Radio World®

THE NAB RADIO SHOW

New Product Wrap-Up See Page 31

Vol 21, No 22 | Radio's Best Read Newspaper | October 29, 1997

Radio Marti Maps a Move

by Lauren Rooney

MIAMI Congress is trimming the sails of Radio and TV Marti. The duo that broadcasts news and entertainment to the people of Cuba is packing its bags and heading out of Washington to new digs in Miami.

Herminio San Roman, director of the Office of Cuba for Radio and TV Marti, said Congress is moving the operation to Miami to serve the population of Cuba better and to save money.

"We have more scholars in Miami, more people who really understand Cuban issues. That will help us a lot."

"The rent is cheaper in Miami than in Washington, D.C. We will save about $500,000 a year," he said.

The new home of Radio and TV Marti will be a warehouse. M.C. Harry & Associates, a Miami architect firm, is helping build the studios, newsroom and offices.

"We're making lemonade out of lemons," San Roman said with a chuckle. The facility is a large building with three levels; much work must be done to make it broadcast friendly.

For example, San Roman said, "The acoustics are very poor, so we have to lower the ceiling." The renovations will cost $4 million. San Roman hopes to have the facility completed by spring.

While Radio Marti is getting a new home, it will not be getting new equipment. San Roman said the current equipment remains in pretty good shape.

A typical Radio Marti studio includes two or three reel-to-reel machines for recording and playing long-form programming. The machines are an assortment of 12-year-old Studer A810s, three-year-old Otari MTR-15s, and year-old Otari MX-55s. Fidelipac Dynamax DCR 1000 digital recorders handle short-term work, like music, news stories, commentaries, and opens and closes. The machines use both high-density and triple-density computer diskettes as the audio medium.

Two Radio Marti production studios have digital audio workstations; in Miami it's an Orban DSE7000, in Washington a Pacific Research & Engineering ADX system.

The newsroom is equipped with computers, which will be upgraded to Windows95. They receive several news services, including Associated Press, Reuters and Spanish services. WireView is a software program that sorts the service material and puts it into categories. Reporters write their newscasts in the word processor program NewsView,

See MARTI, page 19 ▶

What are these people doing?

See Page 20

First AM Expanded Band CPs

by Lynn Meadows

WASHINGTON Despite two unsettled Petitions for Reconsideration, the Federal Communications Commission issued the first two construction permits for the expanded band late last month.

KQXI(AM), Arvada, Colo., and KKSL(AM), formerly KPHP(AM), Lake Oswego, Ore., received construction permits that day. They were among the 88 AM stations listed as eligible to move to the expanded band in the third allotment plan released in March. Theirs were the first two applications filed when the window for filing opened. All told, 67 of the 88 stations eligible chose to file applications to migrate.

Both Kovas Communications Inc. and Press Broadcasting Company filed Petitions for Reconsideration following the release of the March allotment plan. Those petitions have not been resolved. The first two

See AM, page 8 ▶

WTOP-FM: National Trend for News Formats?

by S. D. Yana Davis

WASHINGTON When all-news WTOP(AM) in Washington, D.C., began simulcasting on a leased FM signal in nearby suburban Virginia on Sept. 1, radio news people and other observers wondered if it represented the start of a trend.

The immediate speculation in The Washington Post was that the all-news AM station aimed to reach a younger audience, as well as fill in blanks in its coverage area. But a format consultant and a programmer at a pioneer "spoken word" station, as well as the principals in the lease deal, expressed strong doubts to RW that FM is the wave of the future for news and news/talk. They said listeners to these formats are selective, and that news appeals mostly to older listeners, who grew up listening to AM.

Does the WTOP move hold lessons for programmers elsewhere? Even if it's not a way to shore up younger demographics, simulcasting on suburban FMs may be a solution for coverage gaps that afflict other AM spoken word stations.

Market specific

WTOP's move is "probably what is most prudent in their particular situation. And that is, to go for the biggest possible audience in that market," said Rob Balon, president and CEO of The Benchmark Company, a radio format consulting firm based in Austin, Texas.

Steve Swenson, vice president and general manager at WTOP, said the move onto FM may be a first. "We don't know of another station that's simulcasting an all-news format (as opposed to news/talk.) There was an Infinity-owned station in Dallas that did it for about a year a while back," but abandoned the format when it failed to attract significant audience.

See WTOP, page 14 ▶

Circle (1) On Reader Service Card

World Radio History

NEWSWATCH

Nationwide Stations On the Block

COLUMBUS, Ohio Nationwide Mutual Insurance is getting out of radio. The company put its entire 17 radio station group up for sale on Oct. 8 and retained broker Gary Stevens to handle the spinoff. Stevens told **RW** that radio "was not a core business for Nationwide ... and now is an attractive time to sell if it's not your main business."

Nationwide stations up for sale are: WPOC(FM), Baltimore; WGAR-FM, WMJI(FM) and WMMS(FM), Cleveland; WCOL-FM, WFII(AM) and WNCI(FM), Columbus; KDMX(FM) and KEGL(FM), Dallas; KHMX(FM) and KTBZ(FM), Houston; KMJZ(FM) and KSGS-AM, Minneapolis; KZZP(FM) and KGLQ-FM, Phoenix; and KXGL-FM and KMCG-FM, San Diego.

Nationwide's broadcast unit, called Nationwide Communications Inc., originally was known as People's Broadcasting Corp. when it was founded in 1946 by the Ohio Farm Bureau Federation to provide radio services tailored for the rural community. Control was turned over to the Farm Bureau's former insurance affiliate, Farm Bureau Mutual Automobile Insurance Company (now Nationwide Mutual) in 1949.

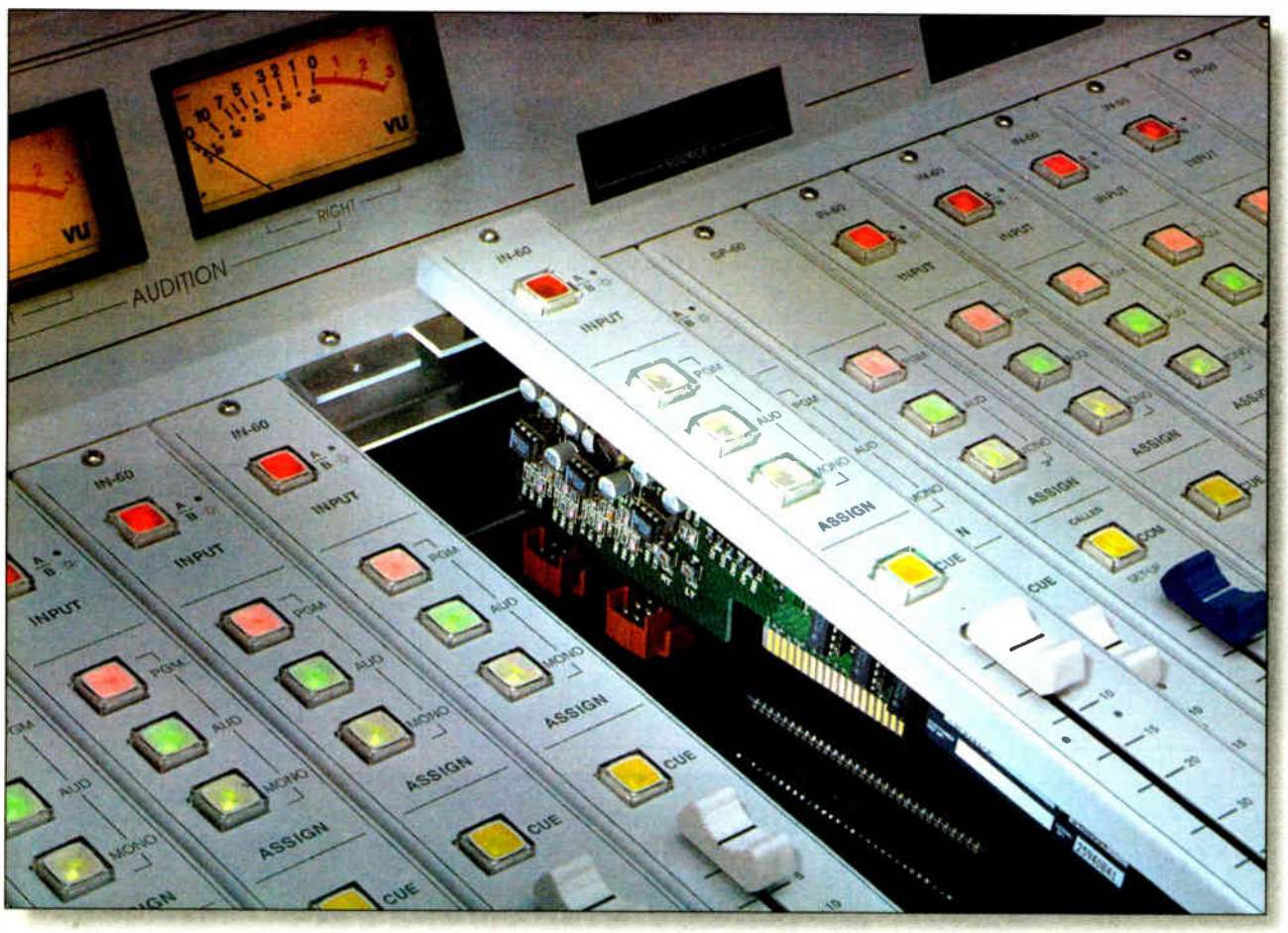
FCC Closer to DARS Licenses

WASHINGTON The two winning bidders in the FCC's license auction for satellite DAB are closer to getting their actual authorizations to begin the service. The FCC was prepared to grant satellite DARS authorizations to American Mobile Radio Corp. and Satellite CD Radio, Inc. in October once the companies finish paying for their licenses. The balances were due on Oct. 16.

AMRC bid approximately $90 million and CD Radio $83 million for their licenses. CD Radio paid its balance on Oct. 8.

It's uncertain exactly when the FCC would issue the licenses, but a spokesman said the agency is trying to do it as soon as possible. The commission would issue an order explaining why the licensees are qualified and also settling outstanding petitions to deny the licenses.

Take a LOOK at THIS:



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DIM	
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Mic	98dB
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Stations need dealers

Dear **RW**,

Regarding the cover-page article about the decision by Stephen McNamara of SFX to bypass distributors and negotiate factory-direct (Sept. 17): Mr. McNamara and SFX typify everything that is wrong with radio: Greed!

While for a short time a few big purchasers may realize a small cost benefit, in the long run prices will rise to meet the manufacturers' costs to sell directly to broadcasters. With the exception of transmitters and antennas, most equipment manufacturers selling to broadcasters do the majority of business in non-broadcast markets, and rely heavily on distribution chains for their bottom line.

SFX may think they're doing right by saving a few percentage points. In fact, this mentality is killing radio. What about the price-to-performance ratio? When do you draw the line between saving a few bucks and spending wisely to gain superior service and quality products?

Engineers are leaving radio for the greener fields of PCS and other wireless technologies at an alarming rate. How do you justify saving a few dollars for a product when the installer or operator may not know how to adequately deal with it after the sale? Sure, the manufacturers' customer service department may be helpful, but for how long, with increasing numbers of calls due to lack of outside support?

While a manufacturer has a narrow product range to deliver to market, the distributor chooses a wide variety of products to maximize the choices for his clients and provide complementary product lines. The cost of researching, manufacturing, advertising and delivering one product is much higher per unit than for a large array of products.

Our firm has not historically used distributors and has recently reevaluated their pros and cons. We came to the conclusion that both our bottom line and our customers can profit by utilizing distribution firms.

One such way is simply the reduction in telephone calls. If we limit the amount of time spent per product in sales and support, while not compromising those figures, we can spend more energy and resources in other areas such as researching new products and improvements to our current line.

Distributors earn their living by selling our products. We support them while they support us *and* their customers.

I'd like someone to tell me how to calculate quality, service and personal attention when examining bottom-line economics.

James S. Kaplan KG7FU
Sales Engineer
EDX Engineering Inc.
Eugene, Ore.

Dear **RW**,

I hope Steve McNamara hasn't forgotten that these same dealers kept stock on things he used to need, at no cost to him, other than a reasonable mark-up, and were usually available to him at all hours of the day and night in case he "got blowed up." They were also there with fairly decent technical advice, both pre- and post-purchase. They were also there to put pressure on the manufacturer to "kick the mule" with tech support or other services when needed, and to offer alternatives to him when it really hit the fan.

Jim Sorensen
VP and Sr. Engineer
Cottrill & Holland Inc.
Ft. Lauderdale, Fla.

Editor's Note: Stephen McNamara is no longer employed by SFX. He told ***RW*** *that SFX bought out his contract effective Oct. 1. He said he did not believe his departure was related to the story in* ***RW****.*

Tim Klahs, director of investor relations at SFX, said he could not comment on the reasons for McNamara's departure. Asked if SFX would pursue a policy of buying direct, Klahs said, "It's a moot point," because SFX is being purchased by Capstar, and that Capstar would have to make that decision.

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Next Issue of Radio World November 12, 1997

Fall Show Springs Ahead

A year ago in this space, **RW** complained that the old World Media Expo had developed a multiple personality. We said that floor traffic was underwhelming, some attendees were confused, and exhibitors had grumbled privately that the business did not justify the trip. The return to a radio-only show, we said, was an opportunity for the NAB to recharge the event by presenting a strong, focused radio show.

So how did the 1997 radio show do? Pretty well, it turns out.

Attendance was solid, with NAB reporting a record 7,246 people. This seems to answer the concern that consolidation would pull down the numbers, at least for this year.

The sessions were vibrant, including headliners such as the group head summit, now a favorite event. NAB spokesman Dennis Wharton said, "It is really amazing the positive feedback we've gotten from the show."

Mel Karmazin helped out, too. The announcement of the acquisition of American Radio Systems by Westinghouse/CBS was timed to his appearance at the show's Radio Luncheon. Karmazin also made it to the exhibit floor. He visited, among other booths, the USADR exhibit, to check on the progress of IBOC DAB research.

Exhibitors, always a tough group to impress, acknowledged the efforts that NAB made to increase foot traffic. These efforts included floor entertainment and prizes, and hours for exhibits only. It was "the single best show event from a radio perspective that the NAB has ever been involved with," said one exhibitor. Another said, "The NAB did a great job of reinvigorating a radio-only show."

