content to sit on its laurels Aphex continued to research ways to improve performance even further. The result is the 2020MkII.

New processing algorithms and circuit designs, in addition to the fifteen proprietary circuits* from the original, allow even greater loudness without sacrificing a clean, natural sound. The MkII's increased flexibility also gives a station the ability to create its own unique sonic signature. New features include a split band optical high frequency limiter, a low distortion overshoot compensated low pass filter* (with no spurs), improved remote control interface, RDS, and dual composite outputs.

Audition the new 2020 MkII on your station and you'll find that Aphex has really done its homework—creating a processor with performance and features unmatched at any price. The 2020MkII—in a class by itself.

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Internet Radio



See Page 39

Radio World

How to Succeed in the Dot-Com World

July 18, 2001

Times Square Is eYada's New Home

Scott Fybush

New York's Times Square is an exciting place these days. Jumbotron screens blare the programming of the "big three" TV networks. ABC's new street-level studio brings "Good Morning America" and "20/20" to the sidewalk. MTV fills the streets with screaming teenagers every afternoon for "Total Request Live."

voice-over facility on West 57th St., several blocks away from eYada's business offices. In June 2000, eYada signed a lease on the Times Square space and began to work on a design to accommodate five networks in less space than a traditional studio would require for just one station.

"The design, while building on our 20 years of radio design, is a radical depart-

It also would have required more money and space than eYada had to spare.

"The area we had to put (the studios) in was very, very small," Wilson said. Meyrowitz won't disclose the budget for the project, but he said the studios cost only "20 percent" of what traditional space would have cost.

After considering plans that would have put all five hosts and their producers in a single open area, Meridian came up with a compromise.

"The production area has five studios," Wilson said. "In front is an open control-

room area, so all the control rooms are in a common space."

It might be heresy at a traditional station, but Meyrowitz said it's just what eYada's freewheeling talk formats needed.

"What we were looking to create was more of a newsroom atmosphere," he said. As an example of the kind of cross-pollination that occurs in such environments, Meyrowitz recalled a recent day when comedian Reno, host of the recent four-part special, "Citizen Reno" on Bravo Network was on one eYada talk show while "Sopranos" actress Katherine Narducci was in another studio. Narducci ran into the studio where Reno was, just

See EYADA, page 36 ▶



Artist's Rendering of the eYada Studio

And eight stories above Broadway, between West 40th and West 41st Sts., Webcaster eYada.com originates five channels of Internet talk radio from a new 12,000-square-foot facility that's breaking new ground in talk studio design.

New medium

"The original goal was to bridge the gap between the old world of radio engineering and technology and the new technology that was taking place here," said Steve Aprea, eYada's chief engineer.

The network's CEO, Bob Meyrowitz, doesn't mince words when he describes where eYada came from before the move to Times Square. "For a whole year, we operated out of these crappy little hole-in-the-wall studios," he said.

Those studios were built in a space never designed for radio, in a former

ture and we've had lots of fun with it," said Bice Wilson, principal partner in Meridian Design, a New York-based architectural firm that has worked with several radio clients.

"We've done Web components for broadcast before," he said, "but this is the first time we've done a standalone Webcast facility."

A distinctive feature of the design that resulted is actually what's *not* there: Where a traditional five-station facility would have separate, enclosed studios and control rooms for each channel, Meridian and eYada took a different approach.

"Classic talk radio said you need an enclosed studio that's soundproofed," Wilson said.

That idea ran counter to eYada's goal of sharing material among various talk shows being Webcast at any given time.

Net Radio to Grow Big and Strong?

Craig Johnston

The sputtering streaming media industry gathered at the Long Beach, Calif., Convention Center for a dose of optimism at the Streaming Media West show.

Less than six weeks after April's NAB show, traditional radio broadcasters were hard to find at the SMW, but their absence didn't prevent radio-related news from release at the show.

Arbitron Inc. and Coleman Research

See SMW, page 38 ▶



The SMW Exhibition Floor

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eYada

► Continued from page 35 to tell her she's a big fan.

"It was great, live radio with visuals," Meyrowitz said.

And while five producers in one room could get noisy in a traditional design, Aprea worked with Meridian to create soundproofed "acoustical clouds" that keep sound contained within individual producers' workstations.

"Gone are the days of big monitors and 75-watt amplifiers," Aprea said of his control-room areas. Instead, he's using small Fostex-powered monitors run at low levels to keep sound where it belongs.

Meanwhile, the designers at Meridian had to consider more than just audio. Since eYada's shows feature streaming Webcam video as well, the new studios had to look good on camera.

"We had to analyze where people would be, what shots would look like," Wilson said. Each studio includes a pull-down chroma-key screen to allow producers to put background video behind the host or guest — a common sight in TV studios, but not a familiar piece of equipment in most radio facilities.

Space wasn't the only thing at a premium in the new studios; Aprea said he lost several budget battles to get some of the equipment he wanted in the facility. Instead of "real radio consoles," eYada

bought Yamaha 01V recording consoles for each studio.

"Because the consoles are not broadcast consoles and don't come with the logic that broadcast boards have, I had to build MIDI boxes to create things like a full talk-back system," Aprea said.

In lieu of a more expensive digital audio storage and distribution system, Aprea installed a single set of 360 Systems DigiCart machines in eYada's production room, then "hot-rodded" them, using video distribution amplifiers to send audio from that room to the five live studios.

Innovation

And with no budget for routers, Aprea went back to the basics, running 24 pairs of digital cable to each studio, then building an elaborate patch panel in back to switch audio and data from room to room.

Studio furniture was custom-designed by Harris, which served as the principal vendor for the project.

With a résumé that includes eight years of work for Aerosmith's producer David Krebs, Aprea was familiar with production-studio gear like the Yamaha consoles that are not part of the typical broadcast-supply product line.

Of course, there's plenty of familiar equipment in the racks at eYada, too, from ElectroVoice RE20 mics to Telos ONE-x-Six phone hybrids to Aphex Compellor audio processors. But with no transmitter at the far end of the audio

chain, eYada's master control looks quite different from the typical radio station. Instead of a studio-transmitter link, a bank of computers stream eYada's audio, video and graphic content to the Web.

"The tech people here wanted to put the (encoding) computers in each studio," Aprea said. "I was able to convince them to consolidate the computers in a master control room."

That room is cooled by its own air-conditioning system, one of three separate units in the facility (the studios have their own, while the executive offices are on yet another system). It's also set up for much more rapid change than the typical radio station.

streams per week, or about 2 million per month, according to eYada's Vice President of Marketing Ken Gold.

While that's not all attributable to the new studios, Meyrowitz believes the new space has helped eYada's producers and hosts find their focus.

"What we needed was a place where our product comes from," he said. "I've always believed that is the essence of a company like ours."

Of course, it doesn't hurt to be in the hottest media spot in America.

"We've got ABC on one side of us, Viacom/MTV on the other," Meyrowitz said. "It's easy to get guests for our hosts."

One recent week found "Baywatch"



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Architect's Plan Rendering of the eYada Studio Area

"Because the people in the front office are constantly coming up with new ways to propagate their programming, you want to have racks with plenty of ISDN and POTS codecs available (to send data out of the building)," Aprea said.

That's where the Web side of eYada meets the traditional radio side, Aprea believes. While the typical Web engineer might expect a site to crash from time to time, "we know as broadcasters that those commercials have to go out over the air and there's no time to sit back and recover from a crash."

