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**A B-i-i-g AES:  
Turn to page 18.**

# RadioWorld®

Vol 20, No 25

Radio's Best Read Newspaper

December 11, 1996

## EAS, RFR Deadlines Approach

by Lynn Meadows

**WASHINGTON** Two important deadlines lie ahead for radio stations, both on Jan. 1, 1997.

Time is running out for broadcasters who have not purchased their Emergency Alert System equipment, and the Federal Communications Commission is not in a lenient mood. The deadline for purchasing and installing the new equipment is Jan. 1. This is a key step in replacing the outdated Emergency Broadcasting System.

The second deadline relates to Radiofrequency Radiation, or RFR. **RW** columnist Harry Cole writes about the impact of the latter deadline on page 35.

As far as EAS goes, broadcasters

might be gambling if they expect an extension.

"If they (broadcasters) don't have it on January 1, they are in violation of FCC rules," said Acting EAS Chief Frank Lucia, apparently putting to rest any last-minute speculation that the FCC will extend the deadline.

However, if stations do not have equipment on Jan. 1 through no fault of their own, Lucia said there is not much the FCC can do. For instance, if equipment did not arrive even though the station ordered it in plenty of time and was assured by the manufacturer that it would arrive by the deadline, the FCC will probably be sympathetic.

An order placed on Dec. 30, however, would be considered unreasonable.

TFT Inc. and Sage Alerting were the only EAS equipment competitors for the first three quarters of the year. The last three months brought four more EAS manufacturers onto the market: Holly Anne Corp., Gorman Redlich, MTS Communication Products and Burk Technology.

MTS received its certification on Nov. 15, only a month and a half before the final deadline. Despite the timing, MTS President Lyn Williams sounded

schools, sheriff's departments, local government offices and hospitals.

By late November, MTS was working on a four-week shipping schedule. Williams said the FCC could grant some 60-day waivers, but Lucia said that under EAS rules, the 60-day waiver applies only to stations where equipment has already arrived but is broken. He said waivers will be granted case by case.

Williams estimated that around 40 percent of stations had not purchased equipment by late November and a large percentage would probably wait until the last minute to make their decision.

continued on page 14 ▶

## No Booze Ad Binge Is Expected for Radio

by Bob Rusk

**WASHINGTON** The hard liquor industry is going to have a hard time finding many radio stations that are willing to accept commercials for distilled spirits.

Reacting to the decision by The Distilled Spirits Council of the United States (DISCUS) to lift its 60-year voluntary ban on such advertising, nearly all of the broadcasters contacted by **RW** said they would not air the spots.

**Heavy hitters**

The list includes many of the biggest group owners in the industry: American Radio Systems, Clear Channel Communications, Jacor Communications, SFX Broadcasting Inc., ABC, CBS, Viacom, Entercom, Cox and Beasley.

Robert Sillerman, SFX executive chairman, acknowledged that running hard liquor advertisements would be a good move financially — but he said now is not the time for it.

"While the company owns and operates a significant number of stations reaching the 25 - 54-year-old demographic targeted by such advertising, the company believes that a wait-and-see attitude is appropriate," Sillerman said.

"We have a responsibility to the public we serve. Until and unless we receive direction from the public, or the FCC, conscience dictates maintaining our current prohibition. While we do have a responsibility to seek out new sources of revenue, the more compelling reasons to reject distilled spirits

advertising prevail."

More to the point, perhaps, is the concern among some broadcasters that there could be government intervention if radio goes along with the lifting of the ban.

"We've heard that bandied about. It

continued on page 12 ▶

**SNOWWATCH**  
School Closings  
PNC BANK  
**WDEL**  
1150 AM

optimistic about the company's place in the EAS arena.

EAS equipment makers can look beyond the end of the year for more business. Cable companies face a July 1, 1997, deadline. Further, broadcasters and cable companies are only a piece of the potential market. The EAS structure may eventually include institutions like

Serve your community and make money, too.

Learn how one successful station plans for winter storms in *Running Radio*, page 35.

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## PTFP Funds Still Play A Major Role

by Alan Haber

**WASHINGTON** The budgets are smaller now, but year after year, public radio and television stations turn to PTFP grants for help in bringing their services to bigger coverage areas and replacing vital equipment such as towers, transmitters and studio equipment.

The matching grants of the Public Telecommunications Facilities Program remain an important source of capital for many broadcasters. Established in the 1970s under the old federal Department of Health, Education and Welfare, the PTFP now is administered by the National Telecommunications and Information Administration (NTIA), part of the Commerce Department.

Prospects for the continued health of PTFP may seem a bit dim, when past budgets are taken into consideration. In fiscal

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# NEWSWATCH

## Industry Executives Die In Illinois Plane Crash

**QUINCY, Ill.** Three broadcast equipment industry executives were among 14 people who died when two commuter planes collided on a runway at Baldwin Municipal Airport on Nov. 19.

James Beville and Mark DeSalle of Dielectric Communications Co. and Dennis Reed of the Broadcast Division of Harris Corp. were aboard a United Express flight that was landing when it hit a private plane attempting to take off.

The Beech 1900 plane originated in Chicago, and stopped in Burlington, Iowa, before landing in Quincy, Ill.,

shortly after dusk at 6:02 EST. It was carrying 10 passengers and two crew members when it hit a King Air 90 carrying two people.

Beville, 50, president of Dielectric Communications Co., and Mark Desalle, 43, vice president of finance, were in Quincy to meet with representatives from Harris. Dielectric is headquartered in Raymond, Maine.

In a news release, Peter Fitch, vice president of human resources at Dielectric, stated, "We are profoundly saddened by the loss of two fine friends and business associates. Jim and Mark were both highly respected by those they worked with at Dielectric and within the industry."

Reed, 37, director of international programs, had been with Harris Corp. for 15 years. He was formerly with its RF Communications Division based in Rochester, N.Y., before moving to its Broadcast Division in Florence, Ky., in March 1996.

"He was an extremely talented and well-liked employee," said Martha Rapp, manager of public relations for Harris Broadcast Corp.

The small regional airport has no air traffic control tower. Pilots using the airport instead rely on visual checks and direct aircraft-to-aircraft radio contact on an open frequency to maintain order.

Safety investigators said they found

skid marks on both runways, indicating that the pilots of both aircraft sensed an emergency and braked hard. The crash was under investigation.

—Christine Jouquin

## Historic Radio Merger Moves Forward

**WASHINGTON** The Department of Justice reached a settlement with planned merger partners Westinghouse Electric Corp. and Infinity Broadcasting Corp., under which the companies will divest Infinity station WBOS(FM) Boston and CBS Radio station WMMR(FM) Philadelphia. The settlement requires FCC and shareholder approval;

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# Canada Takes Big DAB Steps

by James Careless

**EDMONTON, Alberta** Canada is pressing ahead with DAB.

As reported previously in *RW*, the launch of the first commercial digital radio stations in the Americas — 15 of them in Toronto — was announced here during Broadcast '96, the Canadian Association of Broadcasters (CAB) annual convention.

All of the stations will use Eureka-147 digital audio broadcasting (DAB) equipment in the L-band, and they will coordinate their efforts jointly through Master FM, the existing radio consortium that manages FM transmissions at the CN Tower in Toronto.

## Solving chicken and egg

Included in the DAB group are the big names of Canadian radio, including Rogers Broadcasting Ltd., CHUM Ltd., Shaw Communications, Telemedia, Standard Radio Inc. and the Westcom Radio Group.

The Canadian Broadcasting Corp. (CBC), the Canadian public broadcaster and a shareholder in Master FM, is also planning to start digital broadcasts from the CN Tower.

If all goes according to plan — including government approval, which is considered certain — the launch of DAB in Toronto will begin in mid-1997, just a few months before consumer DAB receivers are scheduled to arrive on the market.

The process is starting now because "we must convince the receiver manufacturers that we are serious," said CAB President Michael McCabe.

"We have had intensive, ongoing discussions with all the major receiver manufacturers aiming for 1997 launches of their product, and a lot depends upon their believing that we are, in fact, going ahead with launching our services," McCabe said.

"It is essential that we help solve 'the chicken or the egg' conundrum" for receiver manufacturers, said Duff Roman, co-chair of the CAB Digital Rollout Committee and vice president for Industry Affairs at CHUM Ltd. "As Toronto goes in this endeavor, so goes probably the rest of Canada."

## Short time after

Just days after the announcement at the Canadian Association of Broadcasters (CAB) convention of commercial DAB

services starting in Toronto, the Canadian Broadcasting Corp. (CBC) announced that its four English and French networks will begin DAB broadcasts in Toronto and Montréal by late 1997.

As a shareholder in Master FM, the corporation hopes to take part in the transmission arrangements being worked out by private broadcasters in Toronto,

said Ian Alexander, director of Planning and New Media for English Radio at the CBC.

The only reason the news was not released at the October CAB convention was that "we presented the CBC DAB plan to our board of directors on Tuesday, Nov. 5," said Alexander, "and that was after the CAB."

If all goes according to plan, 75 percent of the total CBC radio audience will be covered by DAB transmissions within five years.

## Ford Pays Attention To DAB in Canada

**TORONTO** Opposition to Eureka-147 DAB in the United States has not stopped Ford Motor Co. from taking a hard look at the technology, said Duff Roman of CHUM Ltd.

In fact, according to Roman, the U.S. car manufacturer has a team of researchers in Toronto right now, investigating the robustness of Eureka for the transmission of images to in-car LCD displays.

"We are working with Ford to test the various protocols that might be employed in the transmission of what they call 'fixed images,'" said Roman. "That is going on with Ford out of Dearborn, Michigan, so we are excited

that we have American Ford up here working with DRRI in that field testing." DRRI is Digital Radio Research Inc., the Canadian-funded research group that is promoting DAB in Canada.

"They (Ford) have their own test van, and their own testing process," he said, "and they want to be assured, in their own minds, that these fixed images are quite doable."

Although Ford would not comment officially on Roman's remarks, a source within the company confirmed that tests are indeed underway in Toronto with DRRI.

—James Careless

## NEWSWATCH

► continued from page 2

shareholders were to meet Dec. 10. The combined group would operate 79 stations in 17 markets.

A Justice Department spokesman said, "We're here to preserve competition, not to prevent mergers. If you do a deal that doesn't threaten competition, or you fix the parts of it that do, you won't have a problem with us."

### MTS Gets EAS OK

**WASHINGTON** MTS Communications of Clayton, N.C., is the latest manufacturer approved by the Federal Communications Commission to sell its Emergency Alert System encoder-decoder. Company officials said units would be available in time to meet the Jan. 1, 1997, deadline.

MTS joins Burk Technology, TFT Inc., Sage Alerting Systems, HollyAnne Corp. and Gorman-Redlich on the list of companies whose EAS equipment has passed FCC muster.

The MTS System 3000D EAS includes three frequency agile internal receivers, five EAS inputs, three receivers, a multilingual voice-prompted user inter-face and digital audio recorder and player with 15 kHz bandwidth.

List price is \$3,499.95. For information call (919) 553-2995.

### Tower Crash Investigation Continues

**DALLAS** A month after the collapse of a tower that took three lives, investigators from the Occupational Safety and Health Administration and several insurance companies were going over

the wreckage, seeking to learn what happened. The 1,520-foot TV and radio tower on Cedar Hill outside Dallas collapsed on Oct. 12, killing three tower workers.

Sherry Moran of OSHA in Dallas said the investigation into the cause was in a "testing phase" involving computer modeling and stress testing of the tower materials. OSHA would not release any preliminary findings, but Moran said it would make a determination within six months.

"If we're going to cite anybody for violations, the rules say we must do so within six months of opening the investigation," she said. "This doesn't mean that the investigation will take six months, but that rule acts as a *de facto* deadline."

Moran said the investigation process is "tedious" because OSHA and the insurance companies must make certain that they do not interfere with each other's probes.

The tower was owned by LIN Television Corp., operator of television stations KXAS and KXTX in Dallas. It held antennas for KXTX and Infinity-owned FM stations KYNG, KOAI and KRBY. The three victims worked for Doty-Moore Tower Services of Cedar Hill, Texas. They were doing antenna work for KXTX at the time of the accident. The television station and the FM stations quickly relocated to other towers (*RW*, Nov. 13).

Moran said if the OSHA investigation uncovers any information that could have bearing on other towers, the agency will be quick to communicate those findings to the broadcasting and tower maintenance industries.

—Lee Harris

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\* Optimod is a trademark of AKG Acoustics, San Leandro, CA.

# NAB Pushing for Fair Shake

**WASHINGTON** The holiday season quickly is closing in on us, and that means that pretty soon, for the bulk of the country, the weather will turn nasty.

All the more reason to make sure that your station(s) is in compliance with the new EAS.

If you spend some time with this and

Redlich, MTS Communication Products and Burk Technology.

Keep in mind that your stations may share equipment if you are co-located and co-owned. If you are co-located but not co-owned, you also may obtain a waiver to share equipment.

Most importantly, the FCC is clear on one thing: Jan. 1, 1997, is the date by which all radio stations are to have the new EAS equipment in place — and that deadline is not flexible.

Why wait to order when the deadline already is only three weeks away?

A smaller, less-funded FCC does not equate with an FCC that is unwilling to pursue stations not in compliance. Think back to that agency's sweep of AM stations after the NRSC AM splatter deadline.

The Reed Hundt FCC is a determined and vigilant FCC.

Choose your EAS systems and place your orders. The issue is one of public safety and each station's charter to serve that public.

★★★

And speaking of radio, the NAB has been fairly active (as usual) with some "big issue" items of interest to radio. Anti-trust and dealing with the Department of Justice have been key among those issues.

On Nov. 21, NAB Senior Vice President of Radio John David, NAB General Counsel

Jeff Baumann and NAB Attorney Valerie Schulte convened the anti-trust attorneys of 21 major radio groups for a discussion about DOJ procedures.

As stated by NAB Lead Counsel Ted Henneberry of Howrey & Simon, in an NAB memo to radio group executives, "The fact that 21 groups were represented signals the serious and widespread level of concern in the radio industry."

Baumann stated that "This meeting was critical in beginning to find solutions

to the many complexities of dealing with Justice."

On Nov. 22, a group from NAB met with Acting Assistant Attorney General in charge of the anti-trust division, Joel Klein and his top staff.

Klein is fairly new to the job but NAB President and CEO Eddie Fritts states, in the NAB memo, "I came away from the meeting believing that Mr. Klein has a sincere interest in wanting to learn more about the radio marketplace and finding solutions to the problems encountered in the first few Justice investigations of industry consolidations.

"While he offered no guarantees, he did show a willingness to listen and indicated he wanted to work with NAB and the industry."

Let's hope NAB's take is right on this one.

★★★



KTRH(AM) hosted the official Rockets tip-off party with a live broadcast at the Rock Bottom Brewery in Houston on Oct. 30. KTRH personalities Russ Small and Charlie Palillo along with Rockets Head Coach Rudy T. took center stage at 6 p.m. Special guests included: Mario Ellie, Kevin Willis, Sam Mack, Matt Maloney, Othella Harrington, Terrell Bell.



Houston Rockets Sam Mack (l) with 'KTRH Sportsbeat' Host Russ Small.

recent past issues of RW, you will detect the common thread: Make compliance with the new EAS a top priority if you have not already done so.

Manufacturers are standing by to take your order. TFT Inc. and Sage Alerting were the only EAS equipment competitors for the first three quarters of the year, but the last three months witnessed four more EAS manufacturers with FCC certification and equipment ready to roll: Holly Anne Corp., Gorman

## Campaign Spots End in the Dirt

**FALLS CHURCH, Va.** With the election season over, here are a couple of items remaining in the RW "News You Missed" file.

A Denver radio station, sick of the slew of negative campaign spots, came up with an enterprising solution for disposing of the commercials the day after elections.

"We just gathered all the political spots ... reels, carts and cassettes, and put them in a box," said John Baggs, morning news producer at KDA(AM). "We sent a reporter out to Highway 93 in Golden, where we knew a road crew was working with a steamroller."

You can guess what happened next. Morning men Gus Mircos and Steve Kelly, complete with a Marti setup, aired the destruction live during rush hour.

"We rolled over all the political commercials and plowed them right into the ground," said Baggs. "We made a lot of friends. I think everybody was frustrated with election week and the political season."



In Lansing, Mich., this year's campaign spots were even more explosive than usual. WBHR(FM) morning man Allan Gibbs allowed listeners to "blow up" negative campaign commercials by simply pressing the "pound" key on their telephone — prompting a huge "explosion" over the air.

"The phones almost melted down," said Gibbs. "Everybody was calling! They all wanted to blow up their favorite — or least favorite — commercial."

— Sharon Rae









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## READERS FORUM

If you have comments for Radio World, call us at 800-336-3045 or send a letter to Readers Forum (Radio World, P.O. Box 1214, Falls Church, VA 22041 or e-mail 74103.2435@compuserve.com or MCI Mailbox #302-7776). All letters received become the property of Radio World, to be used at our discretion and as space permits.

### Not Holding His Breath

Dear RW,

So, they finally admitted it! After accusing us of all sorts of sins, including bad testing and unfairness, USADR now issues an independent report which substantiates our test results. By their own admission, the USADR system interferes with the host FM signal, interferes with the adjacent FM signal and has multipath problems.

As stated in your editorial of Oct. 30, "USADR commissioned the Deskin Research Group to study the IBOC DAB systems and to recommend modifications leading to a practical IBOC DAB. This group identified specific weaknesses in the FM IBOCs."

These are the *same* findings shown by the EIA/NRSC lab tests at the NASA Lewis Research Center in 1995.

Anyone who reviews the last 40 issues of RW will see that the EIA is owed a major apology. EIA was painted as being one-sided by both USADR and RW. USADR consistently claimed its system

worked fine and that our process was flawed. However, we committed to fair and impartial testing and that is what we provided.

I won't hold my breath waiting for the apology. Until USADR changes its management team (and RW adds some healthy skepticism), I will doubt any of their future claims without further unbiased, third-party testing.

*Gary Shapiro, President  
Consumer Electronics Manufacturers  
Association, a sector of EIA  
Arlington, VA*

(EDITOR REPLIES: Radio World stands by its coverage.)

### Hearty Thanks

Dear RW,

In response to "Where All the Engineers Have Gone," by Christine Joaquim (RW, Oct. 30): I have been a "wannabe" engineer for years. I started out as a personality; that is where my heart is. But MANY thanks to all of the engineers I have been lucky enough to work under who were willing to teach me in exchange for my attempts to understand, and respect, what they do ... as well as what we non-techs could do to make their job easier. (I believe their having two extra hands at times didn't hurt, either.)

I entered radio hearing of engineers whose training was paid for by the employer. I had hoped to be one of those lucky few. After being unable to find a place that (I felt) would properly train me for the future as a chief engineer, I have resigned the dream.

I entered radio because of the job. We all would like to provide for ourselves and our families as best we can; I don't believe money is the only issue.

To those who reign, I'm jealous ...

*"Slick" Mike Edmonds, Air talent  
Tucson, AZ*

### Battery-Free Shortwave Radio

Dear RW,

Your recent article on the only battery-free shortwave radio was very interesting. When I read the article, I thought it would be a great gift for family members in hurricane-susceptible areas.

When I received a recent Hammacher Schlemmer catalog, I ordered three for Christmas gifts.

Your article did the trick for me. You may want to advise your readers of the U.S. source.

*Edward Arnold  
New Orleans, LA*

(Hammacher Schlemmer had the battery-free AM/FM/SW radio in stock when we checked in late November. It operates for 30-40 minutes after being cranked manually. Call (800) 543-3366 and ask for item #63123H. The price is \$99.95.)

## Last Chance on EAS

If you have not added an EAS encoder/decoder to your Christmas shopping list, now is the time to do so. Station operators who have pinned their hopes on another Federal Communications Commission extension of the Emergency Alert System deadline for compliance are running out of time.

The FCC has made it clear that Jan. 1, 1997, is the date by which all radio stations are to have the new EAS equipment in place — and it has reassured us that the January deadline is not flexible. Six equipment manufacturers have equipment that is FCC-certified available (see our story on page 1). Distributors tell us that they have back-order lists a mile long already for EAS equipment, yet many stations have not decided on a system nor have they placed an order for EAS equipment.

Why wait to order when the deadline already is only three weeks away?

We'll say it again: Stations pinning their hopes that a smaller, less-funded FCC will not have the staff or the money to monitor compliance need only remember that agency's sweep of AM stations after the NRSC AM splatter deadline: a smaller FCC does not equate with a less vigilant one.

Choose your EAS systems and place your orders. The issue is one of public safety and each station's charter to serve that public.

Delaying your compliance with the new EAS could mean greater expense in the form of fines and a failure to fulfill your public service role if a real emergency (remember the blizzard of '96, and Hurricane Bertha, etc.?) were to occur.

Radio can and should do better than this.

-RW

### Give us the tunes!

Dear RW,

I work part-time for the Mesquite Schools Radio Station in Mesquite, Texas. However, I am writing this letter from my personal viewpoint only. I am not speaking for the management or staff.

I am writing in regard to the story in your Nov. 13 issue titled "Ghostwriters Brings Back The '80s." In this story, Alan R. Peterson says, "It's a good bet some pre-1985 tunes like 'Our House' from Madness, 'New Moon On Monday' by Duran Duran or Nina's '99 Luftballons' exist at your station only in vinyl form. Most likely in a condition that prevents them from being redubbed or even aired at all."

Mr. Peterson, as an avid fan of songs from the '80s, I can state for a fact that two of those songs are already available on CDs. I personally own a copy of the album from which "New Moon On Monday" was originally released, and it's on CD! I also have an "Awesome '80s" two-disc CD set that has Nina's "99 Luftballons."

It is thrilling to know that someone has taken the time to assemble the '80s music series that you spoke about. I am, however, saddened to learn that music collectors can't go out and buy this series, unless it's for broadcast use only. The fact that record companies set these type of restrictions is silly and unnecessary. Someone who really wants to buy this music would be doing those record companies great business if this series could be bought for private use. Think of all the money they would earn!

On a further point, a lot of these songs are already available to the mass consumer market, on CDs. TimeLife has a whole series of its own, devoted to the '80s. While it lacks a lot of the top artists, many of those missing artists are available to those who know where to look.

I personally own more than 100 CDs with '80s music on them, and it would be fantastic if I could trade them all for the 50-disc set that was created by Ghostwriters. This would save me a lot of space in my two 100-CD jukebox players that are already 90 percent full, and I still

want to add more discs to them.

Whoever sets it up so that only radio stations can purchase music sets such as the one Ghostwriters created is being unfair to avid collectors such as myself. I am willing to shell out money for those discs, and they are turning me away? Why must they be so restrictive? This whole notion that artists won't earn royalties from collectors like me who want to buy the music is insane.

*Robert Bass  
Mesquite, TX*

(Dave Dworkin of Ghostwriters responds: Believe me, Robert, I'd love to sell you this product for your home use, but the \$399 you would send me wouldn't go very far in prison. It's a fact that if we did sell it to you, the artists wouldn't earn a nickel in royalties. Our '80s set is on the Swaitek label, and our collections from the '50s, '60s, and '70s and our Kickin' Country Hits are on the Halland label. For those producers to offer hit libraries to radio stations isn't much different than when the original record labels give away promotional copies to radio stations. If you look at a promo copy, you'll note that it is illegal to sell that copy to the general public. On the other hand, if you're looking for sound effects, give us a call!)

## CORRECTIONS

The tower that collapsed in suburban Dallas on Oct. 12 was owned by LIN Television Corp., not Esco Communications as reported in RW (Nov. 13, page 1). The story also stated that Esco has a new tower under construction there. Esco is doing work on the latter tower but does not own it.

In "DSE FX and EQ" (Oct. 30, page 38), the Orban DSP FX engine is capable of fully-variable EQ, reverb, delays and compression. Only the +12 dB gain stage is non-adjustable.

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telephone: (703) 998-7600  
editorial fax: (703) 820-3245

**Lucia Cobo** ext. 115 Editor in Chief  
**Paul J. McLane** ext. 117 Managing Editor  
**Alan Peterson** ext. 135 Technical Editor  
**Christine Joaquim** ext. 138 Assistant Editor  
**John Bisset** Technical Advisors  
**Thomas R. McGinley**  
**Stevan B. Dana** Publisher/CEO  
**Carmel King** ext. 157 Chief Operating Officer  
**Marlene Lane** ext. 128 Editorial Director  
**Alan Carter** ext. 111 Editor in Chief (International)  
**T. Carter Ross** ext. 137 Managing Editor (International)  
**Angela Novak** ext. 144 Associate Editor  
**Rogelio Ocampo** ext. 121 Latin America Managing Editor  
**Susan Gary** ext. 130 Editorial Assistant  
**Linda Sultan** ext. 141 Editorial Assistant

Contributors: Frank Beacham, Lynn Meadows, Alan Haber, Bob Rusk, Lee Harris, Dee McVicker, James Careless (Canada), Ty Ford

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# 'Who's Who' in 105th Congress?

by Lynn Meadows

**WASHINGTON** It has been more than a month since the election and all bets are off on the resolution of matters of interest to broadcasters.

What happens next is anyone's guess.

A Congress can do a lot of good and a lot of bad in two years — look at the Telecommunications Act which Sen. Larry Pressler, R-S.D., made a priority when he became chairman of the Committee on Commerce, Science and Transportation in 1995.

Pressler will not be returning when the 105th Congress begins in January. He was defeated in what his spokesperson called the "closest election in South Dakota history." Sen. John McCain, R-Ariz., is expected to replace Pressler as Senate Commerce Chairman.

Pressler leaves behind some unfinished business. When Sen. Robert Dole called the distribution of digital television spectrum "a big giveaway" last winter, Pressler agreed to take up spectrum reform in a separate bill. The bill never got past a discussion draft, but Pressler had planned to reintroduce the idea if he won.

McCain, who delivered Bob Dole's nomination speech, is perceived as a stronger leader than Pressler.

He left on a trip to Asia the day after the election and a staffer could not say for certain what was on his agenda as chairman. She said, however, in the past, the senator has supported relaxing ownership rules both nationally and locally.

## Leasing spectrum

Over in the House, Rep. Jack Fields, R-Texas, chairman of the Subcommittee on Telecommunications & Finance, chose not to run for reelection. Rep. W.J. (Billy) Tauzin, R-La., is expected to take over that chairmanship. Tauzin was one of five Democrats who switched parties in 1995 when the Republicans took over the Congress.

"It'll mean good news for radio," said

Tauzin Press Secretary Ken Johnson. He said the congressman had always been a good friend of broadcasters.

## Unfinished business

Fields leaves behind some unfinished telecommunications business of his own. He was the one who proposed creating a trust fund so public broadcasting could become self-sufficient. He also introduced legislation that would force the Federal Communications Commission "to streamline its management" and "eliminate unnecessarily burdensome regulatory provisions."

That bill was the one that would have prohibited the chairman of the FCC from traveling more than 50 miles from Washington on official business.

Johnson said he expected Tauzin to take up both issues. He said Tauzin will probably call for hearings on overhauling the FCC after consulting with Rep. Thomas Bliley, R-Va., chairman of the full House Commerce Committee.

## A look ahead

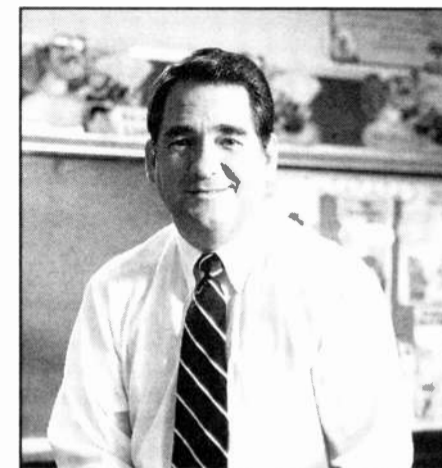
As for public broadcasting, Johnson said Tauzin is not only a champion of commercial broadcasters, but has voted against slashing funding for public broadcasting. While the congressman is

not sure how best to provide support for public broadcasting, Johnson said one option is to lease spectrum to broadcasters and establish a trust fund with the money.

## As many as four commission seats will open up.

In exchange for the lease, Johnson said, this option would end many of the public service requirements faced by commercial broadcasters.

Lynn Chadwick, president of the National Federation of Community



Rep. W.J. Tauzin

lic broadcasting, but she was not sure how new Chairman McCain would receive requests for funding.

Chadwick said the feeling is that McCain does not believe that public broadcasting should be a part of the federal budget. She said NCFB will be talking with the senator to make sure he knows about the public stations in his own home state.

The goal, said Chadwick, is for public broadcasting to get a reauthorization that will allow it to plan a long-term budget while restating the purposes for public broadcasting.

She said she thinks a lot of the arguments against public broadcasting stem from the loss of an understanding of its role.

David Honig, executive director of the Minority Media and Telecommunications Council, said Tauzin has a history of coming out close to where the NAB stands. He said that the NAB has been

fairly supportive of minority ownership but not at all supportive of the FCC EEO rule which focuses on broadcasters' recruitment practices rather than quotas.

Honig noted that other branches of telecommunications like long distance telephone companies are going to be a much higher priority for the new congress.

"Beating up on minorities is not going to be the number one priority of this Congress," he said.

Russ Hauth, executive director of the National Religious Broadcasters Music Licensing Committee, said that the main focus of the group is the House Subcommittee on Courts and Intellectual Property.

While Subcommittee Chairman Carlos Moorhead (R-Calif.) retired this year, Hauth believes his group will be able to work with any of his possible replacements.

The NRBMLC tried to get a "Fairness in Musical Licensing" bill through the 104th Congress. Hauth said he expects to "pick up where we left off." He said there is a need for a number of copyright issues to be addressed and mentioned the possibility of an omnibus piece of copyright legislation next session.

"We're glad the leadership is the same," said Hauth. "We think that we have their ear."

## Seats to fill

The election means that Chairman Reed Hundt may stay for another four years if he chooses which probably means a continued focus on children's issues like the V-Chip and three hours of mandatory children's television programming each week.

Commission watchers predict as many as four commission seats will open up during Clinton's second term. At least two are certainties: the Republican seat vacated by Andrew Barrett this spring, and the Democratic seat from which James Quello said he plans to retire next spring.

