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**Market Watch: Billings**  
 We take a look at the business of radio in Market No. 245.

**Marantz Goes MiniDisc**  
 Two veteran radio reporters put the new MD portable through its paces.

See Page 35

See Page 20

# Radio World

The Newspaper for Radio Managers and Engineers

March 1, 2000



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### NEWS



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▼ Radio snow days, digital RCA cables and a new CD player for your production room.

In This Issue.



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## Pubcasters Secure Satellite Future

by Randy J. Stine

**WASHINGTON** The distribution arm of National Public Radio has signed a new 10-year agreement with PanAmSat for satellite distribution of programming for its Public Radio Satellite System. Public radio's new bird is slated for launch in late March, with service up and running this summer.

The deal, announced in December 1999, calls for NPR to lease three C-band transponders, up from the current two, on PanAmSat's new Galaxy IV-R satellite. NPR also has the option to acquire Ku-band capacity if needed in the future. Galaxy IV-R is scheduled to be deployed during the first half of this year.

PRSS officials have been debating ways to handle an expected programming increase and prepare contingency backup plans in case of satellite failure, similar to the loss of Galaxy IV in 1998. Since that time, PRSS has used transponder space on Galaxy VI at

See SATELLITE, page 14 ▶



Artist's Rendering of PanAmSat's Galaxy IV-R Satellite

### NEWS MAKER

## Simons, Engineering The Mouse

Harry Simons is the director of engineering of Radio Disney, its point man as the company conducts studio build-outs in 20 major markets.

Simons, 53, spoke with Judith Gross, a free-lance writer and a former editor of RW, about his days in and out of the business, his experiences with the American Forces Vietnam Network, his work with the National Radio Systems Committee, and his relationship with Bert Goldman, vice president of engineering for Disney/ABC Radio.

*RW:* How did you become director of engineering for Radio Disney?

**Simons:** Through my association with Bert Goldman, whom I knew from the National Radio Systems Committee.

When he went to ABC/Disney from Nationwide, he asked me to become director of engineering for Radio Disney. I'm in the process of completing build-outs on Radio Disney stations in the top 20 markets, all AMs — all carrying Radio Disney

See SIMONS, page 6 ▶

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# NEWSWATCH

## NAB Escalates LPFM Fight

by Leslie Stimson

**WASHINGTON** Broadcasters aren't giving up on low-power without a fight.

The NAB is looking to the courts as well as Congress to overturn the FCC's decision to create new low-power FM stations.

The association has filed a Petition For Review in the U.S. Court of Appeals for the District of Columbia.

NAB "seeks relief from the low-power order on the grounds that it is arbitrary, capricious and otherwise contrary to

law," stated NAB in the request. The association has asked the court to find the LPFM order unlawful and vacate it.

"The FCC has violated its most sacred trust to the American consumer," stated NAB president and chief executive officer Eddie Fritts. "The plan to cram in hundreds, if not thousands, of low-power FM stations will create unacceptable interference across the radio dial."

NAB filed the petition the day before a telecom subcommittee hearing on a bill sponsored by Rep. Michael Oxley, R-Ohio. If passed, the legislation would require the FCC to rescind the LPFM order.

Calling the FCC's decision to approve

LPFM without waiting for digital radio to be approved "incredible," House Telecom Subcommittee Chairman Billy Tauzin, R-La., questioned the FCC about that decision during the hearing.

LPFM supporters and opponents testified that the four interference studies submitted to the commission during the public comment period used different methods to determine what would be considered unacceptable interference to a consumer.

At the hearing's conclusion, Tauzin told FCC officials that several questions need to be answered about LPFM to Congress' satisfaction. He urged all parties to work out a compromise before

Congress steps in.

A companion bill to the Oxley LPFM legislation was introduced in the Senate on Feb. 10. Sponsor Sen. Judd Gregg, R-N.H., said he believes the LPFM issue requires further study.

FCC Chairman Bill Kennard responded to comments Tauzin made about the commission's merger review process to a broadcaster group a few days before the hearing.

"I entreat you to conduct this debate in substantive terms, and to cease couching it in rhetoric that unfairly implies unethical conduct on the part of the FCC and its staff," Kennard wrote in a letter to Tauzin.

Speaking to attendees of NAB's State Leadership Conference, Tauzin urged broadcaster support of a bill he intends to introduce that would give the FCC a specific time limits on merger reviews.

"An agency that holds people up and allows other people to shake them

See NEWSWATCH, page 5 ►

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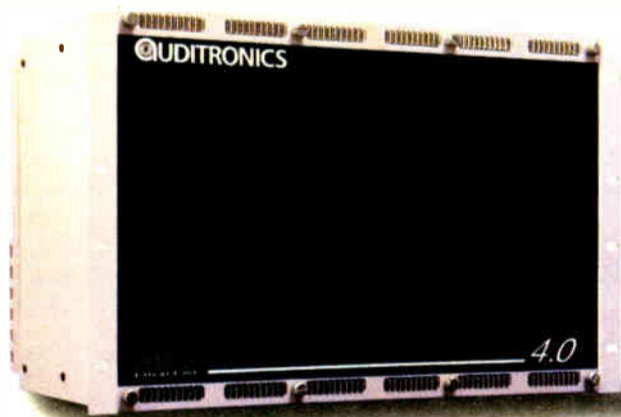
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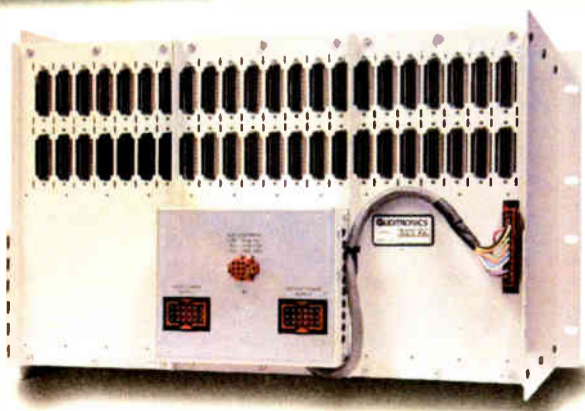
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**AUDITRONICS**



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GUEST COMMENTARY

# Low-Power FM: So Who Won?

by Carl Gluck

The author is vice president of technical research for Salem Communications Corp.

The FCC created a new low-power FM service on Jan. 20. This was a climax to a fierce battle between proponents and opponents of LPFM.

The fight has come to the end of Round One, but it does not look like it is over yet. Who won so far? My take on it scores the round as follows:

The first news sounded like some middle-ground compromise. Within hours, however, the Internet was abuzz with one LPFM proponent posting a tombstone graphic to let LPFM rest in peace, and with broadcasters sure they should fight on (now focusing their efforts on H.R. 3439, which would retroactively prohibit LPFM).

Once the FCC's Report and Order was published, both sides became sure nobody had won. Although the Report and Order does not allow second-adjacent channel interference, the new LPFM stations will

interfere with some existing over-the-air reception of full-power FM stations.

Granted, there is a 20-km "buffer zone" that mitigates troublesome co-channel interference LPFM stations would create. LPFM stations of 1,000 watts were not authorized.

The allotment criteria for LPFM stations will be more complex, requiring some engineering protection not necessarily proposed by the initial rulemaking.

In a quick engineering study, I modeled a few existing full-power FM stations, preparing coverage maps that showed the f(50,50) or, estimated 50 percent field strengths exceeded at 50 percent of the locations, 60 dBu contours and an alternative propagation model ("Longley-Rice") plot showing coverage beyond the traditional contours. In many instances, lower-power Class A and C3 stations have very useable coverage beyond their protected contours in areas disproportionately far from their tower.

The new co-channel LPFM separation criteria often placed 100-watt LPFM stations in the heart of population centers now receiving strong "Longley-Rice" Class A station signals. To my surprise, this did not happen with higher-class, stronger Class B and Class C FM stations. Instead, the 20-kilometer buffer zone held LPFM stations away from their useable signals.

### More study

While more study is warranted, my first conclusion is that existing Class A and C3 stations lost more to LPFM interference than higher-power Class B and C stations. Those least able to afford it will be hit the hardest.

The laws of physics assure that a thousand new stations will increase interference on a crowded FM broadcast band. The new LPFM stations do not have any requirement to protect translator-input frequencies. Even so, the interference resulting from the new rules is not nearly as bad as the initial rulemaking would have brought about.

If there is no future attempt to remove the second-adjacency interference protection criteria, full-power FM broadcasters will have come out much better than proposed by the initial rulemaking. So existing broadcasters are hurt, but not knocked out.

So how did the LPFM proponents score? Every new station must be noncommercial educational. That means individuals cannot apply. On the other hand, it is an easy matter to form a noncommercial corporation.

There will be few 100-watt LPFM sta-

### Low Power: Thumbs Up Or Down?

If efforts to derail low-power radio fail and the new stations come to pass as envisioned by the FCC, it will be one of the most notable changes on the U.S. radio dial in decades.

In this issue of *Radio World*, we offer commentaries from various viewpoints about the commission's recent vote to authorize low-power FM. We welcome other opinions. Send e-mail to [radioworld@imaspub.com](mailto:radioworld@imaspub.com)

tions allotted near population centers. And those will be the ones several entities file for, making them mutually exclusive. The new rules handle this exclusive situation by letting one group have it for one year and another group for the next year, and so on.

New LPFM stations will have serious incoming interference. The majority of the new allotments will be totally enveloped by the interfering contours of existing full-power stations (something we have not allowed to happen in the past, even to translators).

This means their useable coverage footprint will be limited to considerably less than the 3.5-mile radius mentioned in the new rules (for 10-watt LPFM stations the 1 to 2 mile radiuses mentioned).

How much will LPFM applicants have to spend? A few thousand for a lawyer, a couple thousand for an engineer, a few thousand for a transmitter, a few more for some studio gear, not to mention tower space.

There will be money needed to mitigate blanket interference complaints, money to fight off petitions to deny, and with a board of directors there's got to be a little more expense. Let's say \$20,000 or so as a budget for startup. And for what?

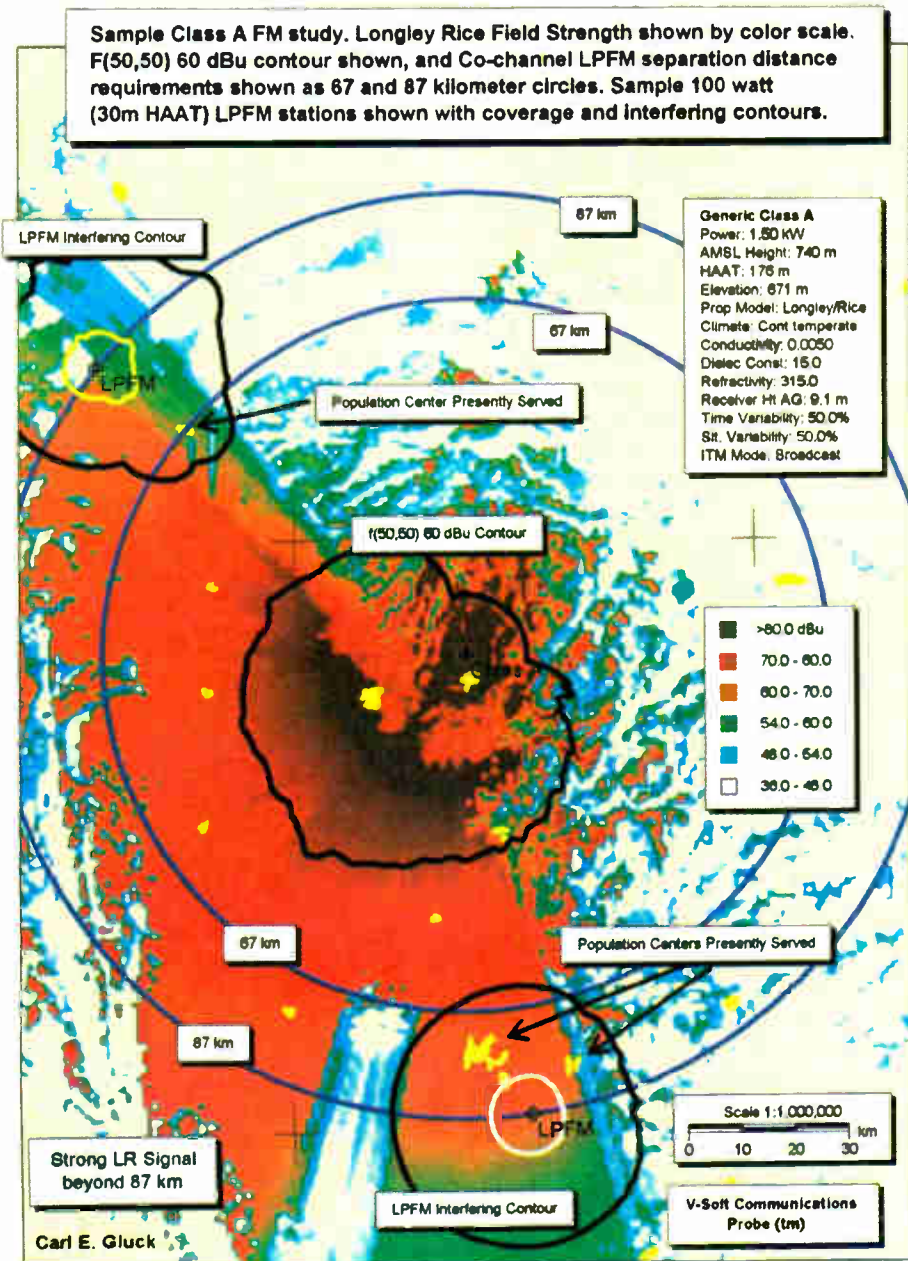
The rulemaking creates many more stations to clutter an already fuzzy enforcement environment. The FCC is not at present providing adequate enforcement in the broadcast arena.

Traditional pirates may not be able to become legitimate LPFM applicants, but the new service gives them more distraction in which to hide their illegal broadcasts. This will inflict harm mostly upon the LPFM operators who try to play by the rules.

So just who was left smiling when the Report and Order was released? Through stubborn implementation of a system so clearly flawed, FCC Chairman Kennard won. The radio industry, including the new LPFM service, lost.

Stay tuned for Round Two!

Sample Class A FM study. Longley Rice Field Strength shown by color scale. F(50,50) 60 dBu contour shown, and Co-channel LPFM separation requirements shown as 67 and 87 kilometer circles. Sample 100 watt (30m HAAT) LPFM stations shown with coverage and interfering contours.



Carl E. Gluck

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# Memories of Jesse Maxenchs

I lost a friend a few weeks ago.

Jesse Maxenchs passed away on Jan. 22 after a three-year fight with cancer. He was 64.

In our industry, a cadre of people live their professional lives around the manufacturing and sales of broadcast equipment.

These people tend to know each other. Many are friends even as they compete vigorously.

It's a small network, and word gets around quickly. Treat a customer or dealer poorly, and the industry knows about it. Act with dignity and class, and you will find lifelong friends.

Jesse had many friends.

You might have met him in his days as an equipment rep or sales and marketing executive for companies like AEL, Marcom, Eric Small & Associates, Belar and TFT. He spent four decades in the business.

But he was perhaps best known for his efforts at Orban, where he worked for 16 years in two tours.

Among his duties were promotion and sales of the famous Optimod line. That put him in touch with a vast range of people throughout radio.

## Global repute

I viewed him as a model in many ways.

We saw each other at trade shows. No matter how busy he was, he took time to ask how I was, how my career was progressing, and whether I'd had any interesting adventures away from work. He didn't ask simply to make chat, as some salespeople do; he was sincerely interested.

His father was born in Spain, his mother in Cuba, and he didn't speak English until he was 5. A native New Yorker, he loved trade shows and the people he met.

He may in fact have been one of the most widely known suppliers in the Western Hemisphere. He developed clients and dealers all over Central and South America, where his language skills and love of travel came together so well.

I recall working a booth at a trade show in Canada. Jesse decided he wanted to take a side trip to see Niagara Falls, and invited me.

As is often the case, this unplanned trip

became the highlight I remember most from that convention: standing at the edge of the abyss, soaking in nature's wonders, and listening to Jesse tell me about the mighty waterfalls of South America.

He had a wonderful sense of humor, and kidded me about my inability to spell his last name.

And he was always the picture of class — dapper, never seeming stressed or ill at ease, even in the busiest booth. Alas, he was also a heavy smoker, and my mental picture of him includes the familiar cigarette.

But Jesse did love those trade shows.

Howard Mullinack is now the president of Graham-Patten Systems. He met Jesse while selling Optimods in the



Jesse Maxenchs

1970s. Later, as vice president of sales at Orban, Mullinack hired him to come back from TFT.

"He and I would be walking down the floor at NAB, and we couldn't walk five feet without two or three people stopping to say hello, either in English or Spanish," he said.

In a technical field, Jesse's strengths were personal.

"He had his successes through relationship building," Mullinack said. "I traveled with him on a few trips through Latin America, and he knew as many people at the broadcast stations there as he did on the NAB floor."

Kathleen Karas at Crouse-Kimzey of Annapolis worked with Jesse at Belar

and recalled his quirky sense of humor.

"He was so funny. When the bingo sales leads came in the mail, they went to his desk. He'd come out with a fistful of these little square pieces of paper, and go through the office with his fist up in the air saying, 'Bingo leads! Bingo leads!' It was like a ritual."

Typical of Jesse, he could find humor even in announcing his retirement in 1997.

"It is time to change my lifestyle to one of leisure," he wrote to his dealers.

## Devoted father

Eric Small hired Jesse from Belar around 1976.

"He was a dynamic guy. He was devoted to his kids," said Small, who is

## From the Editor



Paul J. McLane

son," Bob Orban wrote to me. "He seemed to know everyone in the broadcast business, and loved to hang out with his many, many friends."

That love of contact must have made it particularly difficult when Jesse lost full use of his voice. Thanks to e-mail, though, he stayed in touch with many of us in the business.

## Road trips

And even during his treatment period, he traveled far to attend conventions. I'm glad he did so; it gave me and other friends a chance to let him know we cared in person.

Jesse took a positive approach to his illness, according to his wife Pat. The couple met in 1984. In recent years, they lived in La Fayette, Ga., not far from her brother.

"We did not let (the illness) stop us," she said. "We still went to Cancun, an annual trip, to absorb the sun and snorkel. He was a strong person, very strong."

The couple were happy in Georgia, and spent time exploring the area. Last fall, they visited the NAB Radio Show in Orlando, the Kennedy Space Center and the Okefenokee Swamp.

Jesse Maxenchs had a son, now deceased, and two daughters by a previous marriage. He was also proud of his three grandchildren.

If you knew Jesse and would like to share your memories, Pat Maxenchs has kept his e-mail open at [jesseingorgia@email.msn.com](mailto:jesseingorgia@email.msn.com). You can also write to me at [pmclane@imaspub.com](mailto:pmclane@imaspub.com). Thanks, Jesse.

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GUEST COMMENTARY

# FCC 'Gets' LPFM

by Stephen Provizer

*The author is director of Citizens' Media Corps.*

The advent of LPFM represents neither a new radio utopia nor the end of Western civilization. It represents a challenge to which LPFM advocates must respond.

The time has come when all the rhetoric must be translated into action. Those who speak of "voices not represented on the radio dial" must seek these voices out and provide the training necessary for their expression.

Those who say that the corporatization of radio ownership has resulted in a loss of localism and a narrowing of news perspectives must present local news and public affairs alternatives.

Those who say that local music and arts have not been given a fair shake by mainstream radio must step up and offer easily

cross-ownership sanctions, local and national caps and made the service non-commercial.

However, they blew it in a few ways. First of all, the strongest push for LPFM



Stephen Provizer conducting Part 15 broadcasting last summer in Jamaica Plain, Mass.

ber of hours of local programming necessary to earn a favorable licensing point and (2) the fact that stations owned by local affiliates of a national organization are not counted against the national ownership cap.

There's no reason that a local affiliate cannot broadcast eight hours of local programming on Sunday and fill the rest of the schedule with satellite programs generated by the "home office."

plan to present.

With a minimal requirement of only eight hours a week of local programming, we're afraid that the FCC may have set the bar too low, especially in light of number (2) mentioned above. Local affiliates can provide the bare minimum of local programming and fill the rest of their schedule with national programming.

CMC is now in the process of establishing a Part 15 AM station, Allston-Brighton Free Radio. Part 15 is one-tenth of a watt. We will have shows in a number of languages, local news and public affairs and eclectic musical programming, with an emphasis on exposing the work of local artists.

We will certainly apply for an LPFM license, but whether or not we get one, we intend to continue to broadcast and to serve our community. An LPFM license would allow us to do this more effectively.

There will be plenty of competition for the few frequencies that become available in Boston. Our approach is to organize all those who believe in the public access model and to apply as a collaborative. There is no reason for us to be competitors.

LPFM, because of its limitations, will not do what it could in large urban centers. However, now that at least some opportunity to implement change has appeared, those of us who advocate opening up the airwaves must be clearer and even more steadfast in achieving our goals.

We must lead by example. When America's radio audience learns what radio can be, the entire industry will be forced to respond.

Reach Provizer at (617) 232-3174.

**With a minimal requirement of only eight hours a week, the FCC may have set the bar too low.**

came from urban areas, but ironically, without the elimination of second-adjacent protection, this proposal will serve these areas least. It seems to me that those who opposed this elimination are inconsistent.

In the 1996 FCC hearings, for example, the NAB filed no comments opposing the elimination of second-adjacent protection in the case of grandfathered full-power stations. How much was the current refusal to eliminate this protection a result of deciding to protect coverage areas not mandated by law, but simply achieved by stations "unofficially" stretching their coverage areas?

Secondly, LPFMs will have to protect existing translators, despite the fact that translators are supposed to be a secondary service and are specifically barred from originating their own programming.

Two other major causes for concern in the LPFM proposal are (1) the small num-

My organization, Citizens' Media Corps, advocates what might be called the "public access" model of radio and envisions LPFM in much the same light as our previous station, Radio Free Allston: a potential platform for as many different voices in the community as possible.

We believe that the single most effective way to determine whether an applicant is best qualified for an LPFM license is the amount of local programming they

accessed platforms for local artists.

The LPFM proposal both supports and, to some extent, undermines these goals.

**Little urban benefit**

The FCC commissioners showed in several ways that they "got it." They eliminated the original 1,000 W tier and third-adjacency protection. They imposed

## ◆ NEWSWATCH ◆

► NEWSWATCH, continued from page 2 down is corrupt," said Tauzin.

The FCC also is studying that question, and plans to limit the time to handle merger applications to 180 days.

### WQAM Fined \$35,000

**WASHINGTON** What is considered indecent broadcast material has not changed as a result of last year's sex scandal involving President Bill Clinton. The FCC said that and more when it upheld an earlier decision and levied fines totaling \$35,000 on Miami's WQAM(AM) for airing indecent material on five occasions.

The station fought the fine, saying the commission's rules on indecent material are vague. The commission disagreed and station has been told to pay the penalty.

The FCC considers material to be indecent if sexual or excretory organs or activities are described in terms considered patently offensive by community standards. Such material may only air in

the so-called "safe harbor" after 10 p.m. and before 6 a.m. In this case, the commission said, the material "apparently" aired between 10 a.m. and 2 p.m.

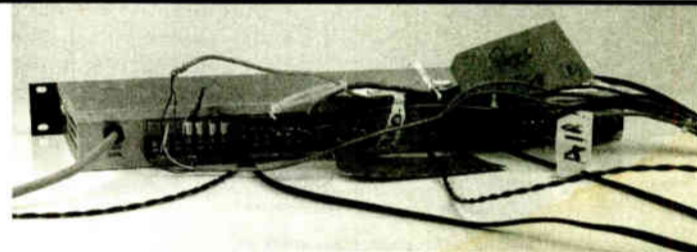
In the WQAM decision, the FCC said its definition of indecency has not changed in years and "we have amply illustrated what broadcasters may and may not do."

"Uterus Guy," a parody of the song "New York, New York," the commission said, was about oral sex and considered indecent was "lewd, inescapable and understandable."

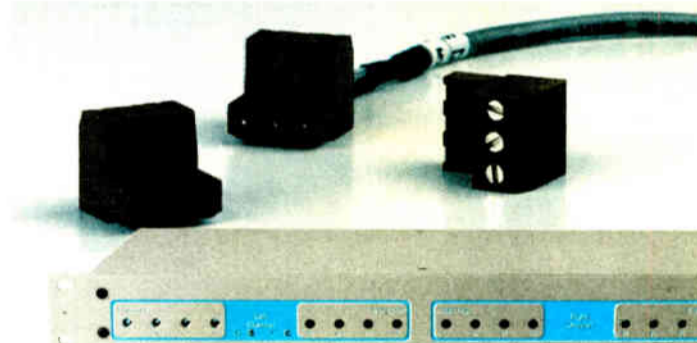
The tag line, "Let's pork," said the commission, "considered in conjunction with the rest of the material, is a lewd, inescapable reference to sexual intercourse."

Another segment the FCC found indecent was a phone conversation discussing anal sex.

WQAM said contemporary standards for indecency do not remain static and the standard had evolved as a consequence of the sex scandal involving the president. The FCC staff said when deciding whether broadcast material is indecent, "commissioners draw on their knowledge of the views



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# Radio Disney's Build-Out Man

► SIMONS, continued from page 1  
programming for children.

**RW:** What does a build-out entail?

**Simons:** Everything from due diligence on stations that Disney is considering buying, to design and construction of new offices and studios; rebuilding the transmitter plants, real estate issues and technical augmentation to improve signal coverage.

**RW:** The idea of radio aimed at children, that's interesting.

**Simons:** It's a unique concept. The programming consists of music, contests, news and education aimed at kids.

Every other radio station doesn't want to talk to kids, but we *only* talk to kids, from toddlers to age 12.

**RW:** How has it been received?

**Simons:** Community response is incredible. Parents love it and of course the kids do.

An important ingredient is the Disney instinct for good cross-promotions. When a station first goes on the air, Disney brings in the Mouse and has a big media event. In one market, just a month after we went on the air, the station had logged 35,000 calls. I challenge you to find any other format that gets that kind of listener response.

What Disney has done is create a brand-new wholesome radio format and successful marketing niche that is successful as a business almost from the get-go.

**RW:** And they've done it all with AMs?

**Simons:** AM stations, primarily because of cost. And these are some of the best-sounding stations you've ever heard. The kids don't mind that their favorite programming is on AM, which contradicts the conventional wisdom that kids don't listen to anything except FM.

We're breathing new life into these

stations and it can't but help the future of AM radio.

**RW:** So you're introducing Radio Disney into each market as you complete the build-outs?

**Simons:** I'm the first person to put it on the air. The format is a live satellite feed with an automation system in each station.

There are five production studios in Dallas, and then local staffs in each market to handle sales, promotions, management and traffic. Each station also does public affairs programming and a tremendous amount of local events — all part of the Disney philosophy to be an important part of the community.

## AM upgrades

**RW:** How much work is involved with each station?

**Simons:** I'm standardizing the rebuilds as much as possible, but it varies in each market.

In cities where there is a Disney/ABC O&O, the studios are an add-on or consolidation to an existing facility. In the other markets, they are self-contained entities.

We're buying mostly second-tier stations and invariably, and because they are AMs, we have to improve them. This is where my past experience in directional arrays comes in handy. I depend heavily on Glen Clark for pattern and coverage improvements.

Several stations we've bought were previously severely neglected, and some need an unbelievable amount of work. Fairly typical is that the transmitter facility has not been maintained and is not functioning correctly, if at all. It's out of compliance; its efficiency is deteriorating.

I could start with a station missing 35 to 40 percent of its market coverage because of a non-existent ground system. I rebuild them from tip to top, and I have

to do it quickly and within a reasonable budget. In addition, the studios and offices are all brand-new.

**RW:** I'll bet you have some horror stories.

**Simons:** I could write a book!

One is a dual-site station, with a daytime and separate nighttime directional site. But there was no working transmitter at the nighttime site! I had to put one in very quickly.