So far, it's working. Meyrowitz said eYada's goal for early 2001 was to hit 100,000 unique streams a week. The network hit that goal in February and by mid-June the company averaged 450,000

star David Hasselhoff, comedian Christopher Titus and adult talk show host Robin Byrd all making their way to the eYada Times Square studios.

Wilson thinks the eYada studios can provide inspiration for traditional broadcasters, especially as talk radio experiments with Webcasts.

"One of the challenges in what we do is that increasingly, content is independent of medium," he said. "Everybody streams their audio on the Web now."

As radio stations begin to add video and data to their product, he believes their studios will come to look like what eYada already has. "We expect to see more and more of that synthesis," he said.

Scott Fybus is a frequent RW contributor. Contact him at scott@fybus.com.

In the Spotlight!

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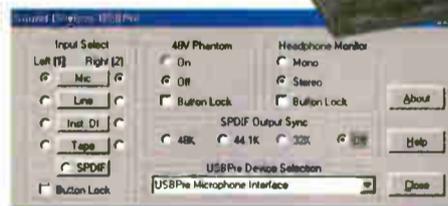
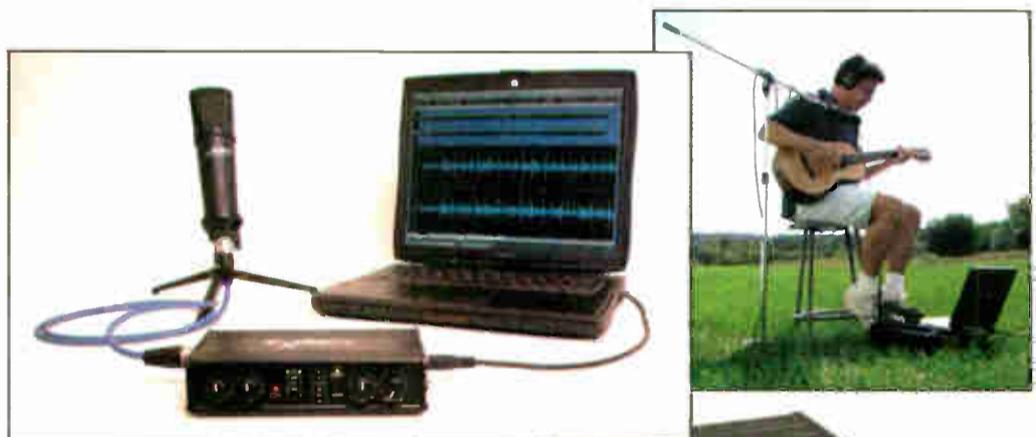
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Integrated Solutions

SMW

► Continued from page 35 delivered results of their "Broadband Revolution II" study, which profiles the "speedies" of the world, a term the study assigns to those with broadband access. The study reported that one-third of those with Internet access have broadband access.

Speedies

Presented by Arbitron Webcast Services General Manager and Vice President Bill Rose and Coleman Vice President Warren Kurtzman, the study had a number of revelations for radio.

Among them: streaming media show little potential to hurt traditional broadcast media and more likely will complement radio as well as television.

Kurtzman said although streaming audio does not generate habitual use, it does offer benefits for traditional radio.

"Because of the familiarity of the brands that traditional radio has, what we're finding is that streaming audio listeners overwhelmingly listen to the streams of traditional radio broadcasts, more than anything else."

Rose said Internet audio listeners tend to be loyal to one or two sources of streaming audio and to return to them. But he cautioned broadcasters that this is connection is easily lost.

"That loyalty is pretty fragile, because if that stream isn't available and the outage continues, they will find a substitute for

that content very, very easily," said Rose.

The research companies recommend that radio streamers maintain their products uninterrupted and work to solve contract and other legal issues quickly in order to restore their streams for their Internet audiences.

(That same day, radio's largest owner, Clear Channel Communications, announced that it had signed with ad



Bill Rose

insertion services provider Hiwire Inc. and would resume streaming in July.

Clear Channel was the first major broadcast company to stop streaming in April, following the American Federation of Television and Radio Artists move to begin collecting triple rates for terrestrial radio commercials re-purposed to Webcasts, based on a provision in the AFTRA contract signed last fall.)

The study said nearly two-thirds of

those with broadband access have it at work and that the overwhelming majority of people with broadband access have never listened to streaming audio. This leaves a large untapped audience, Rose and Kurtzman said.

"With broadband, most of the attention has been focused on the growth of the residential market," said Kurtzman. "But the large number of Internet users who have broadband access at work represents a larger potential market for streaming audio and video providers."

Not surprisingly, there was a large gulf in satisfaction between users of streaming audio and streaming video. While the majority of "speedies" found streaming audio's technical quality "good enough," the opposite was true for streaming video.

The full report is available online at www.arbitron.com and www.colemaninsights.com.

Turning point

Many convention participants expect streaming to survive and thrive.

"Right now I think we're at a crossroads, where we're at the point that this can become not just a novelty but an actual industry," said Zack Zalon, general manager, Radio Free Virgin, at SMW's Internet radio session.



Warren Kurtzman

Gordon Bridge, CEO and chairman of SurferNETWORK.com Inc., said technology will rescue Internet radio from its miniscule listener base, which now is dwarfed by terrestrial radio's.

"Portable radio devices, as well as cellular phones and palm-type devices capable of receiving Internet radio will drive this."

While there were questions raised as to how the Digital Music Copyright Act struggle between the recording industry and Internet radio will be resolved, there



The SMW Convention Site in Long Beach, Calif.

Another panelist, John Jeffrey, executive vice president and general counsel at Internet radio streamer Live365.com, said that in spite of the temporary Webcast roll-ups and a slow rollout of broadband access, Internet radio listening has grown at its predicted rate.

Several members of the panel said that, for advertising sales to work for

was general agreement on the Internet radio panel that the DMCA itself is a good thing.

"Without the DMCA, we'd be Napster," Jeffrey said at the session, where there were many empty seats in the small room.

The big announcements at SMW 2001 were in the area of digital rights manage-

The Arbitron/Coleman study said most people with broadband access have never listened to streaming audio. This leaves a large untapped audience.

Internet radio, the audience must be measured differently from terrestrial radio.

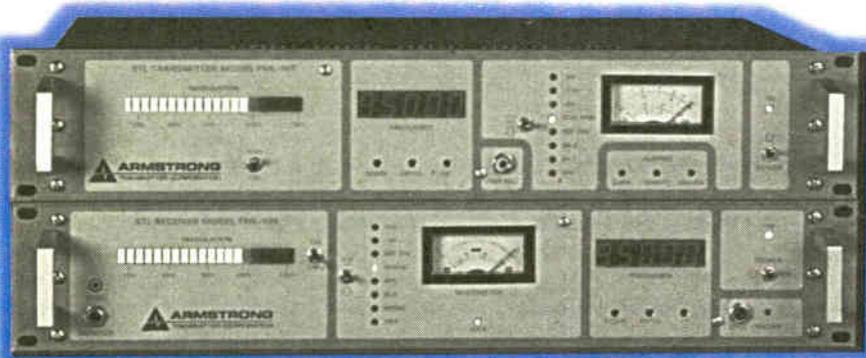
"I think we have to think real differently about the role of Internet radio vs. terrestrial radio," said Jeffrey. "I think that they have very different economics and purposes and each is well suited for doing certain things. Internet radio really works well on a smaller scale."

ment, to allow copyrighted video and audio to be offered securely over the Internet.