As for the others, the Republican seat held by Rachele Chong expires next June. Hundt's term expires in June 1998 and Susan Ness' term lasts through June 1999.

This summer, Clinton nominated Regina Keeney, bureau chief of the FCC Common Carrier Bureau, to fill Barrett's seat.

"We liked Regina Keeney a lot," said a spokesperson for the National Association of Broadcasters. NAB President Edward Fritts had urged the Senate Commerce Committee to act quickly on a confirmation hearing, but the committee did nothing at all.

Now, with a new Congress coming in, Clinton will have to re-nominate Keeney if he still wants her to fill the fifth commissioner seat.

The FCC seats are not the only ones the President will have to fill in his second term. Honig noted that Supreme Court Justices Sandra Day O'Connor, John Paul Stevens and William Rehnquist may retire in the next four years.

Their replacements, whom Honig expects to be moderates if not Democrats, are sure to move the court in the direction the MMTTC wants it to move — one that would uphold the FCC EEO policies on recruitment and its minority ownership programs.

With the same president and the same

continued on page 9 ►

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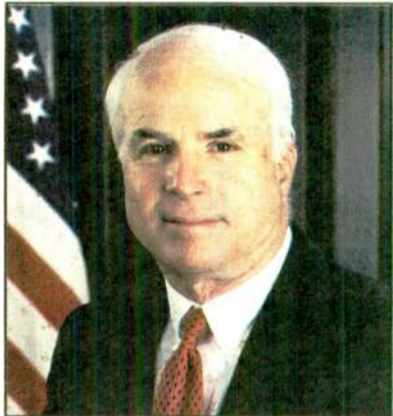


## Politics, Post-vote

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Republican majority in Congress, many are predicting four more years of the status quo. Dole made a capital gains tax cut one of the centerpieces of his campaign. That could have made a difference for many radio station owners eager to sell and keep more of the profit.

A lot of people were excited



Sen. John McCain

about a capital gains tax cut two years ago, said broker Dick Blackburn of Blackburn and Company. Blackburn said that he had not heard anyone talk about capital gains after Clinton was "15 points ahead in the polls."

The issue now, Blackburn said, is how the Justice Department interprets the relevant advertising market for radio.

That is something the election did not affect unless the rumors are true that Vice President Al Gore is the driving force behind recent Justice Department investigations into radio group consolidation.


While broadcasters may miss the capital gains tax cut, a Dole victory would have raised many questions about how spectrum for digital television would be granted. As a senator, Dole spoke out against giving spectrum away to broadcasters.

"My point is that broadcasters have a long history of paying top dollar for existing channels," he said.

"Somehow, they can't afford any new ones unless the taxpayer is gouged."

The Clinton proposal for digital television spectrum would give broadcasters the spectrum they need at no charge as long as they eventually return their old analog frequencies, which would then be auctioned.

A spokesperson for the NAB predicted broadcasters would watch many issues over the next term, including spectrum auctions, campaign finance reform and copyright issues like music licensing and in-store casting.

What remains to be seen, of course, is how receptive the new members and committee chairs will be to broadcasters' opinions. 

# FCC Sizes Up Regulatory Fees

by Matt Spangler

**WASHINGTON** In a move aimed at reforming the rules governing the assessment of regulatory fees, the FCC has initiated a proceeding to determine whether to base them on market size. A call for comments will ask if it is feasible to use a methodology that would base the annual regulatory fees levied on AM and FM stations on their market size.

A spokesperson for the commission Office of the Managing Director said that the current FY 1997 budget is roughly \$189 million, of which \$152 million is to be collected in regulatory fees. The Telecommunications Act of 1996

authorizes the FCC to collect those fees from regulatees in the mass media, common carrier, wireless, international and cable television services. Revenue the FCC obtains through regulatory fees goes towards "the annual costs of its enforcement, policy and rulemaking, user information and international activities," according to the legislation.

A major objective of the call for comments is to establish parameters by which regulatory fees would be levied under a market size-based structure. A methodology for the assessment of regulatory fees proposed by the Montana Broadcasters Association will be offered as one possibility.

Washington-based communications

attorney and RW columnist Harry Cole believes that stations in a particular market with equivalent facilities will be levied the same fee. For example, all class C stations in a Top 50 market with revenues of \$5 million or more might pay the same fee.

Currently, AM stations pay \$345 (class D) to \$1,250 (class A) annually, while FM stations pay \$830 (A, B1 and C3) or \$1,250 (C, C1, C2 and B).

Cole thinks that the most controversial issue to be resolved is the definition of "a market." At present, there seems to be no clear way of assigning meaning to this term. If market were defined as city of

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# A Station Fights to Stay On

by Angela Novak

**MOUNT SHASTA, Calif.** The local radio station and several community leaders are fighting a battle in this Northern California town. The battle has included a raid of the station and a seizure of computers by the sheriff's office, and a shut-off of propane tanks by federal officials.

The Siskiyou County District Attorney claims KWHO(FM) has broken the law. Separately, the U.S. Forest Service says the station does not have the proper permits for operating on Mt. Shasta.

Tom Erickson, president and general manager of the station, said the efforts by

the district attorney and Forest Service officials to shut down the station are an attempt to curtail free speech.

As the courts decide who is on the side of truth, the station fights to stay on the air in the community it believes it serves well.

## Searched and seized

The local sheriff's office served KWHO(FM) with a search warrant on Oct. 16, and seized computers and files deemed as evidence in an investigation of station activities.

The station is being investigated primarily for business fraud, according to Siskiyou County District Attorney Peter

Knoll. The investigation centers on allegations that the station accepted payment for advertisements that did not run and then signed sworn statements that the ads ran.

Knoll said his office has reviewed most of the evidence in the case and has returned most of the computers to the station. Government attorneys are copying the files that have not been reviewed and will then return the rest of the computers. A decision on how to proceed with the investigation will come after the evidence is reviewed, he said.

Unrelated to the district attorney's investigation, a Forest Service official authorized the eviction of KWHO from

its Mt. Shasta transmitter site. The transmitter is located on public land on the slopes of Mt. Shasta. The land is administered by the Forest Service and KWHO is required to have a special use permit to occupy the land.

A dispute between the current and former owners of KWHO regarding the transfer of the special use permit and other ownership issues were set to be heard in court on Nov. 20, and a judge set that as the date to settle permit issues relating to the station. According to the station, the Forest Service is aware of the court date and agreed to take no action until the dispute was settled.

## Unexpected shutdown

Meanwhile, the disagreement about the status of the permit led the Forest  
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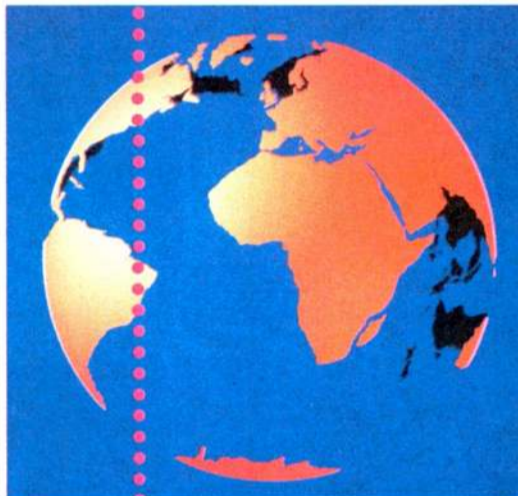
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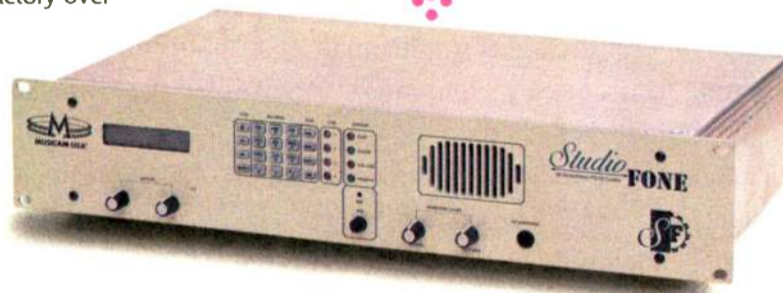
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## FCC Will Look at Your Fees

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license, then stations that service metropolitan areas but are licensed outside a primary market might be levied smaller fees than stations in the primary market. On the other hand, if a market is defined as an MSA, then problems with the ever-thorny issue of multiple ownership might arise.

Few in the broadcast industry seem to favor regulatory fees. It is equally predictable that stations in smaller markets support the idea of a fee structure based on market size, while large-market stations want to keep things status quo.

"If they're going to do a fee structure, which I'm against anyway, that's the only fair way to do it," said Dana Webb, vice president and general manager of KESY(FM) and KBBX(AM) in Omaha, Neb. "It's the way a lot of things are structured in our government: The more money you make, the more your income tax is."

A station manager in San Francisco who did not want to be identified insisted that if such a fee structure is implemented, the FCC must go a step further and delineate regulatory fees within a particular market based on each station's share of that market's revenue.

"To assess all broadcasters in a market equally would be totally ridiculous," he said. "How could you assess, for example, a single-operator FM that may or may not be making money or breaking even at best, the same as you would a 22-unit AM station making \$30 million? ... If everybody's paying a small fee now, to me that's a fairer marker than if you make it by market size."

The call for comments had not appeared in the Federal Register at press time. The deadline for filing responses will be 30 days after the item appears in the Federal Register.

# Stations Lean on PTFP

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1995, almost \$28 million was dispersed to 142 organizations. In 1996, grants totaled \$13.4 million to 96 recipients.

For fiscal 1997, \$15.25 million has been allotted, including approximately \$2 million for administration costs. Since its start, PTFP has invested \$500 million in public telecommunications facilities.

The fiscal 1996 program will, according to NTIA, "extend a public radio signal to almost 3 million people for the first time and a first public television signal to approximately 500,000 people."

PTFP has benefited from support from such legislators as Rep. Eliot L. Engel, D-N.Y., who has called the program "a success story that demonstrates what the government and the private sector can accomplish when they work together."

Engel believes that "governmental aid to public broadcasting ought to be expanded rather than curtailed." It's "penny wise and pound foolish" to cut it, he suggests.

"I think we have a golden treasure and we ought not to destroy it. We ought to enhance it," he said.

Efforts such as those of Rep. John Kasich, R-Ohio, may serve to weaken PTFP's strength. Kasich, according to press secretary Bruce Cuthbertson, has worked with broadcasters in Ohio to phase out government support of public broadcasting and seeks instead to support a trust fund arrangement.

## Watching closely

Public broadcasters use PTFP money; so do organizations administering distance learning projects through which educational institutions reach people off their campuses. Both will watch closely as legislators wrestle over PTFP's future.

"In my experience," said PTFP Program Officer Walter Sheppard, "most public stations need all the money they can get." The program awards up to 75 percent of the total cost of a facilities project, and up to 100 percent of planning costs.

Replacement projects qualify for a lower percentage.

Applications are reviewed from an engineering perspective by three engineers, including Charles Mellone, a consulting engineer who has worked with PTFP since the mid-1970s. He said grants are awarded by need; evaluation criteria include the number of times a transmitter has gone off the air, and how many times an audio console has created problems and "caused the actual interruption of programming."

Grantees are required to submit quarterly performance reports during their construction periods, and annual reports for 10 years following completion of the project.

Interested station managers can view the final rules on the Internet at <http://www.ntia.doc.gov/otiahome/ptfp/ptfphome.htm>. Grants are announced in September each year. Fiscal 1997 applications are due to PTFP by Feb. 12, 1997.

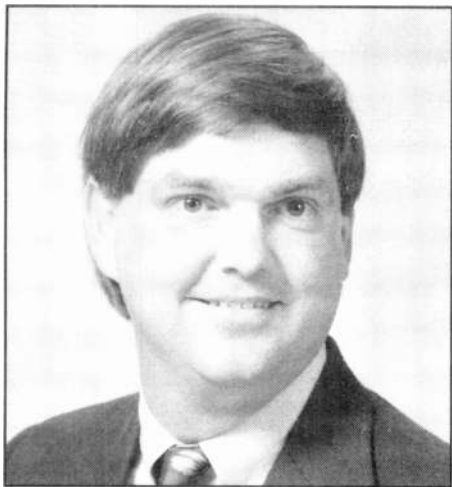
Multiple applications can be submitted by an entity in a given year, and applicants can apply year after year.

## Raring to go

A look at the award list suggests that requests most likely to succeed are those that clearly help initiate public radio service to an area, expand it or protect its quality.

Some grants help pay for station repeaters and translators, some replace aging studio equipment, and others support purchases for new stations not yet on the air.

The beneficiaries of the 1996 grants



Brad Ferguson, KCSC(FM), Edmond, Okla.

are located in 42 states, American Samoa, Puerto Rico and the District of Columbia. Most of the 38 recipients of public radio grants, announced in September, are ready to proceed with their projects.

WAMU(FM) Washington, licensed to American University, runs a mix of National Public Radio programming, news, public affairs talk and traditional American music. This year it was awarded its second PTFP grant in 10 years. The award was for \$47,000; matching funds will come from fundraising. The grant gives the station a quarter of the money necessary to acquire a new transmitter.

"It is difficult to get funding for capital projects," said Kim Hodgson, general manager of WAMU. "Most stations do find it difficult to raise capital money," he said.

Why? "You ever tried fund raising?" he asked rhetorically. "It's just difficult to raise money, *period*. Most foundations and organizations that give money for public radio - not that many are interested in bricks and mortar. Most are interested in starting up wonderful new programs."

Hodgson, who has served on a PTFP review panel, said his station's experiences with PTFP have been good. The review process, he said, is peer-oriented. "I think we probably have a tendency to be harder on our colleagues in that capacity than maybe an outside group would be, because we know what we're looking at when we're reading the proposals," he said. "And proposals that don't document a significant need don't get funded."

There are many more applicants than grantees. In 1996, 251 organizations asked for \$55 million, but actual awards came to \$13.4 million for 96 recipients.

"The amount of money appropriated for (PTFP) has gotten smaller and smaller and smaller, and it's been a fight to keep it at all," Hodgson said. "And the need hasn't gotten smaller."

## The grant writer

WGPU(FM) in Fort Myers, Fla., is a 13-year-old station licensed to Florida Gulf Coast University. It won a \$42,423 grant in fiscal 1996 to put into service a repeat transmitter in Marco Island, located about an 75-minute drive from Fort Myers.

The repeater would bring public radio service (and the station's radio reading service) to about 60,000 residents of

Collier County. WGPU hired a consultant to write its grant request. The station submitted two requests to PTFP; the request for studio equipment for a new building was turned down, said station manager JoAnn Urofsky, because "it just wasn't as high a priority."

Urofsky said she was very involved in the consultant's work, supplying him with information about the station. For WGPU, the grant experience was "a great experience," she said.

"I would definitely recommend using a grant writer. He was good, he was thorough, and successful in our case." She



JoAnn Urofsky of WGPU(FM) in Ft. Myers, Fla.

described the consultant as the "best investment we could have made." PTFP did not allow for all of the equipment (mostly of the remote control variety)

that WGPU required for its project. Funding for the basic transmitter, antenna, mast, connecting parts, and monitoring and telephone equipment was granted. "Enough to get us up and on the air, basically," said Urofsky. The matching part of the grant comes from the Florida Department of Education.

## The wings of the soul

KCSC(FM) in Edmond, Okla., licensed to the University of Central Oklahoma, was awarded a grant for fiscal 1996 to erect a repeater station in McAlester, about 90 miles southeast of Edmond. The grant came to \$96,275, about three-quarters of the total project cost.

With the repeater, about 40,000 people in Pittsburg County will receive first-time public radio service from the 31-year-old KCSC, a Public Radio International affiliate that carries "A Prairie Home Companion," classical music shows and other programs.

KCSC used to be picked up on the local cable system. Among the people whom the residents of McAlester can thank for KCSC's impending return is Wanda Bass, a director and vice chairman of the board of the First National Bank of McAlester. Brad Ferguson, the station general manager, said Bass called him three years ago and asked how KCSC could be brought back to town. Ferguson suggested that a PTFP grant was in order; Bass pledged to provide the necessary matching funds.

Bass is so enamored of KCSC that she

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# Radio's Take on DISCUS Action

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wouldn't be productive for anybody," said Kirk Brewer, Jacor's director of corporate communications. "We're not going to get involved in the controversy at this point."

That controversy was one of the reasons ABC-owned KGO(AM) in San Francisco rejected an ad for Seagram's Lime Twisted Gin.

"The stations that accepted it are fools," said Mickey Luckoff, KGO general manager. "In addition to the moral aspect, they are inviting either FCC or congressional legislation that could also prohibit beer and wine advertising."

After making the decision, which is in line with corporate policy at Capital Cities/ABC, he expressed his view to some other stations in the market.

## Some said yes

Among the stations to air the spot was KBLX-FM.

"If a product is legal and (the commercial) is done in good taste, we shouldn't discriminate just because it's an alcoholic product," said General Manager Harvey Stone.

Stone called any liquor advertising ban "the epitome of hypocrisy," adding, "If the government is making money off of taxes on liquor sales, I don't see why we shouldn't run the commercials. As long as (the advertising) is being done on an adult radio station and it doesn't encourage drinking and driving, I don't think it's going to hurt society."

But the issue of drinking and driving is why KHWY Inc. does not permit its three radio stations in California to run any advertisements for alcoholic beverages — including beer and wine.

The FM outlets — KHWY, KHYZ, and KRXX — primarily serve motorists traveling through the desert between Los Angeles and Las Vegas.

"Ninety-five percent of our listeners are in cars," said Howard B. Anderson, KHWY Inc. president. "We just don't

think it's a good idea to advertise alcohol to people who are driving."

The company, however, does accept beer advertising on its three stations in Honolulu (KCCN-AM-FM and KINE-FM), a policy that was in place before Anderson took ownership.

## Double standard

That policy is an example of why DISCUS, which clearly wants increased advertising to translate into increased sales, lifted the ban: "(T)o end discrimination against distilled spirits products."

DISCUS President and CEO Fred A. Meister contends "there is no difference in the alcohol in spirits, beer, and wine — alcohol is alcohol."

Anderson responded, "This is a legitimate question that in the long term broadcasters must look at." He wondered, though, about DISCUS' motivation.

## Alcohol is alcohol.

— Fred Meister, DISCUS

"They want a level playing field. I think their ultimate desire is either to get on (the air) themselves or to get everybody off (the air)."

Broadcasters admitted that one reason they readily accept beer advertising is because the brewers have spent a lot of time and money educating the public about the dangers of drinking irresponsibly.

"Some years ago a client came to me with a commercial that said, 'Drink all the beer you can keep down,'" stated Gary Donovan, president of Comco Broadcasting Inc., in Alaska. "We did not accept that."

"While the beer industry continues to market its product, it does so with some restrictions. They have shown some measure of responsibility, and we haven't

seen that from the distilled spirits industry — yet. This thing will play out and we'll see what it is they're advertising and how they're advertising it."

Donovan, however, is reluctant to accept hard liquor advertising on the company's six stations — three in Anchorage and three in Juneau — because of the chronic alcohol problem throughout Alaska.

"Our commitment to serving the community interest outweighs my belief that if you're allowed to manufacture it, you should be allowed to advertise it," Donovan said.

## Familiar sponsors

Beer and wine also have history on their side, with commercials for those beverages having aired on radio for many decades. But more importantly there hasn't been an advertising ban on those products for stations to deal with.

David Pearlman, co-chief operating officer at American Radio Systems, said when Seagram tried to buy time on ARS stations in Boston and Baltimore, the company reaffirmed its belief that the ban on hard liquor advertising should continue.

"It was never even an issue until someone asked about it," said Pearlman. "There's been a voluntary ban in our industry for a long time and we see no compelling reason to change directions."

With government officials ranging from FCC Chairman Reed Hundt to President Clinton denouncing the placement of hard liquor ads on radio, none of the major group owner wants to be the first to make the move.

Said Jacor's Kirk Brewer, "We think this will probably sort itself out one way

or another and we'd rather allow radio to fight the distilled spirits industry than for us to get involved in the middle of it."

The National Association of Broadcasters, which has come out against the lifting of the ban, also wants the stations to decide what to do.

"Despite NAB's staunch support of the First Amendment rights of broadcasters to advertise legal products, we are disappointed with DISCUS' decision to end its voluntary code," said Edward O. Fritts, NAB president and CEO.

"Broadcasters have a long history of educating the public on the dangers of alcohol abuse. These positive, pro-social efforts will continue regardless of the DISCUS action."

"Over the years," continued Fritts, "individual stations have adopted their own standards regarding the acceptability of hard liquor advertising. We believe this process has served American consumers well, since individual stations make and will continue to make judgments every day on what is most appropriate for their local audiences."

In response to concerns that the FCC might step in, the commission is calling for voluntary action by broadcasters. Commissioner Rachele B. Chong has asked stations to be "responsible and responsive."

She went on to state that the FCC should not take the lead in this issue, noting that the Federal Trade Commission has primary jurisdiction over advertising.

Moreover, because there is no statute directing the FCC to act in this area, any FCC-devised ban of hard liquor advertising would face a court challenge.

Chong acknowledged a Supreme Court decision indicating that any government-imposed ban on such ads would be subject to special constitutional scrutiny. As a result, she warned, the FCC "must tread very lightly on this issue." ☹

## Rep Firms and Programmers Will Let Stations Decide

Companies that produce and distribute programming and national advertising rep firms have also spoken out on hard liquor advertising. Those contacted by RW said the policy to accept or reject the commercials must come from broadcasters.

A spokesperson for one of the biggest rep firms, who asked not to be identified, said Seagram wanted to buy a five-week flight in eight markets this fall "but virtually no stations accepted the business."

That statement was echoed by Stewart Yaguda, president of the Radio 2000 division at Interop. "If you would have asked me two weeks ago, I would have said (hard liquor advertising) could be a big opportunity," said Yaguda. "I did not expect that so many radio stations would not accept it. The way it's going, it does not look like it's going to be big."

But, Yaguda stressed, "If there's an advertiser that wants to do hard liquor advertising and there are stations that will accept it, then we will place it."

Stu Olds, president, of Katz Radio Group, added, "This is an individual

station or group issue. It's not up to us to pass judgment on it. All we can do is bring the opportunity — it is up to the station whether or not it wants to run that product category."

Program suppliers, on the other hand, have to decide if they will allow the spots to run — potentially alienating affiliates. Jones Satellite Networks, which delivers nine formats to radio stations, has decided not to accept the commercials. But Premiere Radio Networks, with more than 5,500 affiliates and an advertising reach that covers 99 percent of the U.S. population, would take them.

"We're open to advertising from hard liquor companies, so long as the message conforms to the wishes of our affiliates," said Kraig Kitchin, Premiere executive vice president/sales. "We defer the final decision to air the commercial to our individual affiliates."

Stations not wanting to air the spots could cover them with other announcements. ☹

— Bob Rusk

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# BUSINESS DIGEST

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**DG Systems to acquire PDR Productions:** DG Systems recently signed a binding, definitive agreement for the acquisition of 100 percent of the stock of PDR Productions, a New York-based media duplication and distribution company, in an \$8.5 million cash and stock transaction. PDR Productions will

continue to operate as a wholly owned subsidiary of DG Systems.

Under the agreement, DG Systems will purchase 100 percent of the stock of PDR in exchange for \$6 million in cash and up to 300,000 shares of DG common stock.

Founded in 1991, DG Systems

provides electronic distribution services to the broadcast industry, linking advertisers, agencies, music companies and syndicators with more than 5,000 radio and television stations in the United States.

**PR&E third quarter 1996 earnings:** Pacific Research & Engineering announced third quarter earnings were \$2,309,682, up 51.9 percent over revenue in the same quarter last year.

Net income after taxes for the third quarter was \$65,088, or \$0.03 per share, compared with a net loss of \$19,304 for the same period in 1995.

Revenue for the nine months of fiscal year 1996 reached \$6,230,604, a 25.2 percent increase over the same period last year. Net income after taxes for the first three quarters of the year was \$384,588, or \$0.22 per share compared with \$52,183 for the same period in 1995.

"We are extremely pleased with the growth we've experienced over the past several months," commented Jack Williams, chief executive officer of PR&E.

"Compared to the first three quarters of 1995, our revenues are up 25.2 percent while operating expenses increased by only 9 percent."

**First quarter results for Gentner:** Gentner Communications Corp. reported sales of \$2,940,205 for the first quarter ended Sept. 30, a 5 percent increase over the same quarter last year.

The company reported a loss of

\$128,378 (\$0.02 per share) for the same quarter compared to net income of \$151,625 (\$0.02 per share) for the first quarter of the previous fiscal year.

Russell D. Gentner, president and chief executive officer, said, "As we have indicated recently, the company has entered a major investment phase."

"We are ramping up our sales and marketing resources to take advantage of the many opportunities in the markets we serve."

"While we expect this trend to continue for the near future, we believe this strategic short-term decline in profitability will be recognized through a future return on investment."

**New business at Westwood One:** Westwood One has introduced a multi-divisional new business development unit that links all of the company's radio properties.

The joint announcement was made by the presidents of the company's three divisions: Greg Batusic, president, Westwood One Entertainment, Jeff Lawenda, president, Westwood One Radio Networks and Mike D'Ambrose, president, Shadow Broadcast Services.

Catherine Mongarella has been selected as vice president, corporate development, to manage the operation.

Westwood One is a producer and distributor of radio programs and news services.

The company's news, sports, talk, music and entertainment programming, along with its nine 24-hour satellite formats, air on more than 6000 stations around the world.

## Mt. Shasta Controversy

▶ continued from page 10

Service to shut off valves on propane tanks that power the transmitter, taking the station off the air.

Broadcasting resumed to a limited area when the station erected a rooftop standby antenna.

Erickson sees the investigation and the

Forest Service actions as attack; on the station for news reports it has aired. He said this is "a First Amendment issue with respect to free speech; a Sixth Amendment issue with respect to representation before the court; and a case of a district attorney and a Forest Service who are hell-bent on silencing what people in this county call their voice of truth."

Erickson maintained that all the allegations against the station are false and that the district attorney and Forest Service officials are retaliating for news reports aired by the station about District Attorney Knoll's "failings in office" and Forest Service activities.

According to a press release issued by Chuck Cushman, executive director of the American Land Rights Association in Battle Ground, Wash., the actions of the Forest Service reflect the service's dissatisfaction with stories aired by KWHO that were critical of Forest Service management and its attempt to claim large areas of Mt. Shasta and surrounding lands using a historic designation law.

In what Knoll refers to as a separate issue, he recently filed complaints with the FCC against the station.

In the complaints, Knoll alleged that the station defrauds advertisers by accepting payment for advertisements and then not playing the commercials; that the station perjured itself by signing affidavits stating that the advertisements were aired when they were not; that the station attempts to intimidate local officials and thus prevent them from performing their duties by fabricating stories and airing them as fact; and that the station also airs fabricated stories about individuals in the community and calls them factual.

Knoll's complaint also stated that the station attempts to defame local citizens with whom the station president and general manager, Tom Erickson, disagrees; uses threats and intimidation against its competitors; and engages in sexual harassment of station employees.

The FCC investigated the complaints and responded to the allegations, but took no further action against the station, according to Steven Barone, an industry analyst who works with the chief of the complaints and political programming branch of the FCC.

"We would act if there was a violation of the commission's rules, for example if a station was operating without a license," said Barone.

Barone said that local authorities have the right to get involved if a station is breaking local laws, such as not paying taxes or bills.

## Comments On Liquor:

• "Clear Channel Communications' policy for now is to not accept hard liquor advertising ... (but) we're out fighting for beer and wine advertising every day."

— *Lowry Mays, President/CEO Clear Channel Communications*

• "Because the stations target the 35 and older audience, we would consider running (hard liquor) commercials in afternoon drive or later. We don't feel it would be right to encourage alcohol consumption at 8 or 9 in the morning."

— *Jeff Coelho, General Manager KUMU-AM-FM Honolulu*

• "A decision to advertise on television or radio does not diminish the industry's proven commitment to the fundamental principles of the (DISCUS) Code (of Good Practice). Distilled spirits advertisements will continue to be responsible, dignified, and tasteful messages for adults and will avoid targeting those under the legal purchase age, regardless of the medium."

— *Fred A. Meister, President/CEO DISCUS*

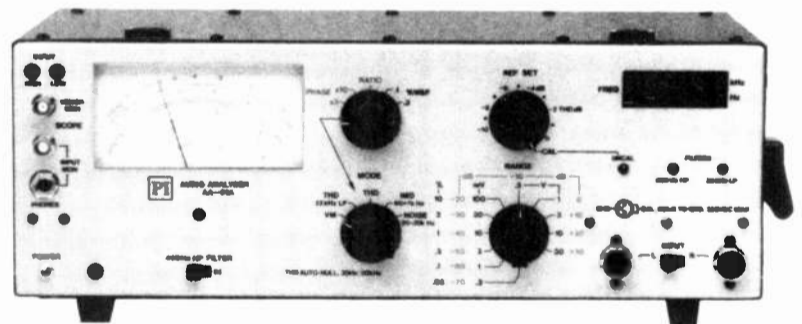
• "I think it is time for the liquor industry and broadcasters to reactivate voluntary self-regulation."

— *James H. Quello, Commissioner FCC*

• "We have a duty to protect our families from the consequences of alcohol abuse ... the American liquor industry has made a decision that will make this hard work even harder."

— *President Bill Clinton*

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# EAS Time Is Upon You

► continued from page 1

Darryl Parker, director of marketing for TFT Inc., said TFT's delivery schedule was running about three to four weeks from time of order, a pace he expected would continue.

Bill Gould, sales manager for Burk Technologies, said his company was on a two-week delivery schedule. Gould said Burk hoped its EAS delivery schedule would soon be even quicker.

Jim Gorman of Gorman Redlich said his company would "make every effort to get equipment to broadcasters by January 1," even if they order it in late December. Gorman said he would not be surprised if as many as half of all broadcasters still

had yet to order by late November.

Gould said many broadcasters waited to order because of the money commitment or because they wanted more product choices.