Another station wasn't paying for electricity; someone had by-passed the electric meter.

I make sure the station is legal first, then improve everything else. And I'm here to say that the FCC still cares very much about compliance.

Disney/ABC is held to a very high standard, and our level of compliance is extraordinary. Of course, it's very expensive to do all this, but Disney has made this commitment and I try to be as cost-conscious as possible.

**RW:** How far along are the 20 stations?

**Simons:** I've been working on four stations at a time. Seattle and Denver are done and both have passed inspections. Also finished are Cleveland, Tampa and Phoenix.

Right now I'm working on build-outs in Philadelphia and Miami and finishing a complete rebuild of the Houston transmitter plant. In all, 16 stations are either finished or in progress, and Disney will probably be announcing the remaining four markets soon.

**RW:** Any technology innovations?

**Simons:** Yes, I was the first to incorporate Radio Systems' StudioHub. The equipment is wired through a Cat 5 computer hub. It's a great innovation and it's completely changed my wiring philosophy.

I've had a great deal of success working with equipment suppliers,



Harry Simons at Work

especially Broadcasters General Store, to employ the latest technology and yet keep costs down.

We're converting the stations to the Broadcast Electronics AudioVault. In one instance, we worked with Telos and Radio Systems to modify the Zephyr codec to solve an unusual problem in forwarding and storing commercials from Dallas through ISDN.

Our aim is to have stations that are completely state-of-the-art.

## On the road

**RW:** It sounds as if you lead a hectic life.

**Simons:** I'm on the road 320 days a year. I'm only home, in Pensacola, three or four days a month. I work 90 percent of the weekends.

I also maintain a second responsibility at First Broadcasting, in Dallas, where I'm contracted to manage construction for turnkey transmitter plants.

**RW:** Take us through a typical day.

**Simons:** The cell phone starts ringing 7:30 or 8 a.m., usually a call from a Radio Disney GM. It might be about purchase of property for a new tower site or something legal. We solve any problems we can by phone, then I get to the airport and fly to whatever city I'm working in first.

I could be putting in a new transmitter, finishing a new studio, meeting with an architect or whatever. I generally have up to four stations in progress simultaneously, so I sometimes have three hotels and three rental cars going at the same time.

In one day I might start in Tampa, take the rental car to the airport and fly to Houston, get on another plane and fly to Dallas.

**RW:** Did you ever wake up and not know where you are?

**Simons:** My hotel rooms are usually at Embassy Suites. Once I had one in Houston and Dallas at the same time and they were mirror images of each other. I got up in the dark and walked smack into a wall.

Now when I wake, I lay there and think about what city I am in before hitting the ground running.

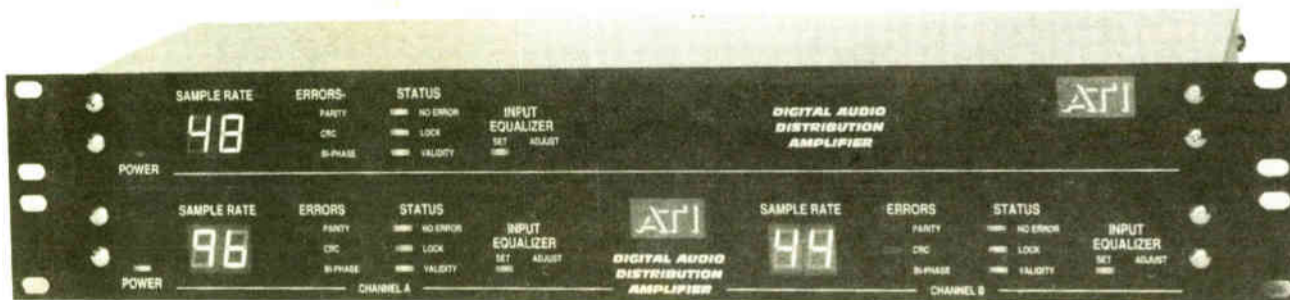
But, yeah, I am getting weary of traveling. I use my accumulating frequent flyer miles to upgrade to first class, but you'd hardly call my days luxurious; I really don't have time to

See SIMONS, page 7 ►

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► SIMONS, continued from page 6  
get into the Jacuzzi.

**RW:** You have a lot of years of radio under your belt.

**Simons:** Well, I got into it early. When I was in the fourth grade, I was on a live radio performance at WFAU(AM) in Augusta, Maine, where my father was sales manager. Later, in eighth grade, I produced a request rock show.

From the moment I walked into a radio station and saw all the gadgets, I was hooked.

**RW:** But the early days were more on-air than engineering?

**Simons:** First I was a gopher, with an occasional opportunity to get on the air. I worked with 17-inch ET transcriptions. You'd have to slip-cue the commercial, and that was a job.

I was interested in technology; I built Heath kits and all that and majored in electronics in high school. On-air, I'd get all hot and sweaty when I had to read a commercial. But the GM must have thought I was good because he kept me around.

I was news director while still in high school, the youngest in the state, and I was friends with the Maine secretary of state, so I had access to a lot of good stories.

Then the Marines sent me to Vietnam.

**Learning under fire**

**RW:** Didn't you do a real-life "Good Morning, Vietnam" stint?

**Simons:** In Saigon, the American Forces Vietnam Network, which had an AM, FM and TV, needed an engineer. I became DE for their broadcast operation in

**RW:** So you went back?

**Simons:** The facility was gorgeous, state-of-the-art equipment and a warehouse full of spares. The lure of the education and the facility was enough to get me back, this time to Danang.

We put a new FM station on the Gates automation. And I did another evening music show on the AM.

**RW:** This dual role of DJ and engineer, did you keep that up after the military?

**Simons:** I worked in a variety of stations, usually getting hired for an air shift.

Back in Maine I worked for WABK(AM) and got my First Phone, then went south to escape the snow. I finally landed at WIRK(AM) in West Palm Beach where I was assistant CE, and did a 7-to-midnight rock and roll shift plus a midday country show on

WIRK(FM). My nighttime show got written up in "Rolling Stone" magazine where I was dubbed "lewd, crude and socially unacceptable."

Hardly a compliment, but the PD loved it.

After a while, I left the station to work for the Cetec Broadcast Group as a sales engineer and later became an independent rep for equipment lines. I had a motor home outfitted with the latest equipment, which I drove to the first NAB show, in Washington, D.C., where the famous "Battle of the Audio Processors" took place between Greg Ogonowsky, Bob Orban and Mike Dorrough.

**RW:** And then you went back to working at a station?

**Simons:** I went to WAEB in Allentown,

Pa., to become CE of their AM and FM in 1983 and stayed there for nine years.

I learned a tremendous amount of AM engineering at WAEB. We had a five-tower inline directional array, a split site that had been on STA for years. I took on the challenge of rebuilding it, working with Tom McGinley as my consultant. He taught me the foundation of my AM directional system knowledge.

I wanted to learn it — there was no sense in having this opportunity and letting somebody else do it. And the cost savings were substantial.

**AM stereo**

**RW:** You made a bit of a mark on the industry through your participation in the NRSC. Were you involved in the

See SIMONS, page 12 ►

**'In one market, just a month after we went on air (with Disney), the station logged 35,000 calls.'**

Vietnam yet I didn't have the foggiest notion of what to do.

I went out and bought every book available on broadcast engineering. I was also doing an all-request rock show on the 7-11 shift, which you could hear in 13 countries. We were supposed to keep morale up and provide propaganda, and we used to get shot at all the time. One time, the North Vietnamese drove a taxi full of plastic explosives into the compound.

After a year there, I was one of seven engineers in Vietnam offered the opportunity to go to the Gates school and learn automation.

**RW:** What was that like?

**Simons:** They flew us on a chartered 707 to California. I was in Hollywood for a month and got on "Hollywood Squares," where I was champion for three days.

But part of the learning process for this newly developed technology in automation was to stay another year in Vietnam.

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## GUEST COMMENTARY

# The Last Straw for AM Daytimers?

by Larry Langford

The author is owner and chief engineer of WGTO(AM) in Cassopolis, Mich.

Well, I guess we AM operators are starting to see the shadow of the fat lady as she now starts to roll her way to the stage.

Just when we were all getting hyped up on just what in-band, on-channel DAB might do for the dying service we call rural AM, here comes the FCC to make sure we don't live long enough to see the day IBOC comes true.

## The last straw

The implementation of the new LPFM service is the last straw.

The NAB yelled about technical and financial hardships for stations already on the air if these new LPFM operations were allowed. So now the FCC has made them noncommercial, which takes some of the air out of the NAB arguments. But the FCC has not addressed the concerns of the AM operations that have been doing well to even break even these days.

While the engineering reports say that most major cities will not be able

to handle more than one or two LP operations, small towns out in the country might easily handle LP100s.

## Rural operations

AM operations that are located in rural areas could easily be run out of business by a low-power FM that boasts no commercials and noise-free sound.

It has been proposed that these sta-

these micro stations to run off a bird for most of the day. That means music, and that means problems for existing AM operations that are having a hard enough time competing.

In the case of my station, WGTO(AM), we are the only station licensed to the village of Cassopolis, Mich., which is on the fringe of the South Bend, Ind., market.

There are only two broadcast com-

**The big 50 kW operations on AM have little to worry about. It's the little daytimers like me who are looking at this new service as the grim reaper.**

tions operate a minimum of 12 hours a day. And what kind of "community-based" programming will fill all this time? We all know that it will only be a matter of time before there is a non-com music network that will allow

panies in our county and the other operation is an AM-FM combo.

## Tough competition

As you might imagine, it is tough competing for the local dollars and listeners against the Class A FM four miles down the road. With the new LPFM rules as I read them, we could easily have a 100 W operation in our county.

The FCC has stated that it wants to add more diverse ownership and that means more minorities and women-owned stations. I applaud that, especially since I am an African American and part of a very small minority of station owners.

But the FCC fails to consider that as they add these LPFM stations that will in many cases be minority-owned, they are putting long-time minority owners like myself out of business. Our years of struggle and knowledge are not worth much if we are forced to shut our stations down.

Make no mistake, the great bulk of stations now owned by African Americans and Hispanics are AM, and at the so-called "ghetto" end of the dial.

We can see ourselves easily replaced by "community-based" amateurs who will add very little to the real needs of the community but will instead end up as replacements for the AM stations that go dark as a result.

## The back door

Then there is the other can of worms that will be created by "front" operations where local churches get the stations that will, in fact, be controlled by broadcasters seeking a back way to get in.

Many people agree with me that these noncoms that will be coming in are doing so with the anticipation that under a more friendly administration, they will eventually be allowed to be fully commercial after showing that they must sell spots to stay in business.

Truth is, that day may have already arrived. If you listen to many stations now operating in the educational band, you wonder who is patrolling the non-commercial rules as they already

exist!

Many of us have heard more than one noncom that makes no bones about broadcasting blatant commercials, only modifying them by saying at the beginning, "This program underwritten by ..." I ask you, who is fooling whom?

It was bad enough when the commission allowed religious operations to tie up translators thousands of miles outside their service areas when these could have been used by AM daytime stations.

It was surely a travesty when they added insult by allowing 100 kW FMs to add translators well inside their 1 millivolt contour when they already have the best signal in town.

It had been suggested that some relief for AM could have been provided by allowing, for instance, AM stations that are the *only* service in a small town which is not bordering a major or middle market — to operate a small FM to level the playing field. That idea never got a decent hearing.

As a broadcaster with decades of experience on the air working for others, I thought my dream would come true when, back in the '80s, I applied for — and built — an AM with the anticipation that all the talk of AM improvement and stereo would make building a new AM a good move.

## AM transmission standard

The FCC forced AM broadcasters to standardize transmission response in part to allow receiver manufacturers to make wider bandwidth radios without increased interference.

The plan was a good one, but the manufacturers never redesigned their product to allow the better-quality sound except for one or two models like the GE Superadio. The FCC could have easily mandated the improvements. It was done for television receivers and before that for FM stereo.

Many daytimers did get some relief when allowed low power at night. But how will we now be able to compete? How can we ask the public to keep listening to our static-filled night signal to hear the local basketball teams when some 100 W FM puts the same games on in crystal clear stereo, "underwritten" by the same people we had been selling spots to?

The big 50 kW operations now on AM have little to worry about from LPFM. It's the little daytimers like me who are looking at this new service as the grim reaper.

I know I speak for many daytimers when I say to the FCC: Cut us in or cut it out!

Reach Larry Langford via e-mail to WGTO910AM@aol.com

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## GUEST COMMENTARY

# Wouldn't You Like to Be Neighbors?

by Pete triDish

*The author is a member of the Prometheus Radio Project.*

It was a quiet summer day in 1997, and I was about to leave my house to volunteer at the neighborhood children's garden. The phone rang, asking for my *nomme de guerre* Pete triDish.

The stranger said, "Are you the pirate radio operator? I'm the owner of three radio stations." At first I was wary, but I soon realized that this man had something important to say to me.

"I've been in the radio business since I was 15," he said. "I started out sweeping the floors at a mom-and-pop outlet, but through the years I learned the whole trade from engineering to sales to programming."

"When my boss retired, he offered to sell me the whole place, and I've done well — picked up two more stations in recent years. We produce all of our own content, and I'm proud of it. But I'm going to have to sell all three in a few months."

## Impossible odds

"With the Telecom Act of 1996," he continued, "I'm going to be competing with the likes of Disney. They make all their content, and pay for it once, then they put it up on a hundred stations across the country, getting a hundred ad revenues for it. I can't fight those odds. And I don't want to work for some big corporation. But I love radio. I never wanted to do anything else," he said.

"So after my stations are gone, I was thinking of starting up a pirate station for my town. I've been watching that Dunifer case in California. Maybe I'll join up with all of you."

My jaw dropped. I realized that our ragtag little movement had stumbled upon a giant shift in the way America does business and creates the media environment in which we all live.

The Wal-Martization of the radio dial was in full swing and somehow, small bands of media reformers were starting to be heard. Our perhaps foolhardy defiance of federal law had captured people's imaginations, and was starting to make a difference in what people thought about how our media are owned and operated.

Now, several years later, the station we operated is sitting somewhere in the bowels of the commission in the trophy room of Rich Lee, chief of the former FCC Compliance and Information Bureau. But perhaps a thousand legal community stations are about to be born, and our neighborhoods can throw fundraisers for modulation monitors rather than bail funds.

When pushed hard enough, the FCC showed that they were willing to look out for more than just the interests of the rich and powerful.

The proposal has many shortcomings. The receiver study that our coalition submitted clearly demonstrated that the level of interference of the proposed service was insignificant.

Another study demonstrated the patent bias of the NAB-commissioned tests, which yielded numbers so absurd that Dr. Theodore Rappaport was forced to conclude that "in an academic setting, these results would have to be disregarded."

## Excluding pirates

The FCC should have resisted the arm-twisting of the NAB and reduced the second-adjacent restriction.

The policy of excluding pirates is just plain silly. After all, if a pirate is applying

for a license, are they not acknowledging the authority of the commission and agreeing to play by the rules?

How many licensed broadcasters have at some point tangled with the commission over some transgression, yet retained their license? How many convicted corporate felons, such as General Electric (which plead guilty to fraud charges in 1985), continue to hold broadcast licenses despite their rap sheet?

*(Editor's note: The author is referring to an Associated Press report from 1986 that said the FCC considered GE to be rehabilitated under its character policy in a license transfer case.)*

The vast majority of individuals affected by this provision have never been convicted of any crime. Our only offense was to provoke a constitutional test of the regulatory structure that guides our country's broadcast allocation scheme.

The other big mistake was to rule out new spectrum for LPFM. For Prometheus Radio Project, the next frontier is digital radio. The digitization of broadcasting can allow five times more information over the same amount of bandwidth.

To the industry, that looks like more room for data services. To us it looks like the potential for new entrants, even in the tightly packed urban markets.

The FCC needs to create a bandwidth plan that utilizes this useable bandwidth windfall for the public's interest. A plan that only includes incumbents in the digital future is unconscionable.

Many of the great ideas that came out of the flood of comment on the rulemaking were never addressed.

LP1000s should have been permitted outside the top-100 radio markets. A preference could've been given to public access organizations. They could have allowed for directional antennas and collaborative engineering studies to get some more stations in to the biggest 10 cities, where the neighborhoods need

them the most.

But I know that the FCC staff worked hard to listen to the public, and I hope that they will consider more changes in the future as they learn how to serve ordinary people as well as the corporate interests.

Prometheus Radio Project is a resource center for the new radio stations born of the LPFM movement. We will spend the rest of this winter and spring on tour, helping neighborhood groups in towns in the eastern United States prepare themselves for license applications.

We are organizing a mentorship program so that incumbent broadcasters can help the LPFMs adhere to good broadcast practice, and we need the help of those who want to see this service succeed.

It's time for the NAB to beat its sword into a plowshare. We are your arterial neighbors now. Get out of your corporate offices, come visit our neighborhood garden and help plant the seeds so that 1,000 antennas can bloom!

Reach Pete triDish at (215) 476-2385 or via e-mail to [petetridish@hotmail.com](mailto:petetridish@hotmail.com)



## DIGITAL NEWS

### DaimlerChrysler to Install Sirius Receivers

**NEW YORK** Sirius Satellite Radio has two of the big three U.S. automakers committed to installing Sirius receivers in their new vehicles in 2001.

DaimlerChrysler has pledged to buy \$100 million of Sirius common stock and joins Ford (with a \$20 million investment) and BMW in their decisions to install AM/FM/Sirius receivers. Sirius plans to launch its subscription service at the end of this year.

The agreement includes all DaimlerChrysler brands sold in the United States: Mercedes-Benz, Chrysler, Jeep, Dodge and Dodge Truck, as well as Freightliner and Sterling heavy trucks. Number three U.S. automaker DaimlerChrysler sold more than 4.8 million vehicles worldwide last year.

General Motors has invested \$50 million in competitor XM Satellite Radio and will install AM/FM/XM receivers (RW, July 7, 1999).

### Telesat to Operate XM Satellites

**WASHINGTON** Telesat Canada will install and operate XM's satellite uplink facility, including the telemetry, tracking and control of the two Hughes 702 15 kW geostationary satellites from Telesat's control center in Ottawa.

Telesat will build primary and back-up satellite control centers in Washington and Calgary, Alberta, Canada to support XM's fleet.

XM has awarded its uplink delivery systems contract to Calian's Systems Engineering Division and has licensed Certicom encryption technology to secure XM's signals.

The satellite uplink system will be  
See DIGITAL, page 14 ▶

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# Simons Gets the Magic Back

► SIMONS, continued from page 7  
work on AM?

**Simons:** I got involved when the committee was trying to tackle AM stereo. WAEB was test site for Texar and Glen Clark (then president of Texar) put out a petition asking for a decision on AM stereo, but the commission chose not to regulate a standard.

Then the NRSC tried — successfully, it turned out — to improve AM in other ways.

It was a great time. I remember the NRSC AM work as a very cooperative effort. Everybody had input and was listened to, there was a valuable give and take; I felt privileged to be a part of it.

## FM multipath project

**RW:** I remember that feeling being prevalent among those who were there. But it changed when the FM work began.

**Simons:** We did surveys to ascertain broadcasters' concerns, and multipath came up again and again. I ended up chairing the subcommittee on multipath, which led to the multipath project in the late '80s.

We tried to incorporate radio manufacturers, engineers, facilities — the agenda seemed overwhelming. The NRSC finally suggested that I do it on my own. CRB Broadcasting, which owned WAEB, was extremely cooperative. We spent considerable time and resources, got special authorization from FCC for tests ...

**RW:** Got me to climb up your 210-foot tower on a winch in the dead of winter.

**Simons:** You took my dare. Anyway, on



our own, we carried through the first phase of the project, but we didn't go as far as we'd hoped. Controversy over some of the findings killed the project.

But we did learn some significant things, which helped the radio manufacturers make improvements.

**RW:** And the multipath project led you to

academia, "Professor" Harry?

**Simons:** While I was still at WAEB, my visibility from that project led Lehigh

County Community College to ask me to put together a broadcast curriculum. I developed the "History of Broadcasting" and later Radio Engineering courses, became chairman of the school's broadcast curriculum, and was a professor for both courses.

I gained an incredible amount of knowledge and a lot of gratification sharing what I know with college students.

**RW:** When did your consolidation work begin?

**Simons:** In 1991, I left WAEB and began contract work, first for WTEM(AM) in Washington, D.C., the station of the Washington Redskins Network. I worked with Jim Seamen from WFAN(AM) to build the station.

**RW:** I interviewed Jim at the time and he said "Harry is a Godsend."

**Simons:** I made a lot of great connections and learned so much by working there and at other contract builds and installations. It was a high level of learning and achievement.

I stayed in contract work after that, preferring it over the day-to-day fix-its. Then in 1992 I got a bit disillusioned by what was going on as the industry moved further into consolidation, and I left radio for awhile.

**RW:** What did you do?

**Simons:** I tried to retire but I ran out of money, so I sold cars.

**RW:** Successfully?

**Simons:** Yes, very. But, hard as it may be to believe this, I didn't make as much money as I had in radio. So I went back.

## Radio satisfaction

**RW:** You seem to thrive on the challenge of the work.

**Simons:** I'm having more fun at my chosen profession now than I ever did in my whole life. And I'm also feeling the satisfaction of being in radio again. That left me for awhile during the multipath controversy.

A lot of my enthusiasm is thanks to Bert Goldman, who has given me as much of a free hand as possible. It's a great challenge to go into a new station

and make management decisions, then oversee the execution and have everyone, including myself, be happy with the end result. And then go onto the next project.

Even though I spent a number of years at one station, I feel sorry for engineers who get stuck in one place. You can lose the perspective of the big picture.

I've done more engineering in the last two years than I ever have. I thought I had seen it all. But these facilities have confronted me with every kind of technical issue and problem that any engineer could face. And that is the real excitement; it's not your typical engineering job.

**RW:** What happens after you finish building Radio Disney's 20 stations?

**Simons:** Well, there will always be more to do: improvements, new technology. Maybe Disney will decide to expand the format to other countries, who knows? Right now, this is a great place to be.

**RW:** Is there anything in radio you haven't done that you'd like to try?

**Simons:** Maybe VP of engineering for a major group, I haven't done that yet. Just as long as there's more to challenge me, more to learn. I'll be happy.



Judith Gross has followed Harry Simons' career from her days as editor of RW.

She said, "I have fond memories of watching him explain, in meticulous detail, the delicate art of correctly eating lobster at a dinner during an SBE convention and of a dare that had me dangling 200 feet above the WAEB transmitter shack on an icy Super Bowl Sunday."

## Radio Disney On the Air

Radio Disney broadcasts in 44 cities, mostly on AM stations, including these in major markets. Stations in New York, Los Angeles, Chicago, Dallas, San Francisco and Minneapolis are integrated into Disney/ABC O&O stations. The others are independent facilities.

This year, Disney is expected to announce four more stations to complete its 20-major-market-goal. Note that many of the calls have letters representing Disney ("DZ") or Mickey Mouse.

New York	WQBW	1560
Los Angeles	KDID	710
Chicago	WRDZ	1300
	WDDZ	1500
San Francisco	KMKY	1310
Philadelphia	WWJZ	640
Dallas	KMKI	620
Houston	KMIC	1590
Miami	WMYM	990
Atlanta	WDWD	590
Seattle	KKDZ	1250
Phoenix	KMIK	1580
Minneapolis/		
St. Paul	KDIZ	1440
St. Louis	WSDZ	1260
Tampa	WWMI	1380
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Cleveland	WWMK	1260

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\*Source: *Duncan's Radio Market Guide*, 1999 edition

\*\*Source: *The American Radio* by Duncan's American Radio; based on Arbitron Spring 1999 12+ TSA Cume, Mon-Sun, 6:00am-12 midnight

\*\*\*Source: Arbitron Fall 1999 12+ TSA Cume, Mon-Sun, 6:00am-12 midnight



# New Bird for Radio Pubcasters

► SATELLITE, continued from page 1  
99 degrees west longitude.

"The future of NPR program distribution is now solidified well into the new millennium," said Pete Lowenstein, NPR vice president of distribution.

By increasing capacity by one-third, PRSS is projecting it will fulfill public radio's future needs and provide more backup protection, Lowenstein said.

The agreement includes a contingency plan for backup capability should another failure occur. Galaxy IV-R will be in-orbit protected by a spare satellite that could be moved into the 99 degrees W.L. position.

"We know the key to keeping the system healthy has been having good backup arrangements. Another failure is the furthest thing from our minds, but it's inherent to this technology and you have to be prepared," Lowenstein said.

Because the new satellite will maintain the same orbital position as Galaxy VI, Ann E. Mountain, PanAmSat senior vice president of Galaxy Sales, said the more-than-600 stations in the United States

this will be the case. Some have expressed concern about audio restoration plans since the Galaxy IV failure on May 19, 1998.

"I'm hoping it will be a little less of a scramble when and if the bird fails again," Hoehn said.

More ground system upgrades to NPR

**Another failure is the furthest thing from our minds, but it's inherent to this technology and you have to be prepared.**

— Pete Lowenstein

NPR operates the PRSS on behalf of all public radio. The PRSS carries programming for about 425 downlink stations and another approximately 250 repeaters or associate stations that feed off those downlinks. Commercial radio customers also buy satellite time from PRSS.

PRSS has looked at ways to improve upon the solution of using traditional phone lines. Internet and ISDN delivery have been discussed, but cost concerns have been raised.

With the new agreement, the need for ancillary systems of delivery have been minimized if not eliminated, Lowenstein said.

"The best-case scenario in the case of transmission failure is immediate transfer to a new satellite, but that usually takes some time," said Eric Hoehn, chief engineer for WETA(FM) in Washington, D.C.

Hoehn said his station receiving equipment was converted to be frequency-agile, and now can receive from any C-band transponder. NPR has been working to convert all public radio stations. Hoehn said changing transponders can be accomplished by switching the setting on the front panel of a down-converter.

affiliates are planned for 2000. Lowenstein said the main objective is to make sure all stations are flexible enough to take advantage of the satellite backups while working within financial constraints.

"The interest right now is working through on a site-by-site basis to refurbish the ground system to take advantage of the improvements and additional capacity. Some stations are more agile than others right now," he said.

Lowenstein said funding for the new PanAmSat agreement came from a \$48 million supplemental appropriation approved by Congress in May 1999 for the Corporation for Public Broadcasting.

"We shopped around some with other satellite services, but with our existing relationship, we were confident PanAmSat could deliver what we needed for the duration of the contract," Lowenstein said.

Galaxy IV-R is a Hughes-built HS601HP model satellite with 24 C-band and 24 Ku-band transponders. Mountain predicted a launch by the end of March with the new satellite put in service by this June.

**The agreement includes a plan for backup capability should another failure occur.**

served by PRSS will experience a seamless transition.

"It should be transparent. The frequencies won't change at all. Ground receiving capability will be unaffected," Mountain said.

Public radio station engineers hope

## DIGITAL NEWS

► DIGITAL, continued from page 10  
located with XM's studios, now under construction, in Washington, D.C.

### XM Signs Charter Advertisers

**WASHINGTON** Hear that sucking sound? Traditional national radio advertisers have discovered a new platform to push their message — satellite-delivered subscription radio.

Several national radio advertising agencies and advertisers have signed up with XM Satellite Radio as charter advertisers: Grey Advertising, J. Walter Thompson, Ogilvy & Mather, Saatchi & Saatchi's Zenith Media, AT&T, Discovery Networks, Allstate Insurance, Kelly Scott and Madison, Looksmart.com, Media First International, TBS Media and Turner Broadcasting's in-house agency RET media.

The agencies committed to buying bulk packages across several XM channels.

XM plans to run about six minutes of commercials per hour and offer advertisers a variety of sponsorship opportunities.

"With the ability to aggregate targeted niche audiences nationwide, XM will provide the kind of targeted national, mass-market radio buy that our clients are looking for," said Ogilvy & Mather's senior partner Reyn Leutz.