In line with that, RealNetworks' CEO Rob Glaser unveiled the company's digital rights management solution, RealSystem's Media Commerce Suite, at an SMW keynote address. The system

See SMW, page 39 ►

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Dave Casper & Mike Mahone

What do you think of when you see the name Amazon.com? Books, right? Their recent and well-publicized troubles aside, this Internet upstart jolted traditional brick and mortar book-sellers from years of weary cooperate sleep and ultimately changed the face of retailing.

Their newly expanded business model now has them selling everything from cellular phones to cof-

feepots and during the month of December 2000, a special online alliance between Amazon.com and Toys 'R' Us saw nearly 123 million shoppers pass through their virtual front door."

The new economy cycle

Wall Street clearly reflects that dot-com businesses, as well as the entire technology sector, are faltering. Most experts agree that these adjustments, however dramatic, are symptomatic

growing pains of a new industry. And at the same time the NASDAQ dipped below the 2,000 mark, new reports on Internet growth and usage continue to amaze even the most cynical observers.

For example, a new study by the Pew Internet Project published in February found that more than 16 million Americans came online for the first time in the last half of 2000.

The same study reported that 75 percent of 18-to-29-year-olds now have Internet access and Internet penetration among Americans with household incomes of more than \$75,000 now tops 82 percent.



OK, that's access to the Internet, but what about the picture for online shopping? A separate study from eMarketer showed that during the week of Dec. 10, 2000, Americans made 58 million online shopping trips.

See RAB, page 40 ▶

SMW

▶ Continued from page 38

will be used to power the security of MusicNet, Real's digital music company partnership with Bertelsmann AG's BMG, EMI Group and Warner Music.

Glaser said the Media Commerce Suite is an integrated tool that can deliver all media, to all devices, in any format.

Microsoft officials countered with a reminder that their own DRM technology has been out since 1999 and is in its second version. They cited a number of recent announcements that digital asset management companies adopted Windows Media to control and protect their content.

Apple, with its QuickTime streaming format, remains the only major player without DRM technology.

In concert with Real's DRM tool, Glaser also announced eXtensible Media Commerce Language, an open XML-based language designed to establish industry-side standards for Internet media commerce.

Tom DesJardins, CEO of streaming services provider Lightningcast, told a session devoted to ad insertion that the revenue outlook may improve soon.

"Advertisers are just now in the process of doing the 35- to 50- to 100-thousand dollar test campaigns and I think it's going to start to lift off." He expects a ramp-up in the autumn, to push Christmas products.

Not a radio show

The show's exhibit area was not generally targeted at Internet radio, but focused on corporations that can use Internet audio and video streams to make announcements and educate their employees.

SMW's stated purpose to move to the Los Angeles area this year from the San Francisco area last year was to appeal to the entertainment industry. Next year's Streaming Media West convention will be combined with Internet World; both shows are owned by Penton Media.

The 2002 combo convention will be held at the Los Angeles Convention Center April 22 to 26, shortly after the Las Vegas NAB show.

Craig Johnston is an Internet and multimedia producer in Seattle and is a frequent contributor to RW. 📺

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Just as a car needs a reliable driver, so does every radio broadcast transmitter. The Crown FM series exciters, drivers and low power transmitters offer reliability unsurpassed throughout the world. Incorporating standard features as an integral part of all power levels, the quality in workmanship standard is consistent for all of Crown Broadcast products.

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RAB

► Continued from page 39

Think about that! Fifty-eight million times during the weeks prior to Christmas, shoppers chose to pass on crowded malls, traffic congestion and busy parking lots, opting instead to shop online.

Put another way, these acquisitive consumers chose to shop *virtually* instead of *locally*!

Please keep in mind that the number of online shoppers and the amount of money they are spending are growing at a phenomenal rate.

Obviously, this is *not* good news for local retailers who do not offer their customers an online shopping option.

And if something isn't good for local retail, you can bet that it will not be good for local radio.

The radio solution

Can there be any question that local retailers need an online presence? The local retailers in your market face many competitive threats. And now, thanks to the Internet, there are thousands of new online retail choices in every community in America.

That's the bad news, but here is the good news: By offering customers an online shopping option, those same local retailers are in a position to take advantage of this powerful new digital business channel in ways that the Internet-only retailers can only dream about.

Why? Well, to begin with, local

merchants can eliminate many of the concerns of current and potential online shoppers. The local retailers' ability to solve problems with shipping and returns, to give customers the ability to easily call and ask questions and the opportunity to visit the store and see the merchandise all give local "click-and-mortar" retailers a distinct competitive advantage over any Internet-only competitor.

But perhaps most importantly, is the issue of trust. Similar to the relationship radio shares with our listeners, shoppers generally trust local retailers. Many of your merchants have a familiar and trusted local brand and enjoy a place in the communities they serve that goes far beyond mere transactions. This extraordinary relationship is especially important in the

online space as many shoppers still have significant concerns about online security.

So what does this mean to radio? First, let's agree that we are in business of solving problems for our clients. Sometimes the answer takes the form of an ad campaign, but often it involves working with your clients to help solve even bigger and tougher challenges.

Retail, radio, Internet

It's at this exact point that retail, radio and the Internet come together. One of our missions should be to help our local retailers provide online shopping for their customers. If there is one lesson we've learned from watching the turbulent end to many of the early online efforts, it's the idea that there is a lot more to opening an online business than simply posting a few Web pages.

Getting an online business started takes an acute understanding of customer wants and needs, in addition to the necessary hard work, great technology and, of course, money. It also takes long-range thinking and the ability to re-think old paradigms and try new ideas.

The simple fact is that your retailers need to understand the urgency of starting to sell goods and services online and the competitive consequences of waiting. They need a provider who can offer user-friendly solutions to the challenges of technology. And they need a strong promotional partner to help brand their new online business. Shouldn't that partner be radio?

Why radio?

Do other media get it? Slowly, but surely the answer is *yes!* Look at www.superpages.com. This site is owned by Verizon Communications and offers retailers a number of e-business related services. Newspapers, cable companies, broadcast television ... most offer at least some interactive tools for helping clients open an online business channel.

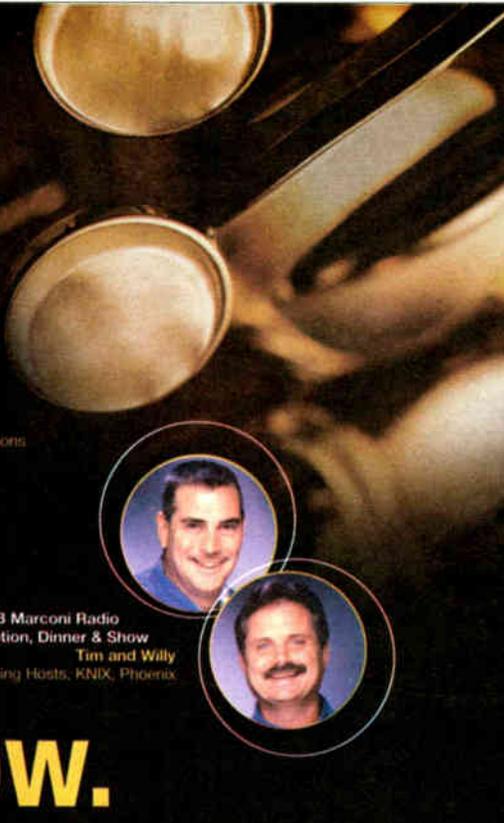
Because of the unique and personal relationship radio enjoys with our listeners, we have an unparalleled capability to persuade consumers to shop and buy from local retailers. Is there any reason we shouldn't leverage this quality to help local merchants expand their businesses by providing customers with online shopping as well?