Exhibitors also now have an advisory committee for the fall show, to give their input to the NAB. This should help make the experience more profitable for them. This, in turn, helps increase the size and quality of the booths for attendees. Exhibitors sounded cautiously optimistic about the future of the show.

Now, after several round trips between Los Angeles and New Orleans, The NAB Radio Show takes to the road. The choice of Seattle next year, and other cities around the country after that, will give more people a chance to attend. This year's experience should give the show new momentum as it moves to those other locations. We suggest that the NAB look east for future venues.

We're excited about Seattle, a city with much to offer. Business leaders in that city already are looking forward to the arrival of this show. Radio groups and stations should do the same, and put it into their travel budgets for 1998.

— RW

Write to Us

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A radio mentor

Dear **RW**,

This is in response to your editorial "Alphabet Soup" in the Oct. 1 issue, regarding the careers of radio engineers and the importance of mentoring.

I am the assistant engineer at WUSY(FM), US-101 in Chattanooga, Tenn. I've been lucky enough to get my foot into the door of the radio business thanks to a man named Andra Johnson, the chief engineer at the station. This gentleman has taken me under his wing and is teaching me everything I need to know about radio engineering. Mr. Johnson is always available to answer my questions, no matter how insignificant they may seem. He takes the time to make sure that I fully understand every detail. At the same time, our station is in the process of relocating.

I believe I really lucked out in having such a great engineer as a role model.

I just wanted to have an opportunity to thank Mr. Johnson for his efforts and support, and thought this would be an ideal chance to do so.

Reggie Elliott
Assistant Engineer
WUSY(FM)
Chattanooga, Tenn.

A radio Virgil

Dear **RW**,

I think that I shall never see
A board as lovely as a BMX III
Some switch gears and hope to go faster
My favorite gear knob is on a Tapecaster

Though carts are almost extinct, it's true
They've all been replaced
By machines from Big Blue
A reel-to-reel is a thing of the past
They also said the Yardboard
Wouldn't last

Sonex in the soundbooth,
Electro-Voice on the air
Marantz on my shoulder
As I cover the State Fair
Host public affairs and shoot
the bull hockey
Then wince in pain when I'm called
a disc jockey

The shack in the fields
The station with the cat
The modern high-rise
The station with DAT.
They'll all be operated
From home on the phone
But I know I'll just die
When they take my Wheatstone.

Tim Kimble
Operations Director
Radio Kansas
Hutchinson, Kan.

World Radio History

GUEST COMMENTARY

FCC 'Harassment' Won't Quit

by Tom Taggart

ATHENS, Ohio I'm baaack! We finally received our EAS unit and installed it in June. As I thought, it is a complete waste of money, good for little else than to produce endless hard copies of severe thunderstorm warnings.

We've collected a bunch of McMartin TR-55 SCA receivers, which clean up nicely and prove sensitive enough to use for monitoring purposes. A TLO-72 provides adequate level for the EAS box. Biggest problem is that we are supposed to monitor WXIL, Parkersburg, on 95.1, which is a little close to the 93.9 signal 200 feet away. However, everyone else in town goes on the bird and walks out at 7 p.m., leaving us and WXIL the only stations in town manned 24 hours. For our second monitoring assignment we use WOUB-FM, Athens, which is not in the West Virginia plan, but is west of us. Down the road we will add WOVK(FM) in Wheeling.

The coding system does not screen out irrelevant alerts; every alert triggers EAS, whether or not our group of counties is involved.

West Virginia

As I mentioned nine months ago, the West Virginia plan is worthless. More than 20 years ago I remember meeting with other engineers and managers to create an EBS plan that covered our two-state region more effectively. We don't even monitor the NWS station they propose but instead monitor NWS's High Hill relay because the forecasts out of Pittsburgh are much more accurate than Charleston provides for our part of the state.

We've heard that one group in the market pulled NWS off the EAS system since it would generate alerts for every minor storm that came rolling through, driving their staff to distraction (10 alerts on one afternoon). And the coding system does not screen out irrelevant alerts; every alert triggers EAS, whether or not our group of counties is involved. And we paid $1,600 for this stupid thing.

Now the fees

Now that the 1996 election is over and the EAS bonanza is out of the way, here comes another way for the FCC to harass small-market stations: "regulatory fees." Our AM fee has doubled, from $400 to $800, a significant portion of our monthly revenue on our religious-formatted station. What is even more galling is that WABC(AM) has a whopping fee of $2,000 (probably earned in 15 minutes of drive-time). Our fee is even higher than the rest of our market because it is based on our .5 mV/m contour on 630 kHz. Note that the FCC used 5 mV/m for most other purposes such as studio location and cross-ownership. They know darn well that RFI generated by computers, light dimmers and arcing disconnects obliterate weaker signals.

With the increase in this regulatory tax, we will be paying close to $3,000 for our AM-FM, translator and auxiliary service licenses each year. A tax it is, of course. What does the FCC do for us for this money? Protect us from pirates? At the recent West Virginia Broadcaster Association summer meeting, an FCC spokesman admitted that they don't have the staff to go after all the pirates.

Every time we file any sort of application with the commission we must pay a separate fee. Of course, if we apply for a new station, we will have to bid for it and pay off the commission, in addition to paying an application fee.

Not all pirates operate out of Berkeley.

What's next?

As you know now, Capstar is buying SFX. Jacor is buying much of Ohio — the Columbus Dispatch reports their company motto is "Ja-Borg: You will be assimilated." Apparently the FCC plans to keep ratcheting up the fees until most of the stations in this country are owned by 15 to 20 group owners (or off the air). Now they are talking about free radio time for the leeches, that is, politicians. (I have always believed that all political announcements should be tape recorded without any bias.

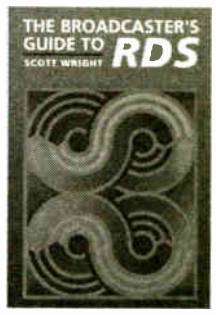
We broke even in October 1996; political revenue just equaled what we lost in regular business.

Of course, with all this money flowing to Washington, we will have the best government that money can buy. Unfortunately, the only Chinese business owner we know owes us money.

■■■

Tom Taggart is an attorney in Athens, Ohio, and part-owner of WVVW(AM) and WRRR-FM in St. Marys, W. Va. His commentary, "EAS Is Little More Than Excuse for Fine," appeared in RW Jan. 22.

RDS Book: In-Depth Tour, An Expert Guide



Critics say RDS is a failure in the United States, a technology looking for a reason to exist. Fans say RDS has only begun to make inroads, and that consumer awareness and available car receivers will put the data system over the top.

Scott Wright, a proponent of the technology, has written an introduction aimed at educating anyone with an interest in RDS. "The Broadcaster's Guide to RDS" is an informational guide to what RDS is and how it can improve upon the state of radio in North America. Wright developed the first Delco Electronics RDS receiver. You don't have to be a fan of RDS to appreciate this overview.

His detailed account focuses on the Radio Broadcast Data System (RBDS) Standard, the U.S. term for the European Radio Data System (RDS) standard, and why it's useful to the FM broadcaster. It's meant to clarify what RDS can do. Wright feels this is a factor keeping many broadcasters from adopting this service.

The book begins with a description on how RDS works, why it should be implemented and its many features. It answers a series of questions aimed at clearing up uncertainties in the minds of skeptics, and touts its relatively low price range, capabilities and possibilities.

Wright does a thorough job of explaining the services an FM broadcaster can offer with RDS. He goes through each subject in detail, in a way that is easy to comprehend for broadcast personnel of all levels of expertise. The chapters are organized so that those reading to learn the basics can drop off, while those in higher areas can get a deeper explanation.

Each chapter is accompanied by charts, graphs and illustrations that complement the writings. A brief glossary and list of abbreviations following the text are helpful tools to the reader who finds difficulties in understanding some of the more complex terms.

Just over 200 pages, "The Broadcasters Guide To RDS" by Scott Wright is published by Focal Press in Boston. Its retail price is $36.95; the book is available by phone at (800) 446-6520. The ISDN number for this book is 0-240-80278-0.

— Brian Galante

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World Radio History

NEWS ANALYSIS

AM Slots Remain Out of Reach

by James Careless

OTTOWA Seeking better sound and more consistent coverage, many Canadian AM radio stations are moving to the FM band.

In Toronto, for instance, the publicly-funded Canadian Broadcasting Corp. recently won its bid to move its Radio One service from 740 kHz to 99.1 MHz. In Montreal, the CBC is moving Radio One from 940 kHz to 88.5 MHz as well. Meanwhile, in Ottawa, two frequencies already have been abandoned: 540 kHz, after privately-owned The Bear moved to 106.9 MHz, and 920 kHz, when CBC Radio One moved to 91.5 MHz.

These are not the only Canadian AMs that have or are planning to leave the band, according to Bryan Smeathers, president of the 197-member American Community AM Broadcasters Association, which formed this year. In fact, "There's at least a dozen frequencies that our association is aware of that have been abandoned by Canada," he told **RW**.

However, despite the fact that these AM slots are or are about to be left empty by Canada, U.S. AM broadcasters can't get their hands on them. Under an agreement between the two governments, Canada can hold onto this spectrum as long as it wants.

Under this agreement, some AM broadcasters on both sides of the border must reduce power at night, to keep from interfering with stations in the other country. For instance, Smeathers' own station, WMTA(AM) at 1380 kHz in Central City, Ky., has to drop from 500 W daytime to just 23 W at night. He does this to protect CKPC of Brantford, Ontario, which also operates on 1380.

"Unfortunately, reducing power significantly reduces my local coverage," said Smeathers. "That's why our association is advocating the use of FM translators for AM stations to provide continuous coverage at night, because we're not covering the same area at night that we do during the day."

In the case of WMTA, "we would like to carry the high school sports at night, y'know, basketball and football. Well, with 23 watts, there's no need to even try, because we're not getting the signal out far enough for everyone in our listening area to hear the ball game."

This power reduction is bad enough, but it's something AM broadcasters around the world have to stomach to keep AM functioning. However, "We here in the states, according to the treaty, are having to provide protection for spectrum that Canada evidently doesn't have an interest in, or a desire to use," said Smeathers.

Stung by the bureaucratic absurdity of sacrificing themselves to protect non-existent Canadian stations, ACAMBA is lobbying the FCC to change the rules.

"Our association is advocating if Canada's not going to use it, then why should we have to protect it?" said Smeathers. "So we're recommending that Canada be given a time period of about a year to either use it or lose it."

If, after a year, Canada doesn't reallocate the unused AM slot — as is the case with 540 AM in Ottawa — "then we wouldn't have to protect those frequencies."

Despite these lobbying efforts, however, it seems unlikely that anything will change. Silent AM frequencies such as Ottawa's 540 and 920 still belong to Canada. Industry Canada, the ministry that assigns radio spectrum, shows no sign of giving them up.

Asked about the future of Toronto's 740 kHz slot, Ralph Zeitoun, Industry Canada's director of Broadcast Planning and Technical Policy for Industry Canada, said his ministry can't relinquish the frequency.

"We don't know if it will not be used" by another Canadian broadcaster, he said.

Spectrum is valuable

"Maybe we will have an application (the) next day," he said. "Don't forget many times small stations in certain places would love to have a good frequency, but they were prevented because there were none available. They might be the first one to apply for it."

A check with the Canada Radio-television and Telecommunications Commission, Canada's broadcast regulator, showed no applications for 740 in Toronto on file.

Would Canada be willing to reopen the treaty with the United States covering AM frequency allocations? Zeitoun did not commit to an answer. He said that, should the FCC bring up the subject, "Our doors are always open between us and them to discuss anything in the agreement."

On the U.S. side of the border, the FCC has made no commitment to reopen the issue either. Jim Ballis, chief of the Notifications Branch of the FCC International Bureau's Planning and Negotiations Division, said only about 740 kHz, "If the Canadians give it up, then it's going to be open to the public."

That Canada seems determined to hold on to silent AM spectrum, especially when it's about to launch commercial digital radio, may seem bizarre. However, given the recent development of new technologies for previously unusable spectrum — PCS digital telephones being a prime example — it's probably understandable. After all, who knows what uses the Canadian AM band might be put to, once Canadian broadcasters complete their move to L-band (1452 to 1492 MHz) for digital radio?

In the interim, however, it appears that Canadian AM allocations, active or not, will be protected at night by U.S. broadcasters. In this case, when it comes to the cost of international diplomacy, these stations foot the bill.

Circle (6) On Reader Service Card

World Radio History

New Top Radio Dogs

CHANTILLY, Va. CBS is now the largest radio group, with a nearly 42 percent lead over the new number-two group, Chancellor Media, according to BIA Research. The rankings are based on 1996 gross estimated revenues. BIA reranked the top 50 radio groups after Westinghouse/CBS announced its plans to purchase American Radio Systems for $2.6 billion (**RW** Oct. 15).

Including the ARS purchase, CBS would have had nearly $1.4 billion in gross estimated revenues for 1996, followed by Chancellor Broadcasting, owned by Hicks, Muse, Tate & Furst, at $816 million. Capstar would be in third place at $586 million.

However, if Capstar and Chancellor were listed as combined Hicks, Muse holdings, their revenues would be slightly higher than those of CBS — less than 1 percent, according to BIA.

Top 10

The rest of the top 10 radio groups as ranked by revenue: Jacor Communications, Clear Channel Communications, ABC Radio, Cox Radio, Emmis Broadcasting, Heftel Broadcasting and Sinclair Communications.

A record $13.8 billion was spent on radio station transactions in Arbitron-rated markets in the first eight months of this year, 19 percent above the value of transactions for the same period a year ago, even before the CBS/ARS announcement.

Steven Dinetz was appointed COO of Capstar, a new position, and as president and COO of Capstar Broadcasting Partners, its wholly owned operating subsidiary. Dinetz will report to Capstar co-founder and CEO R. Steven Hicks, who formed Capstar with Hicks, Muse, Tate & Furst Inc. about a year ago.

Dinetz formed Chancellor Broadcasting with Hicks, Muse in the fall of 1993 and was president and CEO of that firm. Before joining Capstar, Dinetz served as Co-COO of Chancellor Media Corp.

Expanded Band CPs

▶ AM, continued from page 1

allotment plans were scrapped thanks to issues raised in other Petitions for Reconsideration.