Also, program syndicator Premiere Radio Networks, a subsidiary of XM investor Clear Channel Communications, will represent XM's advertising sales. XM Radio's ad sales staff will be integrated into Premiere's national sales force, said the two companies.

XM's President/CEO Hugh Panero said the developments "demonstrate the value of our nationwide satellite-delivered radio advertising platform and the strength of our business and programming plan."

To back up those claims of national advertising reach, XM has engaged Statistical Research to provide custom audience measurement reports.

### XM Raises \$228 Million

**WASHINGTON** XM Satellite Radio has raised \$228 million through four public stock offerings totaling 6 million shares of stock. That brings the total raised for XM to about \$670 million.

XM's goal is to raise \$1 billion to bring its subscription satellite-delivered digital audio radio service to commercial launch in 2001.

— Leslie Stimson

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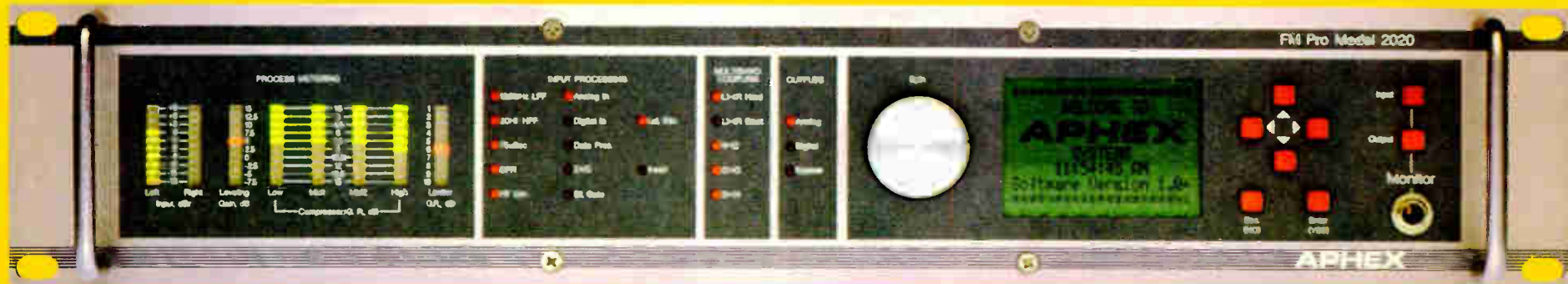
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WIRED FOR SOUND

# Waldo Semon, PVC Pioneer

Steve Lampen

We left our previous installment in the Feb. 2 issue with a trivia question: Who was Waldo Semon?

Semon, who died last June in a nursing home in Hudson, Ohio, at the age of 100, was an unsung hero. He changed our lives, and yet, I bet not one reader knows what he did.

Waldo Lonsbury Semon was born Sept. 10, 1898, in Demopolis, Ala. He grew up in the Pacific Northwest and earned a doctorate in chemistry from the University of Washington in 1923.

Three years later, he took a job with

B.F. Goodrich Co., where he worked on methods to keep rubber from aging and cracking. He later invented the first petroleum-based rubber, a key material in World War II, dubbed "liberty rubber."

In fact, many of these "artificial" rubber compounds, like EPDM (ethylene-propylene-diene-monomer) are in use today on many rubber-jacketed cables.

## New compounds

While that alone would have put him in the history books, these accomplishments pale compared to his greatest achievement.

While working for Goodrich, he

became acquainted with many compounds coming from the waste products of the petroleum industry. One of them was a vinyl polymer, with which he experimented on his own time.

By 1928, he had made a number of compounds with vinyls, including a powder, polyvinyl chloride, an efficient thermoplastic.

Thermoplastics are materials that can be heated, shaped, cooled, then cut up, then heated, shaped and cooled again. "Thermo" means heat. "Plastic" means to change. A thermoplastic is a compound that can be changed by heat.

Semon obtained a patent on polyvinyl

chloride, or PVC, in 1933, but nobody seemed interested in the substance. Today, however, consumers use more than 44 billion pounds a year of PVC, thanks to Waldo and his perseverance.

It shows up in every part of the globe in a million different forms. It is the most favored material for jacketing cable, and is used occasionally inside cable as well.

## Polyethylene and radar

PVC is second in annual volume produced to only one plastic: polyethylene.

Invented by accident in a British Lab in 1937, polyethylene was recognized immediately not only as thermoplastic, but as having electric performance ("dielectric constant") that was amazing for its time.

It was classified top secret by the Allied military for the duration of World War II. During that time, polyethylene was made in two secret plants, one in Great Britain, the other here in the United States.

The reason for its status was the emerging radar industry. Radar worked at extraordinary frequencies like 400 MHz. That's nothing today, but in the 1930s, the next stop was light!

Sending these high-frequency signals from transmitter to antenna proved elu-

**The compounds used in cable jackets have their roots in commercial and military uses.**

sive, until coaxial cables were made with polyethylene.

The Germans also were working on radar, and had the same problems. When they managed to shoot down some early Allied bombers that contained our new radar equipment, they analyzed the cable used to carry the radar signal.

They no doubt wondered what this strange compound was. What tree or what plant did it come from? The Germans spent fruitless espionage time trying to identify the "plant." Polyethylene was a petroleum by-product, not a plant at all.

The Germans learned that the magic compound was thermoplastic. They could strip apart the cable taken from Allied planes, cut it up and make their own cable, which they did. In this way, we supplied both sides of the war effort with polyethylene.

So just consider the polyethylene bag you use in the supermarket to bag your veggies. At one time, you could have sold that bag for its weight in gold (to the Germans) and could even have been arrested for your efforts!

## Teflon

But polyethylene (or "PE") wasn't the only secret plastic in the war.

On April 6, 1938, Dr. Roy F. Plunkett, a laboratory scientist for DuPont, was conducting some experiments with refrigerant gasses. Among them was one that combined fluorine and ethylene called tetrafluoroethylene. He wrote in his logbook:

"Today when a cylinder which had  
See WALDO, page 30 ►

## Corporate wanted everyone on the new system by Monday...

You had software to install, reports to configure. You had 32 traffic operators to train. You had a headache.

DeeDee at CBSI made it all fall into place for you.

She had your active accounts pre-loaded, so your team could learn on the same data they'd use every day. She asked the right questions and helped you address issues you hadn't even thought of. And when the out-of-the-box answer wasn't quite right, she worked tirelessly to find solutions that would work for you across the board, not just in the traffic department.

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# Workbench

Radio World, March 1, 2000

## Ouch! Prevent Bee Nests Now

**John Bisset**

As our thoughts turn to spring, let us remember our tiny winged friends and their desire to wreak havoc in our lives by building nests in the most unusual of spaces.

Figure 1 is courtesy of Paul Matthews of mPact Engineering in



Figure 1: Act now to avoid bee and wasp problems later.

Raleigh, N.C. It shows why that satellite signal failed! He found the culprit at one of his contract stations.

I'll never forget unbolting an LNB only to be greeted by several wasps trying to squeeze their way past the gasket — there was a momentary stare-down, then my jump/fall off the ladder, and to safety. I hate bees!

You can avoid these problems by inspecting your dishes, tower bases and AM coupling units now, before the home-building begins. Use bee-spray liberally. Plug all holes, make sure all covers are secure. In this day and age, time at the transmitter site for maintenance is little more than a fleeting thought. Set

aside a couple of hours, armed with spray and RTV — your diligence will pay off!

★ ★ ★

Our test for waterlogged STL antennas brought an interesting problem that ought to be on an SBE exam. See if you can figure this out.

A brand-new STL was engineered, using the computer models, with plenty of fade margin. This was a digital link, using a composite STL transmitter and receiver, with add-on digital encoders. Everything was new.

When the system was turned on, the digital encoders would not work — all the red lights came on, although there appeared to be some received signal on the composite receiver. The received signal was one-quarter of the amount predicted. Pulling the digital encoder/decoder and feeding a composite test signal out of an Optimod fed into the composite input yielded a lot of noise.

When the digital encoder/decoder was

set up on the bench, back to back, without the STL, it worked fine. Plug it back into the STL transmitter and receiver, and nothing but red lights. There was no spectrum analyzer immediately available.

A call to the STL manufacturer was made and a second receiver was sent. The same problem occurred. Give the matter some thought, and read on for the answer!

★ ★ ★

We haven't had a *Workbench* Rolodex item in awhile. This card from Famous Telephone Supply is a good addition to your list of "must-haves." Add it to your resource list.

These folks offer voice and data products, and hold a Fall Expo in Cleveland

technical seminars.

If you maintain your station's telephones or network systems, get to know these folks!

★ ★ ★

In the never-ending search for what to do with those computer keyboards, Lee

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Akron, OH 44319

Simmons, director of engineering for the Hilton Head, S.C., stations owned by Adventure Communications, came up with the idea shown in Figure 2.



Figure 2: A recessed tray holds the computer keyboards.

each year. In addition to the latest in fiber, network, T1 and Key system products displayed, they usually provide

The console cabinetry was designed with a recessed tray, in front of the audio  
See WORKBENCH, page 20 ▶

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### 530 FM Mod-Monitor

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**Audio-Technica  
Makes Olympic Team**

The host broadcaster of the Sydney 2000 Olympic Games and Panasonic chose **Audio-Technica** to provide more than 1,000 microphones for the 2000 Olympic Games in Australia later this year.

The **Sydney Olympic Broadcasting Organization** is responsible for producing the international signal. A variety of A-T microphones will be used for the stereo broadcast including AT4071a and AT4073a shotguns, MT830R and AT831 lapel mics, AT849, AT845R, AT961Rx and AT961RWx boundary mics as well as Audio-Technica's AT895 adaptive-array microphones.

A selection of handheld, studio con-



AT895 Adaptive-Array Mic Systems

denser and custom specialty microphones will be provided.

SOBO's mission is to provide service to rights-holding broadcasters and produce more than 3,200 hours of live coverage of the games.

Panasonic Video Systems is the official broadcast equipment and system supplier for the games.

For information, contact Karen Emerson at Audio-Technica U.S. in Ohio at (330) 686-2600 or visit the Web site at [www.audio-technica.com](http://www.audio-technica.com)

**BR Wins Orders  
In Memphis, Washington**

Spanish Language Broadcasters in Washington state chose **Broadcast Richmond** to supply two Prewired Console Harnesses for new Auditronics 2500 consoles. BR said the harnesses reduced on-site installation from three weeks to one day.

BR also supplied and installed a stereo production facility in Memphis, Tenn. **John King Productions** awarded the contract, which included Murphy studio furniture, an LPB console, 360 Systems equipment and other source gear.

The vinyl-to-CD facility will be used to dub King's collection of 15,000 records to CD, for archiving and syndication.

For information from **Broadcast Richmond**, contact the company in Indiana at (765) 966-6468 or visit [www.broadcast-richmond.com](http://www.broadcast-richmond.com)

**Harris Wins  
IBB Deal**

The **International Broadcasting Bureau** signed a five-year, sole-source provider agreement with **Harris Corp.** for FM radio transmitters.

IBB ordered four Quest Series FM Radio transmitters, the latest in a series of transmitters provided to IBB by Harris in recent months. The agreement covers FM radio transmitters from 200 watts through

10 kW. This includes Quest Series solid-state VHF/FM transmitters and Platinum Z CD solid-state FM transmitters.

The units will be installed at IBB-affiliated stations representing Voice of America, Radio Free Europe/Radio Liberty and Radio Free Asia.

Harris also delivered the largest digital solid-state FM broadcast transmitter in its history to WUOT(FM), a National Public Radio affiliate operated by the University of Tennessee in Knoxville.

The 40 kW transmitter — a Harris ZDD40CD — began broadcasting to 80,000 listeners in WUOT's mountainous 100-mile service area in December.

Chief Engineer Mike Murrell said the transmitter will be able to accommodate in-band, on-channel digital broadcasting should that service be approved.

For information, contact Harris in

Ohio at (800) 622-0022 or visit [www.harris.com](http://www.harris.com)

**Cox Installs Sadie DAWs**

**Cox Radio** installed five **Sadie 24•96** digital audio workstations in four radio facilities.

The DAWs are used to produce commercials on Cox Radio's FM stations WMMO, WHTQ, WHOO and WPYO in Orlando, Fla.

Steve Fluker, director of engineering for Cox Radio, Orlando, said he first purchased Sadies in the early 1990s after seeing them at an NPR conference. "There were only two machines at that conference that attendees could actually sit down and start editing on, and SADiE was one of them. I ... was able to talk our engineers through the

first edit in 20 minutes. From there, they were able to learn on their own."

The SADiE 24(96 is capable of 192 kHz editing and mixing and full surround sound panning. It can be configured to provide up to 32 inputs and outputs. Features include RS 422 machine control, time compression/expansion, PQ editing, AutoConform, built-in timecode support and eight channels of I/O.

For information contact the company in Tennessee at (615) 327-1140 or visit the Web site at [www.sadieus.com](http://www.sadieus.com)

"Who's Buying What" is printed as a service to our readers who are interested in how their peers choose equipment and services. Companies with news of unusual or prominent sales should send information to: Radio World Managing Editor, P.O. Box 1214, Falls Church, VA 22041.

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## PRODUCT EVALUATION

# Marantz Rolls Out Portable MD

**Paul Kaminski**

New professional portable recorders are too rare in radio, and among the most well-known suppliers is Marantz. Its new MiniDisc machine is the PMD650, eagerly awaited for more than a year by radio professionals.

RW asked two of our most experienced contributors, Paul Kaminski and Peter King, to put the unit to work in their respective news jobs and to share their reactions.

With the reputation Marantz built in the news field for dependable value-priced cassette recorders, radio people were eager for the formal introduction of the company's first MiniDisc machine.

The introduction of an MD recorder intended for pro radio users is welcome. The MD format delivers digital audio, instant access to cuts, a memory buffer

and other conveniences. In the past, users have been obliged to choose between very expensive decks, or consumer-oriented portables that lack durability and



Eileen Ganter of MediaVia uses the PMD650.

pro connections.

I road-tested the PMD650 in my studio and at two remote venues, the North American International Auto Show in Detroit and the Lowe's Motor Speedway Media Tour of NASCAR Winston Cup teams, and at garages in and around Charlotte, N.C.

### Durable but hungry

I loaded the machine with eight AA batteries and took it on the road. After all, the field is where this unit will be used most.

The PMD650 is durable. A clumsy radio reporter stepped on my Belden 1804 starquad microphone cord, pulling the unit from the chair on which it sat onto a carpeted floor.

**RW's news experts found the PMD650 durable and convenient, but quick to consume batteries and awkward for editing.**

## Hide Your Keyboards Away

► WORKBENCH, continued from page 18 console, which holds the three keyboards. When the keyboards are not needed, a hinged cover swings up from below, providing work space for logs, writing, etc.

Lee explains that because the operators usually use touchscreens or a mouse, the keyboards are not always

needed. Rather than clutter up the studio, this hidden cover — sort of a reverse piano key cover — was used.

★ ★ ★

Well, did you come up with an answer to the STL problem?

If you suspected the transmitter, and thought it was off frequency, give yourself a pat on the back.

Turns out that the transmitter was slightly off frequency due to internal shipping damage. Without a frequency counter or analyzer, this couldn't be immediately verified. Everything looked fine inside — the frequency jumpers were properly set.

The shift in frequency was not enough to prevent decoding some of the composite signal; it was, however, great enough to prevent any of the digital signal from being received.

A fun brain twister, now that the problem is solved. Not so fun for the engineer facing his owner, though!

■ ■ ■

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

Submissions for this column are encouraged, and qualify for SBE recertification credit. Fax your submission to (703) 323-8044, or send e-mail to jbis-set@harris.com

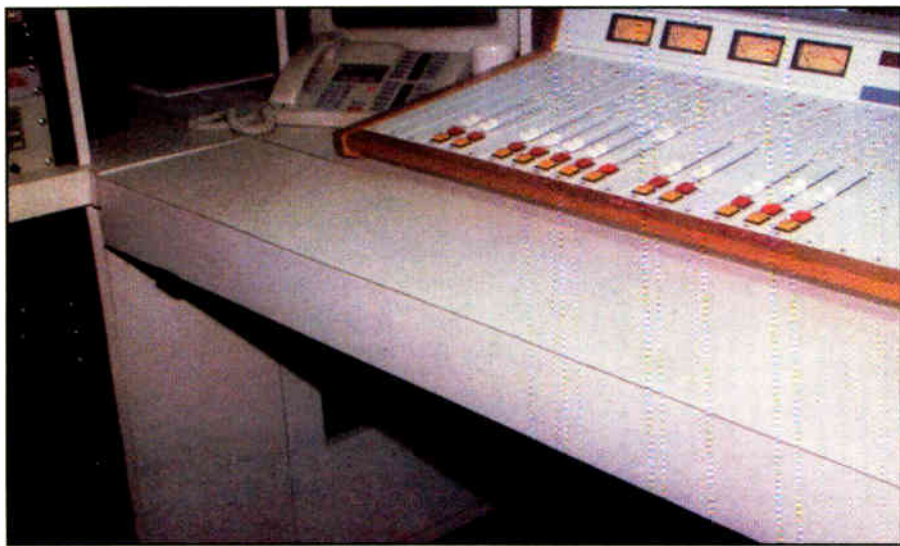


Figure 3: The hinged cover provides added workspace.

## NEW! DigiStor II is here!

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DigiStor II is ideal for network news delay, traffic reports, translator IDs, weather reports, call-in telephone info lines, message-on-hold, news & actuality lines, travelers information radio, sound effects....

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PRODUCT EVALUATION

# Marantz PMD650 Is A Mixed MD Bag

**Peter King**

Let me start by saying that I wanted to fall in love with this machine in the worst way. The Marantz PMD650 was my most anticipated holiday package to help in my field work for CBS News Radio.

I wanted to be able use it forever, til death — or retirement — would we part.

The Marantz PMD650 holds great potential. Finally, a professional-grade MD recorder with toughness and durability in the fine tradition of the indestructible Marantz cassette machines on which reporters have relied for years.

But the PMD650 broke my heart when I needed it the most.

**Nice connections**

The initial once-over was enticing; the standard Marantz tough case, lots of neat switches and buttons, controls easy to see and feel, a wonderfully visible LCD display with backlighting, solid XLR connections for microphones, and RCA line outputs.

I wasn't upset at the absence of mini-plug connectors, for those have given me fits by becoming intermittent or wearing out on my Sony MZ-R3 and previous Marantz cassette models.

**The unit weighs 3 lbs. 6 oz. — heavier than popular Sony models, but with more pro features.**

Nor was I thrown by the weight of 3 lbs. 6 oz. with batteries (a whopping eight AA cells!), compared with my 14 oz. Sony MZ-R3. It's the price you pay for a feature-packed recorder with girth.

The manual is easy to read, and I was able to master basic functions like recording, playback, editing and moving tracks in less than an hour. I couldn't wait to take it on the road.

My first road assignment was a plane crash site in Deland, Fla., where I'd be working on a breaking story with tight deadlines every hour.

Unlike conventional cassette machines, the PMD650 has a power switch; it takes 10 seconds for the PMD650 to "read" the disc and be ready for recording, an inconvenience where seconds count, but not an insurmountable obstacle.

It also takes 10 seconds to "write" the disc at the conclusion of the recording.

The record/pause switch on the PMD650's face sets you up to begin recording at the conclusion of the previous recording. A sliding, big, red, record/mark switch allows you to begin recording and to mark tracks as you record.

A blinking red light between the

switches indicates "pause" and the same light, solid red, tells you that you are recording. Easy one-touch operation.

**Edit difficulties**

First recording at the crash site went well. I ran back to the car to begin cutting and moving tracks.

The edit functions work on a series of buttons on the top of the PMD650. The "edit" buttons allow you to choose between divide, combine, move, erase,

erase all, clock and preset function. The display asks which function you want; you confirm by pressing "enter." Cancel

by pressing "Stop."

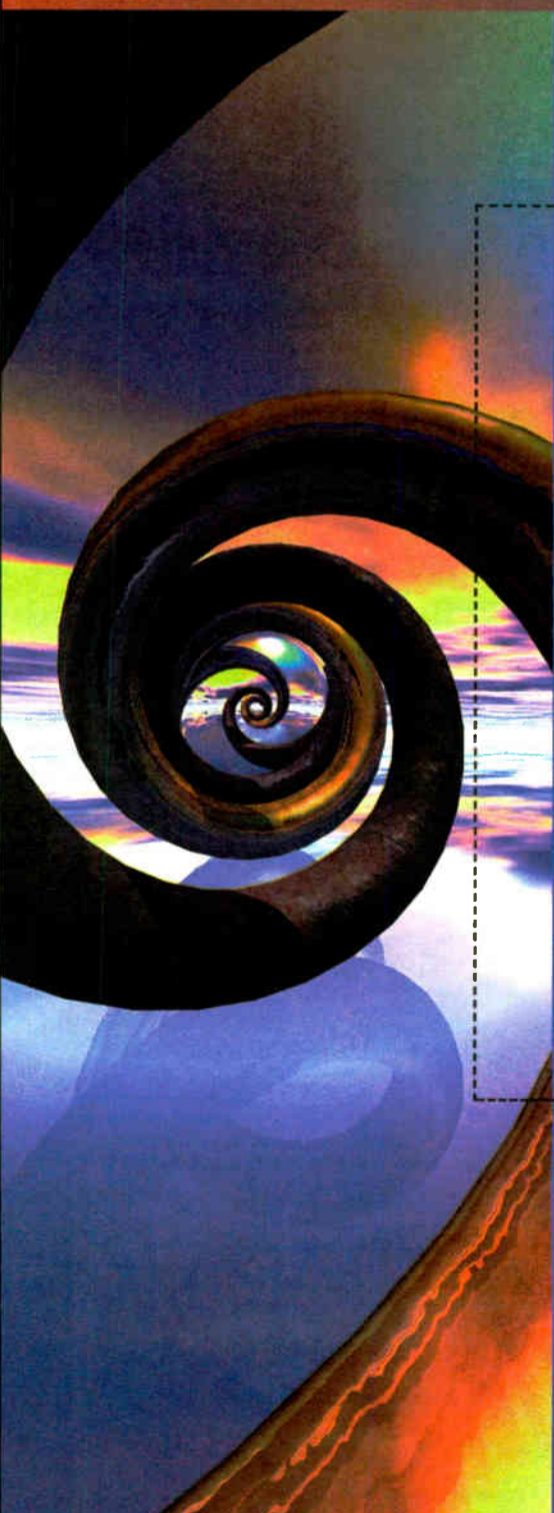
If dividing or combining tracks, the See PMD650, page 26 ▶



Numerous control functions appear on the top panel.

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SBE NEWS

# Lots on Tap From SBE at NAB2000

Barry Thomas, CSRE

The author is national SBE secretary and technical director of KCMG-AMFM of Los Angeles.

RW regularly provides space for commentary from the Society of Broadcast Engineers as a service to the industry.

After all the work preparing for Y2K and the letdown afterward, did you notice that the NAB convention is just around the corner?

This year's show, April 8 to 13, promises to be the showcase of new radio technologies and the stage for exciting developments. Some of these have already come to pass, and we should see the results at NAB2000.

Important reasons to attend the spring NAB are the sessions and panel discussions. SBE partners with NAB to pre-

vice and more.

The BEC has a special feature this year: "Ask The Consultant: Free Radio Tech Advice!" That's worth the registration fee right there.

The SBE centerpiece of the Broadcast Engineering Conference and an important educational effort is the SBE/Ennes Radio Workshop, scheduled for 9 a.m. to 5 p.m. on Wednesday, April 12.

This important workshop is a collection of sessions designed to offer techniques and tools you can put to work immediately. This year's sessions range from installation and implemen-

tation of intercom systems to Internet broadcasting and radio networking.

Ennes sessions always are full of valuable information, no matter how long you've been in the industry.

**Floor tips**

While the Broadcast Engineering Conference definitely offers a vast amount of information in a short time, sometimes the questions and research you need are more completely answered by speaking to the manufacturers directly.

This can be a fun part of the NAB conventions: The Exhibit Floor!



This year the floor will host more than 1,400 separate exhibits or demonstrations. If you've never been "on the floor,"

See SBE, page 31 ▶

**Headed for the madness of Las Vegas next month? Here are some survival tips for engineers.**

sent the Broadcast Engineering Conference every year, which offers the chance for engineers to quickly gain knowledge on new technologies and emerging trends.

**Digital and low-power radio**

The 2000 BEC has a strong emphasis on the new digital audio broadcasting standards and technologies.

The first of the Radio sessions will discuss the global implementation of DAB, including its potential use for AM plus transmission coding issues.

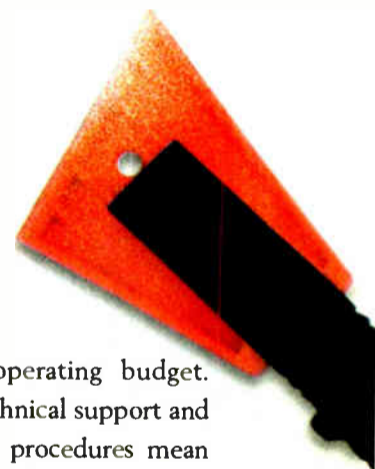
This session is followed by more immediate instruction on implementing DAB in the United States. NRSC and manufacturer test results will be presented, along with design and execution strategies for in-band and satellite DAB. There will be a panel discussion on DAB including representatives of the proponents and others on the forefront of the debates.

The Broadcast Engineering Conference reflects SBE and NAB efforts to provide tools and information you can use to improve your current operation or prepare for the future — and not just the distant future.

The issues resulting from the FCC's low-power FM rulemaking could make for interesting challenges. The results of FM receiver interference tests will be presented, which should help us provide answers to managers' questions about the effects of these new stations.

The conference continues with sessions on tower space management, facilities design, audio processing techniques, signal optimization for AM and FM, practical transmitter ser-

## Nautel FM The Sound of Cool.



Nautel solid state modular FM transmitters run cool. The highest efficiency ever achieved for any solid state design means there is less waste heat generated. Nautel's patented single stage combiner also eliminates the heat dissipated by imbalance loads employed in conventional hybrid combiners. Each Power Module has its own ventilation fan and thermal protection. But that is only the beginning of cool. Safe on-air module service minimizes nighttime and emergency service calls; and power consumption is lower than other solid state transmitters thanks to the high over-all rf-out/ac-in efficiency. These features help



Power Module

take the heat off the operating budget. Twenty-four-hour-a-day technical support and straightforward installation procedures mean there's no need to sweat installation and maintenance either. Nautel FM transmitters, from 3.5 to 10 kW and Combined 20 kW, partnered with the superior signal integrity provided by the Nautel Direct Digital Synthesis FM Exciter — with AES/EBU direct digital input, or with optional interface for conventional analog composite input — quite simply deliver the finest sound and signal around. Nautel — because simple, efficient, rugged, and reliable is also cool.

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# Marantz Adds PMD650 MiniDisc

► PORTABLE MD, continued from page 20 to connect the 650 to the system.

The 650 output jacks are RCA female jacks for left and right. If necessary, adapters can be found at the local Radio Shack or music store, or you can fabricate your own.

The deck is hungry for power. Battery life with standard AA alkalines is not conducive to real-world news operations. The unit gave me less than two hours of intermittent recording time before the audible low-battery signal went off.

I suspect much of this consumption is thanks to the 650's transport and circuitry. If I had to use phantom power, I expect the unit would yield even less battery time.

Marantz makes an optional Ni-Cad rechargeable battery pack. I recommend you spend the extra \$80 for it.

Road-Test" programs.

Once I set a level from the line outputs of my venerable Mackie 1202 VLZ, I



Pro connectors are a major attraction on the PMD650.

In the studio, we used the PMD650 to master my "Race-Talk" and "Radio-

could make a clean, clear recording. I liked the internal speaker feature for

cuing, and the Limiter mode.

Editing was a different story. I could not make a very tight edit. I followed the instructions in the manual, but try as I might, I could not edit as closely as I could on my regular studio machine, a Sony JE-510.