Are we ready to supply our clients with the tools and services they need to compete on the new digital playing field? Or are we going to be left in the dust of forward-thinking retailers and providers who understand how prolific and profitable online shopping will undoubtedly become?

Think it over, but please don't think too long. The clock of digital opportunity is ticking.

Dave Casper is senior vice president of Internet services and Mike Mahone is executive vice president at the Radio Advertising Bureau. Both watch Internet trends that effect radio sales, and lecture and write extensively about these topics.

Their column, "Web Wins," which appears in "Internet Radio" in alternate issues, provides tips and ideas to build your radio station Web site into a new revenue river.



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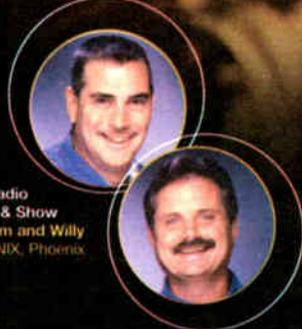


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AT AUDIO TECHNOLOGIES INCORPORATED

DIGITAL DOMAIN

Audio, Radio Toys in Amsterdam

Mel Lambert

Although a large portion of the hardware had been seen at the spring NAB convention in Las Vegas, there were still innovative technologies on display at the 110th AES Convention at the RAI International Exhibition and Congress Centre in Amsterdam.

Here's a quick look at products of interest to radio stations.

Companies in the mix

Digigram demonstrated several new products, including the miXart Audio Platform, based on Motorola's PowerPC processor. It promises significant architectural and speed advantages over conventional DSP-based systems. MiXart combines onboard audio processing with comprehensive audio mixing functions.

The first product in the series, miXart 8, features eight analog I/O paths and an option of four additional stereo AES/EBU I/Os; miXart 16 ADAT will offer eight stereo inputs and eight stereo outputs via optical connectors.

Other features include 8-, 16- or 24-bit resolution; MPEG I/II encoding and decoding; and real-time routing, mixing and audio effects.

The units are compatible with Digigram Xtrack and other PCXedit-based audio workstations.

Eela Audio unveiled the new D.MAX2 Modular Digital Console, a refinement of the D.MAX1, developed with Barth KG.

The PC-based system uses a versatile input and output cross-point matrix, linking A-to-D converters and AES/EBU inputs with integral sample-rate converters plus D-to-A converters with transformer-balanced outputs and/or AES/EBU ports.

Enhanced features include hot-swappable input and output modules, GPIO functions, external serial control for interfacing with hard-disk playback sys-



Tascam SX-1 Workstation

tems, 15 mono/stereo mixing busses and up to 11 clean-feed outputs, plus dedicated meter bridge modules and studio mon-

itors for presenter and guests. The user interface has been streamlined and is offered in straight or split frames. A tilted meter bridge is available with or without TFT screen for external data.

Digital mics

Neumann unveiled a pre-production version of the Solution-D series of digital microphone products, which is scheduled for release early next year.

The D-01 Digital Microphone is the same size and basic shape as its analog counterpart. A built-in A/D converter has been developed by Neumann and optimized for the low-level signal level present at the microphone capsule.

An internal 28-bit digital signal is said to offer a dynamic range in excess of 130 dB — A-weighted, including capsule. Standard sample rate is 48 kHz, but 96 kHz is available as an option.

An FPGA (Field Programmable Gate Array) built into the mic enables parameters such as polar pattern, pre-attenuation, low-cut, pre-amp gain and various switching functions to be implemented

See AES, page 47 ▶

Proposed Theory Of Radio Hacks

The L.A. Area Study of the Measurement of Occurrence of On-Air Expectorant as Propelled By Psychosomatic Coughing From Air Talent

Brian Clark

Engineering tasks are many and varied, as we have all come to realize, especially with the constant state of mergers. Often, we find ourselves in the role of firefighter rather than innovator.

My job takes me out in the field either to other facilities in our group to work. Additionally, I have to handle remote broadcasts for two Los Angeles-based Clear Channel radio stations: KIIS(FM) and KXTA(AM).

I have had the pleasure of working with many air talents over the years, each with their own numerous idiosyncrasies. Everyone I know has interesting things s/he needs to keep him/her happy. Some have minor quirks such as needing specialty items



Hackometer Discreetly Placed Between Heart Monitors

available for a remote broadcast to things that seem as inconsequential as room temperature issues.

Phlegm and the fury

One air talent I happen to work with has a propensity to cough on a regular basis, he doesn't have bronchitis or any other kind of upper respiratory

See HACKOMETER, page 49 ▶

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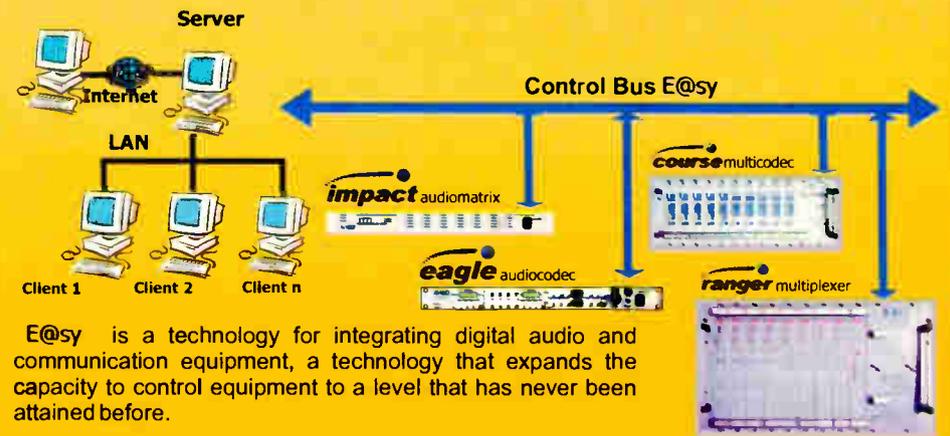
eagle Audiocodex



EAGLE is a multi-format dual-channel audio codec with analog and AES/EBU digital input and output, with a dual display to facilitate operation, and with multiplexing capability between the two ISDN "B" channels, in one rack unit height.

EAGLE include V35/X21 communications boards and a universal terminal adapter for S or U interfaces.

Remote Control IP



E@sy is a technology for integrating digital audio and communication equipment, a technology that expands the capacity to control equipment to a level that has never been attained before.

E@sy integrates equipment and software applications. The equipment are connected to an application server through an RS 422 bus. In the client computers, applications are run that, together with the connected equipment resulting a system that provides high-end features and very powerful functions.

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course Multicodex



COURSE is a set of up to ten one- or two-channel multiformat codec boards in a four-unit-high rack with a dual power supply.

As options, the COURSE equipment can include AES-EBU inputs and outputs, V35/X21 communications boards and a universal terminal adapter for S or U interfaces.

Get more information about these products or how to contact the nearest AEQ distributor at www.aeq.es, or request additional information at the following address:

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Fish Are Gonna *What* in Your Bed?