Kovas and Press both filed a Petition to Deny or to Defer Action against all 67 applications.

Peter Doyle, assistant chief, Audio Services Division, Mass Media Bureau, wrote that the Petition to Deny was denied in a letter to counsel for Radio Property Ventures, owners of KQXI(AM).

"Certainly, it is beyond dispute that they (the petitioners) cannot satisfy the threshold requirement of demonstrating that they would suffer irreparable harm absent a stay ... (G)rant of the subject applications will not defeat the power of the Commission or the Court to grant Petitioners the relief they seek on reconsideration," Doyle wrote.

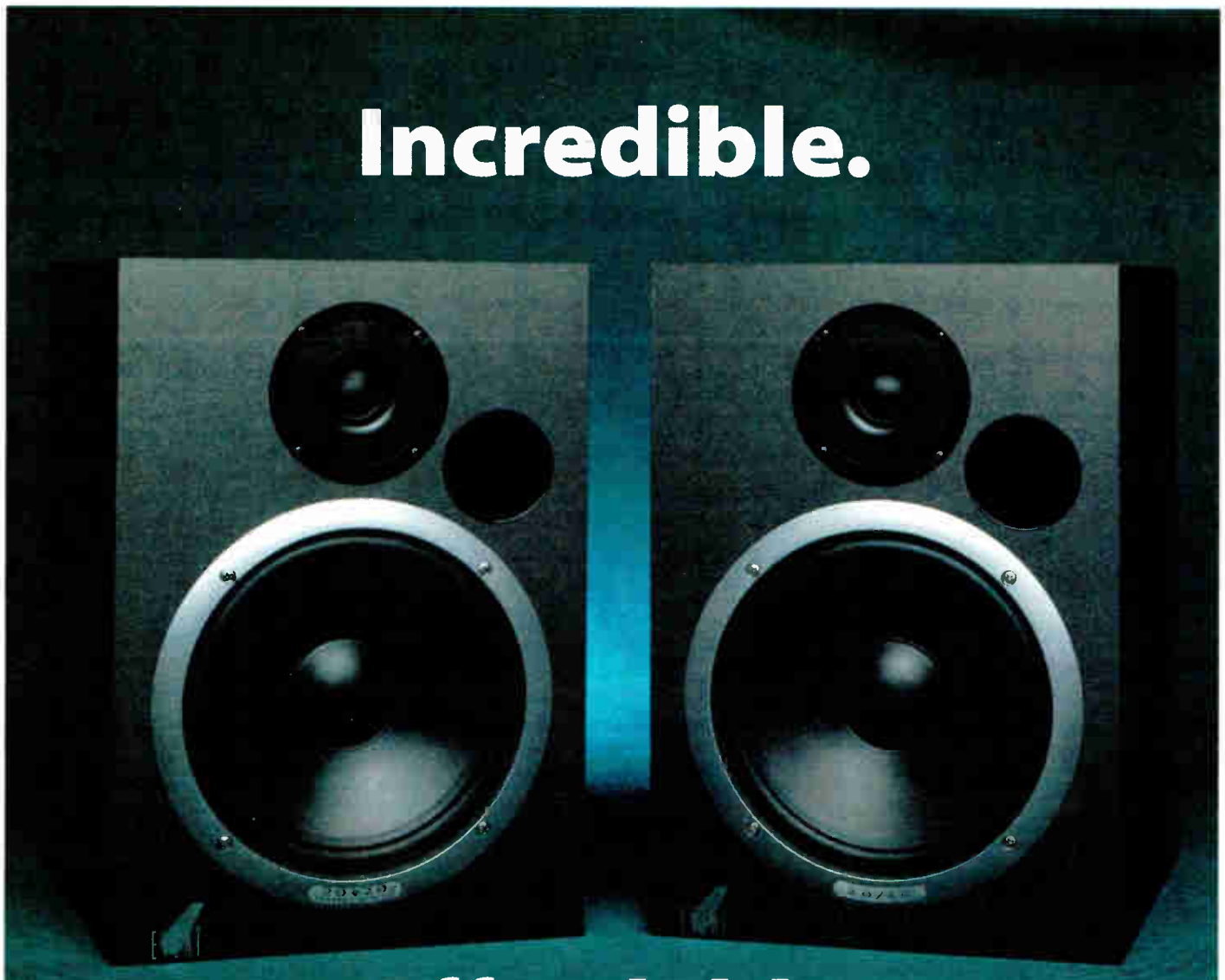
Despite the looming petitions and the possibility of having to return their CPs, both stations say they are moving forward with plans to go on the air in the expanded band.

KQXI was on the first allotment plan and bumped from the second. On the day he first held the CP in his hand, Operations Manager Frank Trueblood anticipated it would take 90 days to put the station on its new frequency at 1690 kHz. The station, which broadcasts Christian programming at 1550 kHz, recently rebuilt its transmitter facility. Trueblood said they planned for the expanded band when that work was done.

KQXI likely will simulcast until any bumps are worked out, said Trueblood. He said he thinks the closest co-channel is 900 miles away and expects the new signal to go quite a long way.

A spokeswoman for KKSL(AM), which also broadcasts religious programming, said management was uncertain what it would program in the new band. The target date to get 1640 kHz on the air is January or February, she said. By that time, perhaps the petitions will be resolved. Doyle said his office plans to keep working through the remaining applications. Those stations that choose not to begin construction right away in light of the pending petitions likely will have their construction period extended if necessary until the petitions are resolved.

These stations getting permits are not the first ones to operate on the expanded AM band. AM stations KXBT, Vallejo, Calif. and WJDM, Elizabeth, N.J. have been operating on the expanded AM band since May and August of 1996, with special temporary authorizations, through a special provision of the Communications Act.



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World Radio History

Cochran on Ethics, Tapes, Jobs

*News ethics, getting tape recorders and cameras in the courts and the evolution of electronic newsrooms and what that means for job opportunities are top of mind for Radio-Television News Directors Association President Barbara Cochran. She recently discussed her priorities for the association with **RW** News Editor/ Washington Bureau Chief Leslie Stimson.*

RTNDA President Barbara Cochran

Tapes, cameras in court

The O.J. Simpson trial was a setback. ... We have had cameras and microphones in courtrooms all across the country on a state and local level. We have had experiments on a federal level. There is no instance where it can be said that the presence of a camera has affected the outcome of a trial. Now this is really more iffy because of the way Judge (Lance) Ito handled the trial inside the court room, and even more because of what went on outside the court room.

Sometimes it works out well, and sometimes not so well, and that is what journalism in this country is all about — giving the public the right to know what is happening in their major institutions. ...We continue to join suits when possible and we support the bill that has been introduced in Congress to expand coverage to the federal level, the Sunshine in the Courtroom Act, sponsored by Reps. Steve Chavot (R-Ohio) and Charles Schumer (D-N.Y.) of the House Judiciary Committee.

Free time

(Many free time advocates) do not understand the full message of news coverage, because if a candidate has access to unmediated full time, he may agree to a debate or an interview.

Anybody who has been in radio and TV news knows that when election season rolls around, how many times you would like the candidates in a debate, and would like them to come in and face some questioning from professional journalists and how many times they refuse because they aren't in control. It (free time) is about candidate control, not necessarily serving the public interest.

Radio news future

There is a lot of uncertainty with consolidation. There is concern for newsrooms with a couple of street reporters. Each would be consolidated down to one newsroom with fewer reporters who are so busy turning around newscasts that they don't even have time to report.

But I've talked to some of our members who are working in situations like that, and they say that they are actually doing more news now. If a group owns several stations, and has news on some, they may decide to expand news to the whole group.

Radio, cable and the Web

Radio news' great advantage is that it is so easily accessible. You don't have to carry your personal computer around in your car in order to tune in at the top of the hour to find out what's going on. We have been through many technological revolutions in our business, and each new technology that comes along gets a lot of attention and a lot of enthusiasm, but it doesn't displace the technology that existed previously.

The advent of radio didn't do away with print, television didn't do away with radio, Internet news hasn't done away with any of those things. One of the interesting things is that of the home for radio on the Internet. I'm fascinated by what C-Net and some of the other services are doing, and the idea that you can dial up audio on demand.

Favorite radio

Since I oversaw the creation of (NPR's) "Morning Edition," I have a soft spot for "Morning Edition." I listen to CBS, ABC, a news station in Washington. When I was growing up (in Ohio), I was into elementary school years before my family bought a TV, so I had the joy of listening to Arthur Godfrey and Jack Benney and all those great broadcasts before seeing any television. ... I was more an adult when I became a regular listener to radio for news. I still tend to look for news or talk more than (music). ... I like jazz and there is an oldies station that I listen to.

RTNDA ethics code

We are reevaluating our code of ethics, which will bring attention to the fact that we have a code, and that we take it seriously. And maybe there are some practices that are not all that popular with the public that we will continue. I'm thinking of the use of hidden cameras, where the public is very skeptical right now. But it is a necessary tool.

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World Radio History

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World radio history

Coverage Enhancement Or Daring Format?

▶ AM, continued from page 1

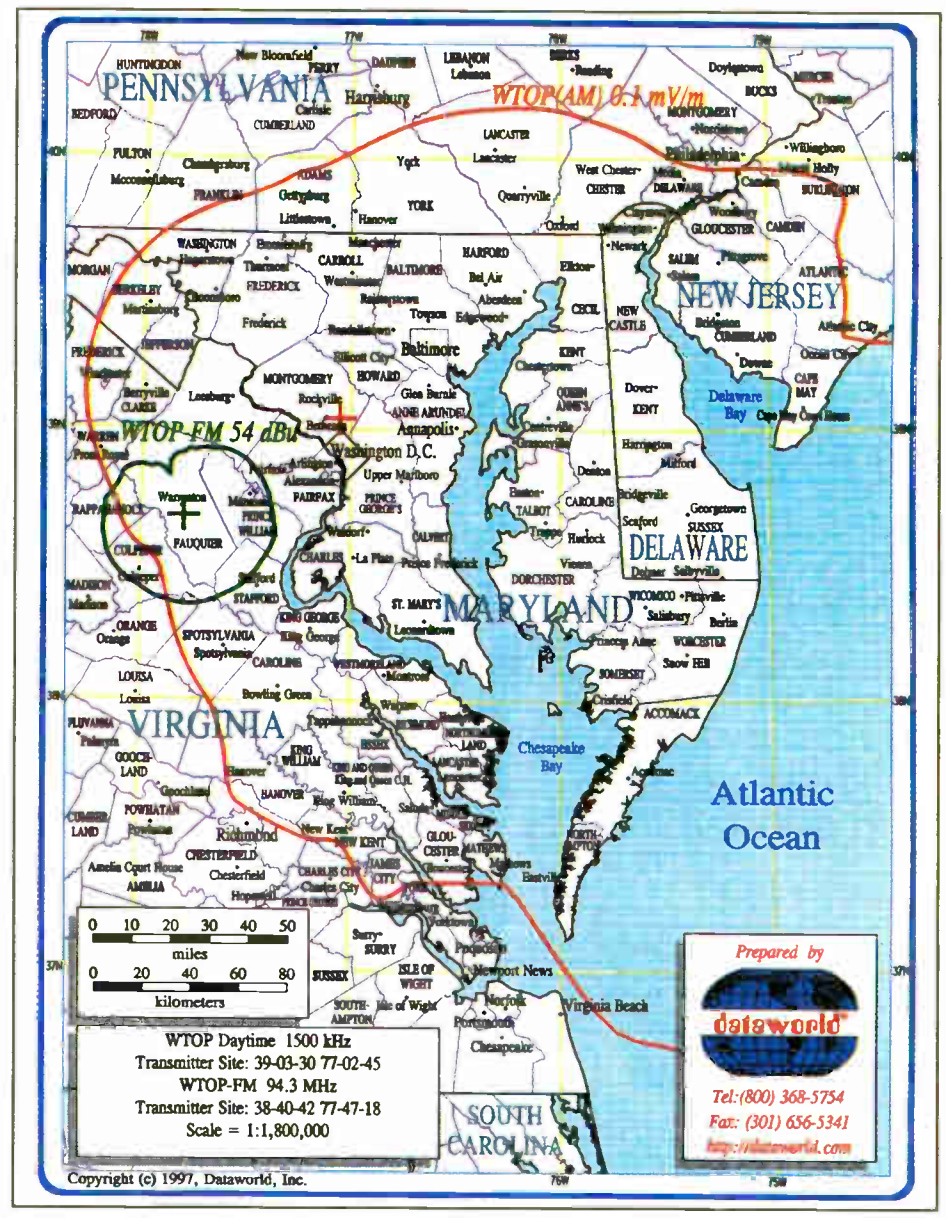
Swenson hopes WTOP's experience will be a different one. While WTOP hasn't increased the rates advertisers pay for commercials, Swenson said the fall ratings period will show "how many additional listeners we have, and then, of course, it's a question of supply-and-demand. We certainly hope to see listenership go up. The move to simulcast on FM allows us to go where listeners are, or we wouldn't be doing it."

The station was acquired recently by Bonneville International Corp. in Utah, the broadcasting company owned by the Church of Jesus Christ of Latter Day Saints.

WTOP's location in a media-aware city like Washington means the move has received more than its share of industry attention. But Balon said other AM stations have tried simulcasting news and news/talk formats on FM. He said they failed to appeal to younger listeners.

"They never made any attempt to be Top 40 talk. ... They just put their AM product, which appeals to older listeners, on FM, without any changes. I think it's been shown, pretty clearly, that this doesn't guarantee success."

He pointed to a case several years ago in Philadelphia, where the FM in question has since returned to a music format.



Courtesy of Dataworld

Those closest to the WTOP deal also cited circumstantial considerations.

"From our standpoint, we felt it important for two reasons," said Swenson. "With our AM signal in a restricted pattern at night, we have had difficulty reaching part of the metro area." he said. "The population has been moving over the years into northern Virginia and Montgomery County, Maryland. That's 20 to 40 miles outside D.C. We looked at other AM signals before making the current arrangement, but none seemed to 'fill in the blanks.'