With deadlines approaching, the deck's "Impossible" display glowing and frustration setting in, I decided to use the PMD650 as the mastering machine, and performed my normal edits of tracks on the JE-510.

The recording was made on a MiniDisc I've had for more than a year. I figured the MiniDisc itself might be too fragmented for editing. I tried a new MiniDisc, but the same problem arose.

As for editing in the field, I found the same limitations. Someone under deadline pressure to send an edited piece over POTS, a POTS codec or ISDN will need

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**Product Capsule:**  
**Marantz PMD650 MiniDisc Recorder**

**Thumbs Up**

- ✓ Clean, clear sound
- ✓ XLR connectors
- ✓ Convenience of MD format
- ✓ Durable construction
- ✓ Doofus-proof dual mono mode for hot levels
- ✓ Lengthy feature list (see page 26)

**Thumbs Down**

- ✓ Editing imprecise
- ✓ Short battery life with eight AAs
- ✓ Expensive for street news operations

For information, contact Superscope Technologies in Illinois at (630) 820-4800 or visit the Web site at [www.superscope-marantzpro.com](http://www.superscope-marantzpro.com)

to dub from this machine to a digital audio workstation. That defeats the flexibility of the MiniDisc machines now extant.

If you have the luxury of time and don't want to field-strip your DAT recorders every time a tape jams, the PMD650 is ideal.

For a street news person, some fine tuning is needed.

Marantz does listen to its customers, which is why the PMD222 cassette machine with its XLR mic input was marketed. Here's how I'd build on the strengths of the 650 to make a better street machine.

First, push for updated software to improve the editing capabilities.

Second, lose the phantom power. It isn't necessary in a street news machine. That could allow Marantz to use a battery pack, which might take fewer batteries. Eight AA alkalines a whack will eat up your walking-around money real quick, especially if you have to replace them in two-hour intervals. Four AA cells would be more workable.

Third, most MD news recordings are made as stereo from a split mono source (at the mic adapter). Some operations might not have a pan control on their mixer inputs to take advantage of the dual mono capability.

If there were a way to record both channels at the same level from the mono source, it would save lots of time. Perhaps a three-position switch for L&R stereo, dual mono same level, and dual mono with right channel -15 dB down.

See PORTABLE MD, page 25 ►



**MARKET PLACE**

**Weisinger  
Intros Skimmer,  
Alert Receiver**

Two new devices from William Weisinger Engineering Services are designed to solve common problems for radio managers. They are built around modified Sony CFM-10 cassette recorder/receivers and carry warranty coverage from Weisinger.

The Skimmer Receiver is designed for the radio PD or MD who wants to keep track of music without having to monitor a station for hours.

The cassette recorder/receiver is modified to sample and record a few seconds of programming every two or three min-



utes automatically. It uses standard audio cassettes and tunes to any AM or FM station.

Dual variable timing lets you set the recording length from one second to three minutes, and the pause length between recordings at one to three minutes. A 45-minute cassette side typically allows 13.5 hours of skimming, so you can review an hour of broadcast material in about three minutes. Time delay is set with a screwdriver and side-panel adjustments.

Also from Weisinger is an FM Alert Receiver. This silence sensor receiver can

► PORTABLE MD, continued from page 24

This would be more useful than phantom power circuitry.

Last, find a way to lower the list price of \$1,399. This may put the unit out of the range of the people who need it most, the street news professionals.

The unit includes a carrying strap and the AC adapter. Available options are a vinyl protective case, retailing for \$70, a nicer reporter's bag for \$279 and the Ni-Cad pack for \$80.

It took awhile for news people to get familiar with the PMD cassette series and their capabilities. The first-generation PMD MiniDisc is a good start, thanks to its reliability and durability.

If Marantz addresses the battery life issues, editing limitations and cost, it will have a more formidable professional alternative to Sony's MZR series.

■ ■ ■

Paul Kaminski is news director for the Motor Sports Radio Network. His e-mail address is motorsportsradio@compuserve.com

be used anywhere your station can be received with clean audio to provide peace of mind that the station is still providing programming.

Should the automation hang up, or a jock be locked out of the studio, an alarm will alert you, then automatically reset. If audio remains off, the alarm condition remains on. If the time is set to a short interval, such as two seconds, the unit will alert you to every second over that setting.

Features include switchable aural alarm, switchable relay closure, LED audio indicator and variable time delay of 1 to 110 seconds. The relay enclosure is a SPST reed relay that can be used to switch other alert devices like lamps or tape decks. Connections are on a side-panel barrier strip.

Both retail for \$229 plus shipping.

For information, contact William Weisinger Engineering Services in Ohio at (330) 626-2469 or via e-mail to wwes@juno.com



The FM Alert Receiver is a modified Sony radio/tape deck.



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# Reporters Try Out MD Portable

► PMD650, continued from page 21  
PMD650 lets you hear the "rehearsal" before you make your final decision. Moving a track is simple as well; the PMD650 asks which track you'd like to move, and where you'd like to move it. The LED reads, "Complete!" when the job is done.

The trouble began when, after moving tracks around, I wanted to edit the same tracks — divide, erase, whatever.

Once moving a track, I decided to try and shorten the actuality, only to get messages in the window reading "Can't Edit" or "Impossible." This meant I could not trim the beginning or ending of the cut I had isolated and moved, which is irritating in a time crunch.

To be sure that I had followed procedure, I repeated the exercise at home while working on another story the next day. Sure enough, I had a repeat of futility. This has never happened with my Sony.

I wanted to feed audio through my Marti Cellcaster, only to discover I didn't have an RCA-to-XLR patch cord with me. So I reverted to my Sony to feed my actualities.

When I tried using the Sony to play back the disc I'd recorded on the Marantz, I got a rude surprise; the ending of my recorded wrap was garbled, and the endings of several actualities were clipped during playback on the Sony.

No problem playing them back on the PMD650, but playing them back on the

Sony was a disaster. I worked around it and went home, not happy.

## Battery life

Working under less-intense time constraints, I repeated the editing exercise and learned you cannot edit the first or last two seconds of a divided track — which means you need to be careful and

certainty.

Also, adding track marks on the fly with the sliding record button doesn't always provide the best edit points possible; returning and changing track marks is time-consuming and not something most reporters have time to do when working on deadline.

There are other problems to be



Our reviewers liked the unit's durability but gave its editing lower marks.

plan ahead on your edits — no rough cutting that can be trimmed down later.

It's a letdown for those of us who tend to do rough cutting and later trimming, but isn't an obstacle for those able to plan ahead and do their first edits with more

expected in a first-generation machine.

The PMD650 is so chock full of features that it burns up batteries quickly. I went through two full sets after five or six hours of recording, playback and editing. The user guide says conventional alkalines should last about three-and-a-half to four hours.

The 13V AC adapter weighs in at 1-1/4 pounds, a lot when you're trying to pack lightly for a road trip. The optional rechargeable battery pack is recommended.

## Many features

There is plenty to like about the PMD650. It's easy to operate. I also don't mind the weight, a legitimate tradeoff for girth and durability. The buttons and other controls are large enough for "real fingers" to operate, and they're durable.

## PMD650: Key Features

- 74- or 148-Minute Modes
- Stereo XLR Mic/Line Inputs
- Stereo RCA Analog Line Outputs
- RCA Digital Input (S/PDIF)
- XLR Digital Output (S/PDIF)
- 48V Phantom Power
- Divide, Combine, Move, Erase
- Time/Date Stamp
- 40-Second Buffer
- Backup Table of Contents
- Pre-Record Audio Cache
- ATRAC Compression
- Defeatable SCMS
- One-Touch Recording
- Variable Mic Attenuation
- Remote Control Input
- Built-in Mic and Speaker
- Low Battery Alarm
- Three-Way Power: AC Adapter, 8xAA Battery, or optional Ni-Cad Rechargeable

A Backspace feature lets you repeat the last five seconds of a track quickly. An alarm sounds when the PMD650 has been sitting idle for five minutes, signaling an automatic shutdown within 30 seconds, or when the batteries are dangerously low.

There are time/date and titling stamps. The unit offers analog and digital inputs and outputs, a connection for optional remote control, a built-in microphone, and adjustable pre-selects for limiting, ALC, and mic attenuation.

Users will have to get a new set of patch cords, as there are no mini-jacks on the PMD650. The twin mic connectors are XLRs, providing durability that has long been needed in an MD portable.

Still, even with all the pluses, it's too early for me to jump on the Marantz bandwagon because of my own editing habits vs. the drawbacks outlined above.

The PMD650 is a good start. Let's see what the next generation of PMD portables brings.

■ ■ ■

*Peter King is an Orlando-based reporter and anchor for CBS News Radio.*

## Radio's Most Wanted

### PROFILE: John Caracciolo

Vice President, General Manager  
WLIR / WDRE / WXXP Long Island,  
Jarad Broadcasting, Garden City, N.Y.  
Radio World reader for 14 years

**Hometown:** East Northport, N.Y.

**School:** NY Institute of Technology  
(Bachelor's Degree)

**Favorite color:** Black

**Coffee:** Milk and sugar

**Favorite radio format:** Modern Rock

**Favorite section in Radio World:**  
GM Journal

**Favorite piece of equipment:**  
My new Harris Platinum Z  
transmitter

**Best thing about your job:**  
Getting paid to do my hobby

**Hobbies (other than radio):**  
Reading, keeping up with my four-year-old daughter Noelle

**Proudest moment:** Rebuilding WLIR as the chief engineer, then taking over as GM and rebuilding the business to the best year in its history

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Include your contact information, and we'll get back to you.

## MARKET PLACE

### BE Launches AudioVault.com

Broadcast Electronics debuted AudioVault.com, a Web site with white papers, demonstrations and tutorials for users of AudioVault and eStream products.

Mark Jamieson, vice president of worldwide sales and marketing, said the site provides AudioVault users with an easy-to-use forum and will include content for streaming media content producers.

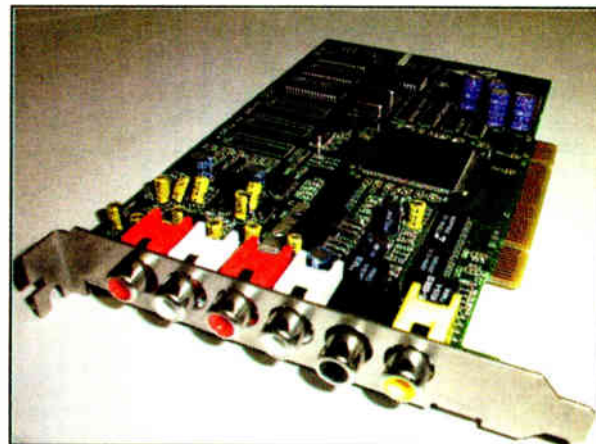
eStream is a suite of tools for streaming media producers for the delivery of audio content over the Internet or corporate intranets. It includes audio processing software applications, streaming bandwidth management tools and analog-to-digital processing hardware.

The manufacturer also

announced an alliance with Waves Ltd. to include Waves MaxxStream audio processing technologies in future products. BE will bundle Waves technologies with future streaming media solutions such as eStream.

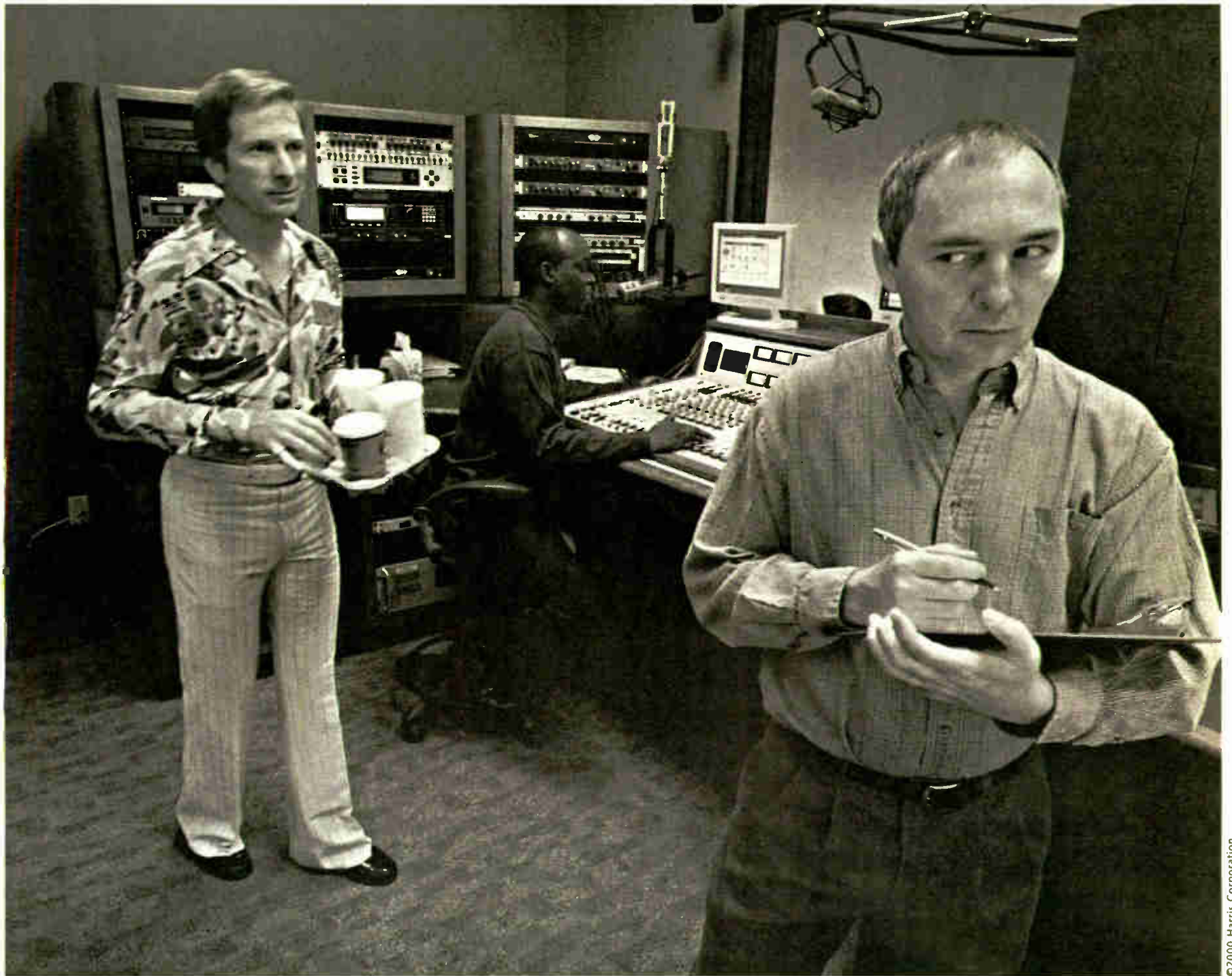
Customers can buy eStream online directly from BE.

For information visit [www.audiovault.com](http://www.audiovault.com) or [www.bdcast.com](http://www.bdcast.com) or call the company in Illinois at (217) 224-9600.



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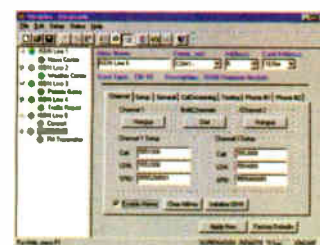


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## HUMOR

# I Love My Comsex Codec

The following item appeared in a recent newsletter from industry supplier Comrex. We thought we'd share it with our readers. It was written by the company's John Andrews, "loyal tech support guru."

While searching through a dusty file cabinet on the 13th floor, looking for some wireless mic diagrams, we came across a yellowed file entitled, "Name for Company."

Never having realized the depth of the research that went into the choice of Comrex back in 1961, we had thought that it meant "Communications King," or something else from Latin II.

law firm. While we like attorneys, the idea of billable hours seemed a turnoff, particularly for tech support.

**Commex:** We loved Mexican food, but we didn't want that ugly little dog for a mascot.

**Compex:** Bodybuilding wasn't a big thing in those days.

**Complex:** A term not applying to either our equipment or the writer of this piece.

**Comrex:** A dynamic sounding name. A company with this name would really amount to something.

## Would radio engineers have embraced a Complex Codec? How about one from Comsex or Comwex?

Here are some reflections on the list of finalists:

**Combex:** While many of our employees felt that Beck's was a fine beer, there was no general agreement that it was the best. "Combud" just didn't ring right, either.

**Comdex:** We admit to really blowing this one. Imagine having two huge Vegas conventions each year, with your company's name all over the town.

**Comhex:** Sure. And our company spokesperson would ride a broom.

**Comlex:** Sounded like a communications

**Comsex:** Remember, this was in the early '60s, and the World Wide Web did not exist. Might have been an interesting choice, though. It would have given a whole new meaning to the term Frequency Extender.

**Comtrex:** Take two of these and call us in the morning if the phone company still hasn't fixed your line.

**Comwex:** Barbara Walters might have bought a lot of our stuff.

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## MARKET PLACE

### RDA Launches 'One Stop Shop'

SystemsStore.com offers engineers a convenient way to find items needed to accomplish studio projects.

The site is a division of RDA Systems Inc. President Rick Dearborn said RDA hears many requests for

than 1,200 items. Categories include power protection, connectors, wire management, equipment racks, studio furniture, cable trays, telephone interface and custom panels. Test equipment and tools are planned.

Vendors to date include Neutrik, Switchcraft, Belden, Gepco, StudioHub, Siemon, Panduit, Lowell, Chatsworth and Radio Systems StudioHub.

The site features a systems discus-

# SYSTEMS STORE.com

items used in its projects.

"Now, through SystemsStore.com, engineers can get the right items they need at one location, without having to contact several vendors."

SystemsStore.com contains more

tion bulletin board where engineers can find answers to questions about systems projects.

For information visit [www.systemsstore.com](http://www.systemsstore.com) or contact RDA in Missouri at (888) 616-7980.

## Selected Tales of Teflon, Jackets & Wire

► WALDO, continued from page 16

contained 850 g(rams) of (tetrafluoroethylene) was emptied, the tank weight was found to be 60 g high. The valve was removed from the cylinder and 60 g of a white solid removed. This cylinder had been standing in the lab about 10 days.

"This solid material ... is thermoplastic, (and) melts at a temperature approaching red heat."

In fact, what Plunkett had discovered was a spontaneously polymerized version of tetrafluoroethylene, or polytetrafluoroethylene, or PTFE.

You can also see where the name

and cable. Before that, it was used in a range of military applications from frictionless gears to gun-barrel lining.

### Fire concerns

By 1960, DuPont had invented friendlier versions, such as FEP, fluorinated ethylene-propylene. This could be melted and extruded much the same as other thermoplastics, but still at a high temperature (200 degrees C).

The majority of Teflon used today in the wire and cable industry is FEP. But what put Teflon on the map was that it wouldn't burn.

Sure, it could melt and be reformed.

## We use these materials daily but probably don't give a thought to how and why they were developed.

Teflon came from; it is a shortened version of tetrafluoroethylene. It is no wonder that this magic substance was considered top secret. It resisted almost every known solvent, and was so slippery that nothing would stick to it. Moisture had no effect and it would not become brittle or degrade with exposure to sunlight. It had a melting temperature of 327 degrees C, or 620 degrees F.

But when melted, it unfortunately would not "flow" like other thermoplastics. DuPont spent a lot of time figuring out how to make a useable version.

In the case of wire and cable, DuPont made PTFE into a powder and mixed it with a lubricant so it could be heated and squeezed — extruded — onto wire

But you could not use it to fuel a fire. And, after a couple of very bad incidents, suddenly everyone in the wire and cable business was knocking on DuPont's door and getting on the Teflon allocation list.

In our next installment, we'll talk about some of the fires that brought all this about, and the National Electrical Code that resulted.

■■■

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



# NAB Offers Plenty at Show for Engineers

► SBE, continued from page 23  
it can be overwhelming.

To that end, I'd like to offer some suggestions on how best to profit from the experience of the exhibits without getting desensitized or missing something important.

I literally schedule time on the exhibit floor so that I don't miss an important BEC session. It also helps me manage my time on the floor.

I start with a list of the things I need to see. I find those exhibitors on the floor map early, to save some effort and wandering on the floor. I go through the "need to see" list first. Otherwise I would risk not having enough time to have all my questions properly answered. It's kind of like "business before pleasure."

After the "work" is done, I can rove the aisles like a shopper at Price Club and learn not just what's new and exciting but also innovative ways of using current services and equipment.

This takes time, but it's exhilarating. Invariably I meet up with friends and share war stories and trade highlights of the exhibit floor. These highlights often give me the next exhibitor to visit.

## Pack light

After several years of attending the spring NAB convention, I've learned some habits that have helped make life easier.

I pack light and include comfortable clothes for the show floor. I make copious use of the "expo card" that exhibitors swipe to send information.

Show literature gets awfully heavy, especially when you try to fit it all into the luggage you brought. I prefer to receive most product information later, when I can apply it to my situation and/or file it with the appropriate project. Otherwise many things get lost in the pile of papers that I'll "get to later."

This isn't to say I take nothing. I just make sure the literature I carry has information specific to an immediate need or question. This attitude has allowed me to give more considered attention later to exhibitors that may not satisfy an immediate need and not lose them in a paper shuffle.

The advantage on the exhibitor side is that they have follow-up information to contact me. It's worth the trouble. Trust me.

For convention information, visit the NAB2000 Web site, which you can access through the SBE site at [www.sbe.org](http://www.sbe.org). It will give you details on the Broadcast Engineering Conference, exhibitors, schedules, hotels, etc.

By the way, if you haven't reserved your hotel room yet, you should do so soon. The rooms go fast and attendance is expected to be high. You can do so at the Web site and get instant confirmation.

## SBE activities

Remember, your SBE membership brings you a savings of \$330 on registration fees.

Make sure you stop by the SBE booth. Materials from the SBE Bookstore will be on sale, including many hard-to-find technical references.

We'll have certification and mem-

bership information available with SBE staff and officers to answer ques-

able to help you display your support of the Broadcast Engineering

ings are open to members.

The SBE Board of Directors Meeting will be held Sunday, April 8, from 8:30 a.m. to noon at the Las Vegas Hilton Hotel. Certification exams will be given Tuesday, April 11, from 9 a.m. to noon, also at the Hilton. (Hurry; the deadline to register for these exams is March 5.)

Tuesday evening we would like to see all SBE members gather in Rooms N249, 250 and 251 of the Las Vegas Convention Center from 5 to 6 p.m. for a membership meeting.

Hear what SBE is working on, meet your national board and participate in an open forum.

See you in April!

## Expect plenty of hot debate over the impact of low-power FM and digital radio.

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- Mix minus phone interface



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1200 - 5S	5 channels	\$2,295
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1200 - 15S	15 channels	\$4,495

(call factory for options)

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- Monitor for control room & 2 studios



Modular, reliable, flexible, and powerful, the 12,000 is found around the world from Tokyo to Paris to New York. The 12,000 is perfect for any size market or any radio application.

### Standard Configurations

12K8 - 6	6 channels	\$4,350
12K18 - 12	12 channels	\$7,075
12K18 - 18	18 channels	\$8,755

(call factory for options)

## DL4 System III

- NEW - dual On Air & Production System
- Live On Air, Hard Disk Automation, Satellite Automation, Production, Jingle Box, Segue Editor
- Complete - just add 3 PCs
- Only **\$16,995**

The NEW DL4 System III comes complete with 210 hours of audio storage, two 7 input play software packages for On Air, and DL4-AUTO software packages for Production. This powerful 3 studio system requires only 3 customer support

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- 12 CH Console \$7,995
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Available April

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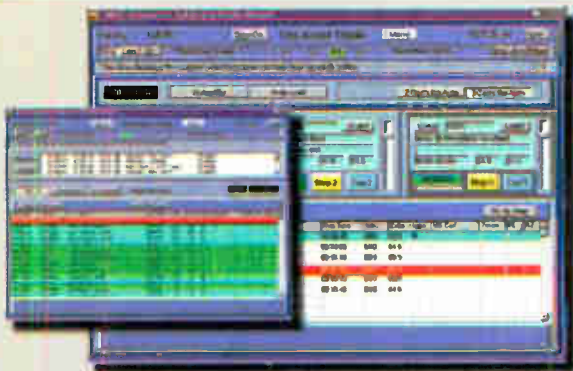
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| • BGS (Broadcasters General Store)                | (352) 622-7700 |
| • SCMS (Southern Coastal Marketing Service)       | (800) 438-6040 |
| • BRADLEY BROADCAST                               | (800) 732-7665 |
| • CONTINENTAL ELECTRONICS                         | (800) 733-5011 |
| • RF SPECIALTIES (contact their regional offices) |                |

For more complete information on any Arrakis product, visit our website at: [www.arrakis-systems.com](http://www.arrakis-systems.com) or email: [sales@arrakis-systems.com](mailto:sales@arrakis-systems.com)

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# GM Journal

Harry Cole  
On Those New  
FCC Forms.

See Page 39

Radio World

Resource for Business, Programming & Sales

March 1, 2000

MARKET WATCH

## Billings: Boom, Bustle and Change

Mervin Mecklenburg

Sprawled along the Yellowstone River and surrounded by "The Rims," a wall of sheltering cliffs, Billings, Mont., is an intensely competitive market for radio station owners. With a population of 126,000 and 16 radio stations, there are only 7,900 potential listeners for each radio station, according to BIA Financial Network.

This makes it one of the more heavily saturated radio markets in the country. And yet station owners seem enthusiastic about Billings' prospects. So enthusiastic that two new stations began to broadcast here in the last 18 months, and a third is due to go on-air in the second quarter this year.

Station owners speak glowingly about the city's weather, business climate and opportunities for growth.

"Billings is the largest city in Montana," said Jim Bell, the Billings general manager for New Northwest Broadcasters. "It happens to be in the sunbelt of Montana, meaning it gets very little snow. It really lends itself to growth population-wise, and therefore business-wise, and we are going to ride that wave."

Although Billings is small compared to many other radio markets — 245th in the Arbitron rankings — it is the largest city north of Denver in the Rocky Mountains. For this reason, it is a cultural and financial center for a large geographical area.

"We see Billings as the primary city in the upper Rocky Mountain region," said Michael O'Shea, chief executive officer of NNB. "It clearly is a small version of Denver in its performance."

The city, therefore, is expected to continue growing at a steady rate. This is, naturally, an attractive feature for station owners.

"As the economy continues to grow, we feel that Billings will continue to grow," said Jim Burgoyne, regional vice president for Marathon Radio.

Most of the competition in Billings' radio takes place between three large station owners: Marathon Radio, which owns five stations; NNB, which owns four and plans to build a fifth; and Fisher Radio, known locally as



Sunbrook Communications, which owns four.

In addition to these heavyweights, there are two Christian stations owned by local company Elenbaas Radio, and a station owned by Big Sky Radio, another local, which broadcasts from a small town near the Billings city center.

There is also Yellowstone Public radio KEMC(FM), which broadcasts from Montana State University-Billings. With programming that includes classical,

See BILLINGS, page 40 ▶



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# Cumulus Forecast: Sunny Money

Steve Sullivan

The future is anything but cloudy for Cumulus Media.

It's been a remarkable year for the company, which has ascended to second in the ranks of group owners in terms of number of stations owned. Pending regulatory approval of several recent acquisitions, Cumulus will own 310 stations in 61 markets. This puts it behind only the AMFM/Clear Channel mega-group (assuming the Clear Channel/AMFM merger is approved).

Although the company ranks high in properties, it is only eighth based on revenue (\$226.8 million for fiscal 1998), according to BIA Financial Network. This is due to a strategy of building clusters in mid-sized markets, where the pool of potential advertisers is proportionately smaller than in large, urban markets that have the big-budget advertisers.

Although Cumulus' revenues reflect the size of its markets, those revenues are rising. In November 1999, Cumulus reported third-quarter consolidated net revenues of \$48 million, up 67.1 percent from the same quarter of 1998.