**'I really think more of this stuff has been sold than we realize.'**

Calculating the number of stations yet to order EAS gear is complicated. Stations may share equipment if they are co-located and co-owned. If they are co-

located but not co-owned, they can obtain a waiver to share equipment.

Continental Electronics District Sales Manager Bill Emery said 12,000 radio stations do not necessarily translate into 12,000 EAS units sold. Owners can use an encoder/decoder to cover more than one station. With the increasing number of duopolies and local groups, observers find it hard to predict how many units broadcasters will buy.

Several national groups took the plunge all at once. Industry sources in the engineering community say Infinity Broadcasting bought TFT equipment for its radio stations all at the same time, as did CBS. Emery said he had sold equipment to some of the major groups in the upper Midwest like Mid-States Broadcasting, Children's Broadcasting and Sorenson. In other instances, state

broadcasting associations worked out deals for group purchases.

"I really think more of this stuff has been sold than we all realize," said Emery. "I really think that what we see now are stragglers," he said, admitting "I'm a minority in my school of thought."

## Now what?

Although the EAS equipment must be installed by Jan. 1, the implementation of EAS will come later. Most states have been working on EAS plans for several months. Lucia said more than 20 states had already submitted their plans.

"We had hoped to get a lot of them finalized this year," he said, noting that many will not change much from the EBS plan.

One main difference between the two systems is that under EAS, stations must monitor at least two inputs. Lucia said states with poor EBS plans will probably have a harder time establishing an EAS plan.

What makes this next phase interesting is that there is no deadline for completing a state EAS plan.

"The planning is voluntary," said Lucia. "There is no force of law we can apply to a state that doesn't develop a plan." In fact, there are two or three states and territories that do not have EBS plans. Nonetheless, 1997 is widely perceived as the year for finalizing EAS plans and phasing out EBS.

"I think we're going to learn a lot about the system in the first year of operation," said Parker of TFT. He said he hoped a third party would step in, assess EAS and make suggestions for improvements like expanding event code lists or coming up with different methods for screening alerts.

See related story, page 54.

# Going Digital?

## ONE WIRE CONNECTS ALL STUDIOS NEW DIGITAL CONSOLE & SWITCHER

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**Pictured:** The RCS digital control console and RCS/VADIS digital switcher are not only digital but modular, allowing for expansion at any time to meet changing requirements. Manufactured by Klotz Digital Audio of Haar, Germany, a recognized pioneer in digital audio control systems. Marketed exclusively in North and South America by RCS, the world leader in digital audio for radio with *Master Control*.

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- VADIS (Variable Audio Distribution Interface System) means switching up to 1,024 channels, having all connections available
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**Make sure you get what you need!**

**RCS**  
Sound Software

# Leaning on PTFP

► continued from page 11

wants to see it reach people throughout Oklahoma. Music, she said, is "the wings of the soul. If you can communicate through the arts ... you (can) communicate regardless of what language, what culture, what ethnic background. ... (The arts are) the medium for all nations and people to come together."

Public broadcasting is important to Bass. "We just thoroughly believe that a community's no better than what sources it has for its education and arts," she said.

KCSC was turned down on first submission of its application three years ago. The next year, the station hired a grant writer and submitted two requests to PTFP. A signal extension grant for increasing the height of the station's antenna was approved; a request for repeater financing was resubmitted in fiscal 1996 and approved.

"Keep in mind this is public money," said WAMU's Hodgson. "This is money from a government program. It should be spent for a very high priority project, not frivolously, and it should go to people whose applications are of the highest quality. So, there's a real responsibility there, I think."

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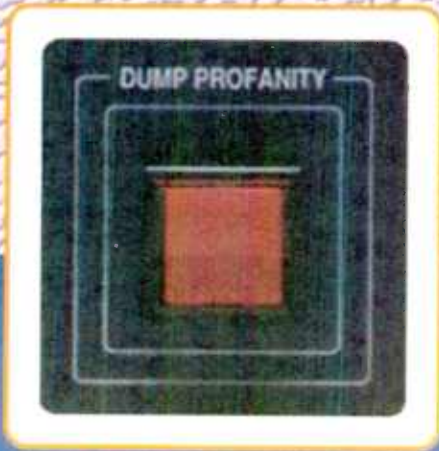
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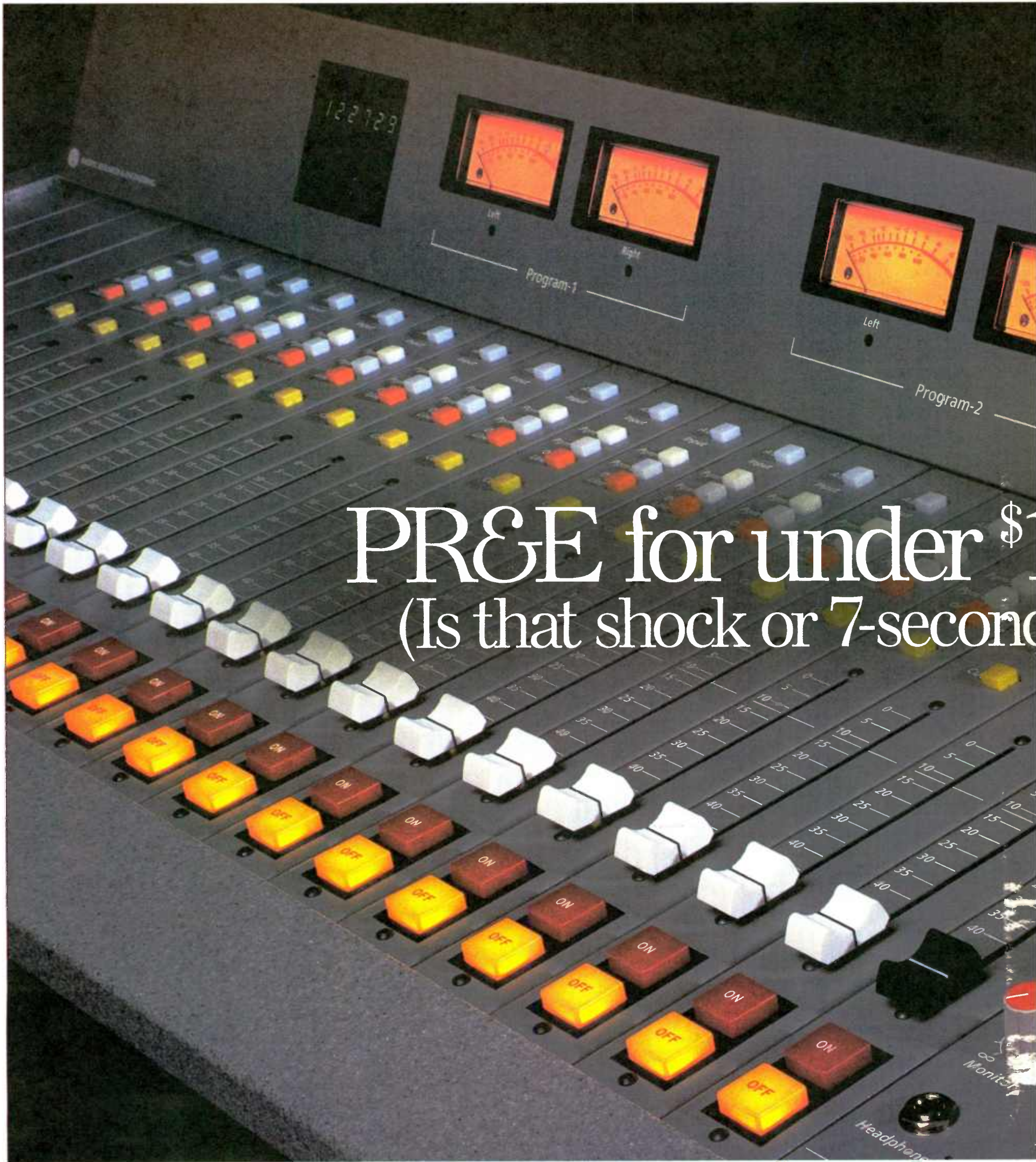
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The GSC3000 Site Control System from Gentner takes remote control to the next level. It provides a system that meets the needs of broadcasters who require extensive control abilities. Plus, it accommodates the confines of your pocketbook.

Although still very popular, the VRC and others that model the VRC cannot be expanded beyond the system's basic capabilities.

However, operation with the GSC3000 can cover anything from a single site with minimal requirements



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with minimum needs  
or multiple stations with  
extensive requirements**

# Recorders: Doing It Up Digitally

by Alan R. Peterson

**LOS ANGELES** Digital recorders and editors came in all flavors, shapes and sizes at the 101st AES Convention.

There were huge proprietary systems costing thousands of dollars, hard disk and tape-based recorders and inexpensive computer software that can provide beginner users with unprecedented power. Truly something for everybody interested in audio for broadcast.

At the **Fostex** exhibit, all eyes were again on the DMT-8 portable hard disk recorder and the rackmount D-80 multitracker with new Version 2 software. Of interest was the new company DAT line, including the D-15

chase lock-capable master DAT recorder and the second-generation PD-4 four-head portable timecode DAT recorder.

Among the consoles and tape machines at the **Otari** exhibit, Version 1.4 for the RADAR digital multitrack system was released. Multiple RADAR units can be linked through one controller and MIDI time code (MTC) can be slaved and generated by the system.

Compelling demos for the **Sonic Foundry** product line included the new Sound Forge 4.0 and its associated plug-ins including QSound, Noise Reduction and AudioTrack.

**Fairlight** debuted its latest system, the MFX-3, incorporating the redesigned

MFX controller and configured to interface with the Yamaha 02R digital mixer.

The Shortcut Personal Audio Editor and Instant Replay hard disk audio player were the staples at the **360 Systems** exhibit, along with the Digicart line.

ADAT-style machines were still going strong, thanks to **Alesis** and **Fostex**, as were DA-88-formatted digital tape recorders from **Tascam** and **Sony**.

**Vestax** had the HDR-V8 hard disk recorder/mixer with a processor three times faster than that in previous versions, eight separate inputs and outputs and built-in digital mixer with three-band EQ. The device can optionally interface with DA-88 and ADAT-formatted

machines and can record across all eight tracks simultaneously.

**Studio Audio Digital Equipment** introduced new SADiE3 software for its popular line of workstations and launched SASCiA, a real-time network designed to transfer data between Octavia and SADiE DAWs. A new portable field recording device — the SADiE Mobile — drew interest as well.

The Prisma workstations at the **Spectral** exhibit got a workout. Variations on the Prisma theme include Express for broadcast. Producer for multitrack audio and StudioTracks SP for video and film post.

**Digital Audio Labs**, makers of the CardD family of sound cards, introduced the low-cost FastEdDIT Windows audio editor and exhibited the V8 line of hi-quality audio hardware.

**Akai Digital** came to Los Angeles with the 16-track DDI500 workstation, the 16-track DR16 hard-disk/recorder editor, its "S" line of digital samplers for musicians, the new CD3000XL CD-ROM-based sampler and the DD8 random access dubber.

**Sony** displayed the new MDS-B5 MiniDisc recorder with high-speed duplication abilities and multi-access "hot" starts.



Fairlight FAME

The PCM-R500 DAT recorder breaks new ground in the under-\$2,000 pro DAT category and the MDM-X4 MiniDisc multitrack recorder offers four-track recording to a Data MD in a portable package.

**Yamaha** also exhibited its MiniDisc portable multitrack recorder-mixer, the MD4.

**Studer** rolled out the fourth-generation D827-MCH MK II digital multitrack tape recorder and the new 424-2 magneto-optical disk recorder.

A new name to broadcasters, **Metalithic Systems**, debuted Digital Wings for Audio, a 128-track hard disk recording package for the PC platform. The ensemble includes soundcard, software and an optional breakout box for balanced and quarter-inch I/O connectors. The company also distributes Way Cool Edit, the successor to the Cool Edit two-track editor.

**Soundscape** returned to the convention with several new products to support the SSHDR1 DAW. These included new I/O boxes with ADAT and TDIF compatibility, the SSAC1 accelerator card and new 32-bit operating system.

The Darwin 8-track recorder released last year by **E-mu Systems** continues to be upgraded and expanded. The current unit can be equipped with a 1 GB internal drive, an Iomega Jaz drive or ADAT digital I/O options. The virtual slave reel feature allows a Darwin to control two or more digital tape machines, expanding track capacity. E-mu also released a new keyboard sampler, the E4K.

**Innovative Quality Software (IQS)** brought several new plug-ins for its SAW line of software-based PC recorder-editors. The Reverberator adds real-sounding room reverberation to each track of SAW Plus or SAW 6x. The Meter Bridge places a bank of reference meters on the screen in bar form or more familiar VU

continued on page 23 ►

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World Radio History

## Digital Recorders

► continued from page 22 meters.

**Digidesign** is preparing for a winter release of Pro Tools 4.0 and presented a number of products at the AES Convention. Among them was Lo Fi/Sci Fi software that provides "down processing" to simulate older analog techniques. For the radio professional, automated mixing features and support of hardware controllers from Penny+Giles, J.L. Cooper and Peavey are new enhancements to Pro Tools 4.0.

**Dolby Laboratories** developed Dolby Surround Sound to work as a TDM plug-in for Digidesign's Pro Tools. The product was demo'd at the show and will be available in early 1997.

Existing products from **Sonic Solutions** include SonicStudio OnAir — a radio production suite configurable from two tracks to 24, with workgroup capability allowing up to 30 producers to work on the same incoming feed simultaneously. Sonic's NoNOISE, also on display, continues to be a popular noise and click removal tool.

**Merging Technologies**, another new name to broadcasters, came to the show with the Pyramax Virtual Studio, a PC-based multitrack recorder/editor. The product has a fully automated digital mixer, real-time effects processing and customized routing of signals.

A number of MIDI sequencers for musicians have added digital recording capability, making the self-contained MIDI/Audio studio a reality. Among the companies doing this, **Opcode** (exhibiting at the Digidesign booth) brought the updated Studio Vision Pro 3.5 to the floor. The Mac-based program includes support of QuickTime video files, improved pitch shifting and an increase to 64 channels of I/O.

**Hohner Midia**, better known for harmonicas, got into the computer audio game as the distributor of Samplitude, an inexpensive PC-based multitrack recorder that can run four tracks on a 386 computer. Three versions of Samplitude are available from the company. Other products from Hohner include Red Roaster CD authoring software and the ARC 44 high-quality four-track editor and sound card.

**HBB** hosted its largest booth ever with displays of the new POR-TADAT line of four-head location sound DAT decks. The media line included new ADAT tapes, MDs and MO discs.

From **Zaxcom Audio** came the novel Deva, a portable digital audio mixer/removable hard disk recorder that can also send audio down phone lines for field reporting. A four-channel mixer handles mic/line levels and removable PCMCIA media provides up to 90 minutes of recording time.

## Mixers on the March

by Alan R. Peterson

**LOS ANGELES** Mixer technology continues to evolve in several directions: analog boards, digital desks with an analog feel, motorized MIDI controllers and on-screen virtual mixers. Whether faders were flying or a trackball was spun, there was an audio console for everybody's taste at the 101st AES Convention, from miniscule Mackies on up to huge Harrison's.

The new **Yamaha 03D** music production console was well publicized prior to



Call It 'Huey': Mackie's HUI Controller

the show, and the new brother to the 02R did not disappoint. The console features

26 inputs (eight digital), 50 mix snapshots, four-band parametric EQ, two effect processors and MIDI machine control.

Miniature mixers are still hot. The **Samson Mixpad 9**, Mixpad 12 and MPL 1502 shared exhibit space with Eurorack series from **Behringer**; the Eurorack MX2642 features four mono subgroups and six aux sends.

The **Spirit by Soundcraft Notepad** is about as small as a mixer can get. The purple four-mono, two-stereo unit got a dose of power at this year's convention with a powered module that attaches to the top. The Spirit medium mixer line included the new Folio F1.

**Mackie** was back in town with its legendary mixers both big and small and a new innovation: the HUI digital

continued on page 24 ►

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# Console Coverage

► continued from page 23

workstation controller for mixing on Pro Tools.

Other small mixers came from **Furman**, with the SM3 stereo mixer with ducker, the Model 750 rackmount stereo mixer from **Studio Technologies**, **Dan Dugan's** Model D automatic mixing controller and the 8MX2 preamp-mixer with limiter from **Audio Toys**.

**California Recording Institute** brought back the "floating ball" Virtual Mixer. This on-screen volleyball game places a sound in a virtual 3D space by loudness and spatial positioning. The new version offers electronic goggles that simulate z-axis depth for a virtual three-

dimensional experience.

**Mark IV Pro Audio Group** exhibited DDA consoles, including the CS3 and

## Mixers are evolving in several directions.

QII boards. Mark IV also featured the Midas XL-200 and XL-3 consoles and the 4U rackmount XL-88 matrix mixer.

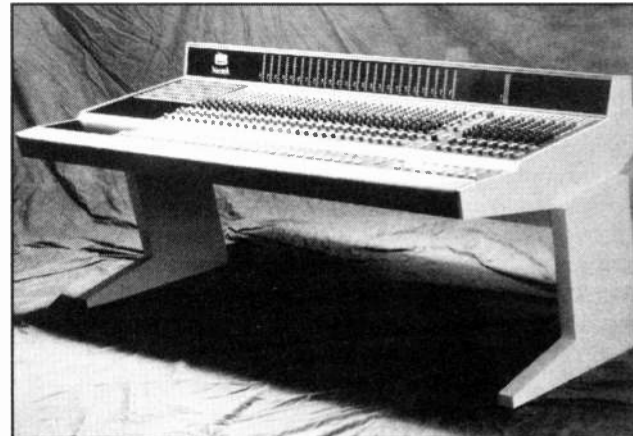
**Otari** introduced the Elite digitally controlled analog console at the AES show. The 24-bus board includes Image

Recall snapshot automation, symmetrical 4-band EQ and optional moving faders. The Elite and Status consoles can both benefit from the new version of the Otari Eagle automation system.

**Allen & Heath** consoles appropriate for recording and broadcast production include the GL1 Zone mixer for multi-mic applications and the GL2 and GL2S boards.

**Ramsa** exhibited the WR-SX1 console, available in 32, 40 or 48 mono input configurations with MIDI snapshot settings automation.

The DC16 controller from

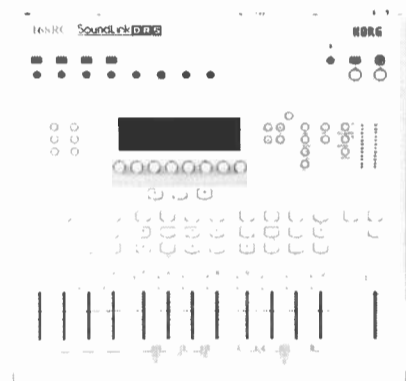


A Huge Neotek Console

**Penny+Giles** is the successor to the MM16 of last year and was demonstrated on Pro Tools III v4.0. The console-like surface uses revolutionary P+G E-Belt optical controller in place of linear faders. The controller provides scrub and shuttle editing features and directly controls workstation functions.

**Logitek** returned to the Los Angeles Convention Center only weeks after the World Media Expo to show off its Serial Sound on-air digital console. The all-digital console is designed specifically for live broadcast and handles AES and SPDIF formats.

Well-known broadcast manufacturer



Korg Soundlink

ATI demo'd its Vanguard series of broadcast consoles and several new devices in the Nanoamp series of peripherals.

**Korg** also jumped into digital with the debut of the 168RC digital eight-bus recording console. It features two ADAT optical interfaces, three-band EQ and two effects processors.

In the big mixer arena, **Soundtracs** entered the show with the \$35,000 Virtua console, a 48-channel digital mixer with four-band EQ, compressors and gates on each channel and 24 tape outputs. This board joins the Solitaire in the Soundtracs line. **Harrison by GLW** displayed the Series Twelve fully automated digital-analog hybrid mixer.

It is hard to top **Solid State Logic** for huge consoles, including its G+ line. But this year the company rolled out the Aysis compact digital broadcast console for remote broadcast vehicles and smaller control rooms. The **Neotek** broadcast console, the Esprit, is available in configurations up to 56x20, while its production counterpart, the Elan, can come 64x26. Living legend Rupert Neve himself showed up at the **Amek** exhibit to talk about the 9098 console.

The booth also featured the **Amek** Digital Mixing System for high-end broadcast production.

**Studer** rolled out the new economical 928 analog mixer console to complement its digital D940 model and D19 series of signal processing.

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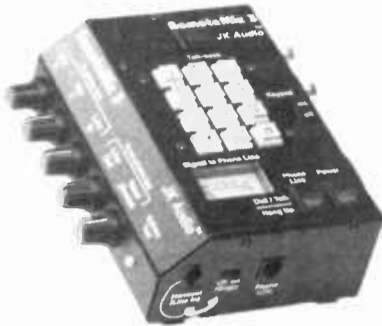
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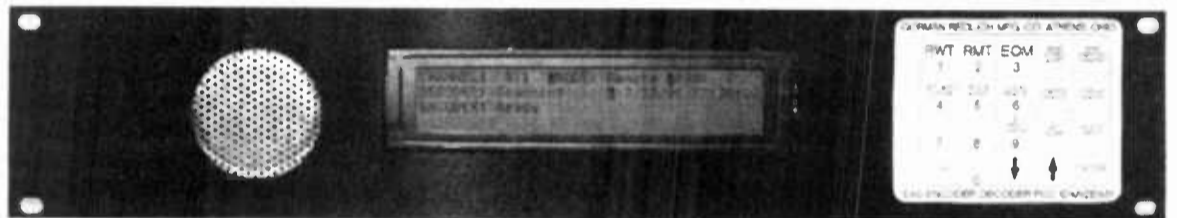
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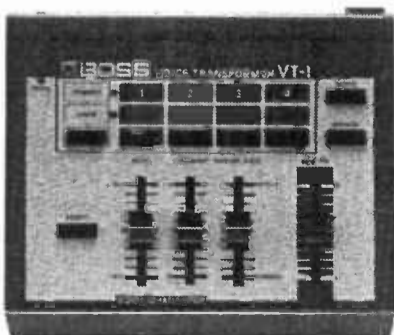
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# Processors for Artistic Audio

by Alan R. Peterson

**LOS ANGELES** Contemporary audio technology has not only made radio production more efficient and better sounding. In some cases, it has made it a lot more fun, too.

Mic preamps — both tube and transistor — make voices and music sound spectacular. Compressors keep levels tame and multiprocessors add space and dimension to an otherwise colorless sound. On the other side of the coin are the "happy boxes" that turn mere mortals into robots and convert the musically unskilled into concert masters.

**Roland** featured two such devices in its display. The Boss VT-1 — which won the RW Cool Stuff award last spring — changes the pitch and the "formant" structure of the voice, then adds digital reverb. The PMA-5 Personal Music Assistant is a MIDI music workshop in a package the size of an Apple Newton.

Another Cool Stuff winner, the **Penny+Giles** PP10 audio multiprocessor,

inch connectors.

**Audio Toys Inc.** returned to the show with the Pro<sup>6</sup> mic preamp/processor with parametric EQ, compression, noise gate and overlapping high/low-pass filters.

Introduced at the New York show last fall, the **Joemeek** compressor came back for an encore. The green-paneled compressor includes "superbal" circuitry, a photo-optical compressor element and controls for all aspects of compression.



Eventide Harmonizers

The **Vestax** pro audio series complements the company HDR line of hard-disk recorders. Products include the SL-201 dual compressor, GE31 single 31-band EQ, GE33S stereo EQ and the GE62 dual 31-band EQ.

The **Furman** DJ production mixers include Punch subharmonic processing. The company also makes the C-128 and LC-6 compressors, several graphic EQs and the PQ-4 parametric EQ.

Multitrack recording engineers will appreciate the **Presonus** ACP-8 eight-channel compressor/limiter/gate while engineers handling sound reinforcement for live station remotes will go for the high RF immunity of the **Rane** GE215 and GE130 graphic EQs.

The **Aphex** Tubessence circuit turned up in many of this company's products, including the model 109 EQ, 107 tube compressor and the 661 tube Expressor.

Tubes were just as big at the **Manley Laboratories** exhibit, with mic preamps, "Pultec-type" EQs, DI boxes and photo-optical limiters. With a nod to current technology, Manley

also exhibited several 20-bit A/D and D/A converters. More glowing glass was found in the EQs, preamps and compressors of the **Tube-Tech** line.

**Bellari** brought three new tube products to AES: the RP562 stereo sonic exciter, RP583 dual compressor/limiter and RP533 multi-processor, which combines preamp, compressor and enhancer in one unit.

And even more tubes were spotted at the **Drawmer** exhibit, including its new 1962 Digital Vacuum Tube preamp.

Digital converters from **Apogee Electronics** and **Benchmark Media Systems**, among others, gave audio producers clear choices in the digital arena.

DSP4000B units, with effects written by studio guru Jay Rose.

The deceptively quiet-looking panel of the **Grace Design** model 201 mic preamp belied the astounding circuitry inside. The two-channel preamp boasts an incredibly wide frequency response of 4.5 Hz to 1 MHz.

**Yamaha's** newest reverb, the Rev500, borrows technology from the company's ProR3 unit and puts it into a less-expensive box. It features 100 presets, MIDI control and separate DSP stages to handle right and left channels.

**ks Waves** rolled out the Native Power Pack plug-in for many popular Mac and Win95 audio software packages. The set contains TrueVerb, the L1 Ultramaximizer, WaveConvert, the C1 compressor/gate and Q10 ParaGraphic EQ.

Another company new to broadcasters, **Australian Monitor** had a number of processors at the show, including the QC-4 four-channel compressor and the EQ302 dual-channel 30-band EQ.

The blue and red boxes in the **Focusrite (Group One)** line got three new brothers: the Green Range. These new, green-paneled products include a dual mic preamp, a sweepable EQ and a mic preamp/processor/noise gate.

**Alesis** made the reverb smaller with the NanoVerb. Now it has done it again with a new dynamics processor, the NanoComp. This was exhibited along with the company's regular complement of Quadraverbs, keyboards and drum machines.

Producers of music for commercials and long-form programming would appreciate the new **East-West** music catalog. The company boasts the world's largest selection of

sampled sounds on CD and CD-ROM for computer composition and sample manipulation.

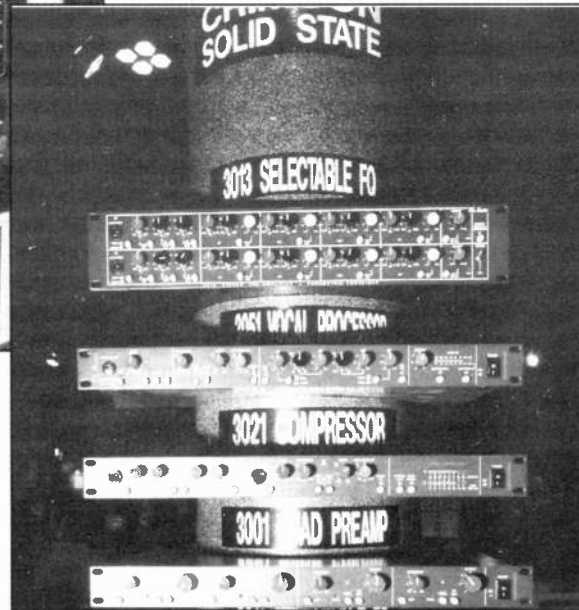


Amplifiers by BGW

was prominently featured at the company exhibit. New Pythagoras software makes the open-ended PP10 processor function as a delay, notch filter, EQ, spectrum analyzer or compressor/limiter.

Processors from **Behringer** included the MDX line of compressor/limiters, XR class expanders and the Mic 2000 preamp/direct box. Next door to Behringer, **Zoom** was showing its new Zoom Studio 1204 multiprocessor with numerous reverbs, modulations, serial and parallel effects and a 10-band vocoder.

**Symetrix** launched two new graphic equalizers and the 551E five-band parametric EQ with both XLR and quarter-



TL Processors Grew on Trees.

For sonic skyrockets, an **Eventide** Harmonizer is hard to beat. The company displayed the newest DSP4000 and

## New and Innovative Technology at AES

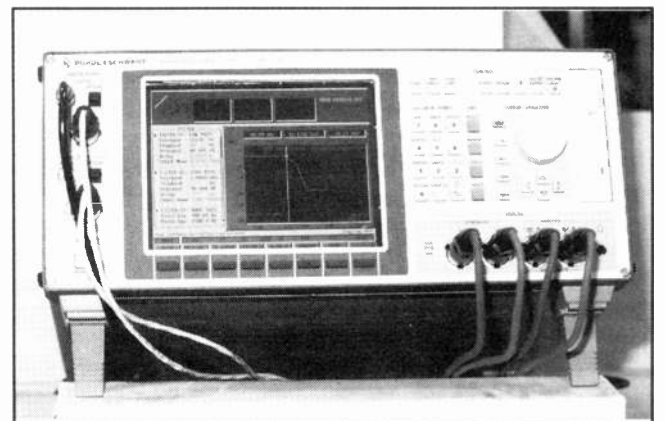
by Alan R. Peterson

**LOS ANGELES** Most new technology for audio — whether digital or analog — is often hidden behind shiny panels and flashing readouts or buried deep in a block of silicon. The real revolution begins in the circuitry. So new methods, products, circuits and the tools to measure them are always of interest to the broadcast audio engineer.

**THAT Corporation** develops innovative circuitry for audio. It exhibited trimmable IC voltage-controlled amplifiers, the Analog Engine dynamics processor chip and an OEM Ethernet attachment board with 16-bit microprocessor.

**National Semiconductor** created the LM1973, a three-channel digitally controlled audio attenuator, the LM4862 "Boomer" audio power amplifier, the

ADC16071 16-bit A/D converter and the LM3886 Overture high-performance audio power amplifier. The 3886 places a 68 W audio amplifier onto a chip



Rohde & Schwarz Analyzer

smaller than one square inch.