"We looked at FM signals, too," Swenson said, "but we couldn't get an FM that covers the entire market. So, we looked at suburban FMs that filled in where our AM signal has holes. Two were family-owned and weren't interested in selling. Others were just priced out of our

See AM, page 15 ▶

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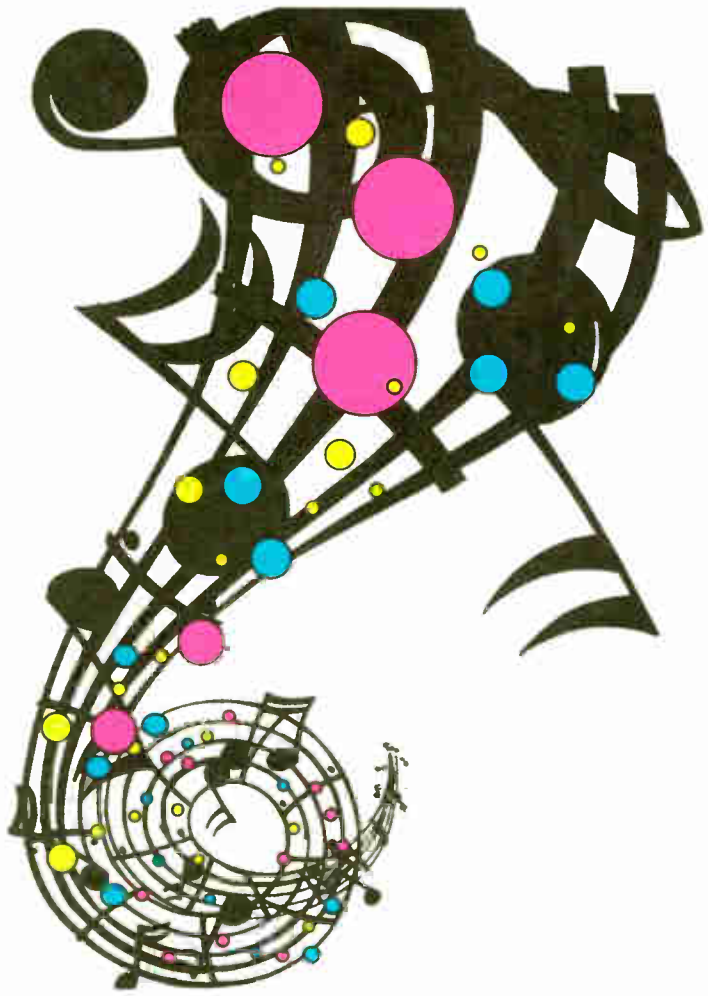

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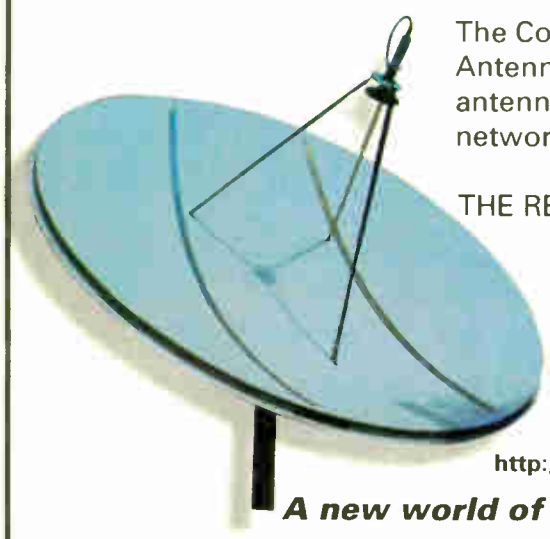

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World Radio History

▶ AM, continued from page 14

range. (The leased FM) covered everywhere we wanted to cover."

Market watchers wondered if the recent sale of public radio station WDCU(FM) in Washington to C-SPAN figured into the lease agreement, but Swenson said it did not.

"They are not competing with us. We didn't consider that sale in making our own plans."

Another market-specific aspect of the deal, according to Swenson, is that, while Washington is the eighth-largest U.S. radio market, it is ranked only 18th in AM listening. Swenson attributed this to station allocations in the early days of radio, when Washington, then relatively small, was given less attractive licenses than nearby cities such as Baltimore and Richmond. Washington's AM signals still are restricted at night to protect stations in Maryland and Virginia.

The licensing of FMs was more favorable to Washington, and area listeners have become more accustomed to listening to FM for all formats, including news and news/information. Swenson cited the success of public radio WAMU(FM) in Washington as an example. It airs NPR news magazines and talk programming for much of its day.

But Swenson agreed that news and news/talk formats have not been successful on FM in many markets.

Parris in the news

On the other end of the deal is a broadcaster who has already been in the news this year for a different reason. Bill Parris, president of WINX-AM-FM, leased the FM signal to WTOP for a "nine-month trial." He did it, he said, for two reasons, one of them financial. Earlier this year, as reported in **RW** on June 25, Parris watched a deal to sell his AM signal to Montgomery County, Md., for use as a regional traffic information source fall through.

The lease and potential sale of his FM signal now allows Parris to concentrate on his music-format AM. The AM has been successful, Parris said, with that programming.

"We entered into the arrangement for improved community service and to make money," said Parris. He said his situation is unique because WINX, broadcasting an oldies-rock format, had been profitable for many years as a stand-alone AM music station. But, since he began to simulcast on FM several years ago, the AM's profitability was compromised by the FM, which failed to attract significant audience. Parris said this is unusual, in that FM has dominated music formats since the 1970s nationally. He joined Swenson in attributing this pattern to the radio habits of Washington listeners.

Early indications from listeners, Parris said, is that the "pure news format" on his leased FM signal, now renamed WTOP(FM), is being well-received. He said Bonneville has an option to buy the FM station outright if WTOP management is satisfied with ratings performance during the nine-month trial lease.

The view from KMOX

A leader in all-talk radio also said the WTOP move had more to do with the D.C. market than with heralding a national trend. Tom Langmyer, program director at KMOX(AM), a CBS news/talk station in St. Louis, said different markets have developed different "conditioning" for listeners. KMOX is considered one of the pioneers in news/talk radio, which it has aired since 1960.

"It really is a question of whether the station has a signal that covers the entire market," said Langmyer, referring to the WTOP simulcast. "Simulcasting is not in itself revolutionary. In the case of WTOP, it's an opportunity for them to get into areas they don't reach. The D.C. market has spread out well beyond what it was when the stations were licensed there."

The St. Louis market has undergone similar growth in recent decades, with population moving outside the primary coverage areas of AMs that were powerhouses in the 1960s and '70s. But he said his own station, KMOX, benefits both from a non-directional, non-restricted 50 kW signal, and from listener conditioning.

"KMOX covers our metro market extremely well," Langmyer said, "and most listeners (in St. Louis) are conditioned to getting spoken word radio on the AM band. The sound quality issue is not significant, since we're not talking about music programming."

Langmyer said coverage of a major professional sport team is simulcast in St. Louis on another AM and FM signal, but, "It's amazing how many listeners go to the AM station instead of FM to hear the games," even though the FM has a "far larger" coverage area.

He doubted that KMOX would consider moving its product to FM soon and said, ultimately, digital broadcasting will obviate differences in audience appeal between AM and FM.

Although he didn't expect a "massive migration" of AM news and news/talk product to FM, he said there are other markets where AM news and news/talk stations simulcast on FM stations to fill in nulls in signal coverage.

"WBT(AM) in Charlotte, N.C., has been on an FM signal a while for that reason, as has WGST(AM) in Atlanta. WGST has a 50 kW signal during the day, and their FM signal, in one of the suburbs, especially helps at night when the AM has to cut back power."

Even though WTOP's move to simulcast news on a suburban FM may not represent a national trend to gain younger listeners, managers and programmers at talk stations in other markets will most likely be watching to see if FM simulcasting offers a potential solution to coverage problems. And although NPR-based news/talk stations appeal to different audiences than most commercial news stations, the relative success of such non-commercial formats in a few large markets ultimately may force a re-evaluation of spoken word programmers' preference for AM delivery.

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World Radio History

Talks and Topics at 25th SBE

by Alan R. Peterson

SYRACUSE, N.Y. While a number of technical papers offered at the Chapter 22/National SBE conference primarily were about digital TV, radio engineers found enough to keep their plates full.

Caught on tape

A compelling talk on ENG Safety was given by Mark Bell of "Battle For Safety." The session was anything but conventional; Bell brought many overhead transparencies of police and hospital reports, each one an account of a broadcaster injured on the job at ENG locations. Most were caused by RPU masts contacting overhead power lines.

One piece of videotape spoke volumes. In 1994, a technician in suburban Washington was preparing a remote van feed for CNN. The raised microwave mast contacted a high-voltage power line, sending thousands of volts into the vehicle. When other reporters on the scene heard the arcing, they swung their cameras around in time to capture what appeared to be the interior of the van becoming vaporized in a large white smoky flash.

An audible gasp came from the darkened room when Bell declared, "You just witnessed the explosion of the *technician*."

The engineer, in an effort to exit the van, touched the ground with his feet while still in contact with the chassis. Bell said the charge created a 14-inch crater in the ground where his feet had been.

Cable on the table

Stephen Lampen of Belden Wire and Cable spoke about the future of cable in broadcasting's digital age.

"In the data world, coaxial cable is long dead," Lampen said. "Everybody is going with unshielded twisted pair for data communication. But try to use the same stuff for analog and you get crosstalk."

Lampen spoke of Belden's MediaTwist cable, a patented new twisted pair that, electrically, reads like a coaxial cable. This new product is in use in San Francisco at television station KDTV.

"They're using it for analog and digital audio and video, for telephone, for fax and for broad-band cable TV," he said.

Mark Viglione, resident FCC agent for the Buffalo, N.Y. area, gave an update on the commission's monitoring methods (all U.S. listening posts are now routed and controlled through Columbia, Md.) and related FCC efforts in keeping up on inspections, pirates and EAS.

For broadcasters who believe that inspections are a thing of the past, Viglione said his office "coordinated 65 inspections or requests for inspections in Pennsylvania and another 35 in New York state. We are still doing them."

An easier way to be in compliance, Viglione stated, is to take advantage of an agreement between state broadcasters and the FCC, allowing inspection by peers. *(See related story, page 72.)*

Viglione also took a moment to announce, "Fines are back!" He warned the room that fines will be levied against stations that do not maintain EAS compliance or public files, have inadequate tower lighting and painting where appropriate, and have not registered their towers, complete with registration number on the tower base.

Viglione fielded a question on pirate operators, specifically one in Hartford, Conn., who had been interfering with a local commercial FM station. While the Boston field office likely is aware of this broadcaster, he responded, the commission must have cooperation from the state attorney general and U.S. marshals in order to take a pirate off the air and confiscate equipment.

Viglione also announced a new bulletin on the FCC website, Bulletin 65, that addresses new RFR exposure limits. It is an 85-page document; Viglione suggested putting aside a few hours for the download.

Tom Ray of WOR(AM) New York chaired a discussion and demonstration of POTS codecs, with a two-way conference call back to Comrex Corp. in Acton, Mass. Ray outlined the pros and cons of POTS codecs, including the fact these devices cannot work on cellular phones due to inadequate data rates.

Using a Comrex HotLine, Ray achieved a 28.8 connection between Syracuse and Massachusetts, yielding better than 8 kHz response.

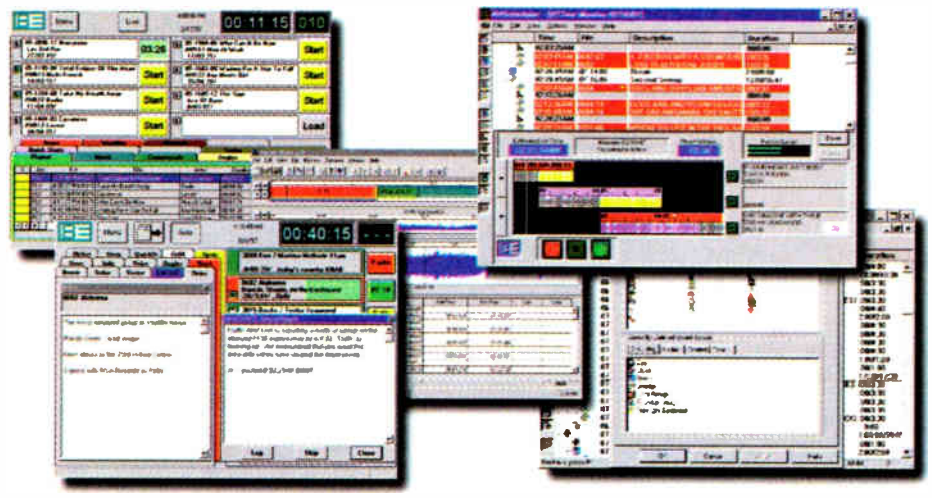
Chapter Milestone

Radio and television engineers endured a cool and drizzly early autumn weekend in the Syracuse suburb of Liverpool, N.Y., at the combined regional and national conferences of the Society of Broadcast Engineers.

For Central New York Chapter 22, it was a milestone, their chapter's 25th annual regional convention and a chance to host the SBE national conference, the Board of Directors meeting and annual SBE Awards dinner.

The conference brought in engineers from New York, Pennsylvania, Ohio and New England. Broadcast manufacturers based in the Central New York area — including Wheatstone Corp. and Armstrong Transmitters — were well-represented in the exhibit halls.

With the demise of the World Media Expo, the SBE national meetings now will be incorporated into regional shows around the country. The Syracuse tie-in is the first; next year the SBE national conference will be affiliated with Chapter 16 in Seattle.



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World Radio History

Taking Care of SBE Business

by Alan R. Peterson

SYRACUSE, N.Y. Topics before the SBE Board of Directors at last month's national conference involved several items of interest to radio engineers, including certification, the Internet, frequency coordination, EAS and the touchy subject of what exactly is an "engineer."

What is an engineer?

The SBE General Counsel report noted the revival of the 15-year-old controversy over the use of the term "engineer."

The National Society of Professional Engineers (NSPE) has long objected to this use by anyone other than a registered professional engineer (PE). Last year, the Ohio NSPE chapter created a regulatory push legally to restrict the title of "engineer" to certified PEs. This effort ended without resolution in Ohio, but administrative proceedings are underway in Vermont, Oregon and Michigan.

The new push from NSPE reportedly is towards computer software company Novell. The company offers training to become a "Certified Novell Engineer," while NSPE considers such participants to be simply computer technicians.

SBE counsel Chris Imlay moved that the society offer assistance to Novell in the filing of a "friend of the court" brief. The board approved the motion.