The company's growth rewards investors. Boosted by a recent "strong-buy" recommendation from Banc of America securities analyst Tim Wallace, the company's stock (NASDAQ:CMLS) jumped into the \$50 per share range in late January. Wallace, who noted Cumulus' capacity for turning around under-performing stations, set a near-term price of \$56 for the stock. This caps a healthy climb for the stock, which was at a 52-week low of 9-1/8 in March 1999. In mid February, Cumulus traded in the mid-40s range.

## A mere toddler

Not bad for a company that's less than three years old, with a first public offering in June 1998.

Richard Weening, who owned several radio stations in the Caribbean, and Lewis Dickey, an industry analyst and strategic marketing consultant, founded Cumulus Media in 1997. Today, Weening is executive chairman of Cumulus Media and chairman and a director of Cumulus Broadcasting, while Dickey serves as executive vice chairman of Cumulus Media and deputy chairman and a director of the broadcasting division.

The birth of Cumulus was a direct result of the Telecommunications Act of 1996.

"When deregulation came along, we felt there was an opportunity to establish major media platforms, particularly in

what we regard as the mid-size category," said Weening.

"Those are Arbitron-rated markets 51 through 275. These are markets where the economy is robust and not dependent on a single employer, and where we can create our own cluster just the way we want it."

"They have really done an excellent job in the less than two years that they've been a public company," said analyst Elizabeth Satin, managing director for Lehman Brothers' Communications and Media Group in New York.

"Cumulus was the first large radio group that was formed post-deregulation," she said. "While other groups went about acquiring other groups and knitting their operations together,

**We live and breathe to correct the wacko imbalance between the percentage of advertiser dollars newspapers get vs. radio.**

— Richard Weening

Cumulus went in and did the brick-by-brick consolidation, picking the best stations in the market. They put in place infrastructure designed to maximize the efficiency and performance of that group of stations."

Weening said a cluster's infrastructure is created by consolidating "every functional activity not associated with either sales or programming. Sales and programming are exempt from that, but everything else — all the business activities and support activities, engineering, traffic — works on a shared platform that can affect savings that we can re-employ into improving the quality of programming. And we also re-employ the savings into substantial expansion of both the number and sophistication of the sales organization."

By shoring up Cumulus' sales resources, Weening hopes to cause a great deal of anxiety for other media advertising executives in its markets.

"Our whole business plan is to take market share away from newspapers," said Weening. "We think there's an opportunity to perform certain services for our advertisers which have historically been provided by newspapers."

"Radio gets about 45 percent of listener time and historically has enjoyed only

about 10 percent of the advertiser dollars aimed at those listeners, whereas with newspapers it's entirely the opposite. That's a pretty significant and wacko imbalance that we live and breathe to correct. Our job is to go out and help our advertisers understand that. That's the essence of our marketing strategy."

Weening said the company tries to acquire the leading radio station in each format, allowing it to target specific demographics.

## A different brand

"Each radio station is marketed, positioned and programmed as an entirely different brand. It has a separate sales organization, a separate sales manager and a separate program director.

Advertising is sold on a station-by-station basis," he said.

"For certain advertisers who require the whole cluster of stations to serve many different demographic groups, we will also sell the whole cluster. We see this as analogous to a newspaper. Each section has different content and targets a different demographic group, but it's delivered as a whole."

It's a strategy that can work, said analyst Satin.

"Because of the share they have in each market and the number of stations in the cluster, they end up super-serving the market. This lets them deliver to advertisers the same demographic spectrum that a newspaper could. But it's a much more targeted, much more immediate and repetitive type of advertising because it's radio. So it's incredibly successful for the advertisers."

## Building forces

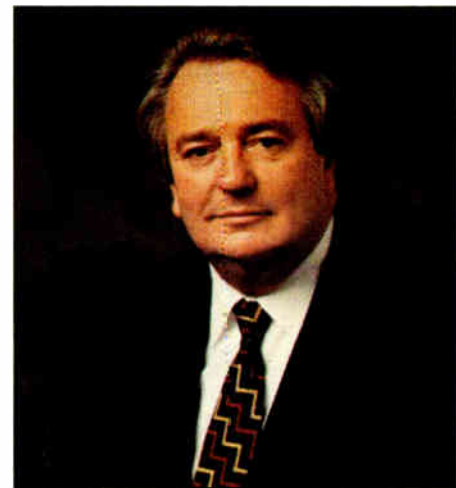
Newspapers may be in Cumulus' crosshairs, but it is difficult to quantify the success of its approach.

For example, last April 1999 Cumulus purchased five stations in Eau Claire, Wis., the nation's 231st-largest metropolitan market.

"I have not felt anything that I can say is directly related to (Cumulus) and their mission," said Lani Renneau, sales director for Eau Claire's daily Leader-Telegram. "Are we working harder today than yesterday? You bet. But I'm not going to say it's because of Cumulus."

Yet if Weening has his way, newspapers in these markets should probably keep watch out not only on their print advertisers, but also keep an eye on their Internet franchises.

Weening said Cumulus has not announced an Internet strategy, nor does it plan to make a public announcement. However, he said that the company's



Richard Weening

opportunities with its Web sites will closely track its radio opportunities.

"We plan to utilize the Internet as a platform to better serve our radio advertisers. And that means all advertisers in the community. Newspaper classified advertising total dollar value is roughly two times the radio market. So newspaper classifieds represent a huge opportunity to add to the radio revenue."

Although less aggressively, Cumulus also targets television advertisers as potential sources of revenue.

"The only difference between newspapers and television is that television gets about 40 percent of viewer time and about 40 percent of the ad dollars, so it's a little more balanced," said Weening. "But one of our clusters has somewhat more reach than the leading television affiliate. Not only can we outreach television, we do so a lot less expensively from a production point of view and a lot less expensive from a cost per thousand point of view."

Does Weening have any resolutions for 2000 about how Cumulus will continue to grow?

"We've gone into 61 markets since the spring of '97 and there are maybe another 15 to 20 mid-sized markets that we could still get into. But we don't think of it as markets per year. We think of it as buying at the right price, quality radio stations that as part of the aggregate in the market will compete successfully with newspaper and television. If we can do that in a market, then we try to do it."

And would he ever take the company into a top-50 market?

"It's not part of our strategies," Weening said. But, he added, "I have learned in life never to say 'never.'"

■ ■ ■

Steve Sullivan is a principal of the Advanced Interactive Media Group LLC.

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## Second Net Ratings Dip

Arbitron's new monthly Internet radio rating service found that the number of unique listeners fell from 900,000 in October to 850,000 in November.

But those Net radio listeners stayed tuned for 100,000 additional hours in November. InfoStream measured "nearly a total of 1.3 million hours tuned to the Internet" in October, vs. 1.4 million hours in November.

InfoStream also added two streaming media providers to the its measurement: Access 21 and RealBroadcast Networks. Other streamer participants include the four InfoStream included in the first report the month before: ABC Radio Networks, BroadcastAmerica.com,

LaMusica and Magnitude Networks.

The majority of the top 25 Webcasters in October occupy similar slots in the November, rating, but the No. 1 Net station, TexasRebel Radio.com, was missing. Arbitron said the Magnitude Network station is in transition to a new streaming service provider, Activate.net

The company is not among the streaming media companies included in the InfoStream ratings at present, but Arbitron said it was "in discussion" with several additional streamers to expand its survey. The company would not comment on which streamers it has targeted for future InfoStream reports.

— Laura Dely

### Arbitron InfoStream Report - November 1999 Top 10 Cumulative Audience

URL	Internet Affiliate	City	Format	Monthly Audience
www.kpig.com	Magnitude Network	Monterey, Calif.	Album Adult Alternative	60,700
www.cd93.com	Magnitude Network	Monterey, Calif.	Modern Adult Contemporary	59,000
www.khyi.com	Magnitude Network	Dallas	Country	58,100
www.klaq.com	Magnitude Network	El Paso, Texas	Album Oriented Rock	52,100
www.abcnewsradio.com	RealBroadcast Networks	N/A	News/Talk Information	47,400
www.tomjoyner.com	RealBroadcast Networks	N/A	Talk/Personality	32,700
www.wkpo.com	Magnitude Network	Madison, Wis.	Urban Adult	32,700
www.93x.com	Magnitude Network	St. Louis	Alternative	31,700
www.weqx.com	Magnitude Network	Albany, N.Y.	Alternative	27,200
www.wbap.com	RealBroadcast Networks	Dallas	News/Talk Information	25,000

### PROMO POWER

## Sites Wither Sans Promos

Mark Lapidus

"Dot-com" businesses bombard your listeners with commercials singing the praises of their Web sites. Why? Because they know something that many managers in the radio biz are reluctant to admit: If they run a proper schedule on the right radio station or stations, they will attract large numbers of eyeballs to their site.

If this is such an easy concept — Air a Schedule and They Will Come — why do so few radio stations properly promote their own sites? After talking to lots of station managers, I've uncovered many reasons why radio as an industry is performing poorly on the Web.

Here are the major excuses.

**Excuse Number One:** *Our listeners don't use the Internet.*

This is frequently followed by, "Why should we invest money in a costly Web site and then use valuable airtime promoting it?"

Try to debunk this with a review of the latest psychographic info for your market. Your sales force probably uses this research every day to show clients how well your station ranks in users of certain products.

There is an Internet category. If you don't subscribe to market research such as this, try to do a general search online to discover how much your target demo uses the Net. You'll be hard-pressed to find an age range that doesn't show growing usage. Even folks who've stopped driving at night are starting to surf!

**Excuse Number Two:** *I refuse to tell my listeners to turn off their radio only to use the Internet.*

So, you must be the only station in the U.S. turning down Net advertising, right? Face it. If you air spots for Web sites, you already are sending people over to the Net. It's also simplistic to think that you significantly control anyone's entertainment choices. Unless your listeners live under a rock, they will hear about Web sites elsewhere, from TV to what movies are playing.

Stations that are serious about their

Web sites will make arrangements to stream their audio signal so listeners can hear their favorite radio station online, (while their listeners surf).

Fortunately, the trend so far seems to be that Web users prefer to hear their local radio stations. It's just another platform to many who don't have tuners in their offices.

**Excuse Number Three:** *The Internet hasn't really taken hold yet.*

The folks that are stuck on this one are the same people who a few years ago said that the Internet was a passing fad. This category of naysayers often consists of people who distrust computers in general and don't use e-mail, so they figure that the rest of the world is just like 'em.

You may never change their minds. Think seriously about working elsewhere.

**Excuse Number Four:** *Our station can't afford a good Web site.*

Your station can't afford not to have good Web site. If your manager is truly that cheap, find one of the 10 million Web hosters/designers who are dying for trade and to show off their product.

**Excuse Number Five:** *Nobody is making money from radio station Web sites.*

Okay, we've finally hit a valid point. Few make significant dollars from Web site advertising alone. Often sites don't draw high traffic due to dull content or lack of promotion or both.

This part is like radio ratings — but more accurately measured. If you don't have a great site and promote it properly, you will have a small number of pageviews. If you have small numbers, you can count on little or no revenue.

Also, few stations have even one dedicated salesperson who is responsible just for selling the Web site.

Isn't it amazing that the local shopper newspaper which nobody reads can support six salespeople, but even stations with high-traffic Web sites usually don't have anyone whose livelihood is dependent upon making the sale?

When your regular sales staff is able to sell spots at 10 times what they'd get for selling your site, it doesn't take a genius to see how much effort will be concentrated on the Web.

**Excuse Number Six:** *My Internet address is already taken by somebody who won't sell it to me at a reasonable cost.*

There are scumbags out there who sucked up many callers or station slogans. You may have to be creative about your "dot-com" address by using your dial position and calls or adding "FM" or "AM" to your name or even a "dot-Net."

Examine how other stations have coped with this dilemma. After you've used another name for a while, the person who stole what you wanted to begin with may suddenly become reasonable.

The time for excuses is done. Be smart and hire a few people who know how to create a Web site that will become an extension of your on-air product.

If you already have a site — but realize it's like a photograph album in cyberspace — make a resolution for a change to something dynamic.

I'm off to listen to the BBC's Five Live online. Fortunately, there aren't too many geeks like me who are surfing foreign parts. However, if they can't find their favorite local station (you), they may discover just how wide the Web has already become.

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COLE'S LAW

# FCC's New Forms: Are They Easier?

Harry Cole

In your rush to get your year-end (and century-end, and maybe even millennium-end) chores wrapped up early so that you could party like it was 1999 while it was still 1999, you may have missed the FCC's year-end present to all of us — new versions of Forms 314 and 315, the forms for approval of assignments of license (that would be Form 314) or transfers of control of a licensee (that would be Form 315).

The new forms hit the stands on Nov. 10, 1999, which in and of itself may not be especially noteworthy, except for the fact that the forms are dated "September 1999" and bear the bold-faced, italicized, large-print legend "All previous editions obsolete." That may cause one to wonder exactly what application form you were supposed to use in, say, September and October, before the new "September 1999" form had actually been released but after its apparent effective date.

As far as we know, however, nobody at the commission has yet tried to dismiss any assignment or transfer applications filed on the "old" form during or after September, so this is probably not a serious problem.

### Streamlining efforts

In any event, the new forms reflect a classic FCC effort to "streamline" things by seemingly reducing the number of separate pages that have to be filed with the commission. There is some logic here — if the form itself consists of fewer pages, then the applicant will have to fill out fewer pages, and the staff will have to process fewer pages, and everything will have been streamlined. Right?

Well, not exactly. The forms that have to be filed with the commission are only about eight pages long, and consist primarily of "yes/no" questions the "correct" answers to which are pretty easy to figure out.

(Hint — after most of the questions, the form states that if the answer is "no," you should include an explanatory exhibit; that's probably a pretty good indication that it would be best to be able to answer "yes" to those questions, if at all possible.) That does reflect some reduction in the heft of the application.

But wait. Before you get to the eight-page form, you have to wade through 25 (count 'em, 25) pages of small-type instructions and "worksheets," all of which have to be reviewed (and in the case of the worksheets, completed) before you can truthfully answer the questions on the eight pages that have to be sent in.

So while there may be an actual reduction in the technical amount of paperwork which actually gets rained down on the commission's processing staff, the applicant back home will still be swimming in considerable paper.

The FCC's theory appears to be that while it can trust its applicants to answer truthfully and candidly to the various "yes/no" questions, the FCC should nevertheless retain some way of checking the accuracy of those answers at some point and, perhaps more importantly, some way of holding applicants responsible for any misstatements which might crop up.

That explains the highly detailed 11

pages of instructions to the forms and the equally detailed 14 pages of "worksheets," and that also explains why the first question on the actual form requires the applicant to certify that it has reviewed all the instructions and worksheets and that its answers are based on that review.

### Keep it simple

This approach should certainly make life easier for the processing staff, since the processing of "yes/no" questions is likely to be much easier than having to review detailed factual presentations and determine whether the facts reflect-

ed compliance with commission rules and policies.

This approach should not, however, make life much easier for the applicant; in fact, it might even be harder. The applicant is still expected to know all the rules and policies, but now the applicant is also expected to make his or her own call as to whether he/she is in compliance with the rules. This could put the applicant in a tough spot if (a) the applicant is incorrect in its assessment of its compliance and (b) the FCC determines that that incorrectness constituted an effort to lie to the commission. Were that to happen, the applicant

could be looking at a misrepresentation charge, which is the FCC's equivalent of a hanging offense.

In the past, this would have been cause for Team Cole's Law to start issuing dire predictions of massive hearing designations based on perceived misrepresentations.

In view of the nature and extent of the information encompassed in the new forms' instructions and worksheets, some errors (whether errors of fact, errors of judgment, or errors of interpretation) are probably unavoidable, but the nature of the up-front certification required of the applicant (i.e., that he/she has reviewed all the instructions and worksheets and that he/she is in compliance) is such that, if the applicant's "yes/no" answers ultimately proved to be wrong, the *bona*

See COLE'S LAW, page 45 ▶

# "My Two Stations Save \$130,000 per Year Using Scott Studios Voice Trax"



Ron Castro, co-owner and GM, KRPQ Q-105 and KMXX MIX 104.1 Santa Rosa, California

A former San Francisco and nationally syndicated Concept Productions air personality, Ron has recorded 300,000 voice tracks for automated stations across three decades. Ron's own stations have used Scott Studios' Voice Trax systems for several years.

(Continued from upper right) "I wouldn't ask the staff to use anything I don't use myself. If it didn't work great, it wouldn't be here."

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Ron's "two station combo saves at least \$130,000 a year using Scott Studios' Voice Trax. When we put our second station on the air 3 years ago, we debuted with the best ratings of any sign-on in the history of the market!"

Scott Systems are delivered with pre-dubbed custom music libraries, time-saving CD rippers that digitally transfer music to hard drive in seconds, no-dub instant LAN spot uploads from Sonic Foundry multi-track production, MPEG and uncompressed digital audio (at a compressed price) and a week of staff training at your station. You get Cart Walls for instant requests, a phone recorder with waveform and audible scrub editing, AutoPost to make announcers sound better and minimize re-cuts, title and artist displays for your website, time announce, plus Cat. 5 audio wiring for fast installation. Our SS32 System plays 8 simultaneous recordings thru 8 separate console channels, feeds different spots to webcasts or second stations, plus auto-transfers spots and Voice Trax to distant stations over Internet or WAN. Scott Studios offers optional temperature announcers, wire capture and newsroom editors, unattended school closing reports and 24/7 live support via toll-free cell phones.

Scott Studios' unequalled money-saving features mean more U.S. stations use Scott than any other digital air studio systems (5,500 workstations in 2,250 U.S. Stations and nine of the top ten groups). See our website and toll-free phone at the right.

Ron Castro says his KRPQ and KMXX, Santa Rosa, California *save serious money* because "Scott Studios' Voice Trax automation cuts voice-tracking time to 5 minutes per hour for a 'live-sounding' show. Our Air Personalities are freed up to do other work at the stations, drastically reducing the need for additional management, music, production and promotion staff. That cuts boredom, burn-out and turnover, while increasing productivity.

"Scott Studios' Voice Trax lets the talent hear their music, spots and voice-over, running the show the way they would live, including air-tight talk-ups. Scott's whole recording process is handled with just one button. We hardly ever use a mouse or keyboard. Each voice track takes only seconds.

"Not only am I an owner and GM, but I'm also an Air Personality. I produce 34 hours each week of voice tracked programming using Scott Studios' Voice Trax.

9:23:13 On-Air 2	Breathe Faith Hill :11/3-30/F HIT HM9834 9:23 #1 for 2 weeks in January, 2000	Born Country Alabama L 6/28 2p N 7/10 3p	Close En...Perfect Alabama L 7/5 5p N 7/13 6a	Dixieland Delight Alabama L 7/2 3a N 7/9 3p
Start 3	When I Said I Do Clint Black :17/4-13/F HIT HM2608 9:27	Down Home Alabama L 7/9 4p N 7/12 7a	Face To Face Alabama L 7/6 11a N 7/18 8p	Feels So Right Alabama L 7/4 2a N 7/12 7p
Start 3	Clint Black Backsell Ron Castro :00/0-13/C VT JU1094 9:31	Forever's As Far... Alabama L 7/7 4p N 7/10 2a	Forty Hour Week Alabama L 7/2 7p N 7/13 8a	Give Me One More Alabama L 7/1 5a N 7/6 10p
Start 3	Dodge Trucks Q: Your Dodge Dealer :00/0-60/F COM DA2215 9:32	Here We Are Alabama L 6/30 5a N 7/13 9a	High Cotton Alabama L 7/2 8p	Hometown Honey Alabama L 7/4 3a N 7/11 5p
Start 3	California Country Cookin' Q: Kids Eat Free Tonight :00/0-60/C COM DA1234 9:33	If I Had You Alabama L 7/2 9p N 7/15 4p	If You're Gonna Pi Alabama L 7/2 10a N 7/15 3p	I'm In A Hurry (& I Alabama L 7/1 3p N 7/13 7a
Start 3	Q-105 Fast Jingle Q: Q-105 :00/0-13/C JIN DA4315 9:34	In Pictures Alabama L 7/4 10a N 7/12 11a	It Works Alabama L 7/1 9p N 7/20 10a	Jukebox In...Mind Alabama L 7/2 2a N 7/14 3p
Stack		Lady Down On Lo Alabama L 7/5 8p N 7/13 5a	Love in the 1st De Alabama L 7/5 12m N 7/9 11a	Mountain Music Alabama L 7/5 7p N 7/18 8a
Auto		Once Upon A Life Alabama L 7/3 1p N 7/17 9p	Pass It On Down Alabama L 7/3 7p N 7/12 5a	Reckless Alabama L 7/1 11p N 7/12 3p
		Roll On (18 Wheel Alabama L 7/6 1p N 7/14 8a	Say I Alabama L 7/4 12n N 7/13 8p	She Ain't Your Ord Alabama L 6/27 1p N None
		Small Stuff Alabama L 7/8 2a N 7/10 7p	Straight Tequila N Alabama L 7/2 3p N 7/16 6p	Song of the South Alabama L 7/1 10a N 7/15 6p
		A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		

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# Billings: Saturated, but Growing

► **BILLINGS**, continued from page 35  
jazz, folk and blues music, spoken word, and NPR news and arts, KEMC focuses on content not offered by other stations in the market.

as much revenue as the other two large station owners combined. According to BIA fn estimates, Marathon earned about \$2.8 million compared to \$3 million produced by the other two big group owners in 1998.



KRKX staffers at the station's 1999 Harley Giveaway

The real competition for radio dollars in Billings, however, is not a radio station. "Our biggest competition for advertising revenue is the daily newspaper," NNB's O'Shea said.

Competition keeps the programming sharp and prevents people from turning away to some other form of entertainment. "I think what it does is it makes us all better," Burgoyne said.

Of the three big station owners, Marathon Radio is by far the largest, producing nearly

Marathon acquired its dominant position in the market through a deal with Citadel Communications that was finalized in 1999. Marathon already owned three stations in Billings, (KRSQ(FM), KGHL(AM), KDIX-FM and held construction permits for two additional stations), but the Citadel deal offered an opportunity for Marathon to make a 25-station purchase, which included five additional stations in Billings.

According to Burgoyne, after the deal, Marathon would have owned more in Billings than is allowed under federal regulations. The Justice Department, therefore, required Marathon to sell some of the Billings stations. According to Burgoyne, the Justice Department decided which of the Billings stations were to be sold.

"It was up to them to tell us how we should divest in Billings," he said. "We came out very good."

Marathon offered to sell the stations it owned before the deal to NNB, which at that time had no stations in the Billings market.

The result of the sale was that NNB instantly became one of Marathon's most formidable competitors in Billings. Marathon ended up with the stations in

Paul Mushaben have held the top spot through most of the past decade, according to Eric Bowen, program director and host of the afternoon drive time at KCTR.

## Morning Flakes

"One of the 'Flakes' has a herd of sheep, which, this being Big Sky country, is common. But through the years, Mushaben has taken a lot of grief on-air about his animals, and this in turn has helped the show," said Bowen.

Its closest rival in revenue is album oriented rocker KRKX(FM), which earned \$800,000 in '98. KRKX is owned by Fisher Radio.

The other Marathon stations in the Billings market are KMHK(FM), with a classic rock format; KKBR(FM), an oldies station and KBBB(FM), which broadcasts hot adult contemporary music.

According to Burgoyne, Marathon's formats target adults aged 25 to 54, and

## Our biggest competition

for advertising revenue is the daily newspaper.

— Michael O'Shea,  
New Northwest Broadcasters

Billings formerly owned by Citadel (KCTR-FM, KKBR(FM), KBBB(FM), KMHK(FM) and KBUL(AM)). NNB ended up with all of Marathon's Billings stations plus the two construction permits, that were spun off at DOJ's direction.

Billings' biggest moneymaker is Marathon's KCTR-FM "Cat Country," which dominates the dominant format in Billings: country.

The station earned \$1.7 million in revenue in 1998, about 60 percent of the market's total for the country format. The station is home to the "Breakfast Flakes," the number-one morning show in Billings. Hosts Mark Wilson and

the company reaches over half of the potential listeners in that group.

The other two big station owners have challenged Marathon's majority share of the country listenership. Both Fisher Radio and NNB have stations that they hope will cut down Marathon's "Cat Country," KCTR-FM. Fisher's rebuttal is KCMT(FM). NNB's challenge to Cat Country is KGHL(FM), formerly called KDIX-FM.

New Northwest's Bell is enthusiastic about the gains that NNB has made in the country format.

"We're David; they're Goliath," he said, adding that for the first time in five

See BILLINGS, page 41 ►

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### Billings, Mont.

#### Commercial Radio Market Overview

Stations	Format	Owner	BIA fn's 1998 Est. Station Rev. (000s)	Summer '99 Rating
KCTR-FM	Country	Marathon Media LLC	1,700	14.0
KRKX(FM)	AOR	Fisher Radio Regional Grp.	800	12.7
KKBR(FM)	Oldies	Marathon Media LLC	750	8.0
KYYA(FM)	Hot AC	Fisher Radio Regional Grp.	600	6.7
KGHL(FM)	Country	New Northwest Broad.	475	4.7
KGHL(AM)	Country	New Northwest Broad.	425	6.0
KURL(AM)	Religion	Elenbaas Media Inc.	400	2.7
KBBB(FM)	Hot AC	Marathon Media LLC	325	7.3
KRSQ(FM)	CHR	New Northwest Broad.	300	10.0
KMHK(FM)	Clsc Rock	Marathon Media LLC	250	6.7
KBLG(AM)	Nws/Tlk/Spt	Fisher Radio Regional Grp.	200	6.0
KCMT(FM)	Country	Fisher Radio Regional Grp.	200	2.0
KMZK(AM)	ChrsContemp	Elenbaas Media Inc.	100	0.7
KBSR(AM)	Nws/Tlk/Spt	Big Sky Radio Inc.	0	0.0
KBUL(AM)	Country	Marathon Media LLC	0	2.7
KBEX(FM)	Clsc Hits	New Northwest Broad.	0	0.0

Stations are ranked in order of Arbitron Summer '99 12+ share. Copyright 1999 The Arbitron Company. May not be quoted or reproduced without the prior written permission of Arbitron. Other information provided by BIA Financial Network through its MEDIA Access to Pro Radio Analyzer Database software.

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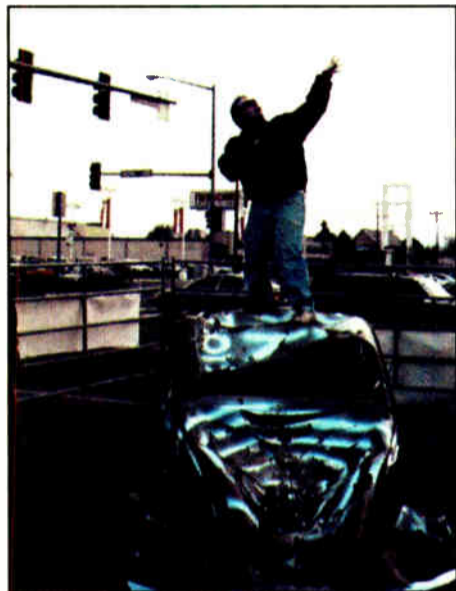
► BILLINGS, continued from page 40 years, KGHL, not Cat Country, will produce the annual spring country concert in Billings. "A lot of this business is emotion, passion and momentum, and we have all of that going for us right now."

According to Bell, challenging Cat Country is a formidable task because KCTR-FM is so well-established.

"Cat Country has been around — they're in their 11th year. We're all years behind," he said.

Burgoyne acknowledged that a lot of competition exists for leadership in the country format.

"They're certainly making attempts to



John Fast, KRSQ's night guy, triumphs over the YZK 'Bug.'

go after our country station," he said, adding Marathon Radio is not prepared to concede the struggle.

**Farm radio news**

NNB's flagship in Billings is KGHL(AM). The station broadcasts "classic country" and agricultural news. KGHL has a venerable history.