**Analog Devices** debuted a number of ICs including a 3D audio enhancer, 1 W power amplifier, five-channel surround generator and a mic preamp/compressor in 8- and 14-pin packages.

continued on page 27 ►

### Walkaway:

Turn off the lights; lock the doors; go home. A few short years ago this level of automation at radio stations was impossible. But thanks to rapid advances in technology it's now an everyday occurrence. Anyone can go home, but to go home legally it takes specialized equipment. If you're contemplating a walkaway, you need to call about our RFC-1 Dial-Up Remote Control and our DAI-1 Dial-Up Audio Interface. For instant information 24-hours-a-day call our "Fax-On-Demand" from your fax machine and request documents 101 and 110.



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# Newest Technology

► continued from page 26

Audio producers using Win95 DirectSound can apply the new **Aureal Semiconductor** 301/311 chipset for 3D audio.

The company is known for its VSP901 virtual surround processor which accomplishes a three-dimensional environment with only two speakers.

**Antex Electronics** took advantage of the AES show to launch the multitrack StudioCard soundcard, featuring simultaneous four-channel audio and 92 dB dynamic range.

Tape technology has not gone ignored. The **Quantegy** 408 analog tape — promoted as the successor to 3M 908 — is designed to match the performance of the Nagra portable recorder. Small-format tape is also supported by the company in its ADAT, DTRS, DAT and analog cassette lines.

**Tektronix** is importing the Rohde & Schwarz UPL Audio Analyzer, a high-speed, low-distortion computerized audio analysis tool. A built-in 486 computer drives the device.

All test functions can be performed on two channels simultaneously, reducing stereo measurement time by 50 percent.

Connectors are infrequently given much thought, but companies such as **Neutrik** and **Re'an** are constantly building and refining jackfields and XLR connectors. **Link** of Rome, Italy, keeps up to date on power connectors, Eurocable multipair wire and cable crossover wireways.

Even cable is given special treatment at AES: products exhibited by **Belden** as well as **Gepco** proved that. The latter



At the Tektronix Booth

debuted the 4200 Series color-coded and numbered multipair audio cable with new highly flexible Gep-Flex rubber outer jacket.

A new flat wire — Goertz MI speaker cables — was exhibited by **Dynaudio Acoustics**. The cable is about a half-inch wide and flat as a penny. The company claims improved highs, rejection of adjacent power wiring and elimination of microphony from strand interaction.

Turning power on and off was a job for the **Switchcraft** line of switches and power cords. **ITW** took care of membrane and snapdome switches and exhibited the novel Spasaver rotary switch designed to fit a standard TO-5 socket.

The technology of digital audio via the Internet and over phone lines was well-represented by several companies. **Liquid Audio** demonstrated near-CD quality Internet music on demand with musician Sammy Hagar and legendary producer Phil Ramone looking on.

**Telos Systems** demo'd its

Audioactive player, which now supports the Shockwave multimedia standard. Shockwave has been downloaded more than 10 million times and expectations are for 20 million by the end of 1997.

**Musicam USA** used large, illuminated, high-flying helium balloons to attract attention to its line of codecs, including the Roadrunner remote audio ISDN mixer and the prototype Olympian codec/mixer.

**Berkley Integrated Audio Software (BIAS)** announced an alliance with Progressive Networks to adopt encoding of RealAudio files for transmission over the Internet.



Massive Meters at the Dorrough Exhibit

## The One-Box ISDN Solution



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# Studio Sessions

First Look at the  
New Yamaha 03D  
Console

See page 31.

Equipment and Applications for Radio Production and Recording

## Invasion of Monitors From Mars

by Alan R. Peterson

**WASHINGTON** Imagine a pair of these babies turning up as the showpieces in the plush meeting room where clients come to hear their spots. How about a couple up front in the station lobby for interior decoration and background music? Just watch the stares of visitors.

They are revolutionary, evolutionary and just plain strange, but they represent new designs and philosophies in loudspeaker construction. If the Starship Enterprise were to be rewired for music, these are the speakers Captain Kirk and Mister Spock would fight over for their cabins.

Meet the Monitors From Mars.

While not exactly extraterrestrial in origin, the loudspeakers and enclosures shown here are definitely from a higher sphere of inspiration. New synthetic materials and some wildly creative cabinetry are brought together in designs that not only sound very good but are turning heads because of their appearance.

A few are imported. Most are quite expensive. One or two may even elicit a giggle. But these visitors from another plane of reality all share a remarkable approach to form-following-function.

### The mbl 101

From Berlin's mbl-Akustikgeräte GmbH comes the mbl 101, with a transducer array resembling a cross between a football trophy and a '50s-era atomic bomb.

There is no great departure from your

basic woofer-midrange-tweeter combo; the 101 still uses these three elements but constructs them from unique materials in an unorthodox way.

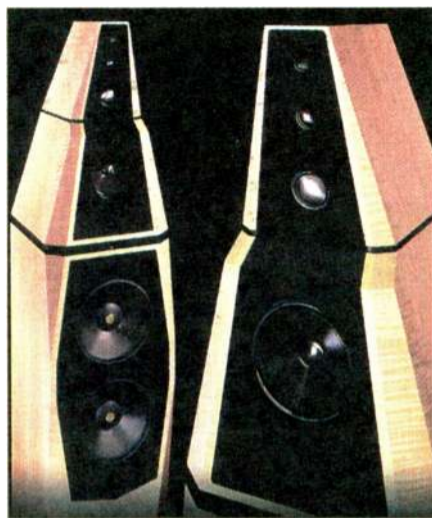
The football-shaped element is actually the woofer. As the mbl brochure explains it, the long strips are "lameloid transmitter parts grouped in a column and forced to vibrate." They are made of an aluminum-magnesium alloy, lined with open-cell absorbing foam and linked together with V-shaped die-pressed beads of "subronyl."

The midrange and tweeter elements are made from carbon fiber compounds and assembled by hand. Voice coils float in ferrofluid cooling material. On the bottom, the support structure or "plinth" (word of the week!) serves a dual purpose: housing a passive crossover circuit and holding the entire assembly up in the air.

The stacked vertical construction makes the speaker omnidirectional. Because there is no "front" or "rear" to the transducers, the radiating pattern is identical all around the speaker. The spread and spaciousness of the audio is said to be exceptional due to this construction.

The unit weighs 77 pounds and stands just under four feet tall. Frequency response of the mbl 101 is said to extend up to 70 kHz. Almost as high is the 101's price: a single unit retails for \$29,900.

Information on the German-made mbl 101 is available from mbl of America, Scottsdale, Ariz. Contact the company at (602) 991-8001.



Avalon Osiris

### Avalon Osiris

Imposing and looking as if hewn from solid rock maple, the huge (2,200 pounds) Avalon Acoustics Osiris Reference Transducer could well star in the movie "The Speaker That Ate Boulder, Colorado," the city from which this behemoth hails.

The manufacturer says the Osiris has a lower noise floor than other transducers and eliminates stray energy by using coherent energy transfer. Both are the result of newly engineered crossover circuitry that has had careful attention paid to current transfer and proper phasing.

There are no shortages in the moving-coil department. The Osiris boasts a ceramic dome super-tweeter, a titanium



mbl 101

dome tweeter, an aluminum-magnesium dome midrange, a nine-inch Kevlar composite cone woofer and two 13-inch poly Kevlar subwoofers.

This monster will happily take on anything from 100 to 1,000 watts and give out up to 40 kHz response. Bi-, tri-, quad- and pent-amplification wiring is possible.

A price was not readily available at the time this was written, but who is going to argue with a six-footer who weighs over a ton?

Information on the Avalon Acoustics Osiris is available at (303) 440-0422.

### Jadis Eurythmie

If Salvador Dali could have designed his own speaker, this might have been one of his efforts.

Looking larger in print than its actual height of about five feet, the French-made Jadis Eurythmie combines four speaker elements in a rhythmic, free-flowing sculpture as far removed from a cubic cabinet as a speaker will get. The huge black horn almost invites putting a ramp in front of it and playing a quick game of skee-ball.

Compared to the speakers previously mentioned, the Jadis Eurythmie is a lower-wattage performer, with an upper limit of 70 W. The bass crosses over at 180 Hz, mid-low is from 180 to 700 Hz, mid-high extends to 7 kHz and the upper treble range kicks in above 7 kHz. The speaker works in mono or bi-amp mode.

Specifications aside, this is one of the

continued on page 29 ►

## Europe's Secret is Out. The Philips All-in-One Sound Enhancer!

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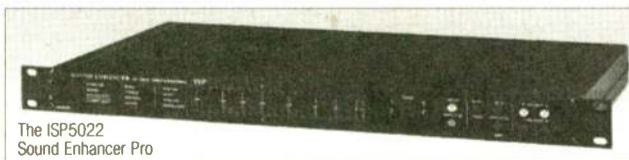
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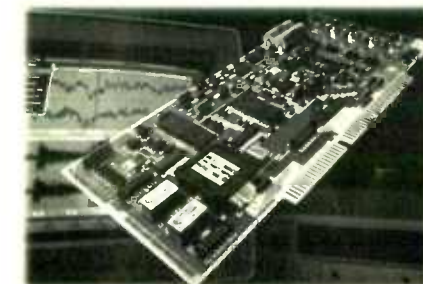
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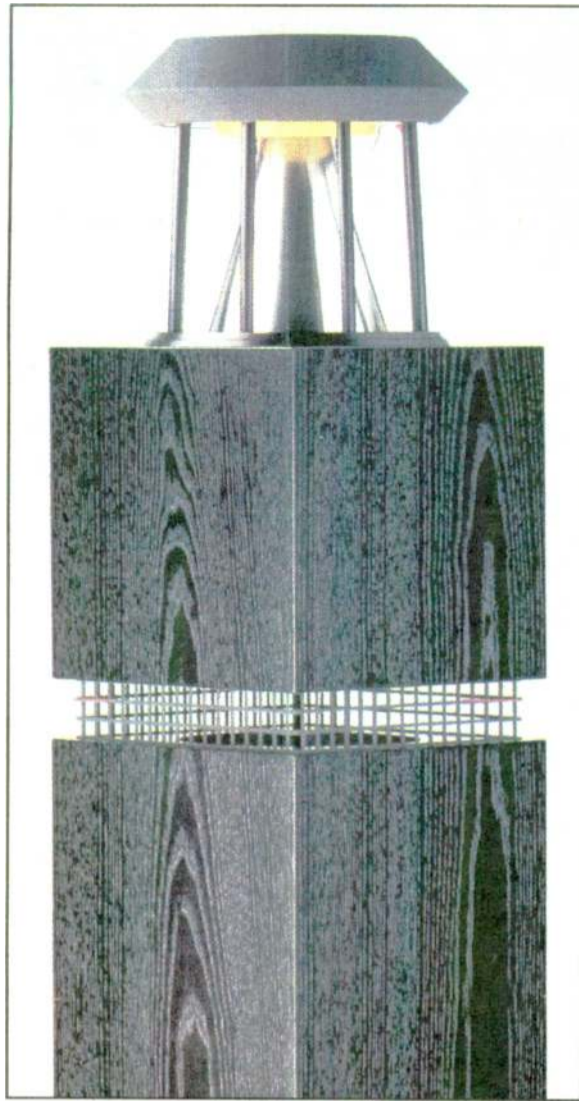


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Left to Right: the Curvy Eurythmie, the No-nonsense Unlimited and Pop-deco Nautilus

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Find out more by contacting the U.S. distributor of Jadis speakers — Northstar Leading The Way, Inc. — at (970) 259-6722.

**German Physiks Unlimited**

Before you phone the chimney sweep, stop: This really is a loudspeaker.

The Unlimited is another German-made omnidirectional loudspeaker that outputs sound in a 360-degree direction from center.

The square construction, metal screen and "raincap" make it look like the crowning touch to a Vermont Castings woodstove.

Actually, the base contains a push-pull subwoofer assembly in which the drivers are mounted without directly touching the enclosure. The manufacturer says this keeps the bass range free of distortion.

The metal screen is not meant to keep squirrels and pigeons out of your fireplace, but is said to mechanically decouple the upper module — called the DDD Bendingwave Converter — from the bass cabinet. And the silvery top is the driver element for the DDD. If viewed from underneath, you would see a flexible spider ring covering the voice coil of a downward-directed speaker.

The Unlimited scopes out 28 Hz - 19 kHz and can handle a nominal 120 W. At just under four feet, the top of the Unlimited might be a tempting surface to place a living room lamp.

Contact the manufacturer, German Physiks, at (49) 06182-7084.

**B&W Nautilus**

If pop artist Peter Max were to be sent back in time to the 1939 New York World's Fair in a 1955 Cadillac after watching the movie "Metropolis" — a most unlikely scenario — he might design the B&W Nautilus speaker when he got back. This baby makes everybody smile.

Give credit to designers John Bowers and Laurence Dickie for coming up with this Art Deco snail. In a quest to create a smooth-response speaker with no audible distortion, they began putting drivers into cylindrical spaces. This journey into speaker physics resulted in the Nautilus.

A glass-reinforced plastic exterior shell is coated with a two-part acrylic paint normally used in the manufacture of German sports cars. The nautilus shell-shaped bass tube is not merely cosmetic; it is an actual exponentially tapered chamber with a volume of 120 liters folded into a compact curved space.

The three upper speakers are coupled to open-ended "tail fin" waveguides that toss rear radiation out of the way of the forward-facing speaker elements and just sit there looking flat-out cool.

The Nautilus stands under four feet tall and rests on a 50 kg block of polished synthetic marble. Four amplifiers — one for each driver — are required to run the speaker. Bandwidth is 10 Hz - 25 kHz, with flat response being between 25 Hz - 20 kHz.

You won't find this little mollusk at the nearest Shell station (groan), but contact B&W Loudspeakers Ltd. of England at (44)-903-820415 to find out more about the Nautilus.

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# Soundfield Mic Popular Performer

by Rich Rarey

**WASHINGTON** Occasionally, devices come by for review that are universally liked immediately, right out of the carton. We found that to be true with the reasonably priced SoundField SPS422 Studio Microphone System.

We had all heard about multicapsule mics, the kind that the very hip used in their 1980s recordings. Several colleagues were intrigued by the sound possibilities of an affordable four-capsule microphone.

So the SPS422 went to solo piano studio recordings, house band recordings, banjo and spoken word performances. The microphone became so popular that I was forced to remove it during one session so it could be returned to the factory agent for the next reviewer.

## Panoramic

Its sound is remarkably open, a rich panoramic width without the mind-tumbling acoustic hole in the center. One engineer listened to the superb sound quality from the SPS422 while it was positioned at a piano. Without a word, he removed his original high-quality two mic pickup from the set. It was not until he had to leave on vacation did we manage to get the SPS422 pried away from him again.

The whole system is comprised of the SPS422 microphone, an AC-powered

control unit that acts as combination mic power and matrix, and about 50 feet of slender multipair mic cable that connects the two together.

As supplied to us, all the components fit into a manageable rectangular road



Soundfield SPS422

case — and that is exactly how it traveled from gig to gig.

Our only lament was the AC power requirement. There was a great interest in taking the SPS422 into the field to record outside events with it, but alas, this proved impractical.

The user guide explains that the SPS422 is a simplified version of the SoundField Research MKV microphone. The myriad of controls has been reduced

to two: Pattern and Width.

With these two controls, a range of full mono to full stereo and everything in-between is possible; benefits derived from the four relatively large sub-cardioid capsules.

These capsules are set within the mic body so each capsule comprises a "side" of a four-sided object. According to the user's guide, adding and subtracting the capsule outputs makes it possible to emulate all possible polar patterns from figure-eight through omni.

The users guide also describes additional circuitry that creates the effect of placing all four capsules at the same point in space. This creates a microphone system "with a far greater sense of perspective and presence than is possible using conventional microphones," as the manual puts it.

This was certainly true in our evaluation, and we were pleasantly surprised when the stereo image was summed. The mono image remained faithful to the stereo in frequency and content and still managed to convey a sense of presence.

## The brains of the outfit

The model IU control unit is the brain behind the SPS422, and it remotely adjusts Pattern, Width, output levels and output decoding.

An M-S or conventional X-Y format is selectable, and the user guide points out that the X-Y (or the L/R) is identical to the decoded M-S signal because of the single-point geometry of the mic. This puts to rest the discussions recording engineers have about the superior characteristics of the raw M-S signal as far as the SPS422 is concerned.

A conventional headphone output is provided on the front panel to aid in setup. Coarse and Fine gain controls regulate the output levels. Two switches compensate for mic position: the END button is engaged when the SPS422 is mounted on its side, the INV is engaged to swap the left and right "directions" where the mic is pointed.

An 80 Hz low-end roll-off can be engaged to attenuate rumble (SoundField Research specs the mic at 20 Hz to 20 kHz) and two LED bar graph meters monitor the output levels.

The Pattern control takes the signals from the four capsules and decodes the result into a user-variable range of "virtual" microphones; from omni to cardioid and to figure-eight. The Width control varies the "angle" of the two virtual mics from full mono to a very wide stereo.

## Point and shoot

Using the SoundField Research SPS422 is simple, even if you have never used a single-point multicapsule microphone before. The user's guide Quick Start page got us going just this easily: position the mic, turn on the controller and allow the mic to warm up for a few minutes. Then set the Pattern and Width controls to 12 o'clock and engage the position switches, END or INV as needed.

We set the SPS422 microphone horizontally on end and placed it squarely in the open lid of a piano. The studio cable troughs were too tightly packed to

squeeze the SPS422 multipair cable through, so the IU controller remained in the studio, facing the control room.

I moved the mic and adjusted the settings, while NPR recording engineer Mark Greenhouse directed the placement and adjustments and monitored the result from the control room.

We found by setting the Width and Pattern to full clockwise, a spacious, wide stereo image resulted. Listening to the mono sum, we were impressed with its phase integrity and quality. This eased our minds for using the SPS422 for broadcast where a mono sum is extremely important to our member stations and listeners.

It almost seemed that there might be an acoustic hole in the image center, but listening while moving one's head around the monitoring sweet-spot revealed a rock-solid image that was not at all "phasey."

The size of the SPS422 capsules made a dramatic improvement in the sound quality on this Steinway piano. Each note was clearly defined and uncolored. Notes below Middle C benefited especially. It was a beautiful, rich sound that allowed one to ponder the harmonics and overtones missed by lesser microphones.

NPR engineer Parris Morgan used the SPS422 to record both studio vocals and a drum set (separately of course). He reported that the SPS422 spread the vocal image smoothly across the panoramic perspective and had a finer quality than the single phantom image he obtained by using two conventional mics. He wrote "the drums had excellent transient response, and the whole drum kit image was reproduced perfectly front-to-back as well as left-to-right."

I used the SPS422 for two different purposes in a smaller broadcast studio: as a stereo pickup for three Shakespearean actors and to capture folk performer Pete Seeger's banjo.

Using the SPS422 for multiple voices was trickier than using it on an immobile instrument. The actors had to be prompted to remain shoulder-to-shoulder to keep within the desired panoramic perspective.

The mic sounded wonderful with a trained voice using it, clear and uncolored on both men and women's voices. The 80 Hz rolloff was helpful in reducing proximity effect on deep male voices.

## Picking and grinning

The banjo setup was very informal and unrehearsed. The mic was planted vertically, 3 feet from the instrument. The Width and Pattern controls set to 12 o'clock and the output set to X-Y.

The result was a very pleasing, wide sound — mono compatible — that captured the harmonics of the instrument and what little reverberation existed in the studio. I later tried to duplicate the result with a Neumann SM-69 and found the room presence missing. The SPS422 extra capsules really made a dramatic difference.

The SPS422 certainly got a workout and won a crowd of admirers who lamented the day our evaluation ended. There exists now a push to acquire several SoundField SPS422s for our general use. Its superb characteristics are still in high demand where good recordings are desired.

□ □ □

Rich Rarey is technical director of the premier NPR call-in program "Talk of the Nation" and can be reached at rrarey@npr.org

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## PRODUCER'S FILE

## DT250 Phones: Cans That Can Do

by Ty Ford

**BALTIMORE** I expect four things from a set of headphones: fidelity, efficiency, comfort, reliability. It's also nice to have a cord that doesn't immediately wrap itself around the base of the swivel chair I am sitting in so that when I stand up the phones are violently jerked off of my ears.

The beyer DT 250 (\$199) 80-ohm headphones meet most of my criteria very well. I like really flat response in monitors and headphones. Somehow over the last decade, some headphone manufacturers have come to believe that phones with a jacked-up low-end response are a good idea.

When I do voice-overs, that extra bottom gets in the way. I don't hear myself as clearly, and as a result I don't speak as clearly. The DT 250s have only a slight bass boost relative to my old (1974) AKG K240s, but not enough to get in the way.

The DT 250s are also a bit more efficient than the K240s, which makes them louder for the same amount of gain. If you

have marginal headphone amps with not enough power, using low-efficiency phones usually results in distorted audio. Basically the headphone amp just gives up.

There are certainly more efficient headphones on the market, but efficiency without fidelity is not worth much.

When I am recording voice tracks in a combo studio, I want to be able to tell if I or someone else just popped the mic. The DT 250 lets me know without too much bass getting in the way. The DT 250s also have a bass response

similar to the EV Sentry 100 monitors I frequently use.

The comfort factor is above average for the DT 250s. Getting phones to fit properly or comfortably on large or small heads can be a problem. I have a large cranium and some headphones give me that old Koss Pro 4 "Head-in-a-vice" feeling.

The DT 250 ear cups are covered in a soft velvet-like material and they have a nicely padded headband. They are a firm fit on me but were comfortable enough to allow me to fall asleep while listening to a new CD.

Part of the benefit of a snug fit is the isolation forms ambient sound. The DT 250s are a closed-back headphone. That means you hear less of what is going on around you. It also means announcers suffering hearing loss can get more gain before feedback than with open-back phones.

Like the beyer DT 100 and DT 200 series, the DT 250 comes with a detachable cable. One end is an eighth-inch TRS plus, with a quarter-inch TRS screw-on fitting. On the other end is a six-pin connector that plugs in to the left earcup of the phones.

A small bolt can be inserted through the connector and into the earcup to lock the cable in place. I prefer not to use the bolt so when I do get the cord wrapped around the chair, it simply



beyerdynamic DT250 Phones

pulls out when I stand up, rather than snapping the cable and my neck. Of course, the coiled cord reduces the possibility of that happening, but I would probably end up catching the cord somewhere else.

Beyer's Mike Solomon notes that the DT 250s are positioned a step above the DT 770 Pros in terms of lightness and comfort and bridge the gap between the DT 48s and the current spate of Sony headphones.

My advice: try 'em the next time you need cans that you plan to wear for a long time.

□ □ □

"Advanced Audio Production Techniques," written by Ty Ford, is available from Focal Press by calling (800) 366-2665. Download his voice demos from FTP.Jagunet.com/pub/users/tyford

## DIGITAL DOMAIN

## New Yamaha Console

by Mel Lambert

**LOS ANGELES** Good things, as they say, come in threes. The latest all-digital console from Yamaha adds credence to that old cliché. The 03D is destined to offer more processing power for less bucks than its two worthy companions, the 01 ProMix and last year's 02R.

Capitalizing on the sales success and design expertise of the company's previous offering, the all-new, fully automated 03D offers a total of 26 inputs, four bus outputs, 16 direct outputs and six aux sends in a package about two-thirds the size of the 02R. The rack-mountable 03D utilizes the same 32-bit DSP engine found in the 02R. Suggested retail price is scheduled to be under \$4,000 with deliveries beginning next spring.

**Production power**

For radio production and jingle studios, the 03D packs a remarkable amount of power into a highly affordable package. The front panel features 16 motor-driven channel faders, plus stereo Input, Effects Return and Stereo Out masters.

For enhanced flexibility, the user can toggle between dual signal sources on the input fader bank; in one setting they control inputs 1 through 16, and in the other inputs 17 through 24 plus overall master levels for the four Aux Sends and four Output Busses.

A large backlit fluorescent display located in the center of the mixer utilizes a series of graphic icons to represent different system controls and provide a clear indication of current system settings and EQ curves. A PC-compatible mouse can be added for quick navigation around the available

on-screen displays, and parameter editing. All in all, it is an elegant and easy-to-use layout.

According to Peter Chaikin, Yamaha's product manager for recording products, "With the overwhelming response to the 02R, we've had strong requests for an intermediate-size mixer specifically to address the requirements of recording and radio-production studios."

**Scoping the board**

Recall that the larger-format 02R features 24 analog inputs and 16 digital tape returns for a total of 40 inputs, with routing to a total of eight bus and eight direct outputs. "We learned that a smaller footprint, low-cost digital mixer was desired for use with eight-channel digital workstations and recorders."

All inputs and outputs feature four-band parametric EQ plus a dynamics section incorporating a compressor, limiter and gate. Of the 26 available inputs — 24 monos plus a stereo source — 18 are analog ports with integral 20-bit converters. For added flexibility, the first eight also incorporate phantom power.

Interestingly, the 03D offers routing and panning to LCRS (left/center/right/surround) outputs, making it perfect for more advanced productions that might benefit from Dolby Surround encoding.

As will be appreciated, the ability to place music, ambience or sound effects within the rear surround channel can add excitement to a jingle mix; also recall that even replayed on conventional stereo systems, Dolby Surround mixes can move beyond the physical location of the loudspeakers, and out-of-phase information normally

continued on page 33 ►

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**READER SERVICE NO. 67**

# First Look at 03D

► continued from page 31

destined for the surround speaker will move out into the room to envelop the listener.

With reasonably-priced professional-grade encoders and decoders now available from Dolby Laboratories, it might be time to consider moving beyond conventional two-channel jingle and radio production for more "adventurous" experimentation.

Digital sources and outputs are accommodated using the same series of YGDAI interface cards that were introduced with the 02R. A single slot accepts versions that handle up to eight AES/EBU, Tascam TDIF, Alesis ADAT optical and Yamaha-formatted ports. In addition, the eight digital outputs available on the card — four output busses and four aux sends — can also be used as simultaneous feeds to an eight-track recorder or a hard-disk workstation.

A pair of 03D mixers can be cascaded together to share bus outputs, aux sends, stereo feeds plus cue and solo busses. As might be expected, the unit also interfaces directly to the 02R.

Also provided are two full-feature onboard processors that hold up to 32 user-programmed settings for a variety of delay, chorus and reverb programs. This is in addition to the factory presets.

Usefully, the 03D contains a built-in drum sample that can be used to audition the effects of any of the system's built-in effects. This is a great feature while setting up a remote music recording date, for example, without musicians having to be present.

All effect settings and parameters can be controlled in real-time using conventional MIDI commands. In addition, a newly-innovated interface allows the 03D to control the internal mixing functions of an external workstation. During the recent AES Convention in Los Angeles, the system was seen connected to a Mac-based Digidesign ProTools systems, controlling the levels of various digital cues being replayed from hard disk.

System automation can best be described as comprehensive. Snapshots of every system setting can be stored and recalled from the 03D's 50 scene memories under manual, MIDI or automated modes. Libraries can also be used to store channel setting, plus multiple EQ, special effects and dynamics settings. In addition to slaving to MIDI-capable sequencers, the 03D can be used

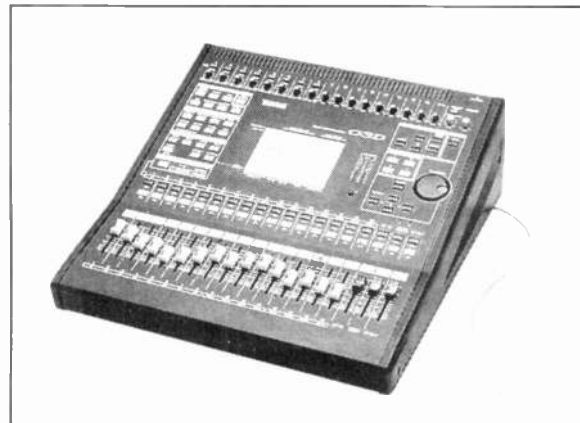
to control external MIDI systems, including transports capable of responding to MIDI Machine Control (MMC) commands.

Channel faders and four user-definable buttons can be utilized to output suitable MIDI instructions to processors and recorders. Fully automated mixing is recorded via the mixer's onboard AutoMix System which consists of static scene changes with programmable crossfade transitions, plus dynamic control of multiple parameters. AutoMix can be synchronized to conventional SMPTE timecode using a suitable SMPTE-to-MIDI Timecode (MTC) converter.

More information is available from Yamaha Corporation of America, Professional Audio Products Department, 6600 Orangethorpe Avenue, Buena Park, Calif., 90622. Phone (714) 522-9011. E-mail should be sent to [info@yamaha.com](mailto:info@yamaha.com) or visit <http://www.yamaha.com>

Next time, we'll have that promised close look at some of the new remote-audio system designed to offer enhanced-quality over POTS (plain, old telephone systems) and 28.8/33.6-kbps modems without the need for expensive ISDN lines.

□ □ □  
Mel Lambert has been involved with production and broadcast for 20 years.



Yamaha 03D Digital Console

Now principal of Media&Marketing, a consulting service for the professional audio industry, he can be reached via [mediapr@earthlink.net](mailto:mediapr@earthlink.net) or (818) 753-9510.



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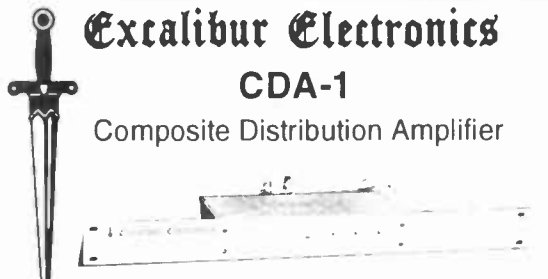
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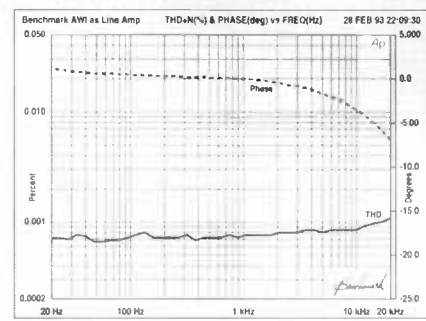
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**READER SERVICE NO. 82**



Should You Lease  
Your Gear?  
See page 43.

COLE'S LAW

## The RF Deadline Approaches

by Harry Cole

**WASHINGTON** So my editor calls me up, and says: "You should write an article about the new RF standards, which *Go Into Effect On January 1, 1997*, and you should make sure that right up front in the article you let everybody know that *There's A January 1, 1997, Deadline*

*Heading Toward Them.*" (He was kind of shouting at this point.)