One of the high points of the SBE convention was to have been the presentation of a Lifetime Achievement Award to the widow of Philo T. Farnsworth, one of the developers of television technology. However, she was unable to make the trip. The SBE said it would make the presentation at the upcoming Ft. Wayne, Ind. chapter regional show.

The Certification Committee reported that buyers and users of SBE educational preparation guides expected more than what was provided. The preparation guides generally are in the form of sample tests. Some users asked for more of a course of study to pass the test, rather than sample questions. A suggestion was made to include questions on RF exposure in the test. The matter went back to committee.

The Electronic Communications Committee reported the forced retirement of the society's text-only electronic bulletin board service, or BBS.

The BBS had been receiving only about five calls per week, compared to several hundred page views on the SBE home page. The coincidental failure of the BBS server computer contributed to the decision to discontinue the service.

On the other hand, the SBE website is popular. The committee reported an approximate 74,000 hits on the home page as of Sept. 25, with the jobline contact list picking up some 750 page views per week.

The issue of "spamming," or the reception of unwanted mass e-mailings to Internet users, was addressed. Because of the configuration of the SBE home page (*sbe.org*) via the host service *broadcast.net*, "spammers" cannot link to anyone, nor obtain listings of broadcasters using *sbe.org*

The EAS Committee reported on its petition to the FCC to improve the EAS system through a rules change. The new concept of including text transmissions was discussed at length.

One method considered by the committee to be the better choice involves transmitting text after the end-of-message (EOM) tag on the EAS data stream. This method would avoid disrupting existing EAS equipment, including consumer receivers. Current EAS boxes would ignore any message following EOM, but the new boxes would be able to read it.

Lining up the frequencies

The Frequency Coordination Committee expressed concern over the loss of portions of the 2, 6.5 and 13 GHz (Part 74) bands, now used as ENG and SRL frequencies for television. The board approved the formation of an ad-hoc committee to develop a proposal to the FCC on Part 74.

On the membership front, an effort to create interest in young people for broadcast engineering careers has prompted a potential new membership category. The SBE is considering a youth membership category to high school students involved in school-run radio and television stations. The proposal will be issued to all SBE members over a five-month period via the official SBE publication Signal.

Membership news also included a change in by-laws for Sustaining Members, such as equipment manufacturers. In the past, sustaining members did not have the right to vote; they may now enjoy this privilege.

Awards

Even though Mrs. Farnsworth was unable to attend Friday night's awards dinner in Central New York, the event focused on the contributions of her late husband to the broadcast industry. A five-minute clip of the PBS television show "American Experiences" showcasing the life of Farnsworth was shown to the crowd.

Outgoing President Terry Baun told **RW** that the SBE is publishing a book on the technology of digital television, based on the need by broadcast engineers for such a text. This publication is a first for the SBE and the industry in general and will be available through the SBE by year's end.

Baun also said the SBE "rotate" its fall national conferences. The 1998 SBE National Conference will affiliate itself with the Seattle chapter's annual conference, which will take place two weeks after The NAB Radio Show in the same city.

Who has the best Digital System for groups?

CapStar/GulfStar
Austin, TX
Baton Rouge, LA
WJBO-AM
WLSS-FM
WYNKAM
WYNK-FM
KRVE-FM
WBIU-AM
Beaumont, TX
KKMY-FM
KLVI-AM
KYKR-FM
KTOC-FM
Corpus Christi, TX
KMXR-FM
KRYS-AM
KRYS-FM
Fayetteville, AR
KKIX-FM
KKZQ-FM
KEZA-FM
Fort Smith, AR
KMAG-FM
KWHN-AM
KZBB
Killeen, TX
KIIZ-FM
KLFX-FM
Lawton, OK
KLAW
KZCD
Longview, TX
KKTX
KNUE
KISX
KTYL
Lubbock, TX
KFMX-FM
KKAM-AM
KRLB-FM
KZII-FM
KFYO-AM
KKCL
Lufkin, TX
KYKS-FM
KAFX-FM
Shreveport
KRMD-AM
KRMD-FM
Texarkana, AR
KKYR-AM
KKYR-FM
KLLI-FM
KYGL-FM
Tyler, TX
KNUE-FM
KISX-FM
KTYL-FM
KKTX-AM
KKTX-FM
Victoria, TX
KIXS-FM
KLUB-FM
Waco, TX
KBRQ-FM
KCKR-FM
KKTK-AM
WACO-FM
KWTX-AM
KWTX-FM

CapStar/SouthernStar
Cocoa, FL
WLRQ-FM
WMYM-AM
Decatur, AL
WTAK
WWXQ-FM
WDRM
WBHP
WHOS
Tuscaloosa, AL
WACT-AM
WTXT-FM
WRTR-FM
WZBQ-FM

CapStar/PacificStar
Modesto, CA
KVFX
Yuma, AZ
KTTI-FM
KBLU-AM
Cocoa, FL
WLRQ-FM
WMYM-AM
Decatur, AL
WTAK
WWXQ-FM
WDRM
WBHP
WHOS
Tuscaloosa, AL
WACT-AM
WTXT-FM
WRTR-FM
WZBQ-FM

CapStar/AtlanticStar
Dover, DE
WSRV
WDOV
Wilmington, DE
WJBR-AM
WJBR-FM
WDSD
Winchester, VA
WFQX
WUSQ
WNTW

Triathalon
Colorado Springs, CO
KSPZ-FM
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KTWK-AM
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KTCR-AM
KLOK-FM
KNLT-FM
KEGX-FM
KKNX
Lincoln, NE
KZKX
KTGL
Omaha, NE
KTNP-FM
KXKT-FM
Spokane, WA
KEYF-AM
KEYF-FM
KKZX-FM
KUDY
Wichita, KS
KQAM
KEYN-FM
KFH-AM
KRBB
KWSJ

Drake Communications
Rogers, AR
KLTK-AM
KWMQ-FM
Tahlequah, OK
KTLQ
KEOK

Lazer Broadcasting
Big Bear City, CA
KXSB
Hemet, CA
KSDT-AM
KXRS-FM
Oxnard, CA
KXSP
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Noalmark Broadcasting
El Dorado, AR
KIXB-FM
KAGL-FM
KELD-AM
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KYKK
KZOR
KIXN

NPR Affiliate
Boise, ID
KBSW-FM
KBSX-FM
KBSU-AM
Hutchinson, KS
KHCC-FM
KHCD-FM
KHCT-FM

Jacor
Iowa City, IA
KXIC-AM
KKRQ-FM

Salem
Boston, MA
WPZE
Denver, CO
KRKS-AM
KNUS-AM
KRKS-FM
Los Angeles, CA
KKLA
KLTX
Houston, TX
KKHT
Minneapolis, MN
KKMS
KEGE
New York, NJ
WMCA
WWDJ
Phoenix, AZ
KPXQ
Sacrameto, CA
KFIA
KMJI

Faith Communications
Las Vegas, NV
KILA-FM
Ogden, UT
KANN-AM
Twin Falls, ID
KCIR

Warner Enterprises
Canon City, CO
KRLN-AM
KSTY-FM
Lincoln, NE
KLIN-FM
KEZG-FM
KFEG-FM
KKUL-FM

Bloomberg L.P.
Boston, MA
WADN-AM
Norfolk, VA
WVNS
Phoenix, AZ
KFNN-AM
Portland, OR
KBNP-AM
Providence, RI
WPNW
WKIX
Seattle, WA
KEZX-AM
KWJZ-FM
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World Radio History

Radio Marti Moves

▶ MARTI, continued from page 1

which allows them to access WireView, create and number newscasts and create news scripts.

All 210 Marti employees have been invited to make the move to Miami. By early fall, some staffers were there already, and about half of the Radio Marti broadcast day was coming out of Miami. From 11:30 p.m. to 1 p.m., Marti Miami took charge of the airwaves. From 1 to 5:30 p.m. it was a joint operation between Miami and Washington. The D.C. staff took over from 5:30 to 11:30 p.m.

Washington and Miami exchange programming using two dedicated 56 kbit circuits, with a third Switched 56 circuit used for emergencies and overflows. The codecs are by MUSICAM USA. A Comrex HotLine POTS codec was added recently to give broadcast-quality audio to programs sent via phone lines between the two cities. (See sidebar for more about Radio Marti's equipment.)

Photo by Alan R. Peterson

Craig Heist on duty in Master Control in Washington

San Roman doesn't know if all the current employees will move to Miami. "We will not replace those who do not come," he said, "unless they are essential to getting the broadcasts on the air."

Faced with a budget cut for 1998-99, San Roman wants to streamline the Marti operations. "I always take the position we can do more for less," he said. "I brought in BDO Seidman LLP consultants, to look at the operation, to see how we can become leaner and meaner." BDO Seidman is headquartered in Chicago.

"They're looking at the structure of TV and Radio Marti, how efficient it is. I'm not looking for massive lay-offs, but if that's what (the consultants) call for, I will consider it. It is my responsibility to be fiscally responsible, to show taxpayers of the U.S. that I'm safe guarding their money." San Roman hoped to have BDO Seidman's report this fall.

Radio Marti continues to have its critics, many of whom ask whether the service should have a role in the post-Cold War era or consider it a political tool for cultivating votes with the Cuban community in the United States. Radio and TV Marti are federally funded. Every year debate swirls through Congress whether to continue putting money into Marti.

This year a little less money came through: The budget for 1996-97 was $25 million. Congress cut $3 million from the 1997-98 spending plan.

Fund dies

In addition, Congress also did a little housecleaning of a fund that was set up to help radio stations in this country handle any retaliation from Cuban President Fidel Castro.

Radio Marti went on the air in May of 1985. TV Marti started broadcasting about five years later. Fidel Castro threatened to jam American radio signals in retaliation. To protect American radio, Congress adopted Section 7 of the Radio Broadcasting to Cuba Act, which made funds available to help radio stations jammed by Castro raise their antennas or take other steps to overpower the interference.

Rockie Patterson, electronics engineer for the Federal Communications Commission, said the money was allocated for only five years, and not too many stations dipped into the fund.

Even though there hasn't been any money in the fund for years, the rules remained on the books. This year Congress removed the rule allowing the funds for the Radio Marti compensation program.

Herminio San Roman said Castro does what he can to stop Radio Marti from filtering into Cuban homes. He has placed a high-powered AM station on the frequency used by Radio Marti, 1180 kHz. Castro's station is called "Tour Radio." San Roman said the station counter-programs what Marti is doing.

"When you're in the waters between the Florida Keys and Cuba, and turn on the frequency, you get both signals being mixed." San Roman said most people in Cuba pick up Radio Marti on shortwave radios.

While the Cuban government seems none too pleased with Radio Marti, San Roman said it is welcomed by the people of Cuba. Marti interviews Cuban immigrants and visitors to the United States. Most of the interviews are done at the Miami airport, where most Cubans enter the United States. Based on those interviews, San Roman estimates 30 percent of the Cuban population gets its news from Radio Marti.

Equipment List

Here's further information about the Radio Marti technical plant, provided by Chief Engineer Ted R. Tate.

Radio Marti is responsible for AM transmission using a four-tower antenna array in Sister Creek Island in Marathon, Fla., a facility staffed by two technicians. It uses two 50-kW transmitters that can be used in combined mode for 100-kW operation. The 10-year-old transmitters are Continental model 317-C2. The system has a tight directional pattern pointed south. Much of the monitoring and control is handled by the Miami and Washington studio locations using Gentner GSC3000 hardware and software.

The D.C. location has on-air and production studios; a third audio room is used by TV Marti. All three studios have Pacific Research & Engineering consoles. The fourth staffed location is Central Control, for routing signals and programs using a custom PR&E switcher. All four rooms are in Wenger booths.

The Miami studio location has on-air and production rooms with PR&E consoles, in shells created by Industrial Acoustics. The Recording Central room handles program fees and duplication work.

The D.C. location also has two combo studios; Miami has five. These Wenger booths are used for news work and simple production. Consoles here are Dynamax MX series.

Studio furniture in both Miami and D.C. was produced by PR&E.

A typical Radio Marti studio includes the reel-to-reel decks and digital recorders mentioned in the story, plus the following gear:

- Auditronics DA
- Crown D75 amp
- (2) Denon DN-961FA CDs
- Tascam 122MKIII cassette
- Sony PCM-2700A DAT
- Gentner digital phone hybrids
- UREI 1176 peak limiting
- dbx 166A comp/limiters
- UREI 537 graphic EQ
- Shure SM7 mics

Several offices have MCI JH110 reel editing units, used for editing long-form programming.

Reporters tend to use Marantz PMD222 cassette recorders with Shure DO56 and Electro-Voice 635A microphones for field work. Remote gear includes Sony TCD-D10 Pro II portable DAT recorders, and what Tate called "an old faithful" Nagra reel recorder. He also can draw on a Shure M267 and a larger Mackie mixer. For out-of-the-way locations, Radio Marti has two Inmarsat A portable terminals, the TCS Lite and TCS Ultra Lite.

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World Radio History

PIONEER PROFILE

Tall Signal Sprouts From Nursery

Barry Mishkind

Very early, radio became an indispensable link for information, news and weather. This was especially true in the Midwest, where towns and farms were small and distances great. Weather reports could save lives and crops. Informational programs provided valuable education for farmers without time to leave the farm.

Photos courtesy KMA/Don Hansen

Many early stations were built by companies seeking better ways to reach out to their customers. Retailer Sears (the "World's Largest Store") built WLS; Banker's Life used WHO to meet the needs of its farming clients; and other stations, large and small, ensured that rural communities were as informed as major cities.

Tucked away in the southwest corner of Iowa is Shenandoah, a smallish town not far from Omaha, Nebraska. Today only about 6,000 people live there. But from little seeds can come great results.

Shenandoah was in fact "The Seed Capital of the World." From a dozen or more nurseries located in and around Shenandoah, seeds were shipped to farmers wide and far. It was big business. But when the Age of Broadcasting began, radio helped modernize the business of marketing to farmers all over the United States.

The new-fangled "radio" first started to be heard in Shenandoah when amateur Harlan Gass started station WGAJ in 1922. At first, more listeners heard the station via speakers set up at the local theater than owned crystal sets.

Soon, WOAW became the regional station from Omaha, and citizens from all over the area went there to perform on the station. Henry Field, owner of the Henry Field Seed Company, was among those who quickly saw the potential for reaching rural customers on a regular basis.