"Our AM station is in its 77th year, and all that time it has been agricultural-based," Bell said. "Ag news" fills an important niche in the county surrounding Billings. Bell said it is "the No. 1 market in Yellowstone County."

NNB's other two stations include "Hot 101.7" KRSQ(FM), which broadcasts the contemporary hit radio format, and a new station called KBEX(FM) that went on the air in October 1999 and broadcasts classic hits of the '70s and '80s.

According to Bell, the three stations — KGHL, KRSQ and KBEX — occupy unique formats in Billings. He considers this an advantage as the company maneuvers for new listeners.

In addition, NNB plans to start a fifth station in the second quarter this year. The call letters and a format have yet to be selected, but Bell said the station will be licensed at 100 kW, which is large for Billings. It will be positioned so that it can easily reach the entire Billings area. Consequently, Bell expects it to become a force in Billings radio.

**Long-term advantage**

Fisher has been in the market the longest of the big-three radio owners. It bought its first station in Billings in 1988.

"We've been in Billings a long time, and we want to stay in Billings," said Larry Roberts, CEO at Fisher Radio.

According to Roberts, Fisher is the largest broadcaster in the state and owns

stations in several locations across Western Montana.

Because Fisher was already in the market, it was able to watch from a distance as Marathon Radio and NNB shuffled stations back and forth.

"It's been an interesting musical chairs there," Roberts said. He added that changes in ownership produced some turnover in the stations that were involved.

"We haven't experienced that because, thankfully, we haven't changed ownership," he said. He said that this is one advantage Fisher has enjoyed over its two chief competitors. "Relationships are everything when it comes to selling radio."

Bell downplays the effect that change and turnover has had on New Northwest Broadcasters' stations.

"Change is normal in radio," Bell said.

Fisher's four stations include its lead revenue earner, KRKX, and its country station, KCMT. The Fisher company also owns KYVA(FM), with a hot adult contemporary music format, and KBLG(AM), a news, talk and sports station.

Roberts said that Fisher is the only company that has stations that broadcast all of what he calls the "four primary formats in the United States." He said that none of the other big-three broadcasters have a news, talk, sports station such as KBLG. Fisher's formats are, therefore, well-balanced to serve the entire Billings market, he said.

The owners of the two smallest radio companies in the Billings market both talk about the difficulty of competing against large companies that can offer advertisers multiple formats.

See BILLINGS, page 42 ►



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# Ag News Is Local in Billings

► BILLINGS, continued from page 41

But Herm Elenbaas, owner of Elenbaas Radio, said his religion-oriented stations occupy a stable niche in Billings, where he serves a group of old customers.

"I would think it doesn't change at all from year to year," Elenbaas said. As Billings grows, however, new advertisers move into the market, and competition from larger companies makes selling to

this new clientele difficult.

"There's only so many ad dollars out there," he said, adding it's tough to sell when the competitors can offer airtime in a range of formats.

Elenbaas has two stations — KURL(AM), which has been a Christian station in Billings for many years, and KMZK(AM), which Elenbaas purchased in December 1997.

KURL has a religious format and was the seventh highest revenue earner in Billings in 1998, according to BIA fm, with 1998 revenues of \$400,000. KMZK broadcasts contemporary Christian music and earned \$100,000 in '98, according to BIA fm estimates.

## Uneasy

Big Sky Radio's Billings station, KBSR(AM) and KHDN(AM), unlike the Elenbaas stations, lacks the security provided by a stable market niche. According to owner Rich Solberg, the company has found it difficult to compete for its share of advertising money.

In response to this, Solberg changed his station KHDN(AM) to a news, talk and sports format from a country music format. He said that KHDN's music format was "overrun" by the larger stations. The news format, on the other hand, is less crowded.

"My perception of the market is that there is only one station that has a local news presence," he said, referring to Fisher Radio's KBLG.

Solberg, who added that news/talk formatted KBSR is currently in a rebuilding mode, said his goal is to fill a niche important to small communities throughout Montana, where local radio stations serve as the community "bulletin board."

"My plan is to target the small communities that I'm licensed to serve," he said, adding he will "hustle local sports and news."

According to Solberg, since the 1996 deregulation, and the consolidation of station ownership that followed, radio lost interest in local information.

"The large-group owners seem to be less involved with the community," he said.

## Radio Snapshot: Billings, Mont.

Market Rank: 245

Market Revenue Rank: 206

Number of FMs: 10

Number of AMs: 6

Estimated Revenue (000)

1995: \$5400

1996: \$5700

1997: \$6300

1998: \$6600

1999: \$6900

Revenue Growth:

'92 - '97: 5.9%

'98 - '02: 5.7% (est.)

Local Revenue: 92%

National Revenue: 08%

1997 Population: 126,500

Per Capita Income: \$14,921

Median Income: \$31,292

Average Household Income: \$37,525

**BIA** **Financial**  
fm network

Balloons at Skyfest '99, Billings, Mont.

number of stations one can own, communities have been better-served.

"I think it's improved the industry's ability to meet the needs of the community," Fisher's Roberts said. He added that the economies of scale make it possible for station owners to offer multiple formats and still make a profit,

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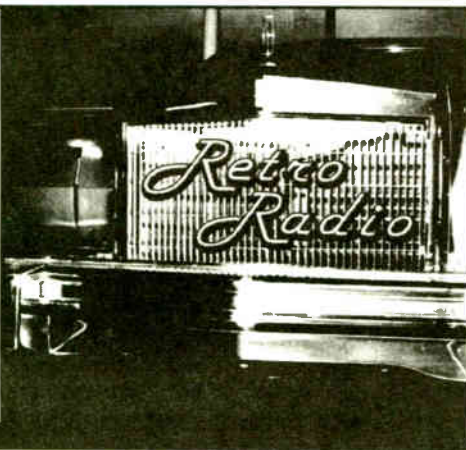
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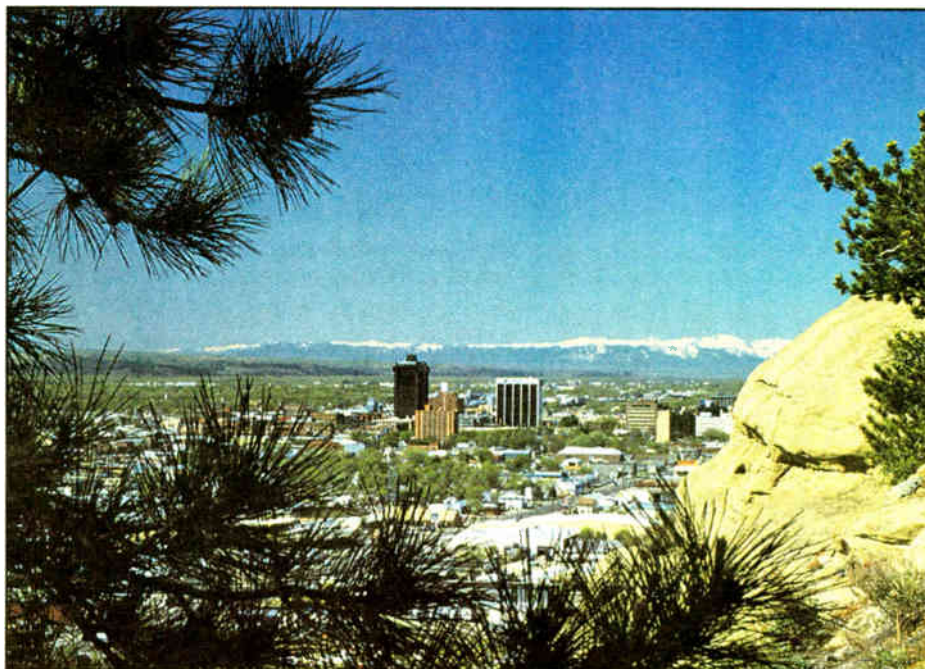


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Downtown Billings, Mont.

Elenbaas made a similar observation. Although his stations broadcast a religious format, he has also made efforts to provide people with news about the community. In the last few years, his stations have added some Billings sports broadcasts, including local high school football games and the local college's basketball games.

"It doesn't mean that we are going to be sports radio," Elenbaas said. "We were happy to do it, and it was a service to the community."

The big station owners, on the other hand, said that since deregulation in 1996, when limits were lifted on the

which was not possible when there were limits on the number of stations a company could own.

Marathon's Burgoyne said that without deregulation, radio would have gone into decline.

"That act actually saved radio," he said. "Now, radio is enjoying a resurgence across the country."

■ ■ ■

Merv Mecklenburg is a free-lance writer and the managing editor of the *Ranger Review* in Glendive, Mont.

He can be reached at (406) 377-5704 or via e-mail at [mrvmeck@yahoo.com](mailto:mrvmeck@yahoo.com)



## MANAGEMENT CORNER

# Radio: Hungry for New Thinking

**Vince Ditingo**

By many accounts, successful radio station managers in 2000 will be judged by how well they adapt radio's fundamental promotion and marketing methods to the competitive, consolidated environment.

Station Web sites create promotional synergies that in turn fuel a heightened emphasis on business and audience development.

To many radio executives, this discussion might sound familiar. In fact, you might ask, what's new here?

## Intensified efforts

What's new is an intensified effort to be more client-focused when marketing local station cluster demographics.

With the advent of consolidation and the growth of the Internet during the late 1990s, there are now more opportunities for radio companies to conduct local advertiser tie-in promotions. And with fewer salespeople to handle more accounts, radio's mission now is to attract first-time radio clients, usually by channeling revenue from other media.

"There is a great need for out-of-the-box, non-traditional sellers in radio today," said David Sexter, New York manager for Media Staffing Network, a media recruitment company.

"To that end, many radio companies are looking for salespeople who have experience in creating local sales promotion packages," Sexter said.

Promotion marketing has been in practice for some time. It can take several

forms, such as stations matching advertisers to specific events like concert and sports programs. Advertising clients, not agencies, designate promotional advertising dollars for such events, in addition to the client's spot ad expenditures.

They can also be value-added campaigns pitched by stations to help them

Influenced by the television networks, which have huge successes with such shows as ABC's "Who Wants To Be A Millionaire," radio stations have integrated more contest programming into their schedules. It remains one of the most effective ways to build cumes and increase time spent

## Be more client-focused when marketing local station cluster demographics.

capture a large piece of business.

What's different today is that increasingly local and national advertisers include station Web sites in promotional budgets, with hope to further reach a station's audience base. For some companies, according to sales executives, promotional dollars now outdistance allocated ad dollars, which has not been the case in recent years.

The shift toward an increase in promotion marketing budgets is further exacerbated by manufacturers and retailers around the country who are concerned over the potential financial impact of e-commerce through Internet-only companies.

That familiar adage, "Everything old is new again," not only applies to the state of sales promotions, it relates to station promotions as well.

listening. At the same time, these kinds of station promotions can also be sponsor-driven.

## Tap into radio

Without question, audience participation contests via telephone call-ins effectively tap into radio's live Internet capabilities. Indeed, the genre arguably is the ultimate Internet radio promotion vehicle.

With the unanticipated success of trivia-based television game shows, radio executives from station managers to programmers now formulate ways to cash in on the apparent trend.

The upside here is that radio contest programming generally works for a number of formats from rock to all-sports and news/talk.

For instance, a random canvass of the New York City radio dial finds that the morning drive-time program, "Rambling With Gambling," on the venerable talker WOR(AM), adapted the trivia craze to its airwaves. On a recent listen, the station conducted a telephone call-in contest, entitled "Who Wants To Be a WOR Winner?"

Given radio's highly specialized programming environment, coupled by the rebirth and huge popularity of the quiz show format on television, can long-form, Internet contest programming be the next great trend for the aural medium?

## Operating efficiencies

To facilitate the promotional and spot advertising campaign decision-making process for local station clusters, many groups have experienced a change in management structure. In fact, many group operators have redefined the concept of "efficiencies of scale."

Radio has always been a management-intensive business. Now a modified, management-intensive, organizational model for local sales operations is underway, along with a "decentralization" of radio's corporate operations.

Essentially, local station clusters or "multiopolies" have become separate profit components in large conglomerates such as Clear Channel Communications.

To expand on a once-typical management structure, each station in a "multiopoly" has a sales staff led by a local sales manager, who reports to a director of sales for the entire station cluster. The DOS, in turn, reports to a local market manager or general manager for the group. The operative word here is "local," allowing decisions to be made at that level.

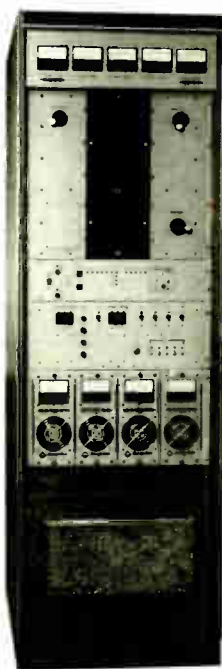
This reconfigured organizational model varies from company to company with

See DITINGO, page 45 ▶

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# Team Cole's Law Assesses New Forms

► **COLE'S LAW**, continued from page 39  
*fides* of the up-front certification could easily be called into question.

But here we are, on the threshold of a new year (and, depending on whom you talk to, a new century and/or a new millennium), and Team Cole's Law is *not* going to be so pessimistic. This is because of recent experience on the renewal front.

You may recall that, more than a decade ago, the commission moved away from long-form, paper-intensive renewal applications, and instead adopted a cute little "postcard" renewal form which asked about five "yes/no" questions. Those questions required, among other things, that the applicant certify to the timely placement in its local public file of all documents required to be put in the file. Back then we waxed eloquent about

those renewal questions correctly. In fact, in a situation that we wrote about in this column last summer, (*RW*, Sept. 1, 1999), one licensee who filed renewal applications to certify to the completeness of the public files at more than five stations was found, after further inquiry, to have allowed those files to go completely unmaintained for a period of some three years.

### Affirmative certification

The licensee's affirmative certification to the completeness of his public files under such circumstances could, to a less benevolent eye, have strongly suggested that the licensee had decided simply to tell the FCC what it wanted to hear (i.e., that the public files were all A-OK), in the hope that the truth would never surface.

of the online application process, the FCC e-mails you a validation number. When you get to the part of the sign-up that calls for the number, you're supposed to check your e-mail, copy the number (it's real long, so Team Cole's Law recommends you use cut-and-paste technique), then paste the number into the appropriate blank.

On another application front, the commission has now moved to an online system for reserving call signs. As a public service, we at Cole's Law took the new system out for a spin. It worked fine, except that at one point it demanded that we provide a "validation number." We didn't know where to find our "validation number." We went looking through the "help" files associated with the new system, but could find nothing there which told us where to look. Finally, we called the staff and were told that, in the course

It would be nice if the validation number could be transmitted by the FCC directly to the form during the sign-up process; alternatively, it would be nice if the form provided some greater guidance about where to look for the number. Until the system is changed in either or both regards, though, be sure to check your e-mail.

As always, you should consult with your communications counsel if you have any questions about any of these matters.

**As far as we know, nobody even came close to losing any license for failure to answer renewal questions correctly.**

the risks which such a certification created because benign neglect of public file requirements seemed (to us, at least) to be, er, not uncommon.

Boy, were we wrong. As far as we know, nobody even came close to losing any license for any failure to answer

But the FCC these days appears to be far more enlightened. They took the licensee's word for it that no misrepresentation was intended at all, and the licensee got off with a relatively minor fine. If the same lenient approach is taken to the new assignment and transfer appli-

## Add the Internet to Your Promotions

► **DITINGO**, continued from page 43

some group operators having either local sales teams and/or regional management structures in place.

The objective behind these new organizational structures is to allow

radio's move to decentralized operations in a later article.

While many industry leaders see the range of new technology — from the Internet to digital signal transmission — as the driving force


**New organizational structures allow sales managers to have a greater focus on business development.**

each director of sales to have a greater focus on business development in their individual markets. And, if executed properly, they should lead to greater responsiveness and accountability for client promotions. This is particularly important as more sales people become immersed in radio's new multitasking environment.

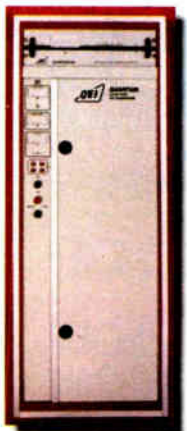
*Management Corner* will have a more detailed discussion of corporate

behind radio, radio's time-tested revenue-generating techniques and structures should never be underestimated. They just need to be constantly reviewed and adapted to better reflect present-day business and listener needs.


Vincent M. Ditingo writes frequently on radio management, marketing and information technology issues. Contact him via e-mail to [vditingo@aol.com](mailto:vditingo@aol.com)




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World Radio History



# Studio Sessions

Marantz PMD331



See Page 51

Radio World

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March 1, 2000

## Tips for Buying Automation

Tom Vernon

Engineers survived the first wave of broadcast automation with computers and have developed a good idea of how these systems operate. However, technology never stands still.

Recent waves of consolidation have moved automation to the next level, the digital management system or DMS. These systems facilitate consolidated operations by allowing many functions done at different stations to be under one roof.

As you plan the purchase of a DMS, have a checklist of important features. They include the level and quality of technical support, open architecture and compatibility. Also remember to include environmental concerns, legal and copyright issues from different program sources, remote access with Internet connectivity and security.

Your job of comparing vendors will be easier if you put this information on a grid.

A typical DMS stores and processes

all of the on-air components of a radio station — commercials, music and voice tracks. The DMS packages these pieces into a complete program, usually for broadcast at a later date and at a different location.

Non-audio components might be included. For example, one system allows advertisers to log on to a password-protected area and check the account status, find out when spots are running and listen to the commercials.

Distribution of these materials from the DMS file server to remote stations is by typical WAN connections: T1, fractional T1, frame relay or ISDN lines. Some stations use the Internet as a distribution medium, although most prefer a secure network. Material is distributed as data rather than audio. Typically, a remote station will request data from the DMS file server shortly before airtime.

High on your comparison checklist should be the quality of training and technical support that a vendor provides. Most help comes in the form of phone

service, fax and e-mail. The vendor Web site may also offer a listserv and additional information.

No system is perfect, but look for vendors who supply quality field sup-



Mark Kalman of Sirius Satellite Radio

port when problems do occur. Questions to ask include the availability of training after the system is installed, and the quality of telephone technical support.

Eric Briggs, regional sales manager for the Broadcast Electronics AudioVault system, stressed the need for good on-site training.

"At an absolute minimum, three days of instruction is required. Many major-market customers request two weeks of



Eric Briggs of Broadcast Electronics

training," Briggs said. Additionally, some vendors may provide factory training and urge purchasers to send one or two staff members to the vendor's site for a week of instruction.

Most documentation the stations receive is in the form of online help files, as it is difficult to keep paper materials current with the software.

Ask potential suppliers if they use call-tracking software, which allows the tech representatives access to a station's service record. Such a system reduces the chance that stations needing assistance will fall through the cracks, or receive contradictory advice from different engineers.

Some vendors offer additional services such as remote access to your system by a password-protected dial-up modem connection. With this, the vendor's engineers

See AUTOMATION, page 54 ▶

### PRODUCT REVIEW

## Sharp Portable MD Less Than \$200

Carl Lindemann

The Sharp MD-MT15 MiniDisc recorder marks the third stage in the evolution of the MiniDisc.

The first stage was about getting practical, working units to market. The second was maximizing the features and miniaturizing the package. Now, the issue is how to produce units at the lowest possible price.

The MD-MT15 has the features of more-expensive consumer portable MDs that have found their way into radio use. However, it lists at \$199 and can be purchased from some electronic emporiums for a bit less. The big question is whether Sharp has made any tradeoffs in quality.

### Not much different

The MD-MT15 resembles the previous Sharp MD model 702/722. The metal case of the earlier models made the units feel substantial. The thick center-loading design left little in harm's way.

The new model has a lighter plastic case and a clamshell design. Hinges lift the control panel up to insert the media, which is now for the most part the standard. It does not boast the stur-

dy feel of the older design, but it is not flimsy, either.

The electronics are nearly identical to those of the earlier unit. The basic commands — track shuffle, record,



The Sharp MiniDisc deck is smaller than a pair of headphones.

recording levels, etc. — will be familiar to 702/722 users.

If you are used to other MD models, you may find recording levels are set in a peculiar way on Sharp MDs.

The MD-MT15 has a manual level setting. Luckily, it lets you change levels when recording, unlike Sony MDs.

See SHARP, page 56 ▶

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# Snow Daze Around the Station

Alan R. Peterson

Like most of the nation, we in the Washington, D.C., area had a few days of icky winter weather. Like a number of major cities up and down the eastern seaboard, it took some effort to plow the roads and clean things up so that John Q. Public could get to work.

There were two days in January when the federal government decided to close up shop due to the weather. Around these parts, when the Feds have a snow day, so do local businesses.

Of course, that did not help the morning show. These guys and gals had to pull themselves out of bed at three in the morning, climb into their rusty old '87 Dodge Omnis and slide all the way to work long before the snowplow drivers had their morning baguettes. Maybe our radio heroes would make a fast stop at a 7-11 to pick up the newspaper and a cuppa joe.

## Hi-ho, hi-ho ...

During my Massachusetts morning show career at WHMP-FM, I finally gave up on that coffee stop for a few reasons. First, the snow cancellation list meant I would have almost no time to provide any other content until about 9 a.m., so the newspaper was simply TMI (too much information). Second, my Dodge Omni was an '83 model and a little less dependable.

Probably the most telling reason was that the convenience store was running my direct competitor on the in-house radio. To blazes with them!

At the time, WHMP-FM was backed up by a then-state-of-the-art Cetec-Shafer automation rig. This came complete with five tape decks, two Audio-File multiple cart playback decks and the classic "ring of lights" that told us which deck was playing — assuming we were too dense to notice which deck was actually in motion. If one or more of us were late coming in to work, "Arnie the Automation" would keep something on the air until the overnight newsmen/babysitter was relieved.

## Stand by, going live

That meant snow cancellations never hit the air until a warm body was in place to do so. It would have been unfair to drag the jock off the AM side to re-read his list of cancellations for the FM. After all, *he* made it to work, so why not *us*?

Things are different today. Morning television newscasts are all-live and will scroll cancellations on the screen below the anchors. TV poses a threat to morning radio listenership, as it can relay those delays and cancellations with remarkable speed.

Today's PC-based automation systems assure something will remain in-play on-the-air until a human shows up at the

console to alter the situation. If not, there is always the remote voice-tracking feature that many companies are building into their systems, should a host get hopelessly snowed in.

From *anywhere*, a morning show team may use a laptop and a soundcard to assemble the elements necessary to affect a cohesive and live-sounding show. These may then be sent as MP3 files to e-mail into the computer at work. Moments later, there is the break, just as it was recorded.

This works fine both in theory and in practice, but it presupposes that the morning show talent has quick access to the cancellation list. This can be accomplished with a fax machine or a computer link back to the studio, but that assumes there is someone actually *at* the studio.

So, let's assume there is. The updated list is faxed or sent as a file to the hosts, wherever they may be snowed under. They record the list and send it back to the studio and into the automation computer.

Does this mean unplugging the fax machine from the phone jack and connecting the laptop to talk to the computer? Not unless there are two phone jacks or that the automation system voicetracker has a two-way communications link that can pull double duty. Otherwise, a room with a single phone jack is going to be swap city. Bet you wish you thought of that before you bought your system, didn't you?

## Blowing snow, blown event

The file is out the door, and the talent huddles around the radio to hear the voicetracked playback of the cancellation list. But the automation blows it off and skips to the next song! What happened?

Nothing that was their fault, due to the fact that everybody at home from work or school is surfing the Net. The Net bogs down, slowing everybody's connection to a crawl. The morning show's file is intact, but Net congestion has kept it from arriving at the station on time.

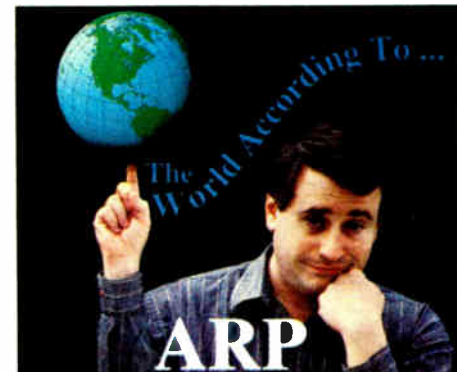
Unless the show members can remotely change the log to drop the song now on air, they will have to wait for the next natural break to play back the cancellation list. By now, the list has changed slightly — a school system with a two-hour delay is now completely shut down and the morning show has not even mentioned the delay.

Which means: transmitting a new list from the station, swapping phone plugs, rerecording the cancellations, encoding the MP3 file and sending it again, hoping it gets there in time before the stopset.

Is it really all this bad? Not exactly. Many companies doing automation had plenty of time to figure this one out and usually come up with an effective solution. The problem sometimes lies within the station.

The great '90s station shakeout assured, for the most part, that only the most capable or least expensive staff stayed behind to run the station.

In some instances, station employees may not know their responsibilities during snow emergencies. When a station has no news team, who gets to answer the phone and field not only the cancellations, but also the listeners asking if their



school is closed? Often it is the overnighter just coming off a shift.

What if there is no overnighter, just six hours of voice-tracked glory cut 10 hours earlier by the evening jock across the hall? Does that person understand the technical procedure involved in tracking the list and getting it to the hosts at their remote location? Will the morning host know that a hastily-typed "St X'er Sch Cl" means "Saint Christopher's School is closed"? Or is it Saint Xavier?

We *assume* these folks are able to record new events into the system, but do they know how and where to insert the closing so it airs three or four times per hour? Do they have the authority to modify the log, or is it password-protected by the traffic manager? Once a recording is in the system, will the computer play back the proper one, or will it go back and grab an undeleted cancellation with an identical filename from February 1999?

## In my office, now!

All it takes is just one morning when this scenario plays out. The meeting with the general manager, chief engineer and program director will happen promptly at 10:01 a.m. after going back to full automation because the midday jock is snowed in at home.

New policies will be whipped into shape, as will be new procedures, new passwords, new responsibilities and a chain of command that will keep this from happening again, or at least until next winter, when a whole new roster of employees has no idea what the snow policies are.


The chief engineer will call the company that built the automation system, demanding the next version have a simplified snow procedure. Perhaps one where a school can call the computer directly and record a voice message right onto the hard drive with a touch-tone password, along with a communications protocol that will e-mail the jock's laptop with the cancellation list, then wait for the return MP3 to be recorded and transmitted.

Perhaps, enhancing the computer's ability to switch in a live remote source better than it does now. With a POTS codec, a jock can do a show in real time right from the kitchen of the townhouse without so much as plucking a single flake off the '87 Dodge Omni parked outside. And, all it costs is ... is ... wow, that much?

You know what also works? Put the morning show in a nearby motel the night before the storm, or trade out a four-wheeler or SUV they can use during the winter. Then we can be live in the studio, too, and take some territory back from morning TV.

■■■


Alan Peterson writes from Fairfax Public Access Corp., Fairfax, Va. His station also remained automated during the snows, as his Dodge Omni couldn't make it in.




Perhaps you've heard the buzz around Cool Edit Pro, the complete software multitrack recording studio. Why is it so popular?

**It's so easy to use!**

As one user said in Radio World, "When it comes to broadcast production, it is doubtful you will find an easier interface that is as inexpensive yet as powerful as Cool Edit Pro." — March 17, 1999




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**PRODUCT GUIDE**

**Speakers Near Monitors**

The JBL LSR25P is a self-powered monitor that lists for \$479 each. It has a 5.25-inch 100-watt woofer and 1-inch 50-watt Titanium composite tweeter. It has volume and power controls on the front.

JBL says its Elliptical Oblate Spheroidal Waveguide delivers 50-degree by 100-degree dispersion. The monitor, built with an aluminum enclosure, has mounting points for horizontal or vertical orientation.

The LSR25P is shielded for use next to video monitors. It has been designed to work with workstations, edit suites and small control rooms.

For more information contact JBL in California at (818) 894-8850 or check out the Web site at [www.jblpro.com](http://www.jblpro.com)



**Caig Contact Cleaner**

Caig Laboratories manufactures products that stop contact problems and improve the flow of electricity on metal surfaces.