The folks here at Team *Cole's Law* can follow orders as well as the next guy, so here it is: Last August, the FCC adopted new RF standards that are supposed to go into effect as of Jan. 1, 1997 — meaning that they are supposed to apply to any and all applications (including renewals

and facilities modifications) filed after that date.

If you don't know about those standards, you should find out about them. If you are not in compliance with those standards, you should make every effort to bring yourself into compliance before filing any applications in 1997 (but before going to a lot of trouble on that, be sure to read the rest of this article).

With that out of the way, here's the real scoop. Last August, after considering the matter for several years, the commission did indeed adopt a new set of standards limiting the extent to which persons may be exposed to certain levels of radiofrequency radiation. While the FCC for many years already had a set of RF exposure standards based on guidelines established by the American National Standards Institute (ANSI), the new RF standards are based on criteria developed by the National Council on Radiation Protection (NCRP) and are somewhat more stringent than the earlier, ANSI-based limits.

As a public service, we are providing in a sidebar to this column the specific standards adopted last August (see table at left). The real question, though, is how the heck are you supposed to know whether you are in compliance with these standards?

On that point, the August decision by the commission was less than helpful.

continued on page 38 ▶

Here are the actual technical standards adopted by the commission, pretty much as they appear in the rules:

Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
0.3-3.0	614	1.63	(100)*	6
30-300	61.4/f	0.163	1.0	6

(B) Limits for General Population/Uncontrolled Exposure

0.3-1.34	614	1.63	(100)*	30
30-300	27.5	0.073	0.2	30

f = Frequency in MHz  
\* = Plane-wave equivalent power density

Table 1

## Turn the Next Blizzard Into an Opportunity

by Robert A. Mercer  
WDEL(AM)/WSTW(FM)

**WILMINGTON, Del.** Winter in the mid-Atlantic region was memorable last year. Consecutive days of snow and ice hit hard, closing schools and businesses and postponing events.

than 1,500 extra telephone calls between 5:15 a.m. and 7 p.m., trying to record the information and get it on the air in a timely, well-organized fashion so that the announcers can read the listings and the listeners can understand them.

Now imagine doing it for two, three, four days in a row. By the end of that



Serving the community in this environment is hard work for a radio staff, demanding long, sometimes snowbound, hours. But the weather let us strut our stuff once again to a community that has come to depend on our AM station to provide the best closings, cancellations and postponements in the region.

Imagine a station that handles more

winter hell week, most normal humans are ready to collapse from dealing with thousands of calls, trying to maintain accurate lists, coming in early and leaving late, and being on the air far longer than usual.

For some radio stations it's just not worth it anymore. We feel it is, and over the years we have developed a way to do

it efficiently.

More than a decade ago, our company decided that a quality closing and cancellation service was not only in the best interest of our community, but that it actually increased listening and our bottom line. We set out to make our Snowwatch package the best in the market.

Some of what we did may seem obvious, but often the obvious makes the difference.

Step one was to decide that Snowwatch is the single most important community service we can do. We are an AM station in the shadow of Philadelphia, in a medium-sized market filled with FM stations whose audiences listen primarily for music.

We found that advanced planning and annual training, plus an inexpensive but powerful piece of computer software, made the plan easier to implement when big storms hit. RW asked me to write about our successful plan. Disclaimer: I wrote the software and offer it to stations in other markets. The focus of this article, though, is how the WDEL plan has developed over the years.

Our plan is divided into several categories.

*People:* Who does what, when and where? A plan of action containing specific snow-day assignments for every

continued on page 42 ▶

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  - **Do On Air & Production from a single workstation !!!**

Digilink III is a *NEW* multipurpose digital audio workstation for Live On Air, Production, and Automation. Fully compatible with the #1 selling and industry standard Digilink II, the Digilink III has four times the raw processing power of the Digilink II and features a second audio output for cueing an audio piece while playing on air.

The triple play and dual output capability of the Digilink III makes it ideal for very sophisticated Live On Air operation -and- makes it capable of operating an On Air & Production studio from a single workstation. For fast and complex live on air applications, the DL3 can play 3 files at once so that you can lay down a bed, play a phoner, and drop in a sound effect at the same time. Or, you can be playing on air with crossfade while independently recording, playing, and editing a phoner.

A unique capability of Digilink III is its ability to operate two studios from a single workstation. The most common application would be to use one workstation for both on air and production studios. The DL3 is placed in the production studio while a PCAT computer running Arrakis remote control software is placed in the on air studio. The production studio has complete single play-record-edit capability while the on air studio can independently use dual play for on air. While not a redundant system, it does provides a dual studio workstation solution for under \$11,000.

To make the DL3 even more easy to use for air, a 99 button Gemini control panel can be added to the system for only \$1,195. It places hundreds of carts at the jocks fingertips and the files assigned to each button change to support up to 40 different jocks. The Smart\*Record feature of the controller even allows you to record a phoner at the push of a button. The DL3 will automatically trim the front and end of the phoner, and then you just push the button again to play it to air. The Gemini control panel makes the Digilink III workstation fast and easy to learn and use.



The 22,000 series console integrates the 99 button Gemini control panel into an easy to use console

The powerful Digilink III is fully compatible with Arrakis Digilink II and Trak\*Star workstations so that it may be easily added to an existing network.

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## Audio Consoles

The standout #1 leader in reliable, high performance, digital ready consoles for radio, Arrakis has several console lines to meet your every application. The 1200 series is ideal for compact installations. The modular 12,000 series is available in 8, 18, & 28 channel mainframes. The 22000 Gemini series features optional video monitors and switchers for digital workstation control.

### 1200 Series Consoles



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1200-10	Ten ch	\$3,495
1200-15	Fifteen ch	\$4,995

### 12000 Series Consoles from \$3,995



### 22000 Series Consoles from \$6,995



## Digital Workstations

#1 in digital workstation sales, Arrakis has over 1,600 workstations in use around the world.

As a multipurpose digital audio record-play workstation for radio, it replaces cart machines, reel machines, cassette recorders, & often even consoles. Digilink has proven to be ideal for live on air, production, news, and automation applications. Place a workstation in each studio and then interconnect them with a digital network for transferring audio, text, & schedules between studios. *Arrakis is the #1 choice of broadcasters.*

### Satellite Automation



### CD Automation



Use for  
Live On Air,  
Automation,  
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### Digilink & Trak\*Star Workstations

## Studio Furniture

With over 1,000 studios in the field, Arrakis is #1 in studio furniture sales for radio.

Using only the finest materials, balanced laminated panels, and solid oak trim, Arrakis furniture systems are rugged and attractive for years of hard use.

Available in two basic product families with literally thousands of variations, an Arrakis studio furniture package can easily be configured to meet your specific requirement, whether it is simply off the shelf or fully custom.

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### Desk\*Star studio furniture systems



### Modulux studio furniture systems

## Complete systems...

As illustrated in the Sony Worldwide Networks master control studio on the right (one of seven Arrakis studios in the Manhattan, New York complex), Arrakis can provide complete major market studios with Arrakis consoles, digital workstations, video-audio switchers, furniture, and system prewiring.

With a choice of several console lines; digital workstations for live air, production, news, and automation; and two major studio furniture product lines, Arrakis can meet broadcasters needs from the compact news studio to the major market network origination center. Complete Arrakis equipped studios can be found around the world from Tokyo, to Moscow, to Japan, to Tahiti. *Call Arrakis today for your equipment or studio needs,*

**Sony Worldwide Networks**  
Manhattan, New York



# Keep Current on RFR

► continued from page 35

with these new guidelines." You can't argue with that.

But did the FCC provide that kind of "detailed information"? Nope. What it did do was commit to revising OET Bulletin No. 65, a publication issued by the FCC with the formal title of "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation." It is designed to provide a "how-to" approach to compliance with RF standards. However, the current version of OET No. 65 was written more than 10 years ago and relates to the now-outdated RF standards. Hence, the need for revision.

## Committed to a revision

As noted, in its August 1996 decision the commission committed to revising OET No. 65. Originally, the target date for the revision was sometime in December 1996. However, complications have since arisen. A number of petitions for reconsideration of the new RF standards have been filed and are pending. If the resolution of those petitions results in changes to the substantive RF standards themselves, then it might be premature to revise OET No. 65 before those petitions are resolved.

We called the FCC in mid-November to check on the progress of the new and

improved OET No. 65. We were told that, while December is still supposedly the target date, the petitions for reconsideration may move that back some. Which would leave us at January 1997 without the benefit of a revised OET No. 65.

If we were bettors, we'd be betting the farm that, sometime before the end of 1996, the FCC will be issuing an order deferring the effective date of the new RF standards until after the petitions for reconsideration are resolved. It would be difficult to let the August version of the standards go into effect on Jan. 1, without any guidance from the FCC on how to comply with those standards. And it wouldn't make sense to issue a revised version of OET No. 65 if that publication would just have to get revised again once the reconsideration decision is issued. So our guess is that, notwithstanding what

the commission said last August, the new RF standards won't be going into effect on Jan. 1.

Now, you might be a tad skittish about taking this bet (because, unlike us, you presumably have one or more licenses at risk at the FCC). If you believe that it would still be prudent to determine compliance with the August 1996 version of the standards, you should probably retain engineering counsel familiar with the measurement of RF exposure.

Again, the question of compliance with the new standards will arise only when you file an application, so if you have no such plans in the near future, it may be best just to sit and wait. But if you do plan to file something early in 1997, you might want to have an RF measurement specialist take a look at your situation, just in case.

## Looking for adventure?

If you're more adventurous, you might want to wade through the August decision, which would give you a complete overview of the new rules (but not necessarily a working understanding of them). Alternatively, you may want to take a look at "A Practical Guide to the Determination of Human Exposure to Radiofrequency Fields," Report No. 119, published in 1993 by NCRP. Order a copy directly from NCRP Publications, 7910 Woodmont Avenue, Suite 800, Bethesda, MD 20814; telephone: (800) 229-2652. At \$40 per copy, it seems a bit pricey, but the FCC has specifically endorsed the NCRP report, noting that it "contains practical guidelines and information for performing field measurements in broadcast and other environments." (Also, don't forget that the new August 1996 standards are based on NCRP criteria.)

Another source to consult would be a little item titled ANSI/IEEE C95.3-1992, "Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields — RF and Microwave." The FCC has also endorsed that as a source of useful information in this area.

The bottom line here is that this is a highly technical area that requires a good deal of expertise. While it is possible that the effectiveness of the new standards will be deferred, that is just our guess. If you expect to be filing any applications in the early part of January and you want to have them ready to go before the holiday rush, it would probably be best if you retained expert engineering counsel to check out your facilities.

Finally, bear in mind that, in its August 1996 decision, the commission recognized that immediate compliance with the new standards might be difficult. As a result, the commission authorized the Mass Media Bureau, for one year starting August 1, to grant waivers upon appropriate "good cause" showings. So while you should always be concerned about compliance, you should also rest easy that, even if the standards do take effect on Jan. 1, 1997, you may have a fair amount of breathing space if you run into problems.

If you have any questions about the RF standards, you should be sure to contact your engineering or legal counsel.

□ □ □

Harry Cole is a principal in the Washington-based law firm of Bechtel & Cole, Chartered. He can be reached at (202) 833-4190 or on the Internet at coleslaw@erols.com

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# Talk Jock's Comments Stir Debate

by Alan Haber

**AUSTIN, Texas** In the wake of comments about shooting the president, vice president and first lady, talker Rollye James has exited her afternoon berth at news/talk station KLBJ(AM).

Mike Crusham, KLBJ general manager, approximated for *RW* the on-air conversation of Oct. 15 that led to James leaving the station.

"There was a caller who called into Rollye's show and ... said, 'Rollye, I was in Kentucky and I saw a bumper sticker that read 'Where is Lee Harvey Oswald when you need him?'" Rollye said, 'Yeah, right, you got that right ... but the problem is, if you got Clinton, you'd get Gore.'"

About 40 minutes later, another caller took James to task. As Crusham remembers it, the caller complained that the comment about the president was out of line. The gist of James' response, he said, was: "'I think you feel I have more power than I have. I don't even have the power to get people to go to a certain store that I advertise.'"

Crusham remembers James also saying something to the effect that if she had the power, she'd "make it a trifecta and get Clinton, Gore and Hillary." According to Crusham, James said she was kidding "up front" and that she made an on-air apology a couple of days later. The apology, he said, "wasn't an apology."

A twist to this story is that the family of former President Lyndon Baines Johnson owns KLBJ.

## Lots of feedback

"There ought to be some sensitivity to who you work for," said Crusham. Jim McBride, chief financial officer of LBJ Holding Company, said that Crusham has the full support of the company's board of directors and owners, and that "any comment beyond those he has already made would be inappropriate."

Crusham said that the James incident resulted in the most feedback ever received by the station. People were upset, calling for James' suspension or at least for the station to take some kind of action.

James made her mark on Austin in the short time she spent on KLBJ. According to Crusham, the station had been ranked ninth 25-54 in James' time slot, and moved up to fourth after only six months. Crusham believes the bump is attributable to James.

The incident came to the attention of the U.S. Secret Service resident office in Austin. Shawn M. Campbell, resident agent-in-charge, said that she and Ron Sievert of the U.S. Attorney's Office, Western District of Texas, "listened to the recordings and a determination was made that, given the whole context, a criminal prosecution would not be appropriate. The matter's closed."

A joint statement released by the U.S. Attorney's Office and the Austin resident office noted that KLBJ "and Miss James have been advised of the law in this area so as to avoid such incidents in the future and what we believe to be the potential influence on some members of the public as a result of irresponsible comments." The law is contained in Title 18, Section 871 of the United States Code, entitled "Threats against President and successors

to the Presidency."

The incident "is not alone something that I would end a show on," said Crusham. Talk show hosts are under fire "for four hours," he said. "They're going to make mistakes." But he said James' show "was getting increasingly more mean spirited ... It wasn't going in the direction I originally thought we were going."

Crusham thought James' show "was going to be a little bit more down the middle and not necessarily mean or vitriolic." He met with James, who told him that she was not happy in Austin. Crusham said she didn't care much for the city's political leanings.

"She actually just couldn't stand it,"

he said.

He said James did not feel the comments she made were wrong; in fact, according to Crusham, she felt her comments "were what it takes to get ratings."

Before coming to Austin, James worked at news/talker KFMB(AM) in San Diego. She started at KLBJ in March and did her last show there Oct. 21.

Crusham is not sure why James said what she did, and *RW* was unable to speak to her for this story. However, he said she "puts a lot of thought into her show and is very cognizant of every technique known to broadcasters as to how to get good ratings, but I think that like anything else, there's a certain limit to how



Rollye James

far you should go for the sake of ratings, and ... my viewpoint is that she just pushes it over the limit."

continued on page 46 ▶

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World Radio History

# A Cyber-Mutt's Ho-Ho Wish List

by Alan Haber

**ALEXANDRIA, Va.** Well, it's a festive time up here in *Haberspace*, what with all the decorations and caroling and gifting and gifting and gifting and gifting and gifting going on! Hey, we just had our annual holiday party up on the 218th floor of the ever-seasonal, ever-decorated global *Haberspace* headquarters, and *let me tell you* — there's a reason why they call them *lampshades*!

Throughout the process of making preparations for and holding our annual holiday wingding, to which we invite all the neighbors and the mail guy and the gal who delivers the milk and the guy who sharpens our knives and the gal who picks up and brings back our laundry, we've been compiling (in cooperation with our canine pal Poochy the Cyber-Mutt) a wish list of things we'd like to see radio stations do (and not do) with their Web sites in 1997.

Now, don't you bow your head and look like you forgot or somethin'. Before you know it, *it'll be next year already!* Don't delay! Start sprucing (that's a holiday kinda joke ... sprucing! Get it?!) up your station's Web site today (well, after you finish your eggnog, alrighty?).

*Alrighty!* Here goes (oh, by the by — you may have a wish list of your own. Send us *your* wishes via e-mail; see below for the address that gets you to us. We'll feature 'em in a future *'Space*).

## Alan's Wish List

**Wish 1: Can the clutter.** We're not talking jams and jellies or stuffed-to-the-gills closets here. Some stations like to cram as much as they can onto their home pages, everything from broad-stroke station overviews to contest news and program schedules. Less is more,

folks. Spread out your information on multiple pages. Hey, you don't drop 10 tablespoons of jelly on one teaspoon's worth of peanut butter, do you? Or *do you?*

**Wish 2: In-your-face all-over-the-place is a disgrace.** Believe it or not, everybody who's had Web site duties dumped in his or her lap is not a graphic designer. Yeah, we all *think* we know what looks good, but there are times when we really don't. Leave the graphic design to the pros if you can, why dontcha?! That said, however ...

**Wish 3: You may be right, after all.** Your station may not have the budget for a graphic designer. So, in a pinch, you might be dubbed graphic person number one. In that case, check out other stations' Web sites and see what they're doing to make things look good on their pages. Call up some stations and talk to their in-house Webmasters. Read some books on Web design. And, when in doubt, scale back your design. Remember ...

**Wish 4: Less is more.** It just can't be said enough. In the less-is-more department, shy away from BIG TYPE on your pages — after all, you don't want visitors to get bug-eyed, do you? And try to resist the grand temptation to clutter your pages with wacky, eye-poppin' backgrounds that tend to obscure your text. They may be great for Microsoft Windows wallpaper, but for Web sites, they're (mostly kinda sorta) absolutely ug-ly.

**Wish 5: Ug-ly's okey-dokey.** Well, not ug-ly, per se, but ... well, let's face it. There's a reason why some people go into radio as a career. Know what I mean? Hey, just kiddin'! No, seriously ... I can't tell you how many station sites I've visited that have pix of their jocks missing from their jock pages. Hey, the Dragon doesn't wanna put his midnight-

to-6 a.m. mug on the Web? Too bad — putting pix of all of your jocks on your site shows station unity; missing pix begs the question, "Why isn't the Dragon a team player?" And speaking of team players ...

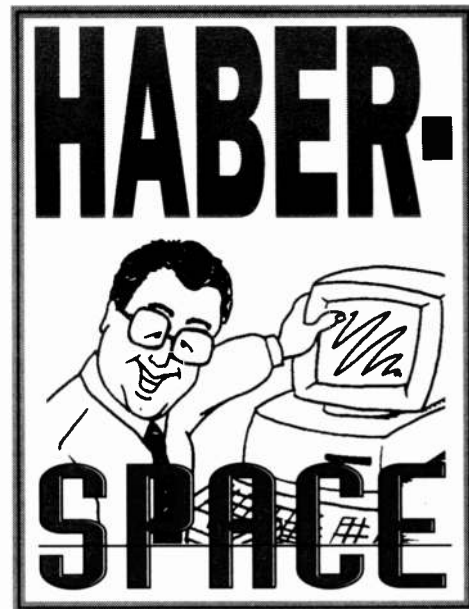
## Stuff this man's stocking

**Wish 6: Rah, rah, rah!!!** Don't forget to trumpet your station's wins in the community! Just ran your annual holiday food drive? Collect donations for a favorite charity? Roll over the competition's softball team? Trumpet the news on your home page! If you don't blow your own horn, who will? Certainly not your competition! And speaking of blowing your own horn ...

**Wish 7: Promote, promote, promote!!!** You wanna get lotsa visitors to your site, right? Well, just putting your site up on the Web won't make 'em come a-runnin'. You have to promote your site by registering it on the various search sites (like Yahoo! and Alta Vista). You can also leave promotional messages on other sites that attract the kind of visitors your site strives to attract, like band sites that play the kinda music your station plays. Don't forget to blow your promotional horn on newsgroups, too.

**Wish 8: Small is better.** Keep the graphics on your site as small as possible to minimize download times for your visitors. Keep the *number* of graphics on your site's pages small to minimize download times for your visitors. Keep your lunch portions small to minimize ... oh, never mind that last one!

**Wish 9: Keep up with the latest programming tricks.** It's like anything else in life: If you don't keep up with the latest doo-dads, you're gonna fall behind your competition. If you're programming your station's site, make sure you keep up with the latest HTML advances. If you're working with a graphic designer, make sure you work together to keep your site looking fresh and inviting. If it becomes too much for you to handle, get your general



manager to up the cyber-budget and hire an outside designer and Webmaster.

**Wish 10: Fresh is best.** Update your site at least two or three times a week. Yes, *a week*. Daily is best, of course, and if you're including weather reports on your site, for example, you already know that. Even if you're just adding a simple graphic, a community calendar announcement, or a mug shot on your DJ spotlight page, you're keeping your site fresh, which will keep visitors coming back for more (it's sorta like keeping fresh food in the fridge, you know?).

And while we're on the subject, keep comin' back here to *Haberspace* for more cyber-radio stuff. Thanks to all you loyal readers for keepin' the e-mail comin' to [zoogang@earthlink.net](mailto:zoogang@earthlink.net). Thanks, too, for makin' such nice comments. They're appreciated by all the hard-working 'Spacers who toil so hard to keep you guys informed. Hey, even Poochy the Cyber-Mutt says "Hey!"

We'll be back next month with our very first Neat-O and Net-O Live Broadcaster sites of 1997 and lots of other cool cyber-stuff. Until then, have a wonderful holiday, whichever holiday you celebrate. And have a great and prosperous New Year! *And*, remember: It's bad practice to shake, shake, shake your booty after you've downed 15 cups of eggnog!

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## Try This Helpful New Radio Station Database

**WASHINGTON** WinRADIR is a radio station database come alive on your Windows-based personal computer.

Conceived as a resource for radio job seekers, WinRADIR from BBH Software looks like it might come in handy for companies looking to target radio stations with their services, such as advertising agencies and office equipment suppliers. It might also help owners hungry to buy more stations. Checking out a market, armchair-style, has never been easier. WinRADIR also makes it a snap to look up former (and possible future) employees and assorted radio friends and acquaintances.

I decided to see what WinRADIR could do by looking up my old station, WAFL(FM) in Milford, Del. After bringing up the WinRADIR search screen, I keyed in the call letters, city and state. I wasn't sure of the current format at WAFL, so I left that field (and others) blank. I clicked on the search button in the top left corner of the screen and,

*voila!* I had everything I needed to know about WAFL in front of me, including the fact that the station has a Web site at <http://www.eagle977.com>

Yes, you can also search for stations that have Web sites, a handy feature in the cyber-age. On the search screen, I put an "x" next to "Has WWW Page" and let my mouse do the walking: WinRADIR found 1,201 stations with a cyber-presence. I also searched for stations that use RDS; the program found 416 such entities.

You can search for commercial and non-commercial, AM and FM, and college and non-college stations. Clicking on the "Stadex" button brings up a tabular-formatted list of stations. I hunted down five commercial AM stations in Abilene, Texas, and printed out a list on my trusty HP DeskJet 820Cse printer.

WinRADIR is the kind of program in which you can easily get lost. WinRADIR is a winner.

— Alan Haber

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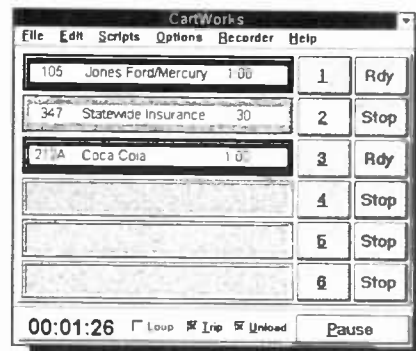
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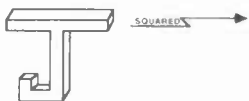
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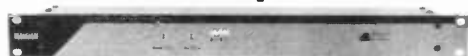


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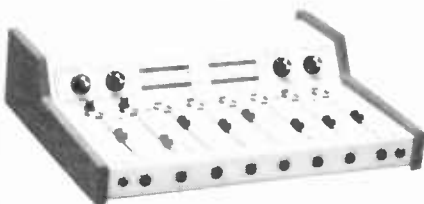


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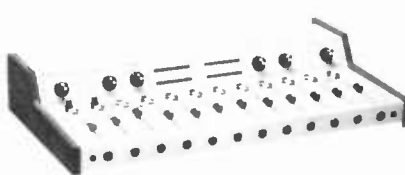
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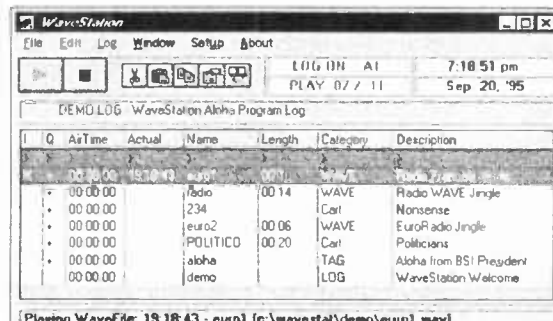
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READER SERVICE NO. 60

# Create a Detailed Snow Plan

► continued from page 35  
member of the staff is critical.

On snow days, everyone spends some of their normal work day doing the abnormal. The storm drives the day's work. Some take calls, others step in to do their work, and some rest as they prepare to act as replacements. Others arrive early to prepare for the avalanche of calls to our nine listed phone lines. Our station manager believes strongly in our Snowwatch commitment and pitches in by taking calls and entering information into our custom computer program when needed.

## Have a backup

All such plans need a backup. If person A is off, then person B does whatever. Put it in writing, hold a meeting ahead of time and make sure everyone understands his or her responsibilities.

**Equipment and audio:** Telephones, computers, printers, printer paper and ribbons are essential parts of the plan. Engineers and managers should assess the reliability of all hardware, in advance. The audio chain is vital. With a storm approaching, make sure the engineers and the air staff are available to keep satellite dishes cleaned off, transmitters turned on and audio consoles operating. Strange things happen at the worst times. If something needs to be fixed, do so before the storm hits.

**Telephones:** Instruct your staff in working the phones during the storm. From 5-7:30 a.m., we only accept calls with official closing or late start information. Our staff politely, firmly moves from call to call to keep lines open. This also limits the hundreds of people who claim their radio doesn't work and want a special reading of the cancellation.

On snow mornings we answer the phone, "Snowwatch, may I have your code please?" If the caller says "What code?" we simply tell them we're in a snow emergency and ask them to call after 7:30

for assistance or to listen for listings on the air. We do not wait for a response, but hang up and move to the next call. When all lines are ringing, we move up the lines, putting them on hold with a quick acknowledgment. Then we work our way through the calls, entering the data into the program.

**Computers:** The staff must be trained and demonstrate the ability to load and

If the list grows too large to air four times an hour, we reduce the frequency of the government, community center and daycare/childcare listings to twice an hour. All reports are preceded by weather updates, road/transit conditions and traffic reports.

Because the storm is the big story, other news and program elements can be set aside. Listings are what the audience

**By the end of that winter hell week, most normal humans are ready to collapse from exhaustion.**

use the StormWatch 2000 program. The software network capability allows staff throughout the building to take cancellation calls. The information is available immediately to the control room on screen or paper.

We've had as many as five people entering data while our AM and FM stations were independently accessing the data to read on the air.

**Programming:** The plan must contain pre-set times and a format for broadcasting closings and cancellations. Don't wing it! The audience knows when you're faking; just trying hard is not enough. Have a clear plan that you can promote ahead of time.

When a storm approaches, we increase the rotation of promos that outline when and how to use our station for closings and cancellations. We have a different format clock for morning and afternoon drive on snow days. The clock contains four complete listings per hour. We've found that listing the schools first, followed by the large employers, then the government agencies and community/senior centers, followed by the daycare/childcare type listings, makes for an orderly presentation. Within each category, we read the listings alphabetically.

wants to hear, even when we get sick of reading them.

After morning drive we continue to take closings and cancellations from community organizations and present those lists twice an hour following the news.

**Promotion and marketing:** As winter approaches, we develop an outside ad campaign for Snowwatch. This includes magazine ads and bus sides, both of which can be traded out, as well as billboards and a direct mail piece by an area bank that buys annual sponsorship of our Snowwatch reports. The mail piece costs us nothing and is mailed to the bank's customers in their monthly statement. We also have included the piece in bills and statements we mail to our customers.

Among our most powerful marketing tools is a letter sent to those who have been assigned an access code. Our letter reminds them of their code, and reminds them to tell all their employees, students and staff to listen to us for the closings. It instructs them when to call and how to use the code, and allows them to update their listing if they've made any changes. We send the letter in September or October. Our list now contains about 350

schools, daycare centers, large employers, government agencies and community centers.

**Sales:** Every year, we have a waiting list of clients who want to be our only advertising on Snowwatch.

It's a premium sales package that gives the client frequent mentions and opening billboards on every Snowwatch report, as well as every time it snows, in every Snowwatch promo and on our major painted billboard on I-95.

The package includes spots and opening billboards, but no spots run during the actual reports. Instead the client gets exclusive branding: "It's WDEL's Snowwatch, brought to you as a public service by XYZ Bank."

The package covers all expenses for overtime, mailing, and outdoor advertising. It provides us with a reasonable profit, from which the station could easily afford to purchase the StormWatch 2000 program.

**Software:** Without a means of quickly entering, organizing and printing the closing and cancellation information, your on-air product will sound like chaos.

StormWatch 2000 solved this. Staff at multiple computers can be entering data while others are taking information out for use on the air.

The system divides information into various categories common to all communities.

You can choose to use these categories or ignore them. The system sorts information by things that are closed, starting late or have other information to pass along. The system separates listings by class (school, employer, etc.) and provides printouts either on the screen or on paper.

For those stations that do nonprofit community organization cancellations, the system maintains a time stamp on all events, purging items that are no longer timely. A cancelled noon event no longer appears after noon.

The software also generates lists for our annual mailing, and maintains a security code system to protect us from prank calls.

Without the software, our Snowwatch reports would be far less organized and credible. It's the element that brings all of the others together to make Snowwatch on WDEL the best in our region.

□ □ □

Bob Mercer is operations manager for WDEL(AM)/WSTW(FM) Wilmington and program director for WDEL. He holds a copyright on StormWatch 2000, which was developed for those stations but is available on an exclusive basis to stations in other markets. Call him at (302) 478-2700 for information.