66 miles of dirt

After an initial appearance in September 1923, Field had a regular show on WOAW, braving some 66 miles of dirt roads to get to the studio. The first programs featured matters of interest to farmers, and lauded the benefits of living in Shenandoah (helping to recruit staff for the nursery).

WOAW became the regional station from Omaha, and citizens from all over the area went there to perform.

However, Field wasn't alone in seeing the potential. The head of another seed company, Earl May, noticed the interest in the radio broadcasts from WOAW, and four months later he too was a regular on the road to Omaha.

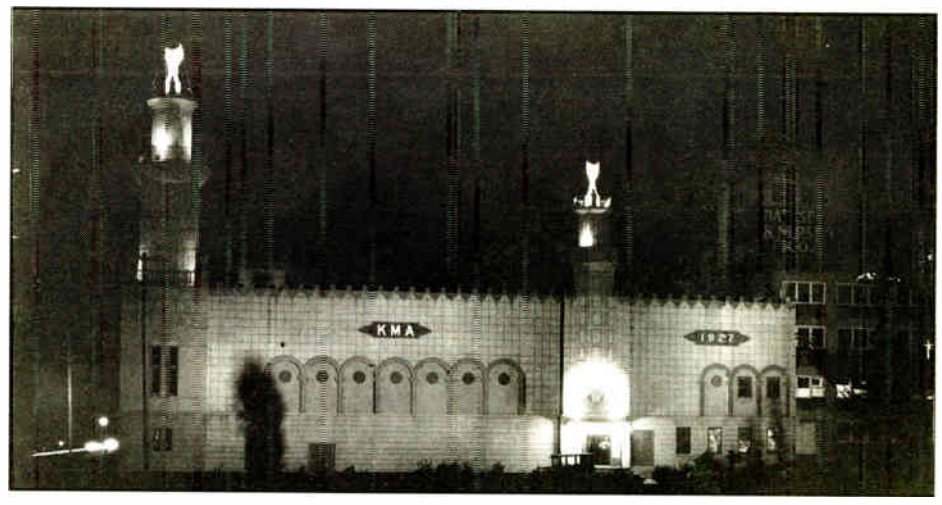
May grew up on his parents' ranch in western Nebraska around the turn of the century. After college, he taught school for a while, entered law school, and over the summers began working for the D.M. Ferry Seed Company in Shenandoah.

Marrying the daughter of the owner of the E.S. Welch Seed Company, May received a "college course" on nurseries and seed sales. In 1919, with the blessing of his father-in-law, he opened the Earl May Seed and Nursery Company.

Growth was steady but slow. Eventually, May realized he could build his seed business using radio. He ran promotions to augment his mailing lists. Iris roots were sent to the first 10,000 listeners who wrote; another time he offered $15 to the listener farthest from Omaha. This brought 1,000 telegrams during the two-hour program, a stunning result in those days. Eventually 17,840 entries arrived!

During wet weather, muddy roads made it difficult to get to Omaha. To maintain continuity, both Field and May began thinking about setting up stations in Shenandoah. Field achieved it first in 1924, setting up KFNF with 500 W, enough power to reach farms all over the Midwest.

May was only able to make it to WOAW once a month, so he decided to install a telephone line and studio in Shenandoah and increase his exposure to once a week. He felt he had the best of both worlds, because he didn't have the expense of building and maintaining a station. Although he could not match Field's daily broadcasts, the May Seed Company flower and garden talk programs did their job, and May doubled his business in the first year. Among his avid listeners were Henry Ford and Teddy Roosevelt.



Built in 1927, the Mayfair building housed KMA and seed company operations. It was demolished in the early '60s.

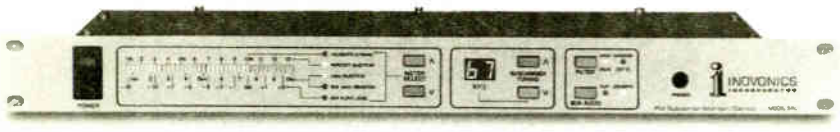
KMA comes on

This success led May to commit to his own station, receiving a license for KMA radio in the spring of 1925. Debuting on Sept. 1, KMA began its career of service to the farming community. One of its slogans was "Doing the Most for Farmers."

At first, competitors Field and May largely cooperated, because they usually shared the frequency. Sometimes they even shared ball games, each broadcasting part of the game. The

See KMA, page 21 ▶

FM Subcarrier Monitor/Demod



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World Radio History

▶ KMA, continued from page 20

heavy schedule of talks on gardens and domestic science made the Shenandoah seed companies world famous, with reception reports coming from as far as Australia.

Although the level of talent was not the same in the farmland as in the big coastal cities, there was no lack of performers. And KMA and WOAW would exchange programs. All sorts of folks came and spoke, played, and sang, becoming famous in the process. KMA had poetry readers, and the "How-Do-You-Do-Boys." Because of their location in mid-America, Henry Field and Earl May were able to reach both coasts.

And they did.

The amazing reach of these stations in "little" Shenandoah was demonstrated by Radio Digest's 1926 "World's Most Popular Radio Announcer" contest. The first award, in 1925, had gone to Graham McNamee from "big city" WEAF in New York. Henry Field nearly won.

After Field withdrew from the 1926 contest, Earl May ran away with the award with 452,901 votes. To celebrate, KMA began a tradition of "KMA Jubilees," inviting listeners to Shenandoah for a pancake meal. Twenty-five thousand people came over three days, eating 52,800 pancakes. KMA made it a regular affair.

Inside Mayfair's Auditorium. Live performances originated here.

It had some sponsorships, but the station at first was hobbled somewhat by the slowness of advertising messages to "take hold."

Dark days

Then the Depression hit. Corn prices dropped 87 percent. Farmers couldn't afford the gas to drive to Shenandoah for seeds. The nurseries tried to cope, but some, like Field's, suffered severe financial damage.

Earl May attacked the problem with marketing. If farmers couldn't get to him, he'd go to the farmers. The May Seed Company set up 56 "branch" stores in five states; KMA linked with other stations to ensure that May's message got out; and his customers continued to come in.

As the Depression deepened, KMA invited farmers to come and discuss their problems and possible solutions. Ten thousand attended and formed the Central West Livestock Feeders Association. Their voice was heard repeatedly in Washington.

Another important result from listening to farmers was the establishment in 1934 of a United States Cooperative Weather Station and, later, a house weatherman. Vital warnings were provided to farmers many times over the years. In 1937, a staff member was designated Farm Service Director.

As KMA sought to fulfill its mission to serve its listeners, more programming was devised. RFD 960, the Homemaker's Program, Gardener's Club, Farmer's Wife, Kitchen Club, Kitchen Klatter, KMA Country School, and other programs kept KMA in the forefront of farm news and information. Earl May himself delivered a daily farm report at 5:30 a.m. each day.

The young Everly Brothers lived in Shenandoah from 1947 to 1954. Left to right: Phil Everly, Eddie Comer, Don Everly, father Ike, and Jerry Fronek.

In 1983, NBC told KMA to move to the bigger city of Omaha. But with its commitment to serve Shenandoah and environs, KMA stayed put. NBC dropped KMA, but May stood fast, raised power, took on the new ABC network, and continued his focus on southwest Iowa.

Over the years, KMA programming has evolved to serve its audience better. Programs like RFD 960 de-emphasized music to add more news and information.

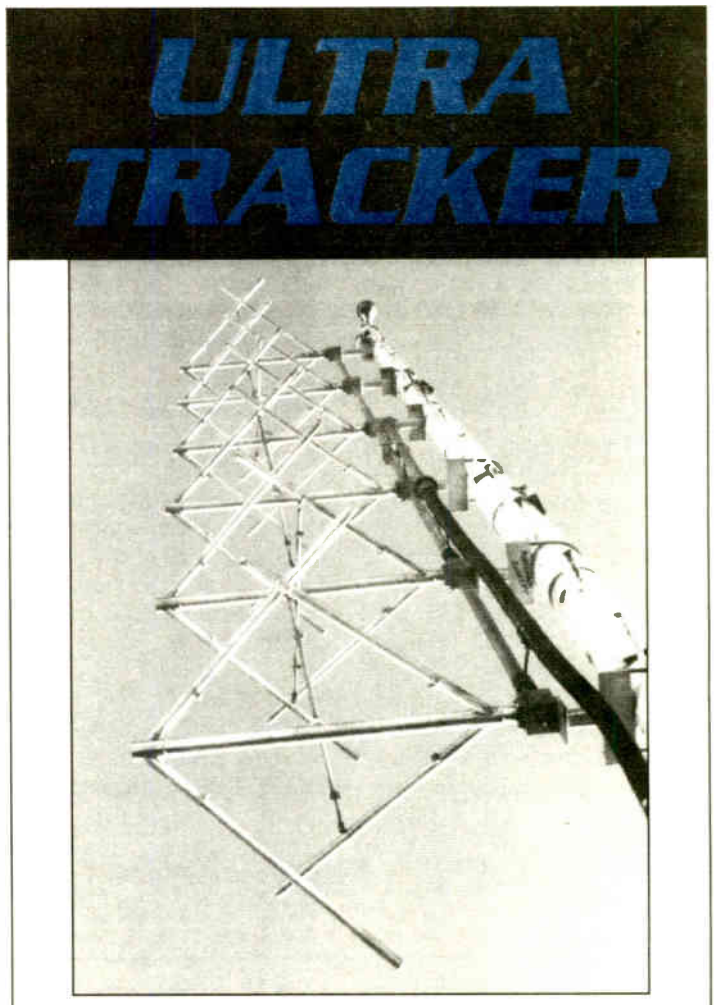
Weather coverage was augmented, especially after a 1959 tornado destroyed KMA's 488-foot tower. A tornado reporting "network" was devised and radar implemented. The result, in the words of current KMA General Manager Don Hansen: "When weather gets bad or something happens, they all turn to KMA."

Hansen, grandson of former Radio Homemaker Edith Hansen, is dedicated to continuing the legacy of KMA service to the rural community. Hansen said KMA "must cater to the long-established audience, even if older, as well as build a new generation of listeners." To do so, the station sends its staff to schools as far as 70 miles away, to explain radio and the services an involved radio station provides for each community in its coverage area.

KMA continues to serve southwest Iowa from Shenandoah, with programming that Earl May would recognize. Although the station has utilized modern technologies, including cable and the Internet, listeners know that the 960 spot on the dial, KMA, means local radio.

■■■

Barry Mishkind writes from the Radio Ranch in Tucson, Ariz. Reach him c/o ***RW****.*



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World Radio History

ROOTS OF RADIO

When the Legend Becomes Fact

Richard W. O'Donnell

What is your favorite radio memory? Think about it, and while you reflect, let me relate, as best I can, a treasured kilocycle recollection from the days when I was a lad.

At first, I am tempted to tell of the evening I tried to listen to "Lum and Abner," those Jot 'Em Down cronies from Pine Ridge. There was a hurricane howling away that night, and Lum and Abner were blown all over the radio dial. Or so it seemed.

The show was on for only 15 minutes, and I must have adjusted the dial about 115 times to keep up with what was going on with the Arkansas store owners that night. I never heard the end of the program! I guess the hurricane swept it away.

This means war

However, I think another peek into the past may be of more interest. This particular story takes place over a period of years. It has to do with the famous Orson Welles Halloween show, "The War of the Worlds," aired by CBS at 8 p.m. on Oct. 30, 1938, perhaps the most famous radio show ever to hit the airwaves.

My father had three days off that weekend. My dad decided we were going to spend the entire three days down at Uncle Billy's place, located a few miles outside of Providence, R.I.

Sunday night arrived, and like the rest of the nation I expected to hear Edgar Bergen and Charlie McCarthy at 8. Not so. Uncle Billy had come across what he called "a great show." We ended up listening to Welles' show, tuning in a few minutes late because Uncle Billy had to fidget with the dial before he finally had it tuned in properly.

Let me tell you, those Martians were all over the place. I wasn't interested. I was tired and sleepy, and not too impressed with all the jabbering on the radio. My dad didn't take it too seriously, either. Mom and the rest of the family were out in the kitchen chatting with Billy's wife, Elsie. The space invaders were the last thing they had on their minds.

Library of American Broadcasting, Univ. of MD

Orson Welles is surrounded by the media after his historic broadcast.

About the only person who was gripped by the madness of the moment was Uncle Billy, who always claimed he was an atheist. He started attending church on a regular basis the following Sunday.

Annual recall

After the show ended and the nation had recovered the next day, our family headed back home. "The War of the Worlds" became a vague memory — until Halloween rolled around again. Then, everybody remembered the Mercury Theater tale of terror.

At this point, certain names will be changed, because some of the people involved may still be around. In the days leading up to Halloween, we would sit on the front steps or stand on the street corner, and recall what happened the day of Orson's shocker.

All I had to offer was my Uncle Billy story, and that wasn't enough. As for my friends and neighbors, they had some amazing yarns.

"Uncle Fergie got up on the roof," recalled my friend Billy Castle, "and scanned the skies over South Boston, looking for those Martians. Then he thought he saw them, and was going to leap off the roof. I guess he figured death was better than dishonor. If my Pop hadn't grabbed him, Fergie would be a goner today."

Terrifying tale

As for Mrs. Maybelle McNultee, the neighborhood socialite, she recalled, "I was in downtown Boston on my way to see a film at the Metropolitan. Tremont Street was crowded with people, and you could see the terror written all over their faces. A man at the corner of Winter Street was telling everyone the Martians were coming.

"Fortunately, I remained calm. My daughter, Prissie, was with me and I didn't want her to be frightened. We simply returned to the subway station, and caught a train home."

Then there was Mr. Murphy, our letter carrier. He said, "When I heard them on the radio, I went down to the cellar and found that heavy metal helmet I wore in the World War. If those Martians ever showed up, I was going to give them their money's worth. Fortunately, by the time I found that helmet, the Welles show was almost over, and everybody knew the world was safe."

Martians in Boston

The years went by, all too quickly, and I was writing feature stories for the Boston Globe. Halloween was approaching, and Al Monahan, my old city editor came up to me and said, "Halloween is coming. Do the Welles show. Talk to people. Give it a Boston angle."