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The 5-percent solution contains DuPont's Vertrel solvent, which is similar to Freon TF. It is quick to evaporate and safe on plastics.

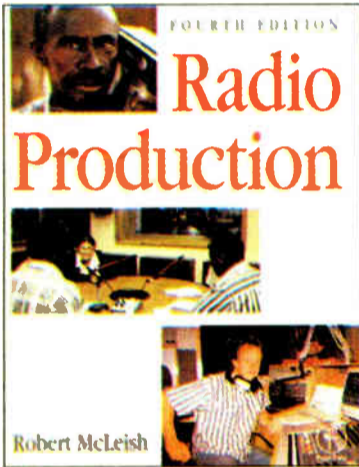
It is offered as a 125 ml pump spray for \$23.95 or aerosol for \$25.95, a 20-ml mini-spray for \$10.95 or as a kit consisting of a mini-spray and 2 ml of 100-percent solution for \$24.95.

For more information contact the company in California at (800) 224-4123 or check out the Web site at [www.caig.com](http://www.caig.com)



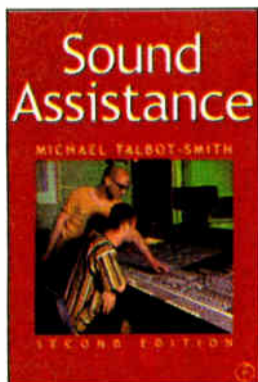
**Books for Radio-Heads**

Focal Press released the fourth edition of "Radio Production" by Robert McLeish for \$49.95. This edition includes the latest on digital techniques including computer-based editing and digital broadcasting.



It touches on every aspect of producing radio programs from operational techniques to news production, conducting interviews, writing radio scripts, news reading, commercials production, music recording, features, drama and program evaluation. According to the company, the text meets the needs both students and staff.

Focal Press has also released the second edition of "Sound Assistance" by Michael Talbot-Smith for \$32.95. The book includes more information



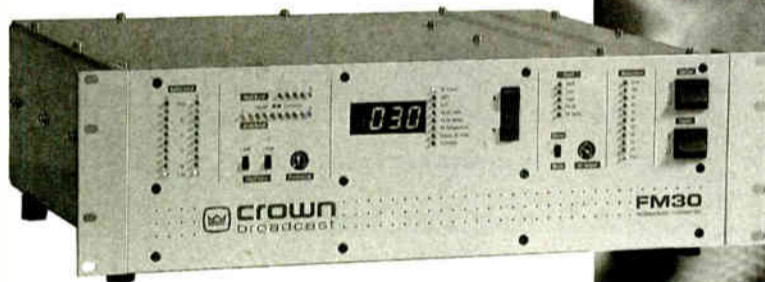
on mic sensitivities, stereo transmission in radio, digital radio, MiniDisc and CD-R.

Written in a simple, informal style, this book will suit anyone who does not have a background in math and physics.

For more info, contact Focal Press in Massachusetts at (800) 366-2665 or check out [www.focalpress.com](http://www.focalpress.com)

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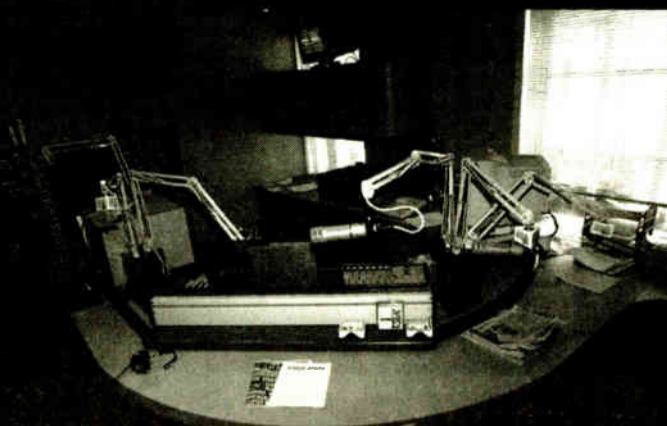
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PRODUCT EVALUATION

# Digital M1000D: The RCA Link

Carl Lindemann

I tested Monster Cable's Silver Digital M1000D, an RCA-to-RCA cable, priced at a hefty \$150 each for a 2-meter length.

Various audiophile magazines, Web sites and catalogs show a variety of audio cables and connectors at costs of up to hundreds of dollars per meter. Can these expensive cables be worth the price?

The M1000D cable makes a recognizable difference in the sound quality of digital transfers from DAT and MiniDisc, the kind of decks with RCA I/O found in many radio studios.

I had been using \$30 "prosumer" coaxial cables. But I did not know those cables were a weak link in the audio chain until I tried the M1000Ds.

The technical reasons for that performance demonstrate how a good coaxial cable can clear up muddiness and get the most from digital formats.

**Jitter**

At first, digital signal transfers might seem to make cabling less important. Don't accept the misconception that ones and zeros passing through the pipes are checked at the receiving end to filter out potential errors.

The primary culprit is "jitter," which



Monster Cable makes for clean bit transfers.

can be considered the digital equivalent of wow and flutter in that it is an undesirable condition that must be minimized.

The characteristic harshness of digital audio often can be a byproduct of jitter. The distortion of high-frequency signals causes listener fatigue. A bad digital recording quickly grates on the ears.

Monster Cable has championed the use

of quality cables and connectors for years. Starting out in the analog high-fidelity market, the product line now covers the growing digital marketplace. The M1000D is a new high-end product targeted at the home audio and professional markets.

"The basic frequency of an S/PDIF signal is in the 4 MHz range, but it is a digital signal with sharp edges that create many harmonics. These harmonics are important to retaining the timing information contained within the digital signal. Jitter is a consequence of the degradation of the sharp edges in the data signal."

The problem lies with both the cable and connector.

"Transmitting a wideband signal requires a controlled constant impedance transmission line," Martin said. "Any impedance variations in the line will cause some of the energy to reflect back to the source and further distort the signal on the line. These reflections can come from cable that is not controlled impedance, or has damage altering its shape or poor connectors."

Even the right cable can be spoiled by the quality and design of the connector.

"The RCA connector is not a precision controlled impedance interface and will reflect energy. However, the industry has standardized on this less suitable connector — more of an issue of tradition than functionality."

Martin noted the impedance mismatch also reduces the bandwidth and lowers the signal level.

"Any of these errors will reduce the accuracy of the decoded signal out of the digital line receiver and make the circuit

**It is a misconception that the ones and zeros passing through the pipes are checked at the receiving end to filter out potential errors.**

Director of Research at Monster Cable Demian Martin explained how poor cables introduce jitter.

"Digital audio signals contain information across a very wide band," he said.

work harder to recover the clock signal embedded in the data," he said. "Any errors in the clock will translate into distortions in the output of the system."

See MCABLE, page 56 ▶

PRODUCT EVALUATION

## Many Features, One Compact Disc Player

Read G. Burgan

Marantz categorizes the PMD331 as a professional compact disc player.

What delineates a professional unit from a consumer version is ruggedness and features. The PMD331 scores high in both categories to make it an attractive choice for a radio or production studio.

Out of the box, it is ready to rackmount or sit on a console. The unit is remote-

the following functions: play, pause, cue, fast forward, fast rewind, fade, previous and next. Also, a remote can be ordered from Marantz for \$16.

The unit loads the CD on a motorized tray. The tray moves quickly and quietly, and appears rugged enough to hold up to the rigors of pro use.

**Easy to use**

The front of the unit has a lighted orange-color LCD display screen that



Mickey Moore, Marantz vice president of operations, tests a PMD331.

controllable either by an infrared remote that supports RC5 codes or through a hard-wired remote that connects to a D-SUB 25-pin female connector.

Marantz did not include a remote with the unit, but the operating manual provides extensive diagrams for creating your own hard-wired remote with

displays various functions, including elapsed/total time, track, text and pitch changes. The contrast of the screen can be adjusted.

Front-panel controls include a 0-9 digital keypad for selecting and programming tracks, program, preset,

See PMD331, page 53 ▶

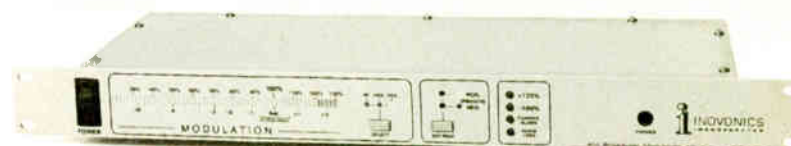
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## LINE OUT

# Replacing Tracks: Sync or Swim

**Bruce Bartlett**

How is this for a challenge? A vocal track is recorded on tape. You want to add a MIDI sequencer part. The tempo of the vocal track varies, but the tempo of the sequence is steady. How do you sync the vocal track with the MIDI sequence?

I will tell a story that describes one way to do it. As part of an album project, I recorded a vocalist who sang along with a cassette tape of an instrumental track, like a Karaoke performance. The musical director of this project wanted to release CDs of this vocal-plus-cassette music.

## And now the bad news ...

A few days after I recorded the vocal part, we heard some bad news. We could not release a CD of this music without paying royalties to the record label that produced the instrumental track.

It costs nothing to perform live along with a cassette tape, but you cannot re-release that music on your own CD without paying big bucks. Unfortunately, the project was already over budget.

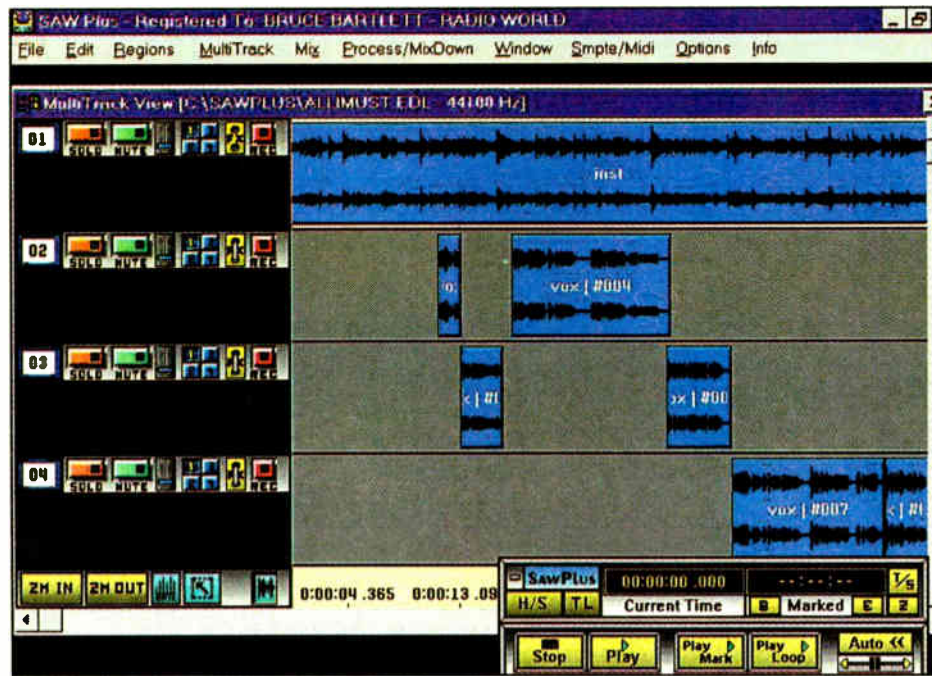
The musical director had an idea. Replace the cassette track with similar music performed on a synthesizer. So she wrote the musical parts, played them on a Roland synth, and recorded the performance into the Roland's built-in sequencer.

We planned to have the vocalist sing along with the Roland synth track, but

the singer had left on a honeymoon. Our goal, then, was to replace the original cassette track with the newly written synth track, then mix the pre-recorded

2 so we would not hear the original cassette track. I played tracks 3, 7 and 8, or the vocal and synth sequence.

The vocal was completely out of sync



vocal with the synth track.

Back when I recorded the vocal, I had used a Tascam DA-38 multi-track recorder. The cassette music was on tracks 1 and 2 and the vocal was on track 3. We recorded the new synth music on tracks 7 and 8.

During playback, I muted tracks 1 and

with the synth track. Not only did they not start at the same time, the tempo of the synth track did not exactly match the tempo of the vocal.

The tempo of the cassette music, hence the vocal, sped up and slowed down, but the synth tempo was fixed. We needed a way to synchronize the vocal with the synth track.

I recorded the synth part by itself onto my computer's hard drive, and then recorded the vocal part by itself onto the drive. Then, using a multitrack digital audio editor (SAW Plus), I put the synth part on tracks 1 and 2, and put the vocal part on track 3. I lined up the start of the vocal track with the corresponding part in the background music.

Would it work? I played the mix and hoped for the best. The synth track and the vocal stayed in sync for about six bars. After that, the synth track lagged behind the singer. The tempos did not match.

To keep the synth and vocal in sync throughout the entire song, I had to split the vocal track into several phrases, each about 15 seconds long. The editing software had a "split track" function that worked well for this purpose.

Then I slid each vocal segment backward or forward in time to line up with the corresponding part in the synth track (see figure). A segment can be slid in time only if there is empty track space around the segment. I had to put some of the segments on separate tracks to create this space.

If the vocals came in early, I delayed the vocal phrase to line up with the background music. If the vocals lagged the music, I slid the vocal phrase ahead in time to sync with the music. Lots of trial and error was used.

In other words, I was synching the vocal to the music, phrase by phrase. This was done by ear — not by lining up the speech and music waveforms on the computer screen. I could not line up the waveforms because the vocal was syncopated. Also, the vocal phrases did not have clear transients on screen to line up with the musical beats.

Why not just time-stretch the entire vocal track to make it the same length as the synth track? My editing software does not have a time expansion/compression feature. Some software does. Anyway, it worked fine to time-shift the vocal phrases. We had achieved sync.

Before transferring the vocals to hard disk, I knew that they would need some reverb in the mix. I did not want to use the cheesy reverb in the computer-editing program, so I added some high-quality reverb to the vocals before copying them to hard disk.

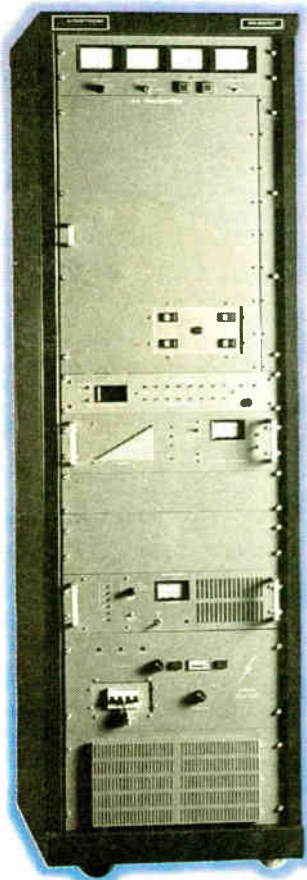
Using the editing software, I mixed the synth track with the vocal track, adding fader moves and EQ as needed. Finally I copied the mix to DAT, and there was the final product.

Thanks to the editing software and the director's musical skills, we salvaged the project and saved some money. This method might work for you, too.

■ ■ ■

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### PRODUCT GUIDE

#### Clyde Works in the Newsroom

Clyde Broadcast Products has the DeskMate and the DeskMate Lite designed for DAWs in newsrooms. Both DeskMate products sit under the



computer monitor so as not to take up any additional desk space.

The DeskMate includes four channels of mixing with faders for a local mic, the DAW output, and audio feeds from two multi-input source selectors. It

also has an optional telephone hookup.

Outputs are provided for the DAW, a central technical area, and for cue and clean-feeds associated with the outside source selectors with talkback. Inputs can be monitored with the bar-graph metering, headphones or the internal speaker. An external speaker can be connected.

The DeskMate Lite is a smaller version with only two inputs and no talkback.

Clyde Broadcast products are available in the U.S. through Netia Digital Audio in Texas. Call (877) 699-9151 or visit [www.clydebroadcast.com](http://www.clydebroadcast.com)





# Mean, Lean CD Playin' Machine

► PMD331, continued from page 51  
mode, end, index, pitch bend, and the obligatory fast forward, rewind, next/previous track, exit, cue and enter keypads.

The PMD331 supports CD-Text and the playback of CD-RW discs.

It has a pitch control with a +/-12-percent maximum range in 0.1 increments, a pitch bend control, a 10-second shock-proof feature, an A-B repeat function and instant start.

Analog outputs include stereo unbalanced RCA phono jacks and balanced XLR jacks. Marantz included an XLR wiring diagram on the back of the unit. The analog output is adjustable from -11 dBu to +21 dBu through dual screwdriver level adjustments on the back of the unit.

Digital outputs include an RCA and XLR jack, both S/PDIF and an optical connector. It is not a mistake that the XLR jack is S/PDIF. It is written in the



Marantz PMD331

wanted to find out if I could operate it without reference to the owner's manual.

In no time at all, I was able to use all of the common CD features including play, cue, fast forward and rewind. I was also able to use the pitch/search dial to change the pitch or search through a selection.

The sound was gorgeous and the headphone volume more than sufficient without a hint of distortion. The sound was equally impressive when I connected it to my monitor system using both the analog and digital outputs.

with the sound.

To access the presets and to program tracking order, I did refer to the operating manual. The presets allow you to change many user options, including selecting the fade-in and fade-out times, CD-Text language, etc.

### Programming

Programming the order of tracks turned out to be easy. Simply press the "program" button, select the first track using the front-panel keyboard and then press "enter." Repeat the sequence for each track desired and then press "program" to exit the process. Clearing a program is equally simple.

Because the PMD331 uses an instant-start function, there are no worries about manually cueing a track under normal conditions. The instant-start function is dead-on and the first note of the selected track starts the instant you hit the play button.

If you do want to cue the unit manually, there are two options: using the fast-forward or reverse buttons or the pitch/search dial. Either provides an efficient means of searching backward or forward.

The fast-forward/reverse buttons will move the play position one frame at 75 frames a second. Holding either button will gradually increase the search speed until normal speed is obtained.

Pitch bend allows you to change the speed rapidly by up to 8 percent. Releasing the button causes the unit to revert to the speed in effect before the but-

**The sound was impressive when I connected it to my monitor system using both the analog and digital outputs.**

manual that the digital format output on the balanced connectors is S/PDIF.

Most products that contain an XLR digital input are designed to accept an AES/EBU. If purchasing a PMD331, be aware that the AES/EBU input on some products will not accept S/PDIF, even though the audio data is identical.

With all these features, I wondered how difficult is it to use and how does it sound?

I took the unit out of the box, plugged in the power cord and a set of headphones. I

Most CD players will play virtually any commercial CD, but I have found that some will glitch when playing silver or gold 80-minute CD-Rs, and hardly any players will play CD-RWs.

I put the PMD331 to the test, and it played my gold, 80-minute and even the nefarious CD-RW CDs without a hitch.

My conclusion is that anyone who has an average working experience with CD players should have no difficulty in using this unit and that they will be pleased

**Product Capsule:**  
**Marantz PMD331**  
**CD Player**

**Thumbs Up**

- ✓ Instant cue
- ✓ Rugged and easy to use
- ✓ Pitch control
- ✓ Plays CD-RW discs
- ✓ Can build your own remote

**Thumbs Down**

- ✓ No remote control included
- ✓ Text display can only display 12 characters at a time

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Web site at  
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ton was pressed. The pitch bend is the best way to synchronize two CD players.

The A-B repeat function is a nice touch, which allows creating a playback loop that will continuously repeat until the stop button is pressed. To set up the beginning and end points, press the A-B button at the desired start position (it does not matter whether the CD is playing or paused), and then press it a second time at the desired end point. It works like a charm.

All in all, I found the Marantz MD331 compact disc player a delight. It is easy to use, sounds great, is ruggedly constructed and has a plethora of good, solid features that will make it a workhorse for either an on-air or production facility for a retail price of \$629.

*Read Burgan is a free-lance writer and a former public radio station manager.*

*He can be reached via telephone at (906) 296-0652 or through e-mail at [rgb@bresnanlink.net](mailto:rgb@bresnanlink.net)*

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# Strategies for Buying a DMS

► **AUTOMATION**, continued from page 47 can access the station's files directly for troubleshooting and download of upgrades.

## Open architecture

The frequently heard term "open architecture" applies to both hardware and software.

Don Backus, sales manager at Enco Systems, stressed the need for software that can run on anyone's hardware, as long as it meets the minimum criteria such as NT certification and 64 MB of RAM.

Open architecture can be a source of problems. Some users may attempt to cut costs by purchasing inexpensive hardware and end up sacrificing on-air reliability. Many low-cost computers are not designed for 24/7 operations. Problems such as fan and power supply failure may become a recurring nightmare. Computers should be treated as a piece of broadcast equipment.

Open architecture for software is the ability to communicate with other programs. Users should be able to pick their favorite music and traffic software and not be constrained by what will run with the automation system.

Backus said well-documented soft-



Ron Paley of MediaTouch

ware "hooks" are important in this regard. These hooks, lines of code that allow programs to talk to one another, may be used for other innovative applications, such as exporting artist names and song titles to an RDS coder for display on receivers or billboards. By sending this data to an IP address, such information can also be displayed on the station's Web site.

When choosing a system, you may find it necessary to accept a trade-off between one that is intuitive and one that

is flexible in terms of architecture. This decision should be based on how comfortable you and your staff are with this technology.

Mike Blankenbecler, director of engineering for Clear Channel stations in Monterey, Calif., has a system that runs six stations.

"An intuitive system will make a lot of the decisions for you and may be easier to use. A flexible system will allow you to do more, but usually entails a better understanding of the software," Blankenbecler said.

Compatibility is a major stumbling block when trying to exchange music files between different manufacturers' software. While most systems have used WAV files for the audio, additional information, such as artist, cut number, out cue, start time and end date, was all stored in different ways by different vendors.

Fortunately, these problems are about to be remedied.



Dave Scott of Scott Studios Corp.

said this is a dangerous move.

"It is illegal to use MP3 in a broadcast environment without paying royalties," Paley said. You might also need to budget for a site license for Windows, rather than purchasing a single copy and running it on multiple machines.

One main difference between automating one or two stations and automating dozens is the amount of storage space required.

Mark Kalman, vice president of the National Broadcast Studio at Sirius Satellite Radio, has put together a system that delivers 100 channels of audio, the equivalent of 100 radio stations (*RW*, Nov. 10, 1999). He emphasized the importance of "housekeeping" in the management and administration of such a large enterprise.

"We have assigned one person the responsibility of making sure storage space is not wasted," Kalman said. "With 30 programmers storing material on the system, and automated feeds coming daily, even the largest multi-Terabyte hard drives can soon become maxed out. The housekeeper watches overall capacity, manages automatic and manual purging functions, and urges producers to discard files that have been on the system for a while and aren't likely to be used."

Kalman urges users to consider investing in a content management system, such as those manufactured by Bulldog and Magnifi. Such systems manage the processes needed to archive, search and manipulate data in a network.

"This software reduces administrative headaches by automatically indexing and cataloging files and making them available to users across the enterprise," said Kalman.

Program sources may be an issue for those purchasing a DMS. In many medium-market stations, part of the day is live music and part is satellite-fed. In such cases, buyers should ask how well a vendor's system could handle both sources.

Historically, experts say, systems tend to be suited either with music on hard drive or satellite delivery, but not both. Consider this issue before you make your purchase.

## Remote access

Remote access, Internet connectivity and security are interrelated issues that should be on your checklist.

With modern PCs, Internet connectivity is virtually a given. This allows station personnel and field service engineers to access the system and do work from anywhere with a laptop computer and modem. It also allows software upgrades to be downloaded quickly from the vendor's Web site and

See *AUTOMATION*, page 55 ►

## Open architecture can be a source of problems.

A standard proposed by Audicy engineers, Cart Chunk, is awaiting approval from the Audio Engineering Society, and some manufacturers are already beginning implementation. The bottom line is that a station will be able to purchase a DMS from one vendor and be assured it will work with other automation systems made by different vendors, as well as audio workstations like the Orban Audicy.

Compression standards such as MPEG and JPEG may become a thing of the past for broadcasters. With costs for hard drives falling while capacity increases, many users feel it makes sense to store audio files in a linear, uncompressed 44.1 mode.

In addition to preserving audio quality, many stations are keeping audio uncompressed to ensure future compatibility with digital radio. When planning an installation or upgrade, find out if the system can handle uncompressed audio. Systems designed with 4:1 compression ratios might grind to a halt if several tracks of uncompressed audio are running simultaneously.

A related question is whether a system can handle mixed formats of audio. Uncompressed stereo may be needed for an FM operation, while an AM or Web-only station would do fine with compressed mono. Consolidation may drive the requirement for a system to handle multiple compression rates and formats.

Buyers of digital systems also must understand legal and copyright issues.

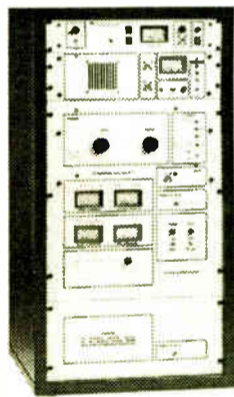
At the opposite end of the spectrum from the uncompressed audio purists are those stations that are grabbing MP3 files off the Internet and building a music library.

Ron Paley, president of MediaTouch,

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▶ **AUTOMATION**, continued from page 54 installed on the system.

However, along with access comes the potential for security problems. A good system should have various levels of password protection — read only, read and write to certain files, and global access. It should be easy to change the passwords.

Consider environmental conditions. Depending on the capacity, systems can occupy one to several racks of equipment.

Mike Blankenbecler of Clear Channel said, "Reliability can be greatly enhanced by operating the system in a temperature- and humidity-controlled room with special filtering for dust, and of course, conditioned AC power."

Interestingly, such rooms are a throw-back to the 1960s and '70s when main-frame computers needed a protected environment.

Such rack rooms may be beyond your budget. However, avoid stuffing equipment in an unventilated closet or transmitter shack. Most stations settle on a compromise between these extremes.

**Fast development**

When you purchase a system, the hardware may go out of date much sooner than the software. In order to keep the software working with updated hardware, vendors are continuously rewriting code and creating upgrades and patches.

Also, the lightning-quick hardware of today may not even support tomorrow's software. Stations need to budget for regular hardware replacement.

While hardware and software get most of the attention when setting up a system, Mark Kalman of Sirius Satellite Radio noted the importance of the connecting medium.

"It is critical that all cabling be Cat 5-compliant. To use a lesser grade of cable

may risk a high number of collisions and data retransmissions, which can slow down system performance," Kalman said.

Dave Scott, CEO of Scott Studios, said, "Some buyers simply get three bids and go with the lowest, often with disas-

Scott said another mistake is purchasing a system with limited capacity due to a tight budget. Given the choice, stick with an older system that works instead of an inexpensive system that will limit operations.

The bottom line in purchasing a DMS is that it is as important as the transmitter. When it fails, spots will not run.

The station needs to have a backup plan for this type of emergency. At some operations, this is as simple as keeping the cart machines in the racks and in operating condition. More elaborate schemes might involve installing RAID enclosures, where redundant hard drives may be hot-swapped when they fail.

■ ■ ■

Tom Vernon is a multimedia consultant. Contact him via e-mail at TLVernon@blazenet.net

**Cart Chunk is awaiting approval from AES, and some manufacturers are already beginning implementation.**

Although the selection of a DMS must be made with care, a few stations have taken shortcuts.

trous results. It is vital to become an informed consumer and select a system that fits your needs."

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## Automation Shopping Checklist

Several key issues should be on the engineer's checklist when shopping for a digital management system. They include:

- ✓ 24/7 technical support. No system is perfect, and when troubles occur, you need help fast. Some companies help to ensure that you do not fall through the cracks by using call-tracking systems.
- ✓ Open architecture. You should be able to mix and match different vendors' traffic, billing and music software to suit your needs.
- ✓ Remote access. You should be able to access your system via a password-protected modem link.
- ✓ Environment. A protected environment for your hardware is desirable. It should include such things as temperature/humidity control, dedicated AC feeds, air filtering, security and static control.