Alan R. Peterson

The oldies station here in Washington recently ran a very humorous TV campaign where members of their desired demographics are singing along with their favorite oldies.

What makes it funny is that maybe those listeners are not as familiar with their oldies as one may think.

A woman in a car is singing along to The Temptations' "My Girl," and botching the line, "When it's cold outside, I've got the month of May." Her lyric: "I've got the *muffins made*."

Likewise, a man getting dressed for work is singing backup to Simon and Garfunkel's "I Am a Rock," but the line "I am an island" is mistakenly sung as "I am an *onion*."

Funny? You bet. Memorable? The station is hoping so. And after all, who among us has not booted a lyric now and again?

Clean your ears, dude!

Everybody knows somebody who assumed the line from CCR's "Bad Moon Rising" was "there's a bathroom on the right." The Rascals once suggested a threesome in "Groovin'" by singing, "Life would be ecstasy, you and me and Leslie (endlessly)."

Let's not even touch "Louis Louis" from the Kingsmen.

In my days of listening to the hits on AM radio, I often had problems interpreting lyrics of some songs. It was a combination of the limitations of inexpensive AM receivers at the time, plus — as it turned out — the accents of various singers; especially British Invasion acts trying to emulate American rhythm-and-blues artists.

That was why I used to sing the Rolling Stones hit, "Mother's Little Helper" with the line, "Doctor please, some Borateen." The actual lyric is, "Doctor please, some *more of these*."

Once I hit the air myself as a fledgling jock, nothing changed. I would still hear what I wanted. Eddie Money's "Two Tickets to Paradise" was a hit during my

college radio years, and even with the headphones on, I still heard him sing, "I've got two *chickens to paralyze*."

Mangled lyrics are almost a cottage industry. I cannot count the number of DJs I know that own a copy of Gavin Edwards' book, "Scuse Me While I Kiss This Guy And Other Misheard Lyrics." Some folks refer to the misunderstanding of song lyrics as the "Guylum Bardo Syndrome" or the "Big-Spider Beck Effect," derived from jazz great Bix Biederbeck.

Naturally, the Internet comes to the rescue with at least two very funny sites

Even with the headphones on, I still heard Eddie Money sing, 'I've got two chickens to paralyze.'

dedicated to loused-up lyrics: amiright.com and kissthisguy.com. Every jock should visit these sites at least once. In fact, some of you ought to contribute to the sites. I am certain you have heard lines in songs that nobody else ever did.

The managers of both sites gave their kind permission to repeat some of the funnier listener-submitted entries, and believe me when I say they are doozies. And just so I don't get myself in trouble, these examples were all posted on the Web sites I just mentioned. If any of these were originally published elsewhere, drop me a note and I will give proper credit as due.

Staying with the Stones for a moment, how about their classic song "You Can't Always Get a *Chihuahua*"? Or the line from "I Can't Get No Satisfaction" that goes, "Can't you see I'm on *De Luca Street* (a losing streak)?"

A trip to the other end of the record rack brought out "Help Me Rhonda" by the Beach Boys, with the memorable

opening lyric, "Well since she put me down I've been all through it in my head."

Memorable, perhaps, but not as much as, "Well since she put me down, *there's been owls puking in my head*," as one listener discerned.

Think your favorite '50s nostalgia groups are immune to the syndrome? Not by a long shot.

Despite the need for singers to over-enunciate to compensate for primitive recording technology and AM bandwidth, misconstrued lyrics still joyously span the decades.

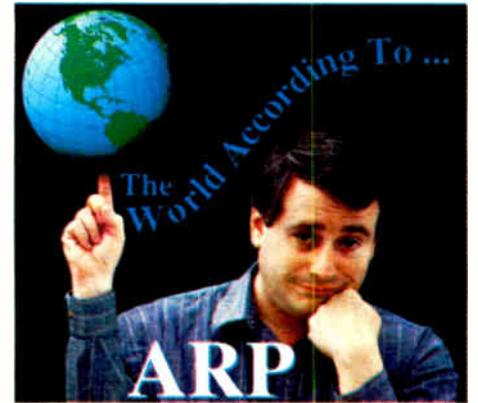
A quick flip through the Elvis Presley 45s might make you wonder who Mosha is, and what happened to his cup. At least one submission to amiright.com notes "A *Mosha Cup*" is actually "I'm All Shook Up," but when you hear the lyric sung, it's an easy mistake.

Jerry Lee Lewis' echo machine might have been turned up a little too much for "Whole Lotta Shakin' Goin' On." Why else would the opening lyric "Come on over baby," have been heard as "*Homma Lomma Baby*"?

Someone out there must have thought sing-along king Mitch Miller was a science fiction fan back in the day. That would explain "Yellow Rose of Texas" making mention of "The sweetest little *robot* (rosebud) that Texas ever knew."

Perhaps the Chordettes were in the local tavern when one listener heard "Mister Sandman, bring me a *drink* (dream)."

And who is Uncle Ed? When the Marcells cut the classic "Blue Moon," one



listener swears to have heard, "There suddenly appeared before me, the only one my *Uncle Ed* could hold." Or was it, "... the only one my arms would ever hold ..."? The world may never know.

Those fabulous '70s

Thank you Bee Gees for giving us the "Saturday Night Fever" soundtrack; ground zero for some of the best and funniest flubbed lyrics of the '70s, thanks in no small part to the group's falsetto harmonies.

In one song alone, "More Than a Woman," listeners claimed to have heard, "Four-legged woman," "bald-headed woman," "bow-legged woman," "vanilla woman," "strawberry woman" and "poor little woman."

"Stayin' Alive" brings up a close second with "Ah, ah, ah, ah ... Stay in the light," "Thingamabob," "Sing in the bath" and "Sick of the night."

Try as they might, the Bee Gees couldn't top Manfred Mann's rendition of "Blinded By the Light" for sheer butchery. Everybody has his or her own interpretation of "*Blinded by the light, revved up like a deuce, another runner in the night*."

Besides the most widely accepted flub (the one suggesting a hygienic procedure), one listener clocked in with, "Blinded by the light, held up like a loofah by the foreman of the night." Yet another suggested a Roman in the night, while a third referenced a road-kill runner in the night. Nice neighborhood, eh?

Speaking of neighborhoods, you have to wonder about the degree of rudeness on "Sesame Street." The original TV theme song included "Friendly neighbors there *that swear at me* (that's where we meet)."

See ARP, page 49 ▶

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AES

► Continued from page 43
digitally and controlled remotely.

A standard three-pin connector carries supply voltage, phantom power, and remote-control data. Output signal conforms to the new AES 42-2001 data format. A companion DMI-2 Digital Microphone Interface converts AES 42-2001 data into a standard AES/EBU signal for consoles not yet equipped to handle the new format.