Some of the guys in the office offered me a few tidbits. One said, "I was down in Quincy when it happened. All the lights went out in Quincy Square. Sort of a blackout, I guess, so the Martians wouldn't see us."

A news editor said, "The first thing I did was start filling bottles with water. I figured the Martians would go after our water supply for sure."

Armed with an adequate supply of horror tales, I headed for the newspaper library to learn how the newspaper had handled the space invasion. The Globe reported Bostonians had remained cool, calm and collected despite rumors that those creepy Martians would soon hit town.

Bostonians get religion

I was mighty proud of my fellow Bostonians, until I got a little deeper into the Globe's account of the invasion. I think it was in about the sixth or seventh paragraph that the story mentioned Park Street Church.

That was when I decided to look up the radio listings in the Sunday edition, published the same day as Welles' celebrated exercise in calamity. And I did just that.

Do you know what I found?

At eight o'clock that Sunday night, while the rest of the nation — and Canada, too — was being jolted by the space monsters, Bostonians were listening to a one-hour broadcast from the Park Street Church. WEEI(AM), the CBS outlet at that time, had chosen religion over radio drama, because the latter had low ratings.

Friends, neighbors and relatives all had vivid recollections of what had happened to them.

After all those years — it must have been at least three decades — it dawned on me that the "War of the Worlds" had not been broadcast in Boston that Halloween weekend.

Yet scores of my friends, neighbors, relatives and even enemies, all presumably in Boston at the time, had vivid and stunning recollections of what had happened to them, and those close to them, the night Orson Welles caused the nation to get weak at the knees.

Al Monahan, my city editor, took my discovery in stride.

"Well," he said, "if you can't do Welles, then do something about pumpkins. Get hold of somebody who can tell you how to carve a pumpkin."

That's what I did.

Now that you have heard my radio recollection, do you have one of your own? I'll bet you do.

■■■

Dick O'Donnell is a freelance writer and old-time radio buff living in Florida. Reach him at (813) 842-6638.

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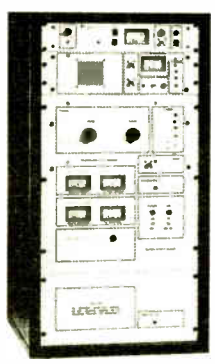

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World Radio History

Halloween Drama Goes Live

Dee McVicker

Radio drama takes to the air this Halloween, treating radio listeners everywhere to a little stage fright.

A three-hour Halloween special will be presented by TransMedia's "Imagination Theater" and the Sci-Fi Television Channel, starting with a radio drama performed live at the New York Museum of Television and Radio at 8 p.m. EST on Oct. 31.

It will be the first time in 50 years that a live radio drama is broadcast to stations around the country, making this quite possibly the biggest Halloween event since "War of the Worlds."

"Live. Halloween night. New York City. It'll be a first," said Dave Adams, the president of TransMedia, San Francisco, which syndicates "Imagination Theater" weekly to more than 200 stations. TransMedia will syndicate the special to all of its affiliates, plus an additional 125 stations around the country.

More than 300 stations are expected to pick up the special live (Satcom C-5, T-19 Dats Chl02), and at least two dozen others will rebroadcast the feed to fit their time zones. It also will be simulcast on the Internet, using RealAudio. The site is *www.scifi.com*

Sleepy Hollow and Sci-Fi

Plans are to run six ghoulish 20- to 25-minute episodes, three to air live from the MT&R Theater in the Museum of Television and Radio, and three recorded earlier in Seattle, where "Imagination Theater" is performed weekly and recorded for station broadcast. There will be 30 spot inserts for local and national sponsors.

The first segment will consist of three episodes produced for broadcast by the Sci-Fi channel. Listeners nationwide and an audience of 225 at the New York theater will be spellbound by a comedic, bone-chilling adaptation of Washington Irving's "Legend of Sleepy Hollow"; a macabre ghost story; and a futuristic science fiction episode written by and starring Harlan Ellison, whose famous Star Trek episode "The City on the Edge of Forever" received national acclaim.

In the second segment, recorded the week before at the Museum of History and Science in Seattle, radio listeners on Halloween night will hear three tales: one about a giant moth, another with a Roswell-esque plot, and a story about a plastic surgeon hijacked by the FBI to perform surgery on an alien.

Imagine all the listeners

TransMedia teamed up with the Sci-Fi Channel to add a unique twist to the "Imagination Theater" annual tradition, which started with the first "Imagination Theater" Halloween special in 1992. Known for mystery yarns and Hollywood talent, "Imagination Theater" for more than 10 years has been performed live before an audience and broadcast on KIRO(AM), Seattle, its flagship station.

"Imagination Theater," the brainchild of veteran radio personality Jim French, boasts such talent as Patty Duke and Tom Smothers, and is one of the few radio dramas produced commercially today. The broadcasts consistently fill the 400-seat Seattle auditorium with devoted radio drama fans.

Folks at the Sci-Fi Channel will present the drama with the same contemporary, yet ageless zing that has made "Imagination Theater" so successful. "I'm not holding back on writing in sound effects," said Brian Smith, the producer and director for the Sci-Fi Channel presentation in New York. At the time of his interview with **RW**, Smith was contemplating how to produce the sound effects for a murder scene.

"We're going to try to do a bit of a horror thing, like the old 'lights out' shows. I just need (something) squishy, bone-crunching, gooey," he said, settling on a watermelon for the ghastly deed.

Foley artists will be at both staged events. Three live Foley artists will be on stage at the Museum of Television and Radio to make the clattery, clat, clat, clat of Ichabod Crane's horse, the e-ee-eeeek of door hinges opening, and other frightful sounds. The artists will be fitted with Foley costumes, designed by Sue Zizza, a professional SFX Foley artist and the executive director of the Midwest Radio Theater Workshop, Columbia, Mo.

Accompaniment

George Zarr, also affiliated with the Midwest Radio Theater Workshop, adapted the original drama and the musical score for "The Legend of Sleepy Hollow." A live musician on keyboard will perform Ichabod's musical piece, the transitional music between scenes, and will keep the audience at the Museum of Television and Radio entertained while the live performance breaks for radio commercials.

"It would be far easier to pre-mix everything because then we'd have more control over it. But the point of doing this in the first place is the excitement of doing it live ... you want people performing sound effects like they actually did in the '30s and '40s," Smith said.

The New York presentation will kick off the Sci-Fi Channel's annual on-line convention, at website *www.scifi.com*

Adams began syndicating "Imagination Theater" to stations last year and now offers the weekly show to a network of more than 200 stations on a standard barter basis.

For a listing of stations that will be running the Halloween special, visit website *www.transmediasf.com*

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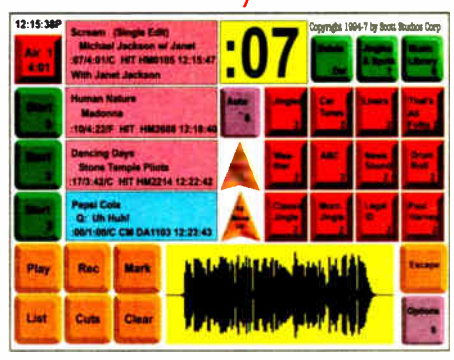

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World Radio History

Good Digital? Bad Digital?

Jim Somich

The pro and con digital debate continues to rage. This column attempts to shine a little light on this complex subject. This is one engineer's view.

Analog requires constant vigilance to sound good. Good copies are almost impossible. First generation dubs tend to fall apart and become totally unusable. Digital seems to promise relief from the fragility of analog recording. Perfect sound and unlimited generation dubbing is a great promise. After all, data are data, aren't they? Well, yes ... and no. Data *is* data, but there are many a slip twixt analog audio and digital data.

The current trend toward tube equipment in recording studios often represents an attempt to mask the sound of bad digital. There is good tube gear, and bad. The same can be said for solid-state gear. Ditto, digital gear. My gripe is that most of the budget digital gear available is touted as "perfect." In reality, nothing could be further from the truth.

Too warm

Much tube equipment is overly warm, fuzzy, noisy, unclear, undefined. Only the best tube gear has quiet, clear sound, with tight defined bass. It sounds transparent and dimensional, yet still warm without being artificial or muddy. Some engineers delight in the warm and fuzzy blanket, but it is just a cover-up.

Most cheap digital audio equipment is edgy or hard-sounding, dimensionless and unclear. Only the best digital gear has good soundstage (width and depth), purity of tone without an artificial edge, and transparency.

Bad digital equipment has distortions that innately increase edginess and hardness. Edgy sound can be caused by:

- Sharp filters
- Poor conversion technology
- Low resolution (short word-length)
- Poor analog stages
- Jitter
- Improper Dither

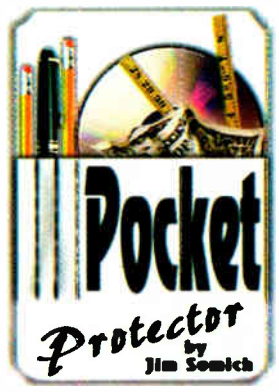
Clock leakage in analog stages due to bad pc board design and inadequate shielding also can pollute digital sound. A design that places analog-to-digital and digital-to-analog converters inside the same chassis with motors and spinning heads is dangerous, a real exercise in good shielding techniques for the designer. Superior power supply shielding also is a solid design requirement.

Bad digital benefits from the use of tube microphones and preamps because their warmth and noise help cover up the hardness of the rest of the signal chain. Fuzzy blankets hide the potential resolution of the digital system. This is a Band-Aid, not a cure!

Mic selection important

Even good digital benefits from the proper choice of mics and preamps (including well-designed tube EQ). With bad digital technology, linearity of frequency response can turn a virtue into a defect.

We can no longer tolerate the distortion and brightness of some solid-state EQ and microphones because digital recording does not compress (mellow out) high frequencies as does low-speed analog tape. Processors such as the "Saturator" try to emulate tape compression in digital systems to improve the perceived sound.



Digital recording can sound edgy for two other reasons: linear frequency response, which reveals non-linearities in the rest of the chain, and built-in distortions in the A/D-D/A conversion process.

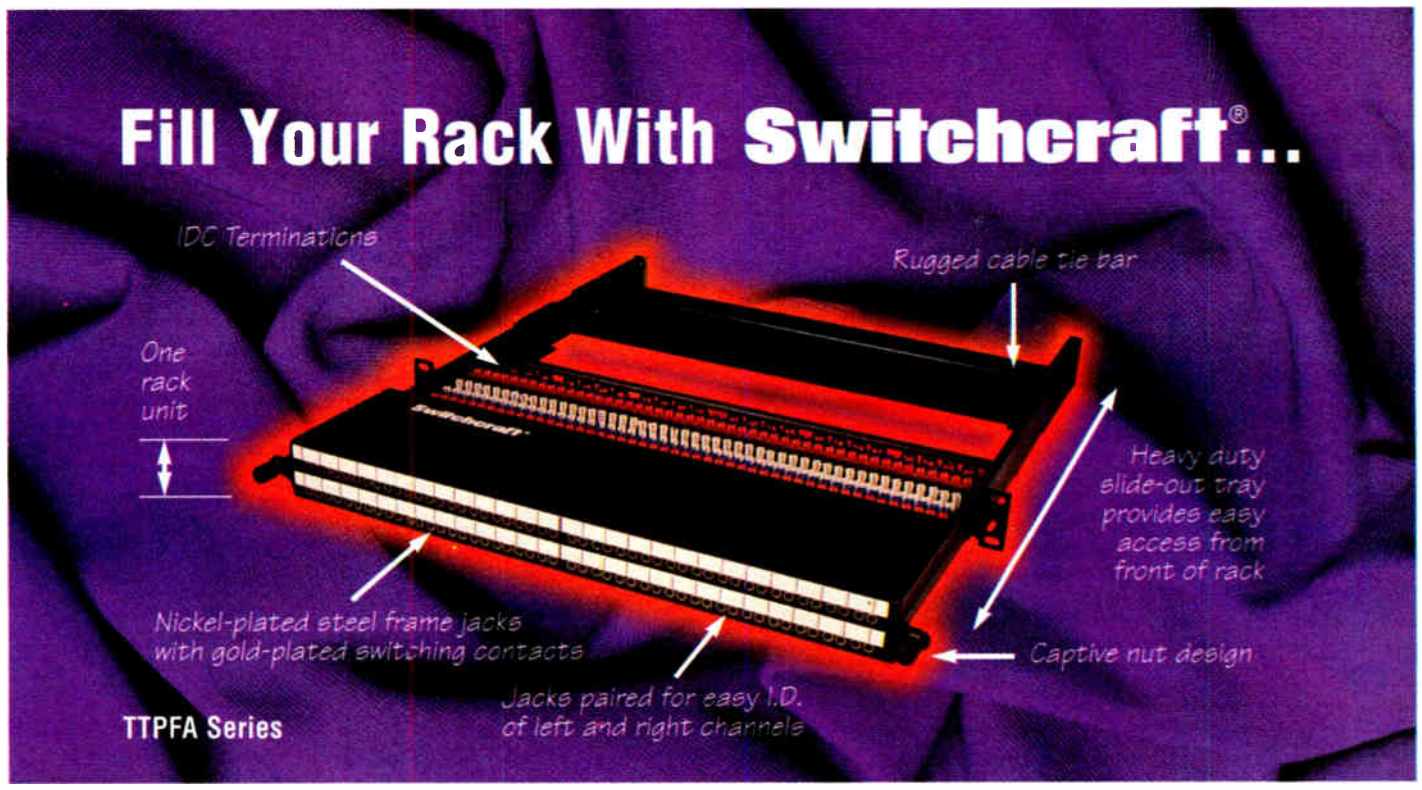
Half-inch 30 ips tape is more accurate, better resolved, with better space, depth, purity of tone and transparency than the affordable digital systems available today. You need at least 20-bit A/D to capture the low-level resolution of 1/2-inch 30 ips! Half-inch tape has greater bandwidth than 44.1 kHz or 48 kHz digital audio, requiring even higher sample rates to convert to digital properly.

Thirty ips has usable frequency response to beyond 30 kHz. This translates into a more open, transparent sound than any digital. Traditional methods of judging frequency response with sine waves imply that the ear cuts off at 15 to 20 kHz. But we're measuring the wrong thing! The time-domain response of the ear transcends traditional frequency response measurements.