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# Leasing May Be the Way to Go

by Chris Hamaker

**WASHINGTON** Should you buy or lease?

Station managers and group owners face that question, just as car buyers do. Leasing companies have made believers of many group owners and equipment suppliers. But others say the presence of a third party between the end user and the seller has its drawbacks. How can end users benefit from leasing, rather than purchasing, broadcast and transmission equipment?

## A penny saved?

Leasing company representatives are quick to pit themselves against their chief competitor for the financing of broadcast equipment: the bank.

Toni Ferrara of Network Leasing admitted that bank rates ultimately will be lower than those paid to a leasing company over the same period of time, but she cautioned against focusing too closely on just the interest paid.

"If you're looking strictly for rates, a bank will always be cheaper. But ... problems go along with the bank," she said. She said headaches of dealing with a bank include the need to disclose a financial statement, which can contribute to a lengthy turnaround time for approval.

"We can typically lease ... with just a credit application, no financial statement, and we can do it in just a couple of hours," Ferrara said, adding that banks require full payment of sales tax and do not look kindly upon a customer asking to extend payments.

Debbie Lafleur, credit manager at Flexlease, Inc., encourages leasing as a way to keep a customer's credit line open with a bank. "They want to keep that open for working capital they might need," she said. "They don't want to tie up that money in equipment when down the road they might go. 'Gosh, I should have done (something else) with that.'"

Leasing promoters point to no-down-payment packages and 100 percent financing, as well as a major tax advantage: the ability to write off leasing expenses.

"When they have what is called a 'true lease,' they can expense the entire payment every month, and that constitutes a very big savings for them," Ferrara said.

Most broadcast equipment leases are "lease-to-buy," with either a \$1 or "market value" buyout at the end of the term. Other plans are also frequently offered.

## Transmitting savings

Ben Weingarten, leasing consultant with Firstcorp, said stations that lease transmission equipment enjoy long-term benefits.

He suggested that leasing allows stations that otherwise might not be able to buy equipment the chance to upgrade their signal. Weingarten said an improved station signal increases revenue, which then goes toward paying the lease.

Lafleur said many of the Flexlease lease agreements are for towers and

transmitters, "the big-buck things that (stations) have to have done right then." She said that leases for outdoor equipment sometimes come together quickly.

"I didn't realize until recently how seasonal it starts getting on those things," she said. One of their customers had his transmitter is over marshy ground. "(W)hen the rains start hitting, it's below water, of course. So he has to get it in now," she said.

Leases are not for everyone, nor for every situation. Bank rates may be more competitive, and station owners may enjoy a relationship with a local banker that a national leasing company cannot match.

Nor are all leasing companies highly regarded by the equipment suppliers that work with them and the end user. "There are good and bad leasing companies out there," said Art Reed, general manager of equipment dealer Bradley Broadcast Sales.

Bradley accepts leases when the end user has arranged them, but Reed does not initiate the option to his customers.

Here is a sampling of companies that offer lease financing for studio and broadcast equipment:

- Alliance Leasing (Alliance Credit Corp.), Texas, (512) 794-8391
- American Broadcast Financial Corp., Wisconsin, (414) 482-2638
- Americom, Texas, (800) 477-LEASE
- Anthony Wayne Leasing Associates, Texas, (512) 478-5991
- Firstcorp, California, (213) 782-3619
- Flexlease, Texas, (800) 699-FLEX
- Network Leasing, Connecticut, (516) 864-8200
- Premier Capital Group, Iowa, (800) 666-6811
- Priority Leasing Corp., Texas, (512) 345-5298

Although Reed said the "particular mix of clients who deal with Bradley are not looking for financing," leasing companies continue to seek business from Bradley.

"I hear mostly about leasing from leasing companies attempting to sell me their services, far more than I ever do from customers," he said. "Often, if you present it to the customer, it doesn't take them long to come up with a better means of financing their purchase."

Leasing companies encourage Reed to discuss the leasing option with his customers, but Reed is offended by their logic. "The leasing companies ... allege that more people will buy stuff from me because I helped them to find financing by referring them to a leasing company," Reed said. "What they're saying is, 'Gee, your customers must not be smart enough to figure out how to get financing by themselves. So, if you recommend it to them, they're going to be so grateful that ... they're going to throw more business your way, or you'll get the business as opposed to somebody else.'"

Reed also said paperwork and payment technicalities have left him holding the bag before. Leasing "is an open account transaction for us but it comes with a whole bunch of extra paperwork requirements and ... a whole extra series of hoops you've got to jump through to get paid by the leasing company," he said. "I've been burned by leasing companies."

Tim Martz of Martz Communications continues to lease equipment for all of the

firm's seven stations, and plans to lease for an eighth station now under construction. But he sounded a cautionary note.

"Just as in any business, you have some people who are capable and profes-

sional, who do a good job, and people in other situations that may not be as diligent," Martz said.

Paperwork often tips Martz off to the

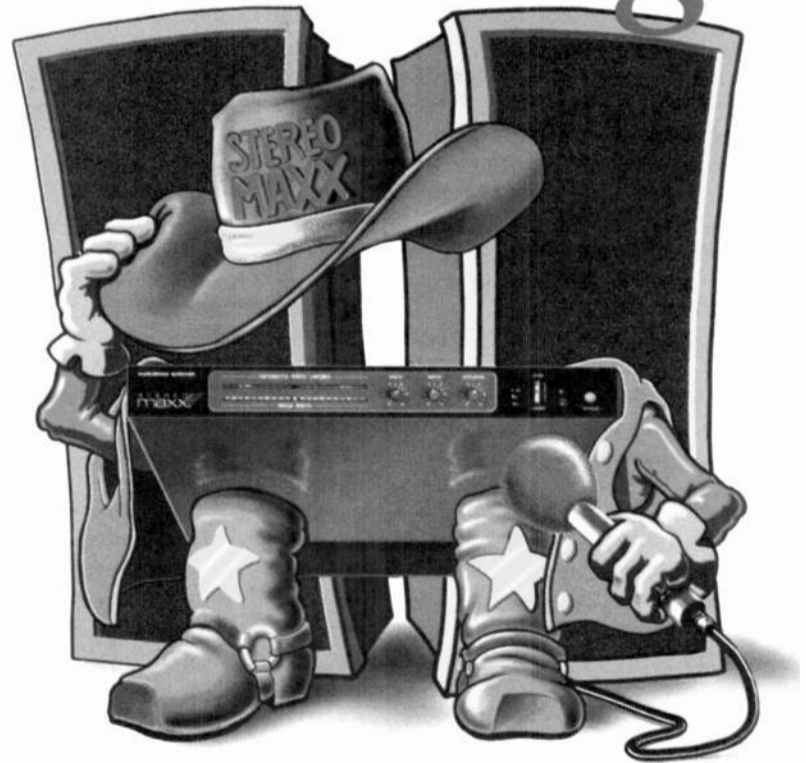
quality of leasing company he's working with. "You can tell by the documentation you get — the coordination of it, the instructions that go with it. You can tell a lot about the company just based on what you're seeing," he said.

Pat Medved, vice president of sales at equipment supplier BSW, says many customers see leasing as a solution when they can't afford to pay a lump sum to purchase equipment. He said leasing has "always been part of daily activity" during his 15 years at BSW, but he looks forward to more lease agreements in the near future.

"It's something that our sales people need to be constantly reminded ... of, the benefits of leasing for people," he said. "We're trying to offer solutions to customers, and sometimes they're financial as opposed to technical."

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# The "Super Duopoly" System...

PAGE #1	Record	Autoroll	Cuts List	Swap		Option Menu
POT 1 (A/S)	POT 2 (A/S)	POT 3 (A/S)	POT 3 (LOCAL)	POT 4 (LOCAL)	POT 4 (LOCAL)	
A APRIL BLOSSOM 00:15 1	B WAGON WHEEL 00:19	C KARLS APPLIA 00:59	D BAKERY CAFE 00:19	E CINNAMON 00:02	F JACKS PLACE 00:08	
G LARRYS RV 00:31	H HDA 00:03 2	I VoiceTRAC fo 00:15 3	J DUDDENS 00:45	K EBS 00:50	L HIRSHFELDS 00:03	
M RADIO SONG 04:08	N DAYBREAK 03:41	O NOTHING'S NE 02:59	P MANDY 03:14	Q WALKIN' AWA 02:47	R NOBODY'S HOR 03:26	
S LINER A	T LINER B	U LINER C	V LINER D	W LINER E	X LEGAL ID	

Insert	Delete	Mark	▲	⏪	⏩
17:48:00	Resync				
1	(32) NOTHING'S NEWS INT BLACK	02001-01			00:03:28
	Spot Block				
2	TOWN AND COUNTRY (GEORG)	07600-01			00:00:21
3	KARLS APPLIANCE 1 (John M.)	52060-02			00:00:59
1	B AND J HITCHING POST (E LEMOYNE)	52015-02			00:00:13
	Variety center Update Sale (Georg)	40050-01			LiveCopy
2	JACKS PLACE	52010-04			00:00:08

Sat Mar 2, 1996	55° High: 58° Low: 32°	<b>06:36:32 PM</b>	23:28
<b>KOGA FM # 2</b>			
SHIFT #04	MANUAL MODE	BILL SMITH	
Block Fill ON	Default Source 01	Resync Mode ON	
Run UDE	Special Menu	Play F9	
?	Station Data	Stop F10	
📡	Reports	End F11	Skip F12

Clipboard-0 Last Delete-0 Hold Bin-27 -02:31 Play - Pause

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Since its release, our Live Show Interface has met with extreme raves. D-Js are excited about the power and flexibility this new interface gives them for their live shows.

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This innovative module allows a show engineer or talent to run a call-in show from any workstation on the network or even from a modem at a remote site! Our contact closure interface can be easily configured to connect to just about any hybrid and delay unit on the market. If your stations depends on call-in shows for high-dollar revenue then you should depend on Audio Wizard for Windows.

1	Clear Line	Bob Omaha Taxes	On Hold	<b>DUMP DELAY</b>
2	Clear Line	Jill Lincoln Taxes	On Hold	
3	Clear Line	Mary Lincoln Football Team	<b>ON AIR</b>	
Next 4	Clear Line	Mark Denver DIA Airport	On Hold	
5	Clear Line	Bobby Grand Island Gambling Laws	On Hold	
				<b>Delay Unit ON</b>
				<b>Hybrid Run by audio5</b>
				<b>Clear All Lines</b>



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## PROMO POWER

# An Internet Radio Reality Check

by Mark Lapidus

**WASHINGTON** The lemmings are running! The lemmings are running!

Talk to nearly anyone in radio for more than five minutes and I bet you'll soon be discussing the World Wide Web. Our industry has warmly embraced this new technology, yet most managers have no idea what they're dealing with. Just last week I spoke with a general manager who wanted to put his station on the Internet "so that hundreds of thousands of people could start listening to the station internationally."

I love the World Wide Web as much as

the next guy, but what we've really got to do is quit dreaming and get real about streaming.

## Count your streams

*Streaming?* No, this has nothing to do with fishing. Streaming means sending your signal out to the world via the Web. Each stream sent is a signal that only one listener at a time can pick up. Yes, I said *one!* Most stations on the Web have fewer than a hundred streams. Many Internet radio stations opt for as few as five streams, so only five people at a time can experience that particular audio; the sixth listener will not be able to access the signal. Because

people don't seem to listen for very long, distribution companies claim that a small number of streams can handle a daily multiple of its number.

Jay Wampold, public relations manager for AudioNet, said, "Our typical experience with radio station customers is that they get daily visits about one hundred times the size of maximum stream count. For example, one successful customer supports 10,000 listeners per day with a 100-stream server."

Obviously, this is not "broadcasting" as we conventionally use the term in radio and television. Tracy Barnes of HardRadio, a radio station available only

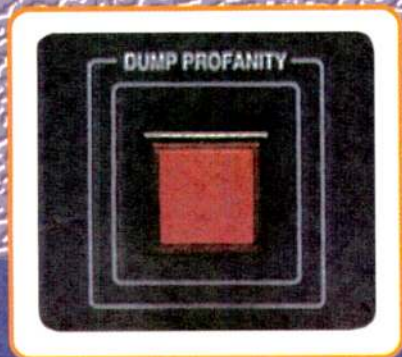
on the Internet, refers to it as "microcasting." Barnes said, "The 'net should be the haven for unique and niche programming." At this point, however, the numbers work against "Internet-only" stations. Most radio stations, even in small markets, reach more listeners weekly than the largest Internet station. HardRadio sends 1,250 streams. AudioNet claims to be the largest carrier, sending 20,000 streams, but these are divided among nearly 150 radio stations and other audio sources. But there is hope for the future of streaming. Some geek genius will no doubt conquer this problem and huge numbers will be able to access one signal.

Why put your sound on the 'net? We all want to be perceived by our audience as being on the cutting edge of technology. Internet broadcasting and station Web sites may have revenue potential. The key word here is "potential." Few stations are making dollars strictly from the Internet. Probe those who talk profit and you'll discover that the money they are making is tied to Internet-related promotional and advertising activities. For example, they may count an event sponsorship or spot package that is tied to mentions on the Website as dollars generated by Internet activity.

AudioNet will put your station on the Internet for barter. Call John Luscomb at (214) 748-6660, ext. 121, or send e-mail to [jluscomb@audionet.com](mailto:jluscomb@audionet.com). Progressive Networks will sell you a RealAudio server that has five streams for \$495. Be sure to start with the beta version of RealAudio 3.0. The 2.0 version can sound like very bad AM radio, depending on such factors as the server configuration and the number of people accessing the site. For RealAudio, go to <http://www.realaudio.com>

continued on page 55 ►

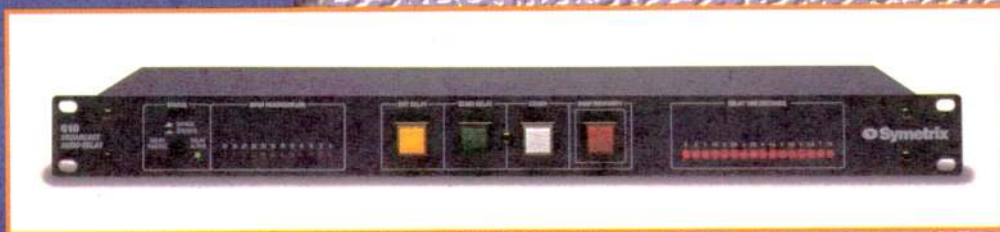
## Listener Liability Insurance



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stereo delay features a selectable build-back time and a two-stage dump option that allow you to set dump and catch-up rates to match the speed and intensity of your show. There's even a "Cough" button for short duration dumps as well as facilities for remote control. Don't leave your station unprotected! Call BSW today about the very affordable Symetrix 610.

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- Selectable build-back times
- Two stage delay dump
- "Cough" button
- Excellent audio quality
- Easy to install
- Very affordable

## Talk Jock Leaves Job After Flap

► continued from page 39

Good talent will make mistakes, said Crusham. "I think that really good talent also sometimes will say, 'I made a mistake, I'm sorry I did that' after the heat of the moment. If you still aren't in agreement with that afterwards, then I think that I'm not doing Rollye a favor by keeping her on because I'm putting a harness on her. ... Rollye is who Rollye is, and that's what she needs to be."

KLBJ has not been harmed by the James incident, said Crusham. The station is having a good year in the ratings; even though the station traditionally does not do well in the summer, he said, it delivered a good summer book.

Crusham said he's "a firm believer" in hiring "entertaining people." Asked if the incident will affect the way he deals with his air personalities, he said "the only thing that I'll be a little more diligent in" is determining a new person's mission for his or her show. He said he'll "probably make clearer boundaries up front. And make sure we both can live with (them) before we go on the air."

At press time, Crusham had not decided on a replacement for James.

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MANAGER'S NOTEBOOK

# Nine Principles of Good Training

by Sue Jones

**SPRINGFIELD, Va.** Friedel Groene, vice president of manufacturing of Delta Electronics, called me one day to talk about one of the articles previously published in this column. He mentioned that he had not seen anything about staff training. Coming to my rescue, Friedel offered to send me a copy of a list of principles of good instruction. As a former educator who also has 20 years of management and staff training experience, I agree with each point.

The list follows in italics. The subordinate points are mine.

1. *Good instruction begins with an explanation of why the new skill or knowledge is important.* Think of integrating a new telephone, computer or production console at the station. Train staff members on how to use the new features and understand the benefits to function efficiently as quickly as possible. This ensures a seamless transition to the station clients and listeners. Make sure you point out the benefits for the learner as well the station. Also explain why you are making changes and the advantages the station hopes to gain by making them. New equipment will probably simplify or streamline the staff's work and significantly reduce the time to do tasks.

2. *Good instruction includes a precise description of what the learner will do*

*after instruction.* New production equipment may offer far more creative opportunities. If work will be done in a different way or procedures will change, this is especially important. Make all affected employees aware of the changes. For example, ISDN or satellite communication capabilities open up several new pro-

## Avoid times that a person's attention will wander.

gramming possibilities. The learner needs to know not only the technicalities of the new equipment but how it can be used to promote the station's objectives or increase the ratings. Good instruction is often the catalyst for sparking creativity when the learner takes the training and applies it. The station will benefit from the improved technical equipment and by creative and full implementation of its capabilities.

3. *Good instruction ensures that the learner is ready to begin learning.* The best instruction usually takes place away from the standard workplace and tasks. Minimize distractions so that the learner can stay focused on the learning. It would be disastrous to train the receptionist on the new telephone system console while

he or she was continuing to answer and direct incoming calls. The same would be true for training the marketing staff while they are making and responding to calls. Instead, hold a training session in the conference room with everyone for one hour. This approach is faster and more efficient. Provide additional training for the receptionist and a backup person in a separate session because the new switchboard may be more involved than the standard desk phone. Avoid times that a person's attention will wander, such as peak holiday periods, the day before vacation, Friday afternoons or late in the day.

4. *Good instruction moves from the whole to the part, and from the general statement to the specific detail.* Present the big picture or wide scope first. This is especially important if several staffers will be interfacing. If a new process is involved, individual learners should understand the whole process, so as to have a framework to understand the individual contribution. This will also help with troubleshooting implementation problems. If everyone understands the whole, it is easier to pinpoint where the new process is breaking down.

5. *Good instruction provides a variety of learning experiences.* Most of us learn by seeing or listening and some combination of the two. If you are training a group of five, two of them may be visual

learners who retain information best if they see a drawing or written explanation, even if it is only a couple of words. The other three members of your group may find written explanations a nuisance and would prefer that you just tell them what to do. They are audio learners. Provide written and verbal explanations to reach both types effectively.

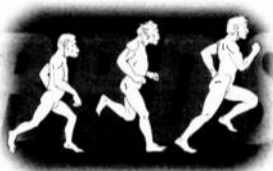
6. *Good instruction includes examples.* Once a new concept or technical skill is learned, samples can reinforce it. As the instructor, you can give situations or examples and allow the learner to think through how to apply the new knowledge. If time for training is short or "hands-on" practice is not practical, you could simply give examples of how the new information could be used so the learners can relate the new information to their daily work.

7. *Good instruction includes opportunities for learners to practice what they are learning.* Both visual and audio learners will retain more information if they have a chance to practice or test the new information or skill soon after. The more comfortable the learners are with the new skills when they leave the training session, the faster and smoother they will implement them. If the knowledge is not used right away, it will fade or be forgotten over time. Think about a language course you took in high school. If you did not have routine practice, you probably have lost most of the vocabulary and usage understanding.

8. *Good instruction provides regular feedback so learners know how well they*

continued on page 48 ▶

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# WORKBENCH

## Save Money on Transformers

by John Bisset

**SPRINGFIELD, Va.** In the Oct. 2 RW, we featured a revamp of Gary Brefini's "Poor Man's Hybrid," and mentioned that the ALL Electronics catalog was a good source of inexpensive hybrid transformers. Greg Muir is a senior hardware engineer with Radish Communications Systems in Boulder, Colo. That column jogged his memory about another possible source for inexpensive hybrid transformers.

On page 41 of the ALL catalog (#496), you will find some Triad TY-300PR telephone coupling transformers that are near-duplicates of the Stancor TTPC-9 that was called out in the column. The main difference is that ALL is selling these transformers for \$2 each instead of the \$15 price of the Stancors. Quite a savings for the do-it-yourselfer.

Greg called MagneTek Triad Transformers, and spoke with an engineer about the part number. They currently sell a TY-300P transformer. The applications engineer said that they did have a TY-300PR on the market several years ago, but it is now obsolete. The only difference between the P and PR series was a variation in how the pins were physically connected to the bobbin, plus the diameter of the pins themselves. Otherwise, the two are identical with regard to electrical specifications.

Although Greg has yet to try them in a hybrid application, they should prove satisfactory. Besides, at \$2 you haven't lost a lot if the transformers exhibit worse trans-hybrid loss than the Stancors. If you need a copy of the ALL Electronics catalog, call (800) 826-5432.

Greg works in the analog telecom field, and most of the hybrid transformers he uses range in price from \$40 to \$80. Give them a try, and let me hear your results. Greg Muir can be reached at Radish Communications, (303) 443-2237.

★★★

Here's a slick solution to an irritating problem. A classical station (read: lots of dead air and low passages) was having a hard time with crosstalk in a Wheatstone A-500 console. The problem was traced from the Hi-Z line that runs from the CR-500 module up to the cue speaker on the other side of the board. Wheatstone provided a 45 ohm speaker, which improved the crosstalk problem but didn't eliminate it.

The solution was to insert a Benchmark headphone amplifier on the cue speaker (a self-powered Fostex would work too). In the original design, the cue speaker amplifier is on the CR-500 module, and the amplified signal runs across the board to the speaker. By bypassing the CR-500 module cue amp, and inserting a headphone amp at the speaker itself, the crosstalk was eliminated. Thanks to Joe Davis, former chief engineer at WETA(FM) in Washington, for this solution. Joe can now be reached at Cavell, Mertz & Perryman at (703) 591-0110.

★★★

Ted Nahil and I go back to my days at Delta, and he wrote recently telling me of a neat project I'd like to relate to readers of this column. Ted is compiling a broadcast equipment rating survey, using his

web site at <http://www.tauruspub.com>

When you click on, you'll find a survey that gives you the opportunity to rate equipment. It will take five to seven minutes to complete the survey. Everyone completing a survey will receive a full copy of the final compiled data at no cost. Ted's goal is to obtain honest assessment of the equipment we use, and forward constructive criticism to the appropriate manufacturers to obtain better overall support. The completed data should be useful as we plan capital purchases.

★★★

Here's another stumper! Fred Cresce writes that an FM broadcaster complained to him about losing his stereo separation whenever he has his 67 kHz subcarrier on. Fred's thought, and mine too, is a bandwidth problem ... either with the antenna or the transmitter. Any ideas? Fax them to (703) 764-0751 or send e-mail to [wrwbench@aol.com](mailto:wrwbench@aol.com)

I mention bandwidth because we recently went round and round trying to get a radio data system running. Whenever the subcarrier generator was on, even with the injection pot just cracked, the stereo performance was degraded. You could hear all this high frequency garbage mixing in with the music. We traced this problem to the transmitter, because the problem was nonexistent with the exciter feeding the antenna by itself.

★★★

Former Multiphase Chief Engineer Ed Bukont, now chief at Bonneville's Z-104 here in Washington, sent me a "why didn't I think of that" tip the other day. Ed is doing a lot of re-wiring, using plenty of 66-type punchblocks. Before you start to wire, place a block on your copy machine and make a dozen copies or so. Then, as you wire, transfer the wiring designation information directly to the block pictured on your sheet of paper. When construction is complete, you have a life-size picture of your wiring list. Ed can now be reached at (301) 899-1041.

★★★

In the Oct. 16 issue of RW, we mentioned bonded-foil jackets. Stephen Lampen of Belden Wire & Cable writes to say that this construction does indeed save a considerable amount of time and labor in cable prep. Belden, he tells us, has made bonded-foil jackets since 1979. Its most common product with this feature is 9451, single-pair audio.

Steve says all Belden foil-shielded individually-jacketed snake cables are also bonded-foil. Call him for a catalog or more info at (317) 983-5200.

★★★

Here's another catalog that you need if you are doing any computer work around the station or at home. It's from CYBERGUYS! Wholesalers. It's a low-cost computer accessory and supply warehouse with things like inexpensive

monitor supports (for use over the console), keyboard under-counter storage drawers, and keyboard "skins," the plastic films that fit over keyboards to prevent liquid damage. You will also find some unique products, like an eight-piece micro-vac system. This is an adapter that fits on the end of your regular vacuum hose and couples to a variety of cleaning tips for dusting out keyboards, circuit boards, etc. The cost is only \$7.95.

In addition to tools and products, the catalog also lists a variety of case hardware and lithium batteries, cooling fans, cables and adapters. If you'd like a copy, circle **Reader Service 110**. If you just can't wait, you can call CYBERGUYS! at (800) 892-1010.

□□□

John Bisset is a principal with Multiphase, a technical service company based in the Washington suburbs. Reach him at [wrwbench@aol.com](mailto:wrwbench@aol.com) or at (703) 323-7180. Fax Workbench submissions to (703) 764-0751. Published submissions qualify for SBE recertification credit.

## Steps for Training

► continued from page 47

are learning. Feedback can be important as encouragement to keep learners on track and to let them see the value and success of using the newly acquired knowledge and skills. Sales employees who have learned new marketing techniques and are aware of increasing sales will be encouraged to continue using the new techniques and further improve their ability to use them. The same concept applies to new computer and technical equipment.

9. Good instruction considers the type and level of behavior specified in the instructional objective. Make sure the training is appropriate for the person's position at the station.

Don't give basic supervisory skill training to a staff member who does not supervise anyone. It is not an efficient use of your time and staff development budget. The same would be true of detailed training for your sales manager on the use of the receptionist's telephone console.

Before you embark on training your staff members, use this checklist to make sure that you have evaluated your approach.

Assure that it is appropriate, can be implemented effectively, is comprehensive and is the most efficient use of your budget dollars. Many thanks to Friedel Groene for sharing it.

□□□

Sue Jones is a principal in Bisset Communications, a communications management firm located in the Washington area. Contact her at (703) 503-4999.

ROOTS OF RADIO

# 'And Now, by Transcription ...'

by Richard W. O'Donnell

**PORT RICHEY, Fla.** Fifty years ago, Bing Crosby changed broadcasting.

An historic radio program showed the industry that transcribed programs could work as well as live ones.

The Bing Crosby Show of Oct. 16, 1946, was not the first program to be transcribed. But it was the first major transcribed network show ever, and marked an important transition from wax recordings to tape.

The show, sponsored by Philco, featured Bob Hope as the guest star. The ratings were high, as might be expected when Crosby and Hope got together. They were the nation's favorite comedy duo.

It was a break with tradition. Until the Crosby show came along, all of the big shows were live. Most of them were on the air 39 weeks a year in their familiar time spots.

Crosby changed all that. He was probably the biggest star of the day. An Oscar winner in films, he sold recordings by the millions, and his old show, the Kraft Music Hall, was in the top 10.

However, the Old Groaner was weary of being stuck in town in the evening, just to do a half-hour show. He wanted to tape his show, or two or three of them, during the day, and keep his evenings free so he could relax at home.

Crosby approached Kraft, but the Music Hall sponsors were shocked. The show beamed out over NBC, and the network wasn't keen about the idea either. So Crosby quit the Kraft Music Hall.

A short time later, he signed a contract with Philco to sell radios and phonographs, and later TV sets. The show would be transcribed and go out over the ABC radio network, which in those days was not loaded with popular shows.

On a Wednesday night 50 years ago, Crosby's transcribed show aired.

## The stamp of Bing

According to Crosby's contract with Philco, his show would go live, if his Hooper ratings went below 12 for four straight weeks. They dipped close to the 12 mark, but then the ratings turned around and began to climb again. The show had caught on.

In short order, old buddy Bob Hope, Bergen and McCarthy, Your Hit Parade, and others went the transcription route. Later, Fibber McGee and Molly, Lux Radio Theatre, Jack Benny and even Kraft recorded their shows. In time, live major shows were almost impossible to find on radio. Newscasts were still live, although Lowell Thomas did record his show every once in a while. Local programs, for the most part, were live.

Who knows? If that Crosby show had been a flop, we might actually have live TV shows today.

Radio stations had carried transcribed shows, recorded on wax disks, since the early 1930s. The first was a syndicated Tarzan adventure show that arrived on the airwaves in 1932.

Prior to Bing, there were a swarm of radio shows that opened with the announcement, "And now, by transcription ...", after which the title was announced.

Do you remember "Adventures by Morse," written by Carlton Morse, who

penned "I Love A Mystery" and "One Man's Family"? It was transcribed in 1944. How about "The Answer Man"? That was a syndicated show in 1937. And don't forget "Mandrake The Magician." Recordings of the comic strip hero showed



Bing Crosby led radio away from live broadcasts.

up on radio in the early 1940s. Let's not forget a chiller called "The Hermit Cave." It came on in the early '40s, too.

Not one of these shows was carried on a major network. They were syndicated to various stations around the nation, and aired whenever there was an appropriate time spot for them. True, they were popular, but they never hit it nationally. Only when a star of Crosby's magnitude decided to transcribe did the recorded shows achieve the stature to warrant a national audience.

Ironically, the big shows were recorded and sent to our military forces during World War II by way of the Armed Forces Radio Network. The military wanted the popular shows, but did not want to seem to endorse the sponsors, so commercials were omitted. Music, or messages about war bonds and tips on military life, were substituted.

These recordings survived and, with the syndicated shows of the '30s and '40s, later became an essential part of the libraries of old-time radio collectors.

Johnson Wax saved its Fibber McGee

and Molly programs. A collector out West recorded, on his own, every program the McGees did. He later made money selling copies to other collectors.

By the time the '50s arrived, an abundance of recorded shows was available to collectors, but the hobby did not catch on right away.

Many collectors consider the old Shadow show as the breakthrough in the vintage radio hobby. According to the story, a Chicago outfit was dumping some old radio recordings to make room for other things. By chance, somebody happened to play one of the transcriptions. It was "The Shadow." Other Shadow shows, or what was left of them, were recovered, and the program was offered in syndication to radio stations. It caught on, and early collectors began to tape them directly off the radio.