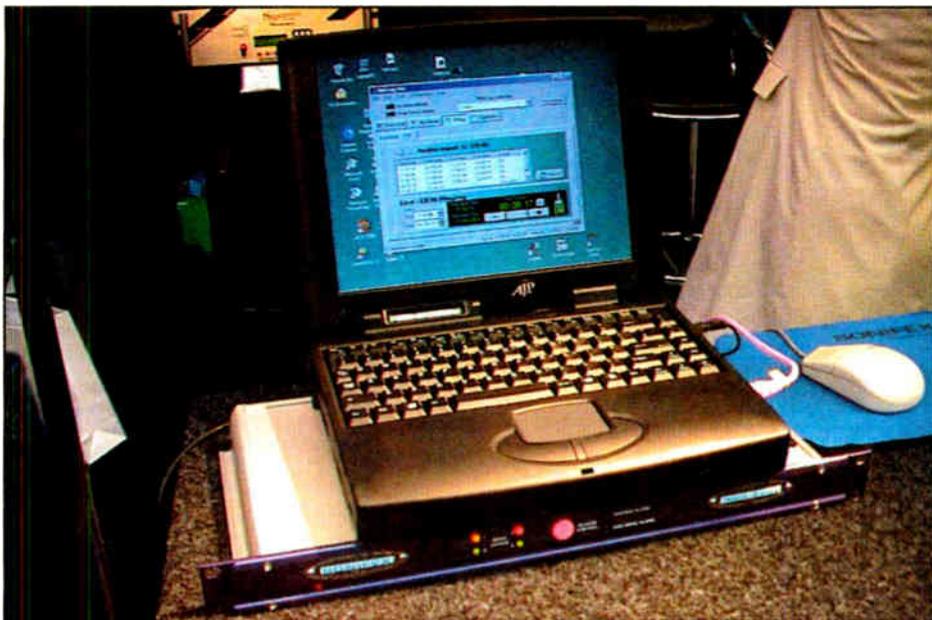
IDT showed several applications for the firm's powerful Digital Virtual Processor, a flexible DSP-based engine capable of handling audio processing for AM, FM and internet Webcasting. The Virtual Voice Processor is PC-controlled and is said to eliminate problems of sibilance, pop and other noise problems within the frequency-transform domain. Customized presets can be tailored for specific voices and recalled as necessary.

Log in, log out

Sonifex demonstrated the new Net-Log Network Audio Logger, a disc-based system intended to overcome the inherent unreliability of PCs for long-term recording.

Based on a dedicated hardware-recording platform that uses a TCP/IP-based topology for audio playback via a network connection, Net-Log can record four mono or two stereo audio streams in MPEG Layer 2 format.

Data is stored on internal EIDE hard-disk drives. Each channel or pair of channels can be programmed to record independently, configured for different sample and bit rates. Several weeks of regulatory low-quality logs as well as high-quality re-broadcast recordings can be captured on a single machine.



Sonifex Net-Log

Steinberg Media Technologies unveiled the Nuendo Studio System One for the MacOS platform, which comprises Nuendo Software, Nuendo Surround Edition, Nuendo PCI 96/52 and Nuendo 8 I/O. The system also is available for Windows 98/2000.

Nuendo features up to 200 tracks of 16-, 24- or 32-bit audio at sample rates from 44.1 to 96 kHz. Nuendo Surround Edition comprises real-time plug-ins with up to eight-channel capability. Nuendo PCI 96/52 is an audio I/O that offers up to 26 ports. Nuendo 8 I/O offers eight channels of A-to-D and D-to-A conversion with 24-bit resolution.

Studer Professional Audio spotlighted enhancements for its On-Air 2000M2, which includes extended functionality with an input configuration router and a redesigned exterior.

The company said approximately 500 On-Air 2000 mixers are in use; current users can upgrade to add the M2's functionality. For flexibility required in radio work, the M2's integrated router enables any input module to be routed to any channel fader.

The M2 can be equipped with 6, 12, 18 or 24 faders controlling up to 24 input modules; extension boxes can be used when the number of input modules exceeds the number of physical faders. A maximum of 24 input modules — each handling two or six mic/line analog or



Weiss DAC1 Digital-to-Analog Reference Converter

digital inputs — and 64 input signals can be controlled via the router. All digital inputs incorporate a sampling-frequency converter.

Tascam unveiled the innovative SX-1 Integrated Audio Production Station, which combines an automated digital mixer with a hard-disk recorder/editor with plug-in effects architecture and a

The integral 16-track hard-disk recorder offers 48 kHz/24-bit resolution. A planned software upgrade will allow 96 kHz sampling. Additional IDE and ultrawide SCSI drives can be added via a front-panel slot or a rear-panel SCSI interface.

A 128-track MIDI sequencer offers advanced editing modes, with standard and step record modes. A built-in CD-RW drive is provided for outputting stereo mixes, data backup, archiving and importing sounds from audio or data CDs.

Plug-in

The SX-1's DSP plug-in technology offers built-in effects by Tascam, TC Works and Antares; new effects can be added as required.



Neumann D-01

the firm's first stereo 24-bit digital-to-analog reference converter that accommodates input sampling frequencies of 44.1, 48, 88.2 and 96 kHz. The unit also features a DSP-based, dual-PLL based jitter-reduction circuit.

According to the manufacturer, "several signal reclocking schemes are combined for extremely high jitter attenuation, making the DAC1 immune the jitter over a very wide bandwidth."

Class A output amplifiers are included, with continuously variable levels up to +27 dBu. Four user-selectable digital inputs, including a trio of XLR connectors and one optical TOSLINK, are available.

Additionally, the unit features a word sync output for Master Clock Mode. A remote connector enables level setting and input source selection.

Manufacturers: Did we receive your new product press releases? If not, share them with us so we can pass them along to our readers.

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Telos Systems and Omnia showed the Omnia-6, the newest in their line of all-digital audio processors, which uses 96 kHz sampling and 24-bit resolution.

The unit offers five bands of AGC, six bands of limiting and user-adjustable crossovers. Omnia-6 is DAB-ready and ITU BS 412-compliant.

Remote control is via dial-up modem, RS-232 or a conventional TCP/IP network. Built-in Omnia SPACE-EFX stereo enhancement is featured. Separate compressor and limiter sections are said to eliminate intermodulation distortion.

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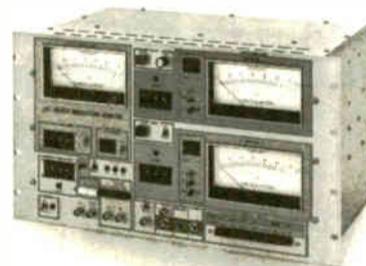


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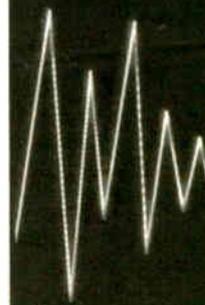
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Hackometer

► Continued from page 43

condition. I believe it is a way to release nervous tension.

But his coughing is so regular I said to myself, that wouldn't it be funny to calculate how many times during a three-hour radio show he would cough? I guessed that it must be in the hundreds.

Blinded with science

So I decided — purely in interest of science — that I would conduct an experiment. I set out to make up a counter mechanism that would accurately count how many times that talent would cough during a three-hour radio remote. I did not let the talent know I was doing so as

not to disrupt the results of this clinical study. Because like I stated before, this is science.

ting for this scientific event than the grand opening of the new "Tommy Lasorda Heart Institute" at Centinela

'Hackometer' derives from the Latin root 'haccus meteri,' meaning how many coughs it takes to hack up a lung.

Well, I took a standard 3 x 3 inch LMB box that was lying around and mounted a small digital counter that was in our engineering scrap heap and interfaced it with one of my headphone/cough boxes my partner Jerry Burnham had built.

Hospital in Inglewood, Calif., with heart monitors and oxygen tanks everywhere.