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# Cables for Digital Reduce Jitter

► MCABLE, continued from page 51

The components are designed to avoid the "rounding-off" of digital signals.

More obvious to the eye are the connectors, a refinement of the standard RCA. Obviously, they still have to mate with typical jacks, so the modifications are subtle.

Basically, the solid outer ring of the plug has been diced up into eight segments. The usual force-fit is more positive because the outer ring has some "give" to adapt to variations in the jack.

In an ideal setting, balanced XLR AES/EBU connectors are preferred; however, the consumer S/PDIF standard is

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- ✓ Expensive

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more common. Either is preferable to dumping the audio into a DAW by playing the audio back through the analog I/O — certain to degrade a recording.

The idea of dropping \$300 on cables to hook up a DAT deck, MiniDisc or CD burner may seem out of line. In fact, better sound quality can be achieved by purchasing a less-expensive digital recorder/player connected with better cables.

In many radio stations, such costs may well be out of line. But as more digital products enter the studio, and as the industry moves toward digital transmission, these questions will become more important.

If you want to work in the digital domain, include high-quality cables and connectors in the budget. To that end, consider the Monster Cable M1000D.

Carl Lindemann is a regular contributor to RW. Visit his Web site at [www.cyberscene.com](http://www.cyberscene.com) or send e-mail to [carl@cyberscene.com](mailto:carl@cyberscene.com)

Reader's Forum can be found on page 62.

**OPINION**

**Digital Radio is Cleaner**

The general public could care less if they get digital radio broadcasts, but they would like more programming choices.

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# Portable Sharp MD Evolves in 2000

► SHARP, continued from page 47

However, this feature is undercut by an intentional glitch.

Recording levels are divided into "high" and "low" ranges. When switching ranges, there is a momentary dropout in the recording. This supposedly helps the voice-activated recording feature. Unfortunately, this also makes it easy to inadvertently mar a recording with a dropout.

You have to wait for the right instant to change levels in order not to mess up the recording, or be careful to not cross over from low to high. Either way, this is not ideal. This odd feature was in earlier Sharp MDs as well.

### Sounds good to me

Beyond that glitch, audio quality is top-notch. Recordings at both mono and stereo made with a beyerdynamic MCE 58 electret mic were crisp and clean — right up to par with the capabilities of the latest ATRAC compression. The condenser mic avoids problems with using dynamic mics through a powered jack.

The MD-MT15 claims "24-bit" ATRAC, but it wasn't clear to me what that meant.

I got in touch with Bob Scaglione, associate vice president of marketing in the home digital division at Sharp.

He said, "It uses a 24-bit word for encoding and decoding. It does record analog as well, such as spoken word through a microphone." The fact is, this sounds as good as any other MD.

This is not a pro unit. It lacks the left and the connectors found in a deck like the new Marantz portable reviewed elsewhere in this issue.

The I/O has an eighth-inch mic jack with "plug-in power," or phantom power for consumer electret mics. There is also a line in/optical in jack and a

headphone jack that pumps out a decent level for monitoring.

Two AA cells or a wall-wart powers the unit. Many portable MD recorders rely on the company's own proprietary (and pricey) rechargeable batteries. Opting for standard AA cells makes it easier and cheaper to keep the Sharp up and running in the field.

**Product Capsule:**  
**Sharp MD-MT15**  
**Portable MiniDisc**

**Thumbs Up**

- ✓ High-quality MD recording
- ✓ Bargain basement prices
- ✓ Uses standard AA batteries

**Thumbs Down**

- ✓ Level setting causes dropouts in recordings
- ✓ No pro connectors
- ✓ Not heavy duty

For more information contact the company at (800) 237-4277 or visit the Web site at [www.sharp-usa.com](http://www.sharp-usa.com)

I did not beat on the unit too badly, but the unit is no less roadworthy than other inexpensive portables. Sharp has taken the portable MD to the next level in the competition — the price/value war. At less than \$200, this may be the best deal around right now.

Carl Lindemann is a regular contributor to RW.

# HBB MiniDisc Recording Media

While the recording algorithms differ between MD and CD, the way data is stored on a disc is similar. Data is organized and accessed by referring to the table of contents (TOC) at the top of a disc, which can be problematic if not completed.

I discovered this after recording a one-hour interview. When I hit the stop button, the display showed TOC ERROR. Even though the audio was on the disc, the unit could not read it.

Some high-end, rackmount MDs



can reconstruct lost or damaged TOC. According to HBB, the best way to avoid the problem is by using professional-quality media.

When it happened, the problem disc was of the cheapie consumer variety. It was more prone to dropouts and bad sectors.

HBB claims its MD discs have block error rates 10 times lower than consumer-grade media. These are the kind of data errors that will corrupt the TOC. HBB discs have added protection for the recording surface.

HBB also offers an 80-minute disc by reducing groove width and the pitch of tracks. Both the 74- and 80-minute MDs have the same features to protect valuable audio from unexpected disasters that seem to appear at exactly the wrong moment.

For more information contact HBB at (310) 319-1111 or check out the Web site at [www.hbb.co.uk](http://www.hbb.co.uk)



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Saul Marantz Stereo 80 amp & matching pre-amp, originally used in RCA Studio B, Music Row, Nashville, plenty of power with too many features to mention, works great, \$1500. J Deering, 615-855-1068.

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Utility 480, 430' tower 30" face, on the ground, cables, turnbuckles, insulators, \$12,000; Pirod (4) 240' solid rod galvanized towers, new in 1979, excel cond, 18" face, on the ground, avail 8/1/00, \$22,000; Shively 6810 14-bay vert/hor polarized 103.5 freq on the ground, avail 8/1/00, BO. R Carlson, 801-262-5624.

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JBL Control 1 speakers, gd cond, 3 pairs, \$75/pr +shpg; Orban 621B dual parametric EQ, gd cond, \$150 +shpg; Orban 111B dual spring reverberator, gd cond, \$125 +shpg; Orban 672A 10 band graphic EQ, excel cond, \$250 +shpg; QSC 1100 140W audio amps (3), gd cond, \$125 ea of \$325/all +shpg; Audio Logic MT-44 quad noise gate, OK cond, \$100 +shpg. Morningstar Sound, 732-938-4217.

Marti SCD-10 subcarrier demodulators (2), \$150 ea. M Connor, 914-592-1071 ext 103.

PR&E Multilimiter AM/FM, gd cond, \$300; DAP 310, gd cond, \$300; Collins 26J03, 26U-3 comp & limiter combo, fair cond, \$300. AC Elliott, 601-776-6197.

Marantz HD770 (2) high definition speaker systems, needs woofer replaced. J Phillips, 419-782-8591.

Maze R-1 spring reverb recapped in 1999, XLR I/O at +4 level, gd cond, \$50; Carver CT27V preamp/tuner w/Pro Logic decoder, as new, in original box w/manual & remote, \$100. D Bailey, 214-343-0879.

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Audicord DLPM single play cart machine w/sec tone, like new in box, \$600 +shpg. M Larsen, 510-465-6035.

BE 2100 Series stereo PB & carts, BO. D Senzig, 616-394-1260.

Fidelipac Dynamax CTR112 stereo single play cart machines (5), \$800 ea +shpg, B Lord, 206-932-4839.

ITC99 stereo cart PB machines (2), in excel cond, new pinch rollers & heads, \$100 ea; Ampro stereo cart record machine w/all tones & very little use, \$100. D Bailey, 214-343-0879.

PR&E Micromax player, \$250 +shpg; Micromax R/P unit, \$300 +shpg; ITC Delta stereo play decks (3), \$300 ea +shpg; Fidelipac CTR-10 stereo players (2), \$200 ea +shpg; Fidelipac CTR-90 stereo player, \$250 +shpg. D Dybas, 847-956-5030.

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LPB Signature II S-20 10 chnl stereo in gd cond, \$1200; LPB Signature II S13C 8 chnl stereo in gd cond, \$1000. F Willis, 850-653-3648.

Autogram 20 mixer stereo console. Continental Communications. 800-664-4497.

Soundcraft 600, 24x8, \$3900; JL Cooper 16 trk automation, \$1200. W Gunn, 760-320-0728.

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dbx 163X (2) limiters w/rack mounts in excel cond, \$75/pr. D Bailey, 214-343-0879.

Gentner Audio Prism compressor/limiter recently removed from service, \$230/BO. D Senzig, 616-394-1260.

Harris SMP-90 stereo limiter; SMP-90 stereo AGC; Orban 424A; Hnat-Hinds Ultramod w/stereo limiter; Modulation Sciences composite line drivers; Orban 8100/XT. J Phillips, 419-782-8591.

CBS Volumax, \$400/ea; mint Urei 1176LNs, black, \$2300; 1176LN silver, \$1800; 1176 original blue/silver transformer l/o, \$2300. W Gunn, 760-320-0728.

### WANT TO BUY

Teletronix LA-2A's, Urei LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST, 972-271-7625.

## MICROPHONES

### WANT TO SELL

EV 666, \$175; EV 654, \$85; EV 636, \$65; Telex xmtr & mic WT-50, \$125; Telex xmtr & mic WT-200, \$125. J Price, 214-321-6576.

Neumann TLM 193 (5), new in boxes, \$750 ea. A McClatchey, 915-779-0016.

Neumann SM-2 stereo tube mic, \$2500; Neumann UM-57 tube mic, \$1800; Neumann U-89, \$1300; Neumann RM-64 tube mic, \$1500; Lomo 19A19 tube mic, \$1200; Telefunken M221-B tube mic, \$1300. F Dammer, 781-294-1218.

EV 635L mics, \$95; Altec salt shaker mics, \$295/ea. W Gunn, 760-320-0728.

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RCA ribbon mics. W Gunn, 760-320-0728.

## MISCELLANEOUS

### WANT TO SELL

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Collins ART 13 B29 WWII 100W aircraft autotune xmtr w/operations manual, \$450. E Reilly, 206-282-6914.

Conex cueamp panel; ESE clock system. J Phillips, 419-782-8591.

Energy-Onix AM protector/enhancer w/AM pre emphasis, \$175. D Senzig, 616-394-1260.



**Miscellaneous (cont.)**

Gentner 5PH-3A telephone system, \$200. C Harper, 606-484-9393.

Henry Engineering Net Commander (2), BO. J Sidote, 304-436-2131.

Kintronics, Gate, FF Johnson, various fixed & variable inductors used for AM frequencies (29), BO. D Senzig, 616-394-1260.

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Fisher CR-272 schematic diagram. J Keene, 573-888-2995.

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Symetrix 101 telephone interface, \$250/BO. D Senzig, 616-394-1260.

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## EMPLOYMENT

### HELP WANTED



The leading provider of news and information services and programming has an immediate opening for an engineer at our Broadcast News Center in Washington, DC. Candidate must have solid technical skills in a wide array of broadcast technologies. Particular strengths required in automation systems, computer networking for broadcast applications and Internet services. EOE. Inquiries to: Phil Avner, Assistant Chief Engineer, AP Broadcast Services, 1825 K Street NW, Washington, DC 20006, pavner@ap.org

Recent acquisitions have created central and northern New England openings for Sales Managers and General Managers. A locally owned New England based company seeking long-term team leaders. Exciting comp. Package available including equity participation and an opportunity to share in the Company's growth. Fax resume to Northeast Broadcasting (603) 668-6470.

ATTENTION FARM NEWS DIRECTORS, and Assistant News Directors experienced in gathering, writing and reporting agriculture news. If you are ready to make your move...for a better salary with incentives and great benefits, MOVE UP to an exciting, new concept in nationwide farm programming. Send your tape and resume to: "Farm Director", 3303 Middleton Way, Colleyville TX 76034.

### Broadcast Technologist

Clear Channel radio has an immediate opening for a Broadcast Technologist for the Cincinnati cluster. Minimum 2 yrs experience & proficiency in AM/FM transmission & studio facilities. Must be able to troubleshoot & repair equipment in a multi-station environment. Studio construction, PC & digital equipment knowledge, specifically Prophet, a plus. EOE. Resume to: Bruce Still, Ops/Compliance Dir, Clear Channel, 1111 St Gregory St, Cincinnati OH 45202. Fax: 513-333-4259. bstill@clearchannel.com

### WBT-AM/WLNK-FM Charlotte NC (Jefferson Pilot)

Immediate opening on our engineering team. SBE certified desired. Duties include maintenance of digital audio storage systems (AudioVault, Urban Audio) and studios. Assist with transmitter maintenance, remote broadcasts. Windows NT knowledge a plus. Excellent physical plants. Send resume to: tjackson@jpc.com OR Tom Jackson, WBT/WLNK, Ops Mgr, One Julian Price Pl, Charlotte NC 28208



Join CBSI, Custom Business Systems, Intl. (a division of Wicks Broadcasting Solutions, LLC) - the leader in the radio broadcast computer systems industry. We have immediate openings in the following categories:

- **Regional Sales Managers** - Join the leader selling dynamic business solutions for broadcasters. Candidates will have demonstrated success in the broadcast industry managing sales and or general business of radio station operations. Successful candidate will have a strong knowledge of computers, proven sales techniques, follow through for clients and possess an impeccable customer service attitude.
- **Customer Relations/Inside Sales** - Come to the beautiful Oregon coast...enjoy ocean breezes and mountain sunrises. Ensure that our clients get the most from the most advanced radio business software available... and be working toward a move to a position as a Regional Sales Manager. Avoid the "consolidation crunch", put your minimum of five years radio experience and strong knowledge of computers to work for the best.

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- **Technical Manager** will have an intimate knowledge of radio programming, operations and engineering functions related to digital audio equipment and strong knowledge of NT, client server architecture. Duties include oversight of digital equipment installation, training and follow up to customers ongoing questions and needs.
- **Installation Support Technician** Duties include digital equipment installation, training and follow up to customers ongoing questions and needs. Radio engineering functions are essential.

Manager and Technical positions are based from Reedsport, Oregon on the beautiful Oregon Coast and will travel extensively both in the US and internationally.

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 Email HR@cbsi.org  
 www.cbsi.org  
 Fax 541-271-1401

### POSITIONS WANTED

CE position wanted: 22 yrs exper w/computers, xmtrs, automations, DCS, UDS, digital studios. R King, 541-269-9109.

Energetic, creative & entertaining w/15 yrs of exper in theatre & pro wrestling, now ready to get behind the music. Richard, 405-631-2280.

Mature, professional rookie-grad w/specialized training in radio broadcasting is ready to get started. Will relocate. Connie, 405-375-6843.

23 year veteran of radio would like to host bluegrass music show on the air, FT or PT, have talent, will travel, NW, NC, SW VA, 336-679-7035.

Experienced CE seeks FT, PT, Contract, seasonal work in the NE. Friendly, outgoing, looking for radio, AM/FM, TV work. FCC licensed, CET, amateur radio operator, exper in carrier current AM & MDS. M Rakoff, 718-969-5224 RadioMitch@Webtv.net.

Middays, Afternoon drive or nights. Any of those need filling? 10 yr vet relocating to work for you. Andy, 330-633-5323.

Veteran broadcaster retired from Voice of America, could do news anchoring & production for fun & mutual profit. A Kuhn, 864-595-7092.



## 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. This FREE service does not apply to Employment Help Wanted ads or Stations For Sale ads. These are published on a paid basis only. Send your listings to us by filling out the form below. Please be aware that it takes one month for listings to appear. The listings run for two consecutive issues and must be resubmitted in order to run again. Thank you.

Please print and include all information:

Are you currently a subscriber to Radio World?  
 Yes  No

Signature \_\_\_\_\_ Date \_\_\_\_\_

Contact Name \_\_\_\_\_  
 Title \_\_\_\_\_  
 Company/Station \_\_\_\_\_  
 Address \_\_\_\_\_  
 City/State \_\_\_\_\_  
 Zip Code \_\_\_\_\_  
 Telephone \_\_\_\_\_

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 Price: \_\_\_\_\_

WTS  WTB  Category: \_\_\_\_\_  
 Make: \_\_\_\_\_ Model: \_\_\_\_\_  
 Brief Description: \_\_\_\_\_  
 Price: \_\_\_\_\_

WTS  WTB  Category: \_\_\_\_\_  
 Make: \_\_\_\_\_ Model: \_\_\_\_\_  
 Brief Description: \_\_\_\_\_  
 Price: \_\_\_\_\_

\*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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# ADVERTISER INDEX

This listing is provided for the convenience of our readers. Radio World assumes no liability for inaccuracy.

PAGE	ADVERTISER	WEBSITE URL
15	Aphex	www.aphex.com
52	Armstrong Transmitters	www.armstrongtx.com
32,33	Arrakis	www.arrakis-systems.com
6	ATI	www.atiguys.com
17	Audioactive	www.audioactive.com
19	AudioScience	www.audioscience.com
2	Auditronics	sales@wheatstone.com
30	Belar	www.belar.com
14	Bext	www.bext.com
35	Bradley Broadcast	www.bradleybroadcast.com
44	Broadcast Data	www.broadcastdata.com
44	Broadcast Devices, Inc.	www.broadcast-devices.com
21	Broadcast Electronics	www.bdcast.com
25	Broadcast Electronics	www.bdcast.com
59	Broadcast Richmond	www.broadcast-richmond.com
8	Broadcast Software Int'l (BSI)	www.bsiusa.com
44	Broadcast Tools	www.broadcasttools.com
24	Broadcasters General Store	www.bgsfl.com
22	BSW	www.bswusa.com
4	Burk Technology	www.burk.com
40	Cartworks/DBM	www.cartworks.com
16	CBSI	www.cbsi.org
44	Circuit Werkes	www.circuitwerkes.com
7	Comrex	www.comrex.com
10	Conex Electro-Systems	www.conex-eleetro.com
49	Crown Broadcast	www.crownbroadcast.com
13	Cutting Edge	www.nogrunge.com
44	Dayton Industrial	NOT AVAILABLE
44	Econco	www.econco.com
50	Electronic Research Inc.	www.eriinc.com
43	Energy-Onix	www.energy-onix.com
50	Excalibur Electronics	Not Available
53	Gorman-Redlich Mfg. Co.	www.gorman-redlich.com
1	Harris	www.harris.com
27	Harris	www.harris.com
28	Harris	www.harris.com
29	Harris	www.harris.com
20	Henry Engineering	www.henryeng.com
18	Inovonics	www.inovon.com
51	Inovonics	www.inovon.com
44	J Squared Technical Service	jsquared@cdsnet.net
50	LBA Technology	www.lbagroup.com
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34	Media Touch	www.omt.net/future
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9	Telos Systems	www.telos-systems.com
38	The John Bayliss Broadcast Foundation	baylissroast@kagan.com
63	Wheatstone	sales@wheatstone.com
64	Wheatstone	sales@wheatstone.com



## ◆ READER'S FORUM ◆

### CBS century roundup

Dear RW,

I wanted to thank you for the very nice play you gave "The CBS News 20th Century Roundup" in your Dec. 22, 1999, edition ("Murrow Boys on 'Roundup'.")

As you can imagine, we are extremely proud of this three-hour broadcast, anchored by Dan Rather. You helped us



(Left to Right) Robert Trout, Dan Rather and 'Murrow Boy' Richard C. Hottelet

spread the word through the industry and it was much appreciated.

The broadcast included more than 50 current and former CBS News correspondents and featured a reunion of all of the surviving members of Edward R. Murrow's original World War II team.

It aired in virtually every major market (in some cases twice) and was very well received.

Again, thank you for your coverage of this broadcast.

*Mike Freedman  
General Manager  
CBS News (Radio)  
New York*

### E-power points

Dear RW,

Regarding Mark Lapidus' item, "You

Have E-Power in Your Station" in the Dec. 22, 1999 issue, I'm concerned that this article doesn't adequately emphasize how bad an idea it is to send promotional e-mail unsolicited.

Lapidus writes, "I'm not a big fan of buying e-mail lists." I don't think that goes nearly far enough. At best, sending unsolicited promotional e-mail will ruin your station's reputation and goodwill

with thousands of Internet users.

It also stands a good chance of resulting in the cancellation of your e-mail accounts — and could even result in legal action. (It may also make your station a target for angry hackers.)

Allowing recipients to "opt out" with an "unsubscribe" message is not enough. Nor is it acceptable to automatically add people to your list only because people visited your Web site or entered an Internet contest.

Stations should only send promotional material by e-mail if the addressee has specifically requested it, by clicking a button that specifically says they grant permission to receive this material.

I waste enough of my scarce personal time fending off telephone and postal direct advertising. I don't need to receive it over the Internet too.

*Doug Smith  
Pleasant View, Tenn.*

### Broadband vs. baseband

Dear RW,

This letter is regarding Steve Lampen's *Wired for Sound* column "Wire for Wireless and Computers," RW, July 21, 1999.

## Computer Security: A Trade-Off

Computer hacking is nothing new. But the sophistication and severity of the attacks are of concern. On Feb. 6, Yahoo! was shut down with a massive hit on operations. Within days, other sites suffered meltdowns when computer hackers implemented denial of service (DoS) attacks.

How does this happen? It's basically the same concept that high school students have pulled for decades on senior prank day: All the toilets in the building are flushed at the same time and the plumbing system takes a hit. The place floods. A DoS attack on a computer network "floods" the network with traffic, effectively shutting it down.

A station Web site may be the target of a hacker. Your site is essentially your station's electronic front door. A station employs physical security measures; we assume that there are measures in place preventing Joe Schmo from walking into the station, pushing his way into the control room, and taking over the mic.

The idea of the World Wide Web is that the door is open to everyone. You can't control who accesses your Web site. While you may have certain listeners with increased access to your site — such as contest winners or registered listeners (you get their demographic information such as name, address, product interests, and they get more of an open door to your site) — you still can't control who types [www.yourradiostation.com](http://www.yourradiostation.com) into their browser window.

It is difficult to have a totally effective defense without closing out 99.9 percent of the people who just want to check out your Web site.

The only consolation is that the FBI and DOJ are stepping up posturing efforts and making a bigger commitment to track down and prosecute those who engage in computer crime. Prevention is a difficult thing if you provide a public service such as radio does — a service that, by nature, invites participation from everyone.

Internally, a station can protect itself with firewalls and security measures preventing, say, a disgruntled employee from stealing or altering information. The Y2K scare, essentially for the first time, made IS folks pay serious attention to the protection of systems in-place.

This is the age when cybersecurity must be figured into company operations. Stations should have checks and balances not only for money, but also for data systems.

— RW

Wangnet is a broadband network, not a baseband network like Ethernet. The lowest carrier on Wangnet is something like 50 MHz FSK. So using a clad-steel centre conductor is not a problem since there's no low frequency stuff on the cable.

I can probably even find a Wangnet tech ref if I look really hard around here.

*Scott Dorsey  
Williamsburg, Va.*

### Season's songs

Dear RW,

I read Ken R.'s article about Christmas songs, including novelty hits, "The Story of the Season's Songs," (RW, Dec. 8).

Ken left out one from the '50s that still has the honor of representing the youngest singer ever to have a top-10 hit: "I'm Gettin' Nuttin' For Christmas" ("Santa Claus Looks Just Like Daddy") by then-seven-year-old Barry Gordon.

Barry was a top child actor whose other big rock-and-roll fame claim was appearing in the film, "The Girl Can't Help It."

At 13, he was nominated for a Tony for his Broadway starring role in "A Thousand Clowns."

On behalf of my second cousin, I protest your warrantless omission of this holiday classic.

*Dan O'Day  
Radio Talent Consultant  
Los Angeles*

### The good old days ...

Dear RW,

I very much enjoyed Jim Withers' article "A Screen Primer for the Tubeless," (RW, Oct. 27, 1999).

I trained at Harris in Quincy, Ill., in the mid 1980s and they were still teaching tubes, but were stressing solid-state pretty hard. Those were the good old days. I'm out of broadcast engineering now, working at a small transformer manufacturer, but like to keep up on what's going on.

Jim's article brought back memories of some good times, both at school and in the transmitter shack.

*Les Vaughn  
Technical Service Manager  
Sun Transformer Corp.  
McLeansboro, Ill.*

## Write to Us READERS FORUM

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## Radio World

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### NEXT ISSUE OF RADIO WORLD MARCH 15, 2000

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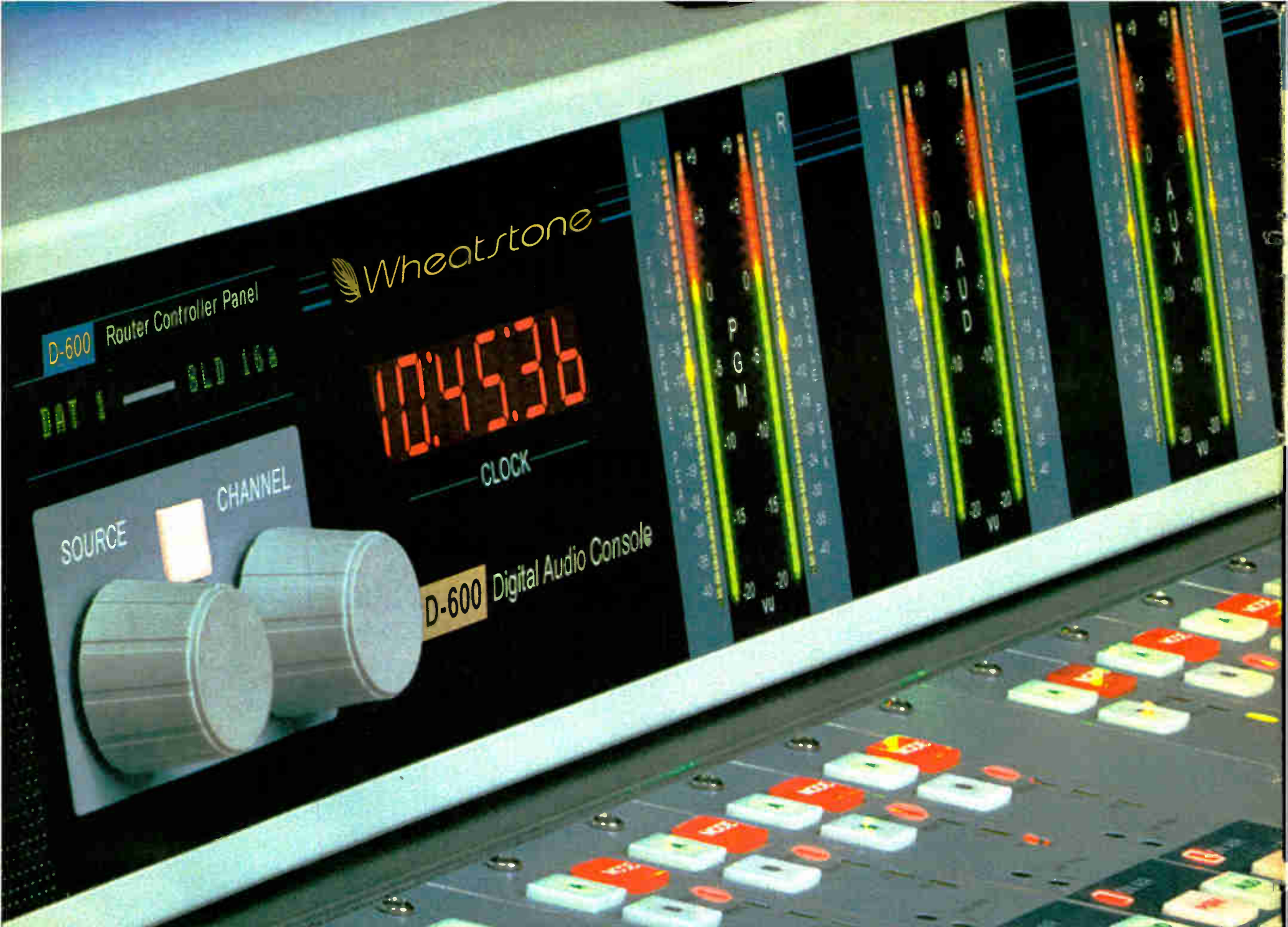
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