Later, here's a true story of collecting, slightly on the illegal side, told to me by the principal actor.

This young man worked weekends at an important New York radio station during the early years of the craze for old radio shows. He worked a schedule of four hours on, four hours off, mostly on Sundays. Because he didn't have time to head home, he brought his lunch and ate it at

the station between shifts. He also took to wandering around the building, when he had time. He got to know the place well.

He encountered several locked doors. They puzzled him, and he spent his spare time looking for the keys. In time, he found the right set.

## History quietly flies

The locked doors kept visitors out of a splendid collection of storage rooms, dusty and filled with useless memories of yesteryear. In one of the rooms, he found a vast collection of old radio transcriptions. Some of the most popular radio shows of all time were on them.

After checking through the collection for a few Sundays, the young man decided they were too good to sit buried under dust. He made his move.

"One Sunday," he told me, "I showed up at the rear of the radio station with a truck, and took those transcriptions. During my four hours off, I loaded those old shows into the back of the truck. Every single one that was in the closet. Then I put the key back where it belonged, and left it there."

"I figured the bosses at the station had forgotten all about the old radio shows. I worked at that station for quite a while, and nobody ever noticed they were missing. I doubt if they ever opened that door. For all I know, it may still be locked today."

The young man made a small fortune selling copies of those great old shows.

Without a doubt, he did the wrong thing when he pilfered those old transcriptions. But a lot of collectors across the land are mighty glad he did.

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## STATION SKETCHES

# Quantify the Cost of Competence

by Tom Vernon

**HARRISBURG, Pa.** The following is based on excerpts from a presentation delivered by the author at the 1996 Pennsylvania Association of Broadcasters convention.

The rate of technological change in the

information society (the 1970s), many people believed workplace ills could be cured with computer automation. Futurists and computer salesmen envisioned a utopian world with happy, productive workers and a better bottom line for businesses. One researcher coined a term for this phenomenon: "informatize."

It means to empower workers through the use of information technology. Before long, informatizing showed itself to be different than predicted. Complaints of lost productivity, poor morale, higher employee turnover and deteriorated quality control were common.

What happened?

## Acting on, acting with

Research showed that when factories were automated, workers felt deprived of the contributory skill of "acting on," i.e. the intuitive sense of understanding the physical processes by smelling, hearing, touching and sensing. Where administrative functions were automated, workers complained that they were deprived of "acting with," i.e. the skill of communicating and coordinating with other people.

Is information technology bad? Should you toss your Pentium into the dumpster? Probably not. But if your staff's technical

savvy isn't understood, and no resources are invested in training, the project will probably fail to enhance the bottom line.

Envision a continuum of applied technology, as shown in Figure 1. At the extreme left are those organizations driven by technology for its own sake. These guys always have to own the latest version of every piece of software, even if they are not using many of the features of their current software. Why? Because it's the latest version. On the far right side of the spectrum are the neo-Luddites. These stations still have typewriters in the newsroom and will hold on to their old reel-to-reel tape decks and triple-decker cart machines until the last supply of spare parts is exhausted.

For most of us, our comfort level with technology falls into the gray area between these two extremes. Now we have to figure out where we fit on this spectrum. Understanding our situation in terms of the cost of competence is a good place to begin.

The cost of competence is defined as the amount of time and money that must be invested before workers are proficient with a new technology.

Competence must be defined and understood for your unique application of the technology. For example, assume you want your staff to use a word processor to handle correspondence and type memos. To pay for training that includes macros and mail merges would be wasteful and may frustrate novice users. By quantifying the cost of competence, we learn much about the human impact as well as the dollar cost of our purchase decision.

Expenses may include direct costs for

This graph drives home an important point: The amount of time it takes to develop and train staff must not exceed the life cycle of the required skill and knowledge. Fortunately, we can take action to lower the barriers.

## Important questions

Involve staff in the decision-making process. This should be obvious, but when the decision is forced from above, considerable resistance to change can result.

Is the system you are purchasing too complex for the task? A complex system will have a higher cost of competence than a simple one. What are the demographics of your staff? Although there are no hard rules, younger personnel who grew up with computers may be the most flexible in adapting to new equipment.

Look for good training and documentation when purchasing a new system. You should be able to inspect the manuals before you make a purchasing decision. Are instructions complete and understandable? Spend some time finding out about telephone support. Is help available via an 800 number, or a 900 number? Is it a toll call? Can you talk to a live person 24 hours a day, seven days a week? One company promised 24-hour telephone support, but upon further questioning I discovered what that meant: If you left a message on their machine, someone would call you back within 24 hours.

If a company provides on-site training, find out what it entails. Will they work with you to customize a presentation that matches your definition of competence? Or do they offer a generic training course with no options?

Ask if the system has an Electronic Performance Support System (EPSS) embedded in it. This technology is just

Figure 1



broadcast industry ensures that most of us regularly must plan for or install new systems. The term "system" can mean anything from a computer network for the office, to a digital workstation for the production room or a computer-based remote control system for the transmitters. As engineers, we usually think of these projects in terms of budgets, equipment, available floor space and time allotted for completion of the installation. Too often we overlook the human impact of the project, or deem it a wild card that cannot be quantified. Fortunately, a way to understand the impact of technology on an organization exists.

Way back in the Dark Ages of the



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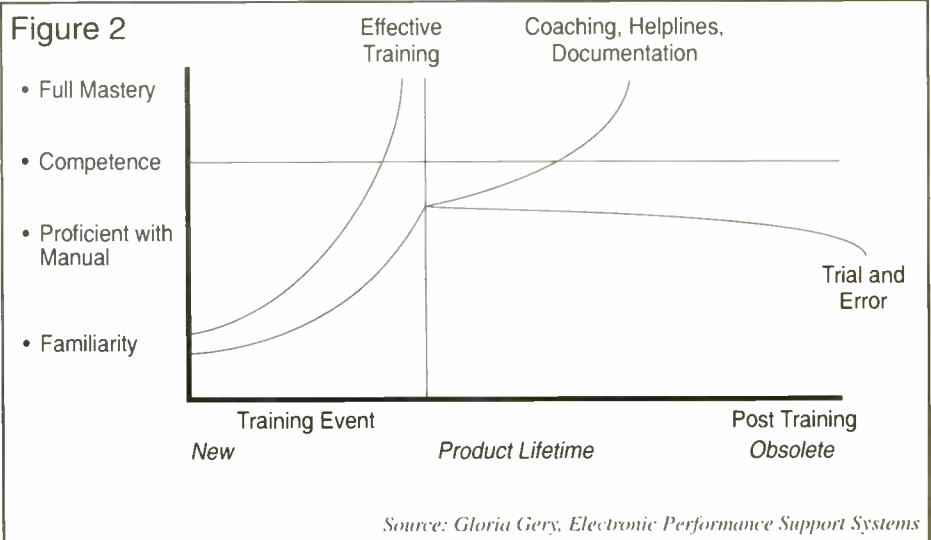
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Figure 2



Source: Gloria Gery, Electronic Performance Support Systems

education and training, i.e. what you have to pay an outside trainer, plus travel and living expenses if training takes place at another site.

The cost of helplines or additional documentation must be factored in. Don't forget the indirect human costs of a technology purchase, such as diverted time for managers to coach users, as well as lost productivity.

Figure 2 helps us further understand our decisions.

The vertical axis represents increasing levels of understanding, the horizontal axis represents time, in this case the life cycle of the system.

We have already defined what competence means for us; the next step is to determine how long a system will be on line. This may not be exact or easy, but we must make an estimate.

beginning to reach medium-priced applications. It's really a sophisticated form of on-line help. The "Wizards" that come with many Microsoft programs are a good example of EPSS.

Last, consider the timeline for instruction. Users should be trained on a new system as quickly as possible. Research has shown that the longer training is delayed, the less impact it will have on job performance.

If we understand a major technology purchase in terms of the cost of competence, we create a greater likelihood that our staff will actually make good use of the equipment once it is installed.

□ □ □

Tom Vernon divides his time between consulting and completion of a Ph.D. You can e-mail Tom at TLVernon@aol.com or call (717) 367-5595.



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FEEDLINE

# Complex AM Tower Interaction

Part VII

by W.C. Alexander

**DALLAS** In the previous part of this series on the fundamentals of AM transmission (RW, Nov. 13), we looked at how multiple two-tower directional patterns can be combined to create more complex patterns. So far, we have kept our discussion simple, looking at only the most basic vector addition. We have reached the point where we must delve a little deeper to get a real understanding of directional antennas.

**Important equations**

The equation to calculate the pattern shape in the horizontal plane for a directional array of  $n$  towers is:

$$E = \sum_{i=1}^n E_i \angle \beta_i$$

Where:

$E$  = total effective field strength vector at unit distance (P) for the antenna array with respect to the voltage vector reference axis.

$i$  =  $i^{th}$  tower in the directional antenna array.

$n$  = total number of towers in the array.

$E_i$  = magnitude of the field strength at unit distance in the horizontal plane produced by the  $i^{th}$  tower acting alone.

$\beta_i = S_i \cos(\Phi_i - \Phi) + W_i$   
 (phase relation of the field strength at the observation point (P) for the  $i^{th}$  tower taken with respect to the voltage vector reference axis.  $S_i \cos(\Phi_i - \Phi)$  is the space phasing portion of  $\beta_i$  due to the location of the  $i^{th}$  tower and  $W_i$  is the electrical phasing portion of  $\beta_i$ ).

Where:

$S_i$  = electrical length of spacing of the  $i^{th}$  tower in the horizontal plane from the space reference point.

$\Phi_i$  = true horizontal azimuth orientation of the  $i^{th}$  tower with respect to the space reference axis.

$\Phi$  = true horizontal azimuth angle of the direction to the reference point (P) measured clockwise from true north.

$W_i$  = time phasing portion of  $\beta_i$  due to the electrical phase angle of the radiated field of the  $i^{th}$  tower taken with respect to the voltage vector reference axis.

This equation, when applied to a directional array, will yield a complex number that represents the field strength and phase of the signal arriving at a particular observation point from each element in the array. This is no more than we were doing in our heads in Part 5 of this series (RW, Oct. 16) with simple two-tower arrays. With more complex arrays, things get a bit harder, but the basic principle is the same. While this formula may not readily lend itself to working out with pencil and paper, computer types will find that it is easily written into computer code.

**Envision the vectors**

To see the vectors for a particular azimuth, all we really need to know are the theoretical parameters and the following formula:

$$\beta_i = \theta_i + [S_i \cos(\Phi - \Phi_i)]$$

Where:

$\beta_i$  = phase relation of the field from tower  $i$  on the specified azimuth.

$\theta_i$  = phase of tower  $i$  with respect to the reference tower.

$S_i$  = electrical length spacing of tower  $i$  from the reference tower.

$\Phi$  = true horizontal azimuth angle for which the vector is being calculated.

Table 1

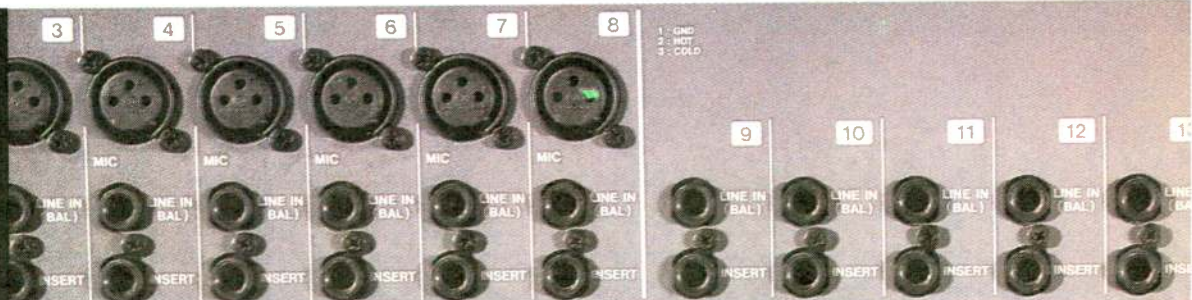
Tower	Field	Phase	Spacing	Orientation
1	1.000	0	0	0
2	1.000	90	90	0

$\Phi_i$  = true horizontal azimuth orientation of tower  $i$  from the reference tower.

If you look closely, you will see that this is actually the rotational portion of the other formula. At first glance, it looks a lot easier, but what are all those variables? Let's look at a typical set of directional antenna theoretical parameters and see if things start to make sense. Look at Table 1.

These are the theoretical parameters of a typical two-tower directional array, similar to other examples we have used in this series. Let's plug these parameters into our vector formula and see what happens.

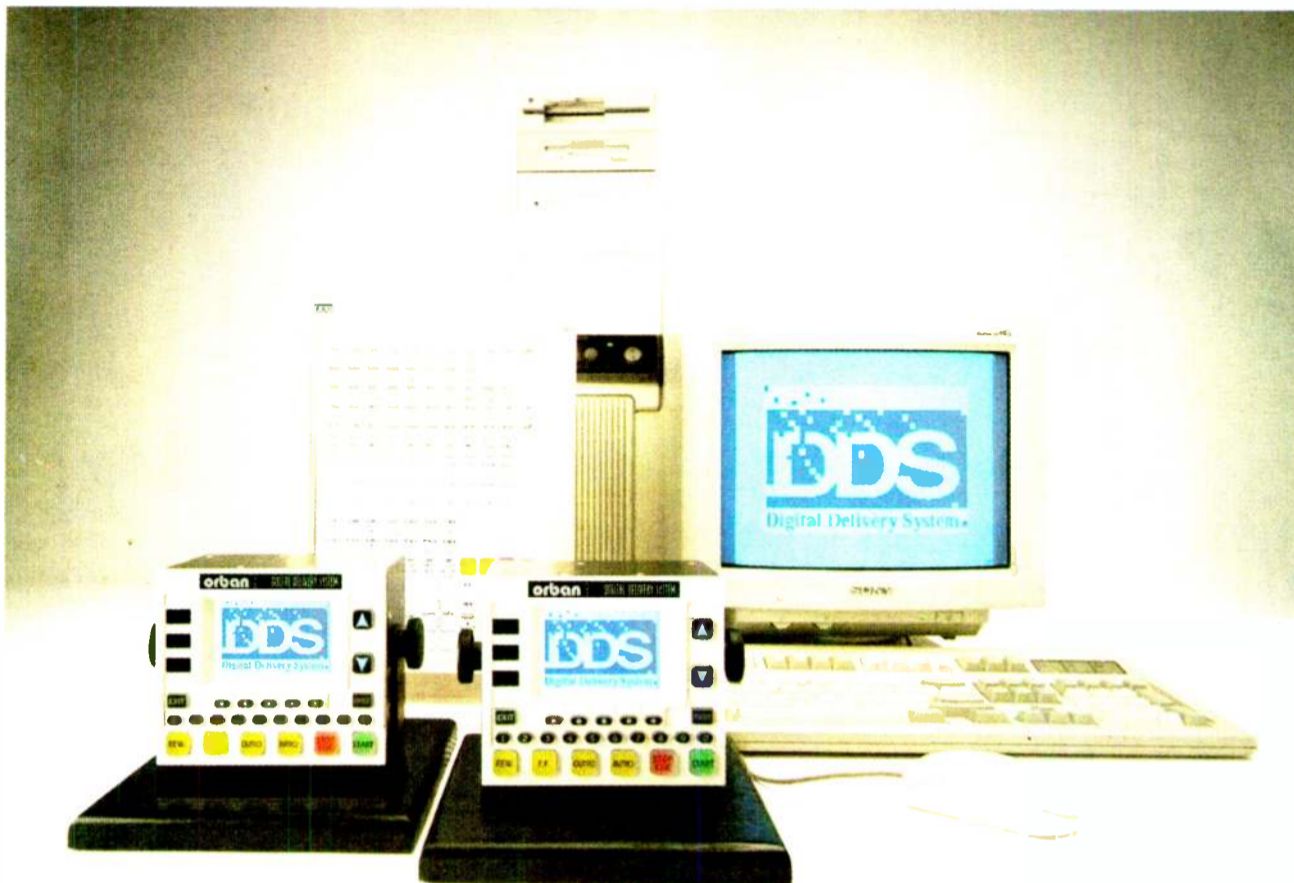
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# Broadcasting Statewide

► continued from page 56

based on the long-term use of the system.

Our expectations were exceeded by International Datacasting and its ability to deliver ahead of schedule, even on a short order deadline, with 100 percent perfection. With an order that included all origination transmission equipment and more than 125 receivers, every piece tested "good," and virtually every station was able to make a substitution without problems.

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Affiliates with recurring needs for more than two channels would normally require a second satellite receiver, but International Datacasting already had a solution: the DEC/F audio decoder, which plugs into the data output of the RF section of the existing receiver and provides two more channels of audio at less than the cost of a second satellite receiver. Now every station can have the feeds it needs without any button-

pushing. As a matter of fact, the receivers have no operator controls, not even an on/off switch. Everything is controlled by the network operator.

Those considering moving up to digital should also include replacement of the

**Our expectations were exceeded by International Datacasting and its ability to deliver.**

LNA/LNB hardware at the same time. We evaluated the possibility of keeping our existing Scientific-Atlanta downconverters, but decided against it because of their age, high current consumption

(maximum receiver output is 500 ma.) and unknown long-term reliability. For those stations that had maintained an LNA on their dish to simultaneously feed the older Scientific-Atlanta and Dart Fairchild DAT/SEDAT receivers, we selected a California Amplifier phase lock loop block downconverter.

For those who use an LNB the California Amplifier phase lock loop LNB was chosen. Both of these products, which are attractively priced, had the additional advantage of 10 dB more L-band output that helped to make up for system losses in some stations.

Radio Pennsylvania is now exploring uses for the data transmission capability of the International Datacasting system, which may include a "news wire," traffic network, or even a statewide EAS backbone.

Everything about this conversion was carried out with textbook precision and top drawer quality: The service from our salesperson, Virginia Lee Williams, the attention of the factory personnel, the on-site training by Andrew Leyten, the delivery of 100 percent failure-free equipment, and on-going support whenever it is needed.

Now that the conversion is complete, we are enjoying greater reliability, sometimes exceeding that of the national networks during rain fades, 100 percent control of our network future data transmission options and most important of all, better-sounding service to our current and future customers.

No radio network story would be complete without mentioning the invaluable help of Fred Cain and his support group at GE American Communications in Princeton, N.J., the keepers of keys to the satellite. They helped with frequency and power selection on C-5 which would meet our current and future needs, and maintain an economic balance between reliability to affiliates and cost-effective operation. It is a goal we believe we have met.

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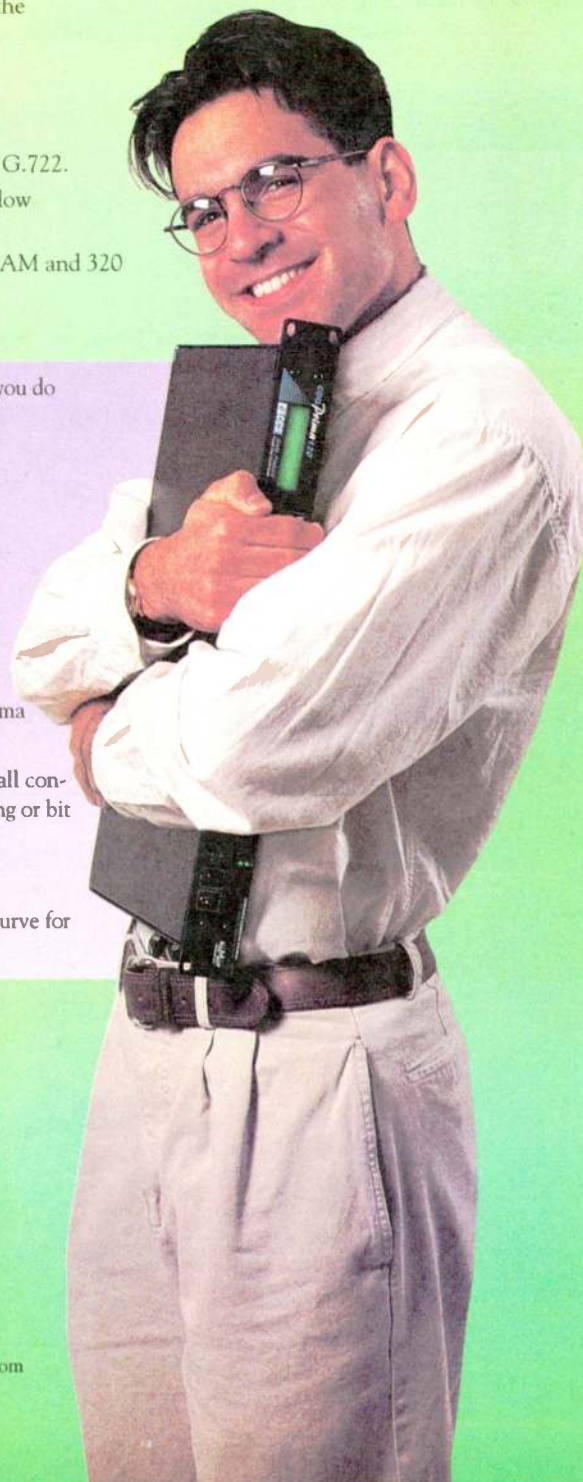
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## USER REPORT

# Capella Live Solution for Studio

by **Tony Romero**  
**President**  
**Intrak Audio Network Tools**

**AUSTIN, Texas** It is the age of communication. Now that we live in the time of telephones, radios, cable TV, faxes, e-mail and the Internet, we wonder how we lived and worked without such great technologies in the past. Each invention is bringing us closer together and broadening our horizons and productivity.

Let us not stop there. There is technology that exists today that can be brought together to link recording studios around the country, and around the world (eventually). With recording studios growing at a record pace, from large commercial studios to project and home studios, sharing talent between them can only increase productivity and deliver better results.

This means that studios need to adopt a standard digital audio network to link them together. Intrak Audio Network Tools of Maple Valley, Wash., is using the Capella Live PC codec from **Digital Courier International** to develop a cost effective networking system for studios of all sizes.

## Quiet revolution

In the past several years a revolution has been taking place within recording studios. With the price of audio production equipment steadily decreasing and quality and features increasing, a great number of artists have developed their own project and home studios, creating professional quality productions. The advantages of

project studios are numerous. No longer does the artist have to worry about the clock ticking away hourly fees. The artist can also experiment and work on a project any time of the day or night. Musical works are produced in project studios then taken to commercial facilities for post-production services.

**I have found the Capella Live to be very suitable for networking studios together.**

One can make a comparison between the studio revolution today and with the PC computer revolution that occurred 10 years ago. In the beginning, the business world had mainframe computers on which all users had to access one large and expensive mainframe, just like musicians accessing commercial studios. When desktop computers appeared, users were able to afford personal computers and were now independent and capable of being productive and more creative, much like the studios. The problem with PCs, however, was that users had no access to share files, databases or printers. The advent of Local Area Networks (LANs) allowed these PC users to become one large computing environment. And all was well.

By connecting commercial and project facilities, every user benefits from the resources they can access from one another. Project studios are limited in

resources and, of course, are restricted by not having studio musicians across the country (or around the world) to contribute to the production of a musical work. The tricky part is to develop a long-distance networking environment that will suit most recording studios. Several companies have already begun to offer products and services to fill this need.

They offer rack-mounted codecs that compress digital audio using proprietary compression schemes, then transmit it across an ISDN link. Their proprietary nature restricts communicating between two different systems. Moreover, these systems are so costly, that only commercial studios can afford to use these systems. More and more creative work is coming from project studios, and it is this group that really needs to be networked together.

This is where the Capella Live product from Digital Courier comes in. DCI develops and provides digital audio transmission products and services for broadcasters. However, I have found the Capella Live to be very suitable for networking studios together. It implements an industry standard compression scheme, ISO/MPEG Layer 2, capable of compressing digital audio that can be

transmitted across an ISDN line and still delivering near-CD quality audio. It supports a V.35 interface for an ISDN terminal adapter. And it has both digital audio and analog audio inputs and outputs. An adapter card greatly reduces the costs compared to a stand-alone rack-mounted system.

The Capella Live is an ISA-based adapter. Many musicians are using Windows-based PCs for audio development. Professional quality sequencers and audio editors are available for Windows like Catwalk Pro Audio and Sonic Foundry's SoundForge.

## Trends and comparisons

Back to the comparison I made earlier, long-distance studio networking will follow the same type of trends as LANs and WANs. Long-distance digital audio network solutions for studios will open up new types of services and capabilities for users, and costs will continue to drop, creating an enormous worldwide virtual studio with an incredible pool of talent, resources, and instant communication within reach of your own studio. Just like the Internet has opened an enormous potential for the information society, networking will affect all aspects of our lives.

For more information from Digital Courier International, contact the company in Canada at (800) 909-7888; fax: (604) 473-5835; or circle Reader Service 113.

## USER REPORT

## Radiosoft's Got It Completely Covered

by **Ted Schober**  
**President & Consulting Engineer**  
**Radiotechniques Engineering Corp.**

**HADDON HEIGHTS, N.J.** A golden CD-ROM arrived overnight with the Radiosoft Com Study Version 1.50a the other day. Peter Moncure and company have produced a powerful radio communications analysis package that is not for the faint of heart. Now we can see what happens in the real world. It shows nuances of station coverage we might not really want to know.

We all knew that the nice smooth contours of coverage produced by the FCC F(50,50) calculations often were little better than fiction. Com Study will tell the whole story: where there is really service, and where there is none. It will show the effects of the actual terrain and interference from other stations. I compared the Com Study reports with my field knowledge of the actual coverage of stations in several different markets. The accuracy was astounding.

Com Study is set up with FCC and three- and 30-second domestic terrain databases. It also uses maps of bodies

of water, political subdivisions, highways, railroads, ZIP codes and feature names, all of which can be used on the map, or suppressed. There is also a population database. It can show 3D pictures of the terrain, and paint it with signal quality. Not only does Com Study do FM and TV, but it also is set up for AM (with directionals and a built in M-3 map), two-way, microwave, cellular, ITFS, MMDS — any terrestrial radio service to 40 GHz.

## Global database

Radiosoft even has the 30-second terrain database for the entire world. Now I can give accurate estimates of service for my clients in Romania and Russia. The governments of these countries did not have the information available, except on maps.

Over the years I have written many software tools to make my job of providing sound engineering advice to my clients easier. Usually, I was the only person who could make them work. I have bought software tools when they were available. I would go so far to say communications propagation software provides interfaces that are nasty and vicious.

Before Com Study, I have never seen

continued on page 61 ►

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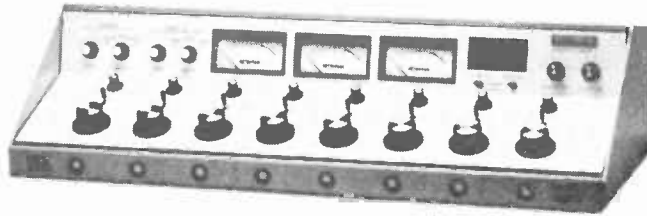
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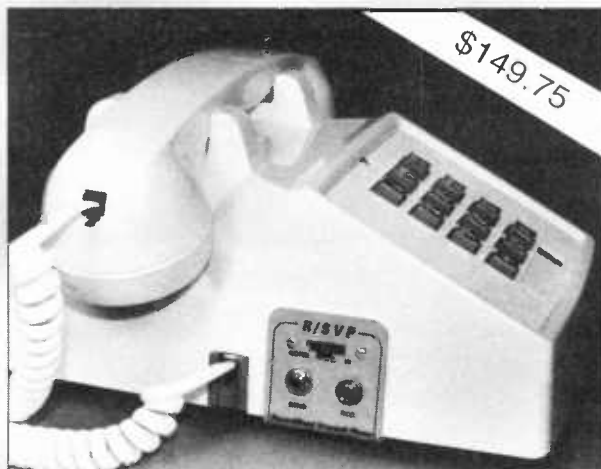


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## USER REPORT

# NSN Satellite Service Key at Crawford

*NSN Network Services Doesn't Drop Ball for Growing Company*

**by W. C. Alexander**  
**Director of Engineering**  
**Crawford Broadcasting**  
**Company**

**DALLAS** Several years ago, Crawford Broadcasting Company was suffering from growing pains and looking for a means of delivering programming elements between stations in the group. With stations in California, New York and many states in between, we needed a reliable, economical means of getting digital-quality audio from point to point.

From the outset we looked into all sorts of schemes, from telephone-based systems to overnight Federal Express. We eventually compromised by purchasing a daily window on one of the existing C-band satellite subcarriers. This was not cheap, nor was the quality what we had in mind. We were very limited in the amount of material we could transmit, as well as being limited to mono transmissions.

#### Fit the bill

As our search for a program delivery vehicle widened, we found that the National Supervisory Network (NSN) was getting into the business of providing radio stations with just this kind of service. At about the same time, we found several other companies offering the same kinds of services, but after doing our homework and comparing all the providers on price and service, we elected to sign up with NSN. We have never regretted that decision.

NSN, now **NSN Network Services**, was able to provide us with complete turnkey services that got us on the air in a hurry. Not knowing anything about Ku-band operation and uplinking digital audio at that point, I was lost and needed help and advice. NSN put my mind at ease, not only taking care of everything from the site surveys to the FCC paperwork, they educated me along the way.

By the time we were ready to add a third stereo channel and our fifth uplink to the system, I was entirely comfortable doing all this myself.

Presently, Crawford Broadcasting operates six uplink stations on five different dedicated 20 kHz stereo channels. Some of these channels carry full-time programming between our regional flagship stations and other stations in the chain.

**At CBC, we sailed right through the satellite crunch with no interruption. When the new satellite went on-line in September, the transition was nearly seamless.**

Others carry features, programming elements and public affairs materials between the corporate uplink studio and all the stations in the chain. Quite regularly, we use our satellite network to share talent among the stations in the group. With 19 stations from coast to coast, we have a rather large pool of talent. By using the network, we can greatly expand the number of voices heard on individual stations.