After setting up all of my tech gear and connecting the Hackometer to my headphone/cough box, it was time to zero the counter — the show was about to begin at noon and so began the count.

The unit operated as designed and by 3 p.m., the show's end, the final count was



105 as indicated on the counter. That averages out to a cough once every 1.7 minutes. However, during each depression of the cough button the talent hacked generally twice, sometimes three times. As a result, according to the Mulligan rules of perpetual golf, I could technically double the number to 210.

So ladies and gentlemen this is my contribution to radio science.

Brian Clark is an engineer for KIIS(FM) in Los Angeles.

ARP

► Continued from page 45

Wear down the vinyl copy of Pink Floyd's classic rock staple "Another Brick in the Wall" enough and hear "We don't need no eggs and bacon, we don't need no sausage roll," which, last I looked, was actually, "We don't need no education, we don't need no thought control."

Finally, exiting the '70s, we find Barry Manilow dating a real dog in the song "Copacabana," where he sings, "And when he finished, he called her Rover (whistle effect)."

Enter the '80s

Hall and Oates confused a few listeners with "Maneater." On AM radio, it sure sounded like, "She's a band-leader," "She's a mad beetle," "She's a bandito" or "she's a magneto."

When Aretha Franklin released "Who's Zoomin' Who?," I admit to being steered into this one. A listener called me, adamantly swearing he heard her sing, "Fish are gonna poop in my bed." The actual lyric was "fish jumped off the hook my baby," but he could not be dissuaded. He must be a pip on karaoke nights.

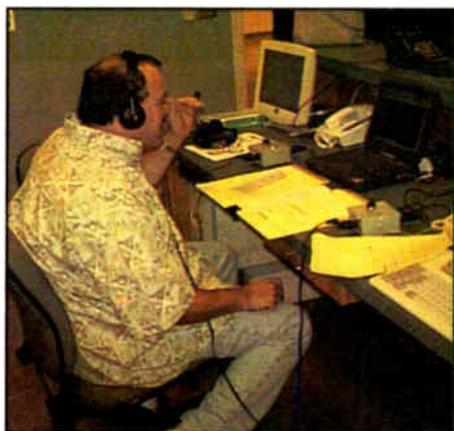
The Police had a hit with "Spirits in the Material World." Too bad nobody told Oscar about it. You know Oscar, he's the guy they sing about in the refrain: "Oscar sits ... in my cereal bowl."

Tom Petty? The crown prince of mumbling, right behind Bob Dylan. Why else would someone think his song "Free Falling" was instead titled "Tree Falling," "Three-balling" as in a pawnshop, or "3:40"?

Speaking of the afore-mentioned Mr. Dylan, who remembers that memorable line, "Lay Lady Lay, lay across monkey grass n' spit (my big brass bed)?" Or even, "The ants are my friends, they're blowing in the wind?"

There are so many more to share, and we have not even reached the 1990s. I guess you will just have to visit the sites. And keep listening to songs in your station's library for that next great misunderstood lyric.

With this installment, Al Peterson begins his 13th year as an RW columnist, and publicly thanks editors Judith Gross, Alex Zavistovich, Luci Cobo and Paul McLane for the opportunity and continued support. Write him at alanpeterson@earthlink.net.



Arnie Spinner, talk show host and clinical study subject, is shown broadcasting from the Tommy Lasorda Heart Institute.

Then came the naming of the device. I pondered, and pondered some more. Finally I settled on the name "Hackometer," derived from the Latin root "haccus meteri" meaning how many coughs does it take to hack up a lung — this is my own translation, of course.

When it came time to unveil my new invention I could think of no better set-



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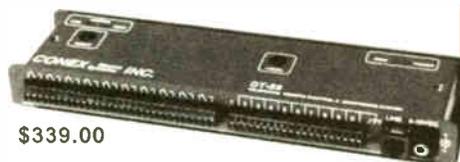


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Gates 10 AM transmitter tuned 1460. Must pick up in NW Florida, just off I-10. \$700/BO. Art Dees, WZEP, POB 627, DeFuniak Springs FL 32435-0627. 850-892-3158.

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BE FX 30 exciter, tunable, brand new, still in original wrapping, two manuals included, \$1600. Tom Hodgins, Alexandra Comm, 45 Campbell Rd, Walla Walla WA 99362. 509-527-1000 or 509-520-3000.

Gates BC-500 used AM transmitter. 910 KC, 500 watts, single phase, call for details, BO. Kent Lankford, WAKO, POB 210, Highway 250 East, Lawrenceville IL 62439. 618-943-3354.

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Harris Gates Five, 5 kW transmitter, solid state, 2 yrs old, perfect shape, \$20,000. Tom Hodgins, Alexandra Comm, 45 Campbell Rd, Walla Walla WA 99362. 509-527-1000 or 509-520-3000.

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28, 29	BSW	www.bswusa.com
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◆ READER'S FORUM ◆

Codecs

As I read Mel Lambert's June 6 *Digital Domain* column ("Note Subtle Changes in Audio Data Compression"), I first thought that Mel was finally getting it.

He seemed to have discovered what we've been preaching all along: (A) The more you cascade compressed audio, the worse it sounds, and (B) When you use higher data rates (i.e., less compression), cascaded audio sounds better. That's why codecs that go to higher data rates can be more useful in professional applications.

But as I read further, Mel's article lapsed into yet another endorsement of APT products and the APT-X algorithm. Mel's admitted "fondness" for things APT has apparently compromised his ability to be objective, since he omitted the main reason that MPEG compression is dominant: the transmission costs are much less!

Nowhere in or around Mel's promotion of the new APT WorldNet Rio codec does he tell readers that in order to transmit 24-bit stereo audio with a 20 kHz frequency response, the WorldNet Rio requires 576 kbps of bandwidth. That's nine ISDN B Channels, or five ISDN BRIs. I'm sure this will make a big hit with the station's budget department.

Properly designed MPEG codecs produce great-sounding 20 kHz stereo audio at transmission rates as low as 112 kbps, and support multiple codings up to 15 times at bit rates of 384 kbps or less.

Art Constantine
VP, Business Development
Corporate Computer Systems Inc.,
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Holmdel, N.J.

Compliments

I just wanted to pay my compliments to the editor and Radio World. I've been receiving it continually for nearly 20 years, as I've moved from place to place. It has expanded to become one of the most enjoyable publications of our industry. It's one that not only engineers look forward to.

As I see it, Radio World's most noticeable progression has been since Paul McLane took over as editor. Keep up the good work.

Ed Weigle
Production Director
WEDJ Rock 107
Indianapolis

Border blasters

Nice article by Bill Ryan about Border Blasters (RW, May 23, "Border Blasters Left Lasting Impressions").

As a guy from Texas, I listened all of the time. I liked the program on XERF in Del Rio that offered to send, for a sum, a T-shirt autographed by Jesus Christ. So one day at UT Austin, we ordered one. A white T-shirt came with a note saying that, if one believed, one saw the signature.

Finding someone to love via the "Connie Lou Lonely Hearts Club" was good too.

Douglas A. Boyd
Professor and Director
Office of International Affairs
University of Kentucky
Lexington, Ky.

Ken R.

A quick note to say how much I enjoy reading the articles in Radio World. I have been a subscriber for years.

I get the most enjoyment from the many Ken R stories. I have known Ken for years and I guess I have him to "blame" in part for me getting into radio.

I think my favorite was the story in the Feb. 14 issue, "Cautionary Tale of Frogs and Men." I had left the station we both worked at a bit before that and came back a year later. There was not even as much as a "lily pad" left by that time.

I hope that you keep that little guy around for a while (Ken, not the frog!) and give him a big raise. That way he might take me to lunch some time.

Thanks for a great publication.

Paul Stowers
Stowers and Associates
Perrysburg, Ohio

Radio Web sites

I really enjoyed the articles on marketing your Web site in the Feb. 1 *Internet Radio* section. But one thing missing was a general warning about proper use of e-mail addresses.

This is beginning to be a big issue. For example, a local station captured e-mail addresses of folks visiting their Web site, and then decided to send a large mailing to each of them. This resulted in a lot of disgruntled folks showing up at a live remote and making life rather unpleasant for the people involved.

Keep the Net Goal In Sight

In light of the fluctuating tech market, some stations may find the prospect of entering the streaming market or expanding their online activities a little unsettling. However, this is not the time to lay low; in fact it may be the time to dive in.

Arbitron reports that people who consume streaming — "streamies" — range in age from 12 to 65 and up. Some 46 percent of 12-17s and 39 percent

of 18-34s have listened to streaming services. Streamies are 34 percent more likely to purchase merchandise online.

This market is deep and stable, with 52 percent of streamies having been online for more than three years.

A White House report last year stated, "Nearly half of all American households now use the Internet, with more than 700 new households being connected every hour."

Streaming radio is not going away.

Manufacturers recognize the high interest in streaming media and constantly are developing better, faster support for the streaming market. While there has been a turbulence in the dot-com arena, most of the software and hardware companies that were here before the Internet craze are still around, and many are quite healthy, thank you.

In the past few months, some interesting products have been released that aim to help radio take better advantage of the Web. Offerings like RCS iSelector and MediaTouch broadcastport.com help stations create a branded image for the Web while helping sort out revenue opportunities. Products like Waves MaxxStream and Telos Audioactive are producing reliable high-quality audio streams.

Some reasons to stick with streaming: to branch out to difficult-to-reach audiences; to help small stations keep listeners who are leave the listening area; and to promote the traditional on-air station. Also, at a time when the number of computers in households is increasing, here's a chance to stay ahead of the game and create additional revenue.

These reasons aren't new. But managers may need to be reminded of them in light of recent developments. Webcasters who stay active during the "down" time will be the ones who prosper in the expansions to come.

Currently there is a big push into streaming for the wireless market, and that could translate to anything from traditional cell phones to wireless Internet on the car radio. In fact, companies like Alpine and Kenwood offer in-dash multimedia units that play MP3 files, and Q-PC Real Car Computing makes an in-dash computer that can access the Internet and e-mail and play back audio and video.

The tools are there; so pick up a stream, grab some bandwidth and get to work.

—RW

There's nothing wrong with getting e-mail addresses of listeners, and nothing wrong with sending them mail, just as long as you are assured that they really want the e-mail. If you ask folks to sign up for a mailing list, you'll get a lot of folks who sincerely want to know what is going on with the station and who pass this information on to others.

If you send mail to random folks visiting the Web site, or even worse, to a list purchased from somewhere else, you're apt to get a lot of disgruntled folks screaming at you and risk having your site shut down as ISPs tend to look unkindly upon this sort of thing.

Since e-mail basically costs the recipients money, it's not like postal mail advertising where the costs are all borne by the sender, and as a result you have to be a lot more careful about list management and handling. But it *is* possible to

send out mailings to listeners and get a good positive response if you're willing to spend the time to be careful.

Scott Dorsey
Owner
Kludge Audio
Williamsburg, Va.

Write to Us

RADIO WORLD
READER'S FORUM

P.O. Box 1214
Falls Church, VA 22041

radioworld@imaspub.com

—EDITORIAL STAFF—

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—EDITORIAL CONTRIBUTORS—

W.C. Alexander, Bruce Bartlett, Frank Beacham, Read Burgan, Harry Cole, Troy Conner, Vince Ditingo, Mark Durenberger, Ty Ford, Scott Fybus, Harold Hallikainen, Paul Kaminski, Peter King, Mel Lambert, Mark Lapidus, Carl Lindemann, Naina Narayana, Tom Osenkowsky, Ken R., Rich Rarey, Bruce Rogow, Randy Stine, Steve Sullivan, Travis the W/O Guy, Barry Umansky, Tom Vernon.

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Telephone: (703) 998-7600 • Business Fax: (703) 998-2966 • Editorial Fax: (703) 820-3245
E-mail: radioworld@imaspub.com • Web site: www.rwonline.com

—ADVERTISING SALES REPRESENTATIVES—

US Southeast & Mid-Atlantic: John Casey	330-342-8361	Fax: 330-342-8362	e-mail: jdcasey@imaspub.com
US Northeast & Central: Sandra Harvey	765-966-0669	Fax: 765-966-3289	e-mail: ads4sales@aol.com
US West: Dale Tucker	916-721-3410	Fax: 815-352-1698	e-mail: dtucker@imaspub.com
Classified Ads: Simone Mullins	703-998-7600 x154	Fax: 703-671-7409	e-mail: smullins@imaspub.com
Germany, Austria: Dagmar Hänle	+39-02-7030-0310	Fax: +39-02-7030-0211	e-mail: dhanle@imaspub.com
France: Silvia Di Stefano	+39-02-7030-0310	Fax: +39-02-7030-0211	e-mail: sdistefano@imaspub.com
European Sales Mgr., Africa, Middle East: Raffaella Calabrese	+39-02-7030-0310	Fax: +39-02-7030-0211	e-mail: rcalabrese@imaspub.com
Japan: Eiji Yoshikawa	+81-3-3327-2688	Fax: +81-3-3327-3010	e-mail: callers@msn.com
Asia/Pacific: Wengong Wang	+86-755-5785161	Fax: +86-755-5785160	e-mail: wvw@imaschina.com
Latin America: J.O. Lima e Castro	+55-11-3873-1211	Fax: +55-11-3673-1499	e-mail: limcas@uol.com.br

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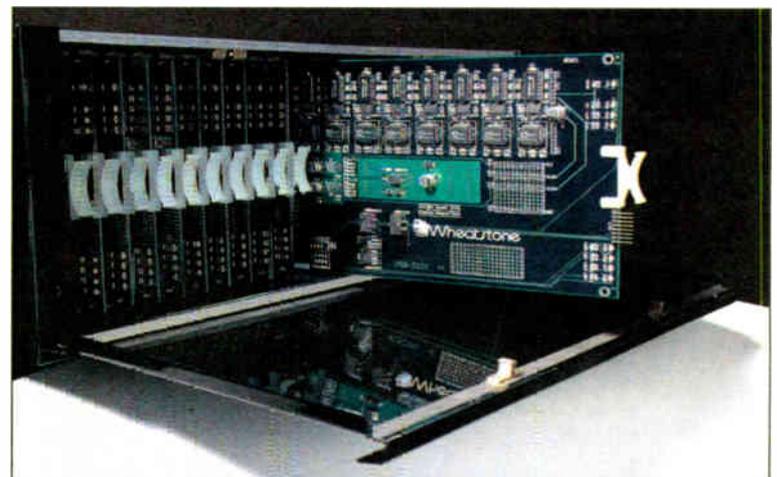
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