New, high performance digital is on the way. Sampling at 96 kHz and 24 bit resolutions will relegate current digital technology to the category of 1/8-inch cassette tape. DVD is now a reality. While it will find its greatest application in improved video recording (perhaps to replace VHS as a carrier for movies), its data density will permit a vastly superior digital audio carrier.

Modular digital multitrack

See AUDIO, page 29 ▶



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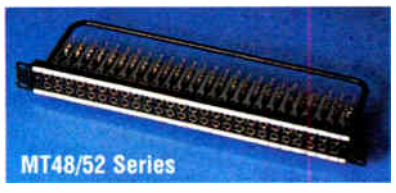

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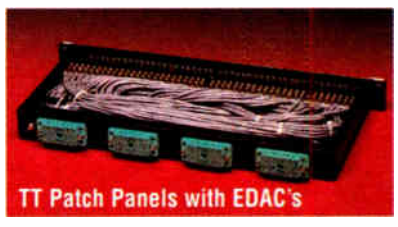

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World Radio History

Workbench

Radio World, October 29, 1997

Add Muting to That L'il Mixer

John Bisset

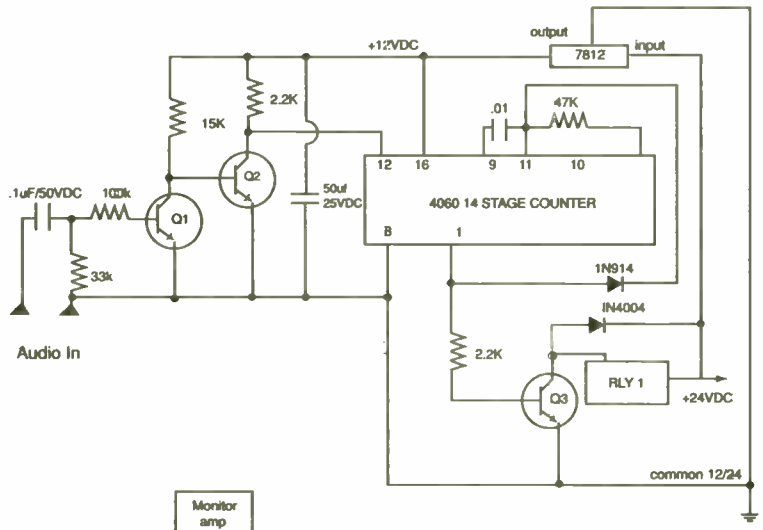
Tom Lange, an employee of the Electronics Department of Sheboygan Area School District in Wisconsin, came up with a must-build if you own a Mackie, Peavey or similar mixing board and use it in a studio environment.

The drawback for these great little production boards is the lack of muting or an on-air-light. Tom's circuit uses the auxiliary sends to provide a sample to the vox circuit. In operation, the mic fader is set to its normal operating range, and the auxiliary send is set to a level that will "trip" the circuit, thus providing a mute of the speakers.

The main advantage of the circuit is accurate vox action, through the use of a 14-stage ripple carry binary counter. The CD-4060 includes logic gates so a clock oscillator can be built in by using an external RC time constant (0.01 uF and 47 kOhm). In operation, the circuit allows the counter to count up to the final stage (pin 1) and hold a steady output by sending the high to the oscillator via the 1N914 diode, which stops the oscillator.

When a signal is present at the audio input, the counter is reset. When audio ceases, the oscillator is allowed to run. The 4060 will count up to the stage at pin 1 and hold there until audio resets the counter. This is the vox release interval.

The release time can be changed by experimenting with the values of the resistor and capacitor combination, which changes the clock oscillator frequency. The advantage to this method is that the release time of the vox resets the instant there is audio, so pauses between words do not cause the vox to react differently than it would to more constant audio signals. This is not the case with standard vox circuits.



The CD-4060 is available in a standard 16-pin DIP package. Tom used an IC socket and built the circuit on a piece of perfboard. All resistors are one-fourth W film. Q-1 and Q-2 are 2N2222 or equivalent. Q-3 is any NPN rated at a minimum of 30VDC and 500 mA or higher. Many components are general purpose "grab bag" parts and are available from various electronic parts suppliers.

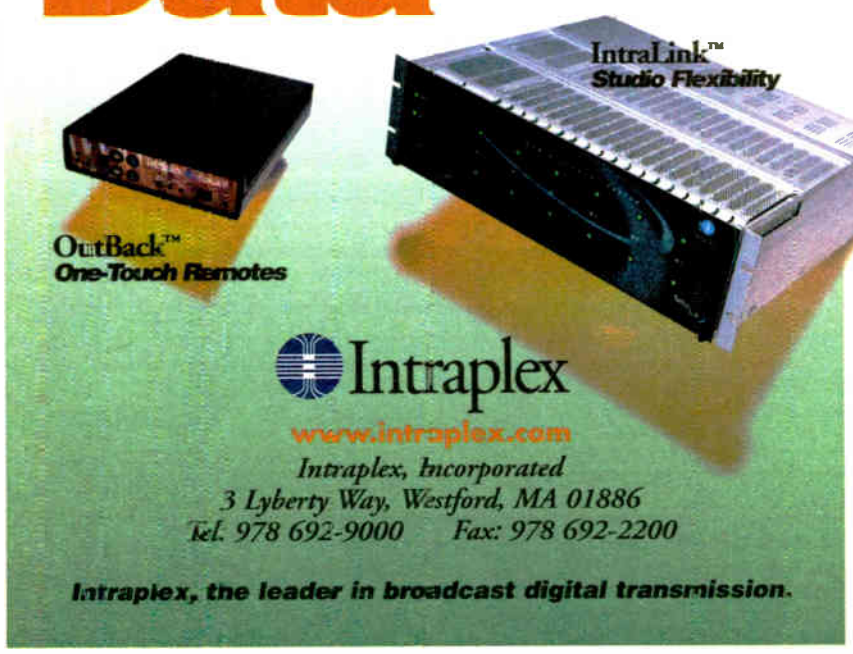
The relay that Tom used had a coil current of 200 mA and had DPDT contacts for the speaker switching. A relay with additional contacts would permit warning light switching as well.

Figure 1 shows the schematic for the Vox mute circuit. Tom Lange can be reached at WSHS Radio in Sheboygan, Wis. His number is (920) 459-4020.

■■■

John Bisset is a principal with Multiphase, a technical services company. Reach him at (703) 323-7180. Printed submissions qualify for SBE recertification credit. Fax submissions to (703) 764-0751, or send them via e-mail to wrwbench@aol.com

Program Audio Data ISDN Voice



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World Radio History

ON THE JOB

How to Respond to Your Job Offer

Sue Jones

This is the last in a four-part series to help you prepare for your next job interview. The previous part appeared Oct. 1.

We have dealt with some of the mechanics of the interviewing process, responses to typical interviewing questions and their importance, what you should bring to the interview, and how to discuss compensation. This final part covers the offer letter and the reasons interviews go wrong.

Most people feel a sense of relief after an interview, even if they were well prepared. Usually you will have some sense of how well you presented yourself. If you have the feeling something went wrong, see page 29 for a list of the most common reasons an interview is not successful.

Learn from failure

If you did not get the position, recall the interview using this checklist. If you feel comfortable talking with the interviewer after another candidate is chosen, inquire tactfully what qualifications or qualities you lacked. The successful candidate may have had more experience, or perhaps the other person's personality and personal goals seemed to be a better fit. If you receive information that your skills and experience are weak, consider improving the description of your abilities or working to improve your skill level.

If everything works in your favor, the radio station or company should send you an offer letter, specifying the terms of employment, details of the compensation package and the start date. The letter likely will contain a required return date. Most employers will give you a week or two to evaluate the offer. Make sure you reply on, or preferably *before*, that required return date. Even if you decide not to accept the offer, demonstrate your business savvy and let the station know as soon as possible that you will not be accepting the offer.

If the station gives you two weeks to consider the offer and you accept another, advise the station immediately. Do not wait until the return date to respond. A quick response will allow them to move to their second choice. No response to an offer letter is a serious blunder. Remember, you may have reason to do business with this station again later.

If the station gives you only a verbal offer, ask when you will receive the written offer letter. If they do not prepare written offer letters, be wary.

If your offer letter is different than you anticipated or you have questions, contact the person who signed the letter immediately. Errors do occur in preparing them. If your understanding of the terms of the offer are different, correct that problem before the required response date and before you accept the position.

Written is best

If the station gives you only a verbal offer, ask when you will receive the written offer letter. If they do not prepare written offer letters, be wary. If you are certain that you want to work for the station, write a letter to the station confirming your understanding of the compensation package and start date. Wait until you have confirmation it has been received and the station agrees before you take further action.

Do not resign from your present position until you have a written offer letter, which you have signed and sent back to the new employer, and have confirmation from the station that it has been received. If the new employer has an abrupt change of mind and you have resigned without an executed offer letter, you will find yourself without a job.

Other tips

When a station calls you for an interview, be mindful of the importance of the date it is scheduled. The time of your interview is more critical than you might think. Research by Runzheimer International Management Consulting firm in New York indicates that 55.8 percent of the last candidates to get interviewed get the job. Only 17.6 percent of applicants that are interviewed first get the job.

So what can you do? Tactfully ask if you can be scheduled for a later time, especially if you think you might be among the first candidates to be interviewed. You might say that you have a schedule conflict with the date offered.

See INTERVIEW, page 29 ▶

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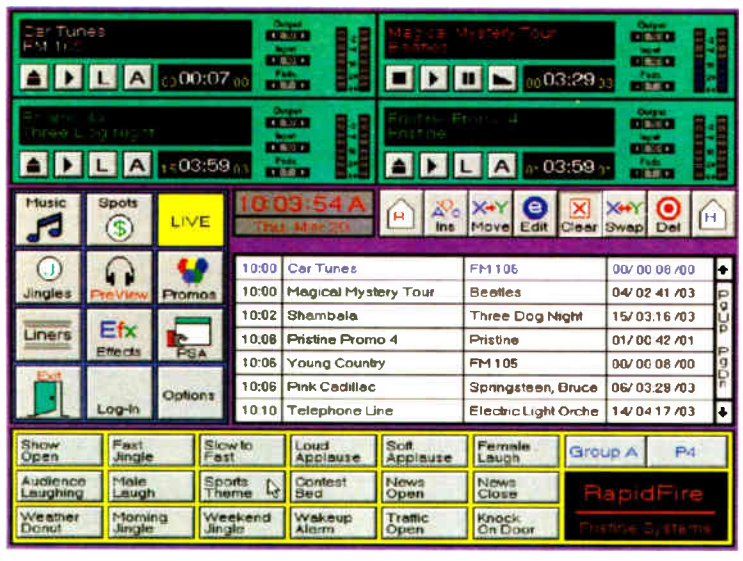

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World Radio History

▶ INTERVIEW, continued from page 28

Have a couple of preferred dates and times (best times are before noon) to suggest for the interview. Other bad times include Mondays, which are always busy, and at quitting time.

Out-placement firms report that more than 68 percent find their jobs through personal contacts. The Department of Labor reports that 48 percent found their jobs through friends or relatives. Twenty-four percent found their jobs through direct contact with employers, going to them and asking them for a job. Thirteen percent used a combination or other methods. Want ads and placement services fill 10 to 15 percent of jobs. Eighty percent of all jobs are not advertised in newspapers or with agencies.

Competitive edge

These statistics make it evident: Chances are three out of four that you will find a job through your own efforts.

The guidelines we've outlined in this series will not guarantee success in landing the job, but they will put you ahead of the other candidates and give you the competitive edge. Your personal preparation will be the most important step you can take to secure that new position. Your personality and interaction with the interviewer also will help the interviewer to decide to offer the position to you.

Not all positions for which you interview are a good match of your background and the station's objective. However, all interviews can help you fine-tune your interviewing and presentation skills. Learn from each one so that you can improve your chances in the next interview.

Reasons We Fail

Poor personal appearance
Lack of eye contact
Unable to communicate adequately

Arriving late without calling
Being rude
Being too familiar or casual

Unclear purpose
Indecisive
Unprepared responses

Too many excuses
Lack of interest
Too timid

Too aggressive
Critical of past employers

The Ups and Downs of Digital Audio Devices

▶ AUDIO, continued from page 25

recorders need a lot of help to sound good. Out of the box they are hard, pinched, edgy and undetailed. You get a lot for your money, but asking for state-of-the-art electronics in a 16-channel recorder for under $4,000 is just not in the cards.

Adding state-of-the-art external A/D-D/A converters makes all the difference in the world, but these converters can cost many times the cost of the machine ... especially with 16 tracks. A single 2-channel A/D from Primus or DCS can cost $5,000! There is a larger economic disparity between good and bad digital than between good and bad analog.

Cheaper way?

If you can't afford good digital, you can continue to cover the evils. You will get a warm, fuzzy sound that is preferable to hard and edgy sound. Great digital is expensive. The best you can get from bad digital is "warm and fuzzy."

Maybe the cure is to use analog. The economics are there, and quality equipment is available at affordable prices. Instead of cheap digital, experience what high-quality analog can deliver at an economical price.

Most of us have forgotten how great high-speed analog tape recording on wide tracks can sound. Even at 15 ips, I prefer the sound of good analog tape to cheap digital. Make the comparison for yourself.

Digital is the future, but we still have a long way to go. The DVD will be a big step in that direction, but until we wake up and realize that digital is not perfect, we will always be chasing a phantom. Good digital requires great circuit design and expensive state-of-the-art components, not D/A converters that cost ten bucks.

There is rapid improvement in the digital arena. Most manufacturers know that providing more features will sell better than improving the specs of their converters. That is a shame. The true potential of digital is yet to be tapped.

■ ■ ■

Got a different opinion? Tell us. Send e-mail to pmclane@imaspub.com *or write to the address found on page 5 of this issue.*

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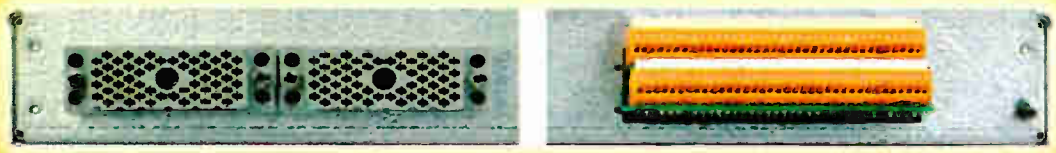