Since we signed on with NSN Network Services, we have had a number of occasions to appreciate one of NSN's biggest strengths — service. With all U.S. satellite service providers using satellites with more or less equal footprints, and with the same uplink, downlink and terminal gear being used no matter who you sign on with, the level and quality of service provided is the provider's stock in trade.

As spring thunderstorms have rolled across the country year after year, we have from time to time sustained damage from lightning that has put some of our sites off the air. NSN has always been there, ready to assist us in any and every way. Sometimes we needed loaner

equipment that NSN provided to us quickly, other times we needed assistance in troubleshooting a problem. Earlier this year, we lost a couple of power amplifiers, NSN had us back on the air in no time. We now maintain our own stock of spares, but it is good to know that NSN continues to stand behind us, ready to help whenever we need it.

Last summer gave us occasion to

observe NSN at its best. The Ku-band satellite that many of NSN's customers was using was running low on fuel and the launch of a replacement satellite was behind schedule. The orbit of the satellite was becoming increasingly eccentric, presenting a serious problem for users with large antennas. To get its customers throughout the crunch until the replacement satellite could be launched and activated, NSN secured use of a teleport in Grand Junction, Colorado.

#### Taking care of business

By moving its customers' uplinks to another satellite, NSN was able to use the teleport as a repeater to keep the dying satellite tracked and illuminated so that the hundreds of downlink antennas that were trained on it did not have to be reoriented toward another satellite. NSN went to a lot of trouble to do this, taking care of its customers so that these customers, in turn, could take care of their customers and clients.

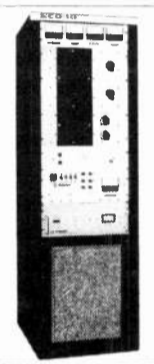
At CBC, we sailed right through the satellite crunch with no interruption. When the new satellite went on line in

September, the transition was nearly seamless. We did not experience any noticeable outage.

In retrospect, there is no doubt that we made the right decision when we selected NSN Network Services as our satellite provider. Service is the name of the game, and NSN's service is excellent. As our company continues to grow and add more markets, I know we can count on NSN to meet our program delivery needs.

For more information from NSN, contact Kelly Hethcote in Colorado at (970) 949-7774; e-mail: kelly@nsn.net; or circle Reader Service 114.

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## Com Study: Astounding Accuracy

► continued from page 59

anything that brings the whole world of radio communications into a consistent user interface. Com Study is incredibly complex in what it can do, but it is not particularly hard to use. It does assume you know what you are doing. For example, you must know how to specify station coordinates, effective radiated power, height above average terrain and above mean sea level, and understand what the results mean. For stations already in the FCC database, just select the database record.

For users of Radiosoft DOS-based programs, the plotting and drawing in Com Study are far more sophisticated. Gone are the jaggies and limited resolution. This product puts out presentation-quality color graphics on a printer as simple as a Hewlett Packard Deskjet.

Dialog boxes and menus replace the text entry features of the DOS products, so when you mistype, it is a simple job to correct your error. In fact, Com Study is so far advanced from

older Radiosoft products, that the only thing in common is the power and accuracy.

#### Prodigious calculations

Com Study is a Windows program that does some prodigious calculations and works with large databases. Although it runs OK on a 486-66, this is a program that needs a speedy Pentium, 16MB or more of memory and a substantial hard disk. My U.S. terrain and population database directory plus Com Study directory that holds programs and FCC databases add up to roughly 100 MB, while the international terrain and feature files reside on the 10X CD-ROM reader. This is an incredible compression of a vast amount of data.

The program can be used without much reference to instructions. Radiosoft has provided a useful Windows help facility, but if you realize that the program can do something, it is easy to make it happen. For

example, I initially did not realize that it would do profile graphs.

After I found out that it would, I just drew a line on the map, and out popped a window with the graph, complete with earth curvature and labels. My approach to this program is: If you would like some kind of propagation display, forget that it hasn't been done before; it is probably in there.

Com Study is clearly a labor of love. It has been crafted by a crew that intended to push the envelope on propagation prediction tools. It answers the previously unanswerable questions well, and leaves some of our old questions in the "why would you ask that?" category. I expect it will challenge assumptions of signal protection at the FCC, and redefine "coverage" and "interference" of radio signals in many ways.

For more information from Radiosoft, contact Peter Moncure in Florida at (904) 426-2521; or circle Reader Service 115.

## SPECIAL REPORT

# WeatherBrief: A Breeze for Radio Stations

**EDMOND, Okla.** Radio stations need weather data, and they need it in a format that is fast, convenient and easy to use. Enter the WeatherBrief Satellite System from **WeatherBank Inc.**

WeatherBrief Satellite allows the definition of a customized "menu" of weather products that best serve the diverse needs of listeners today.

The information is received automatically via satellite, saved to an IBM-compatible PC and displayed on a standard VGA color computer monitor. What's more, the menu can be conveniently changed on the fly so program directors can adjust to changing weather conditions and the needs of listeners.

## Software and hardware

There are two primary components to the WeatherBrief - Satellite System — the software and the hardware. The WeatherBrief software is both produced and supplied by WeatherBank Inc. Stations receive free software updates for as long as a station remains an active customer. WeatherBrief provides a framework of menus and sub-menus of products from which the user may select the items that interest him or her most.

Up to 300 products can be selected from the thousands of choices available. Once selected, these products update automatically because information is received via satellite. Special software features allow the user to have specific products automatically printed or displayed by the software as they are updated.

The hardware consists of a small, .75-meter satellite dish and a data receiver (IDR); both are available through WeatherBank and are relatively easy to install. The data receiver is connected to the computer's serial port and passes the data from the satellite dish to the PC. The software recognizes what data has been selected by the user and stores that information to the hard drive. Other data that was not selected is not saved, thus conserving the available memory space in the computer.

Because valuable weather data is consistently being transmitted by WeatherBank at high speeds, it is critical that the WeatherBrief software remain available to accept the data as it is delivered. Therefore, it is highly recommended that the WeatherBrief-Satellite software be installed on a computer that is relatively fast, and will be virtually dedicated to its use.

Minimum computer hardware requirements are simple: 486 PC with a 50 MHz processor, 580 kb of free conventional memory, a serial port with a 16550 UART chip, MS-DOS version 6.2 or higher, at least 45 MB of free hard drive space, and a standard VGA video card and monitor. A mouse is not required. It is also important to note that WeatherBrief's Terminate and Stay Resident (TSR) program was not designed to be compatible with Windows '95. Therefore, the WeatherBrief-Satellite software works best in a strictly DOS environment.

## Incomparable tool

The WeatherBrief-Satellite System has proved to be an incomparable tool for radio broadcasters. In a recent interview,

Paul Jurgens of Mid-States Broadcasting in North Dakota and John Wirkler of KICD-AM-FM in Iowa shared their opinions of the WeatherBrief-Satellite System.

Paul Jurgens is the news director for Mid-States Broadcasting, and has used the WeatherBrief-Satellite System since 1987. He currently has the main computer setup in his primary AM station, with three other monitors in various locations around the building, including the lobby. Jurgens enjoys using WeatherBrief because he thinks the data is good and is easy to use.

"You don't have to tear through wire copy to get the data you want," Jurgens said. "With just a flick of a button you can change the screen, making it easy to retrieve the data," he said.

Jurgens also subscribes to NOAA Weather Wire as a backup, but he reported that most of the time information comes in on the WeatherBrief-Satellite System before it comes across on the Weather Wire.

Jurgens has about 250 items selected on his WeatherBrief system, consisting mainly of hourly observations, radar images and road condition reports. "I haven't found a service with a reasonable price that matches WeatherBrief," Jurgens said.

John Wirkler, the general manager and weather director for KICD, agrees. "For serious weather, WeatherBrief is far better (than other programs) because it's 100 percent weather information," Wirkler said. Wirkler has used the WeatherBrief system since 1988, and depends mostly

on forecasts, watches and warnings, hourly observations, travel weather forecasts, and both local and national radar images. The WeatherBrief-Satellite System is used in the KICD weather department to help produce its five-minute weather segments aired throughout the day.

The WeatherBrief-Satellite System is obtained from WeatherBank Inc. on the basis of a 24-month service agreement. The hardware can be leased or purchased, the software and all software updates are provided at no cost, and technical support is free.

For more information, contact the company in Oklahoma at (405) 359-0773; World Wide Web address: [www.thor.net/\(wxbank.](http://www.thor.net/(wxbank.); or circle **Reader Service 116**.

## USER REPORT

## KROQ Forges Ahead With Digital

by **Scott Mason**  
Operations Manager  
KROQ(FM)

**BURBANK, Calif.** With the world of radio finally embracing digital technologies and moving full force into the Internet era, can the day of a full online radio network for high quality programming and commercials be far behind?

Virtex (now StarGuide Digital Networks) and Infinity joined forces last year in a venture to connect all elements of radio broadcasting together in one digital system. **MUSICAM Express**, with the support of Infinity stations and Westwood One programming, is well-established among the three players in the digital radio game. Like its competitive counterparts, there are three critical elements this system needs to handle: commercial spot production and distribution (advertisers, ad agencies and production studios); programming and music (syndicators, producers and recording labels); and radio stations and networks.

### The technology

First, the simple part. Because MX had its birth with the merging of two technology companies (Virtex and the former CCS Audio Products, now MUSICAM USA), CD-quality digital audio and its necessary audio compression was the easiest part of the equation.

At KROQ(FM), we use ISDN phone lines to get the audio from place to place. We use MUSICAM USA codec products such as CDQPrima, to allow us full-fidelity audio transmissions over the most efficient bit rates in an economical way.

The heart of the MX system is the WinDax: a digital system that uses Windows '95 software and MUSICAM digital audio to receive, transmit or store audio at the station. Because of its

unique design, once digital audio is encoded (data compressed) into the MUSICAM format, it can go anywhere in the MX system without having to be decoded, re-compressed or go back to analog until it is ready to be transmitted to its final point.

At the station itself, the MX system employs the Jock Box, a simple to use controller to play back the audio. It sits in the control room and gets the commercial, promo or program from the system onto the air instantly.

The Jock Box is fairly user-friendly, taking only about five minutes to learn. The control buttons are durable, the

wherever it needs to go. Because it is fast and economical, we have the ability to change promos quickly and get them on the air in short notice. So, for example, if Howard gets one of his brainstorms for tomorrow's program, we can accommodate him without any panic.

WinDax is placed wherever production, programming or commercials can originate. At the receiving end, the station gets a receiver unit, known as an affiliate DaX. MX provides the equipment at no cost to the station. We pay only for the services we need.

We have been using the MX system to send four or five promos to the other stations each day, without any problems and with the quality our production experts demand. With MX, our production guy in L.A. is the voice of New York, for WXRK.

Sure, we are saving money on overnight delivery services and all, but most importantly for any top-rated station, we are saving massive amounts of time. Plus, there is a lot of direct contact with each station so we can produce and send exactly what gains each one the most in listeners and revenues in their individual markets.

We also use the system to receive MTV Music News and Out Of Order, a weekly two-hour countdown show, from Westwood One. No, the MX system, WinDax and Jock Box certainly do not just sit at our station, teeming with unused potential like some other systems may. We use it constantly. And it works.

The normal "bugs" expected of any new digital system at the beginning have been handled well by MX and its support personnel. We get a quick response to our concerns and questions.

For more information from **MUSICAM Express**, contact Keith La Honta in California at (501) 299-1667; or circle **Reader Service 117**.



Scott Mason, KROQ Operations Manager

screen is readable and the number of steps required to complete a task is minimal.

### Heavy promo

KROQ is the Infinity station in the high-paced, high-pressured, competitive Los Angeles market. We have received programming from Westwood over the MX system, but we really put the system through its paces with our own heavy promo production. Each day, we produce and send a steady amount of promotion for Howard Stern, for WXRK(FM), the Infinity station in New York and for KOME(FM), the Infinity station in San Jose.

Our producers edit everything digitally on an Orban DSE 7000, load it into the WinDax and send it via ISDN



## USER REPORT

# Moody Remains on Top With SpaceCom

by David Woodworth  
Administrator,  
Technical Development  
Moody Broadcasting Network

**CHICAGO** In February 1996, a special "Space Segment Committee" was brought together with representatives from the three divisions of Moody Broadcasting Network. Representatives of the owned-and-operated stations and satellite operations area, along with programming, engineering and network

**We found the digital FM-squared service from SpaceCom Systems was the best for our current needs.**

development (marketing) looked at the short-term need to address our satellite space requirement.

But the committee's charge expanded beyond the short-term need, to where we wanted to be as an organization in the wake of the analog to digital evolution. We wanted to maintain our leading position in the religious broadcasting community in program production quality and the ability to deliver those programs to our affiliates in a cost-effective manner.

## Building on success

We also wanted to build upon our recent success on having the first full-service, 24-hour a day, 15 kHz discrete analog stereo programming format delivered via satellite in the early '80s. Our instincts told us the obvious answer was to convert our satellite delivery to digital, yet do so in a way that would not jeopardize our base of 280-plus affiliated radio stations across North America.

We knew such a dramatic overhaul would not be easy. Moody had undergone no fewer than three satellite changes from 1985 to 1988. Our last major satellite switch via SpaceCom Systems FM-squared subcarrier service on Westar V to Spacenet IIIIR in 1988 left us with another need. The satellite "look angle" for our affiliates in Alaska was so close to the horizon we added a supplemental SCPC 15 kHz monaural spot beam via AT&T/ALASCOM to the state of Alaska, which was launched in early 1989.

Our "Space" committee at MBN looked at several competing designs for digital delivery and the emerging "store-forward" technologies that could be adapted by each. After careful analysis we found the digital FM-squared service from SpaceCom Systems was the best for our current needs. It appeared to be applicable well into the next century on the projected replacement satellite for Spacenet IIIIR.

The hardware choice proved to be the Wegener Communications model DR185 digital satellite subcarrier receiver. Moody signed a major contract in June 1996 for 250 digital satellite receivers,

enough to cover the transition of the bulk of our network downlink sites. At the same time, we purchased the Wegener Addressable Network Control System (ANCS) for placement at the headend of our satellite operations area, to give us control of not one, but two 180 kHz digital channels.

For the past 10 years, MBN had been on Transponder 13 (7H), with subcarrier frequencies of 4.29 MHz-L and 1.77 MHz-R. We transitioned smoothly by tuning all new receivers to our new digital frequency of 1.95 MHz, which Moody owned-and-operated stations had been using for special programming feeds as a supplement to our then-main analog channels. On Oct. 1, 1996, Moody completed the conversion of the satellite system from analog to digital, when our old analog service was turned off for good. We then took our old 4.29 MHz frequency on Transponder 13 and made it our new, second digital channel.

What made the satellite conversion a success for MBN was good documentation. Our satellite operations area wrote a Moody-specific installation manual covering installation for the Wegener receiver and audio routing card. It also covered how to wire the unit to automation systems for triggering local IDs, breaks, program insertions, etc. In addition, instructions for hooking up the in-channel network e-mail function were provided, along with information relating to what kinds of services were available via this new service.

Affiliate support and technical troubleshooting calls were handled by our

network development staff and satellite operations staff. Verified problem cases were then directed to the Wegener service department. In retrospect, it appears that we encountered only a handful of problem cases (1.78 percent) attributed to factory defects or shipping damage.

Most of our installation difficulties were cared for by reviewing the satellite system at each radio station, determining the age and type of LNB, dish size and cable type and length of run from the dish to the receiver. The name of the game in digital satellite receivers is to maximize the signal gain from the dish to the receiver.

We discovered one difference with the Wegener DR185 from our older analog receivers was the +6 dBm balanced stereo audio output level (600 ohms), versus a 0 dBm nominal output on most of the earlier receivers. Some affiliates found the audio levels too hot for their automation systems, and had to build H-pads with resistors to pad down the audio level. The majority found the higher audio level either a benefit or no problem.

For more information from SpaceCom, contact the company in Oklahoma at (918) 488-4826; fax: (918) 488-4848; or circle Reader Service 118.

## TECHNOLOGY UPDATE

### NPR

**WASHINGTON** In 1979, National Public Radio (NPR) inaugurated the first satellite delivery system for radio programming in the United States. NPR just recently completed its program to replace that original analog 12-channel mono system with a new network that converted the Public Radio Satellite System to digital audio.

NPR Satellite Services offers full-time space segment on Galaxy IV, Transponders 1 and 3 for regional or national network distribution. The satellite "footprint" covers the contiguous 48 states, as well as Alaska, Hawaii and the Caribbean, to extend the delivery of data or audio to your network.

Occasional service on Galaxy IV is available for all your sports broadcasts, concerts and other live promotional events.

NPR has fixed uplinks in 23 markets, as well as transportable uplinking equipment that allows taking shows on the road for live events.

NPR Satellite Services is also a distributor of ComStream digital audio equipment.

For more information from NPR Satellite Services, contact the company in Washington at (202) 414-2626; fax (202) 414-3035; or circle Reader Service 94.

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**HARRIS**

USER REPORT

# BIA's MasterAccess Saves Time, Money

by **Bill Lochman**  
**Vice President**  
**MJM Research**

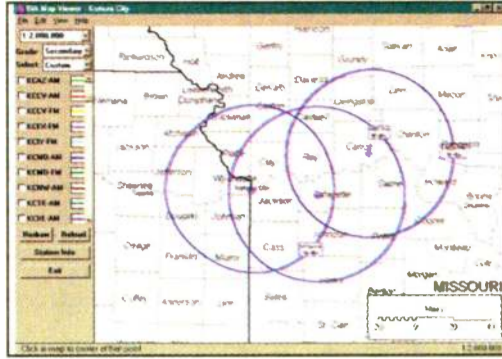
**KANSAS CITY, Mo.** In our 20 years of providing in-depth programming and research guidance to radio leaders, we at MJM Research are constantly seeking tools that will save us valuable time, thereby saving our clients money. We found just that through the BIA MasterAccess database software and coverage map program for radio.

Compiled and distributed by the Chantilly, Va.-based BIA Publications, MasterAccess is a comprehensive radio

industry database that profiles more than 10,000 commercial stations licensed by the FCC. The powerful and easy-to-use coverage map option (developed for BIA by the communications engineering firm Communications Data Services Inc. of Falls Church, Va.) allows us instantly to see the predicted contour for any of these stations right on the computer in our own office. Even better, it allows us to overlay multiple contours on top of each other for direct comparison.

Here at MJM, we use the BIA coverage maps in order to pinpoint our research more accurately. This is

valuable in large markets with terrain variables that severely impact the service



Coverage Map of Two Missouri stations

area of some of the FM stations. It does not do our clients any good calling areas that are not fully covered by the station. We also find the mapping software to be important in format selection for fringe stations that provide coverage to a geographic area that may not match the metro area demographic and socioeconomic makeup.

Here is an example: If you study the coverage map on this page you can see how radically different coverage can be for stations in the same market. In the case of KMZU(FM) and KYYS(FM), parts of Caldwell, Ray, Lafayette and Johnson Counties are the only places there is an overlap of coverage. Even between KISF(FM) and the other stations, there could be a considerable waste of effort if this was not taken into account.

With a detailed study of the demographics and socioeconomic makeup of

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Like A Virgin Madonna	Output Input Fads	Linger Cranberries	Output Input Fads
McDonalds	Output Input Fads	Home of the Hits Jingle	Output Input Fads

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Jingles	PreView	Promos
Liners	Efx	PSA
Exit	Log-In	Options

Gator Roar	Fast Mix Jingle	Best Variety	Weekend	More Music	102.7 Kiss FM
Weather Open	Weather Close	Sports Intro	Contest Sounder	Image #1 Liner	Image #2 Liner
Audience Applause	AHHH!	Soft Laugh	Loud Laugh	Audience Laugh	Show Theme

**... I cannot imagine an owner, prospective owner, consulting engineer or media broker being without this functionality.**

the counties or portions of counties within the 1 mV/m signal for each of these stations, we found the successful format potential for these stations to be entirely different. This information can ultimately save the stations thousands, perhaps even hundreds of thousands of dollars in format development.

**At your fingertips**

After working with numerous signal upgrades and metro move-ins during the 1980s, I cannot imagine an owner, prospective owner, consulting engineer or media broker being without this functionality.

I can remember spending hours measuring on maps with questionable accuracy in order to determine a new tower location, only later to find that we had missed a new station not listed in any of the books.

With the BIA MasterAccess you have the details in an instant, details that in years past could take weeks to collect. Most importantly the mapping software allows users to visualize the entire market with all signals plotted on the same map without spending hundreds of dollars for custom maps and overlays or spending hours hand plotting.

The BIA MasterAccess and coverage maps are invaluable tools that have paid for themselves many times over in the past two years.

For more information from BIA Publications, contact the company in Virginia at (800) 331-5086; or circle Reader Service 119.

For more information from Communication Data Services, contact the company in Virginia at (703) 534-0034; or circle Reader Service 120.

**Pristine RapidFire** is the industry's most powerful, fun-to-use, Digital Studio System! Your jocks can be spontaneous and creative with RapidFire, making your station sound great! RapidFire will save you thousands of dollars over other high-end digital systems while offering superior features and bulletproof reliability. RapidFire's *Quick Pick* makes it easy to add or change music, commercials, jingles, promos, liners, and

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Circle (30) On Reader Service Card







### TEST EQUIPMENT...WTS

Zercom 25 H3TP dual tone detector & notch filter, works fine, \$250. M Taylor, KNEO, 10827 E Hwy 86, Neosho MO 64850. 417-451-5636.

### Want To Buy

General Radio 684-A manual or schematic diagram. B Caihamer, WMBI, 820 N LaSalle Dr, Chicago IL 60610. 312-329-4304.

### TUBES

#### Want To Sell

4CX250B, 833C, 4-400, 3CX1500A7, 807, 4-125A, 4CX350A, 4-1000. EIMAC, AMPEREX, RCA. Westgate 800-213-4563.

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3CX10,000A7  
3CX10,000H3  
3CX15,000A3  
3CX15,000A7  
3CX15,000H3  
3CW20,000H3  
3CW20,000H7  
3CW30,000H3  
4CX250B  
4CX250BC  
4CX250BM  
4CX250BT  
4CX250R  
4CX350A  
4CX350AC  
4CX400A  
4CX800A  
4CPX800A  
4CX1500A  
4CX1600B  
4CX1600U  
4CX3500A  
4CX5000A  
4CX5000R  
4CX7500A  
4CX10,000D  
4CX15,000A  
4CX15,000J  
4CW10,000A  
4X150A  
5CX1500A  
5CX1500B  
572B  
5U4G  
6550C  
(See SV6550C)  
6AS7G  
6BM8  
6L6GC  
(See SV6L6GC)  
811A  
833A  
8161R  
8560AS  
EF86  
EL34  
EL509  
SV572-3  
SV572-10  
SV572-30  
SV572-160  
SV6550C  
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## TURNABLES

### Want To Sell

Technics SP-15 TT w/arms & bases (2). \$150 ea/BO. Adolf, Foster Communications, 2824 Sherwood Way, San Angelo TX 76901. 915-949-2112.

**NEEDLES, CARTRIDGES, BELTS...**all major brands including old/obsolete models, one of the largest stocks in the country. Expert consultation. **NEEDLES EXPRESS (800) 358-2030.**

### Want To Buy

16" transcription TT for 78 & 33-1/3 rpm, speed must be accurate & constant; also need service/operator's manual for Fairchild TT, marked "unit #524A1 serial #400", or anyone familiar w/servicing this unit. E Bolton, 4212 Jonestown Rd, Harrisburg PA 17109. 717-545-5030.

Technics SP15 TT; SME 3012R tonearm. J Hartt, 2418 36th Ave West, Seattle WA 98199. 206-282-8720.



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## ACTION-GRAM

### EQUIPMENT LISTINGS

Radio World's Broadcast Equipment Exchange provides a FREE listing service for radio stations and recording studios only. All other end users will be charged. Simply send your listings to us, following the example below. Please indicate in which category you would like your listing to appear. Mail your listings to the address below. Thank you.

Please print and include all information:

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 Title \_\_\_\_\_  
 Company/Station \_\_\_\_\_  
 Address \_\_\_\_\_  
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I would like to receive or continue receiving Radio World FREE each month.  Yes  No

Signature \_\_\_\_\_ Date \_\_\_\_\_

Please check only one entry for each category:

- I. Type of Firm**
- D. Combination AM/FM station  F. Recording Studio  
 A. Commercial AM station  K. Radio Station Services  
 B. Commercial FM station  G. TV station/teleprod facility  
 C. Educational FM station  H. Consultant/ind engineer  
 E. Network/group owner  I. Mfg. distributor or dealer  
 J. Other \_\_\_\_\_

- II. Job Function**
- A. Ownership  G. Sales  
 B. General management  E. News operations  
 C. Engineering  F. Other (specify) \_\_\_\_\_  
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Brokers, dealers, manufacturers and other organizations who are not legitimate end users can participate in the Broadcast Equipment Exchange on a paid basis. Line ad listings & display advertising are available on a per word or per inch basis.

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\*Closing for listings is every other Friday for the next month's issue. All listings are run for 2 issues unless pressed for space or otherwise notified by listee.

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| Audio Production (Other)   | Financial Services     | Repair Services           | Tubes               |
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Professional Card	74	68	62	56
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To compute ad costs: Multiply the number of ad inches (columns x inches) by the desired rate schedule for your per unit cost. Example: a 3" ad at the 1x rate is \$207, at the 3x rate \$195, at the 6x rate \$183, at the 12x rate \$165, etc.

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**Want To Sell**

**BE FX-50** exciter in excel cond w/manual, \$3500. P Hall, WBDX, 5959 Shallow Ford Rd, Chattanooga TN 37421. 423-332-4953.

**Collins 830D1** 1 kW FM w/o exciter, no PCBs, removed from service 10/96 due to upgrade, \$3500/BO. L Fuss, WDTL, POB 1438, Cleveland MS 38732. 601-846-0929.

**CSI FM exciter**, 20 W, freq agile, \$1000. M Taylor, KNEO, 10827 E Hwy 86, Neosho MO 64850. 417-451-5636.

**CSI freq agile EX-20F** FM exciters (2), \$1200 ea. R Lark, WXCE, Box 1260, Amery WI 54001. 715-268-7185.

**LPB 20 W AM** solid state in new cond, \$600/firm. J Kennedy, WZRZ, POB 532, Cape Caneveral FL 32920. 407-459-0444.

**Harris FM-5H** xmtr less exciter, in storage in NW Minnesota, BO. R Schuh, Result Radio Inc, 507-454-0745.

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**RCA BTF 20E1** 20 kW w/band-pass filter, exciter, 2 stereo gens & spare parts, will trade for newer 1 kW to 5 kW xmtr, willing to split shipping costs, BO. C Freinwald, Seattle Radio Group, 1730 Minor Ave #2000, Seattle WA 98101. 206-343-9700.

**BE FM-10B** 10 kW, 4 yrs old, new tube 5/96, perfect cond, \$30,000. K Harvey, Triathlon Bdctg, E 300 Third Ave, Spokane WA 99200. 509-459-9800.

**Gates BC-5P** 5 kW 1440 kHz, w/solid state rectifiers, avail after 11/30/96; RCA BTA-10H & RCA-5H, 10 & 5 kW, BO. B Zellmer, Colorado Farm Network, POB 2475, Greeley CO 80632. 970-353-6522.

**Want To Buy**

**Gates BC-1H** as spare, prefer working but will consider any cond. A Calisti, WBCW, 111 South 4th St, Jeannette PA 15644. 412-527-5656.

Need manual or copy for Collins 20V xmtr. T Scher, 716-634-2545.

**UTC Transformers:** A-10, 11, 17, 18, 19, 25, 26; HA-100, 101, 107, 133; LS-12, 14, 19, 21, 25, etc, call for list of needs. M Hughes, Fresh Start Ministries, 896 W 11th St, Panama City FL 32401. 904-784-2146.

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**McMartin AM/FM xmtr**, any model, exciter or stereo modules Goodrich Ent., 11435 Manderson, Omaha NE 68164. 402-493-1886.

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10 KW FM 1965 Collins 830F1	10 kW AM 1980 Harris MW-10
10 KW FM 1970 Harris FM 10H3	10 kW AM 1976 Continental 316F
10 KW FM 1976 RCA BTF 10E	25 kW AM 1982 CSI T-25A
20 KW FM 1975 Harris FM20K	50 kW AM 1978 Harris MW50C3 (1100 KHZ)
20 KW FM 1974 Collins 831G2/Cont 816R2	50 kW AM 1978 Continental 317C-1
20 KW FM 1967 Collins 830H-1B	50 kW AM 1973 Continental 317C-1
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	50 kW AM 1982 Harris MW-50B

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**Creative, positive & energetic**, great female voice, quick wit, team player. Sarah, 405-560-6597.

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**Potential NYC Country station owners**: four previous stations have committed format suicide by short-changing avid listeners with limited formats, one-man 5-year host/producer/personality knows the mix. Call Gene (Midnight Cowboy) Pfeiffer, 212-775-1706.

**Seeking on air announcer position**, 25 yr veteran, prefer Country Gospel, easy listening format, prefer meeting employer in N AR, N KS or NE. 501-337-5249 after 5PM.

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Jacor Broadcasting is now accepting applications for radio broadcast technician in the Cincinnati area. Applicant should have 5 years experience and proficiency in AM/FM transmission and studio facilities. Must be able to troubleshoot and repair equipment and work in a multi-station environment. Studio construction, PC and digital equipment knowledge are a plus. You should be ready to demonstrate why you should come to work for Jacor. All inquiries held in confidence. Jacor Broadcasting is an equal opportunity employer. Send resume to:

Paul Jellison, Engineering Supervisor,  
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Any company or station can run "Help Wanted" ads for \$2.00/word or buy a display box for \$69/column inch. Payment must accompany insert, use your MasterCard or VISA; **there will be no invoicing**. Blind box numbers will be provided at an extra charge of \$15. Responses will be forwarded to listee, unopened, upon receipt. Call 800-336-3045 for details.

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Any individual can run a "Position Wanted" ad, FREE of charge (25 words max), and it will appear in the following 2 issues of Radio World. Contact information will be provided, but if a blind box number is required, there is a \$15 fee which must be paid with the listing (**there will be no invoicing**). Responses will be forwarded to the listee, unopened.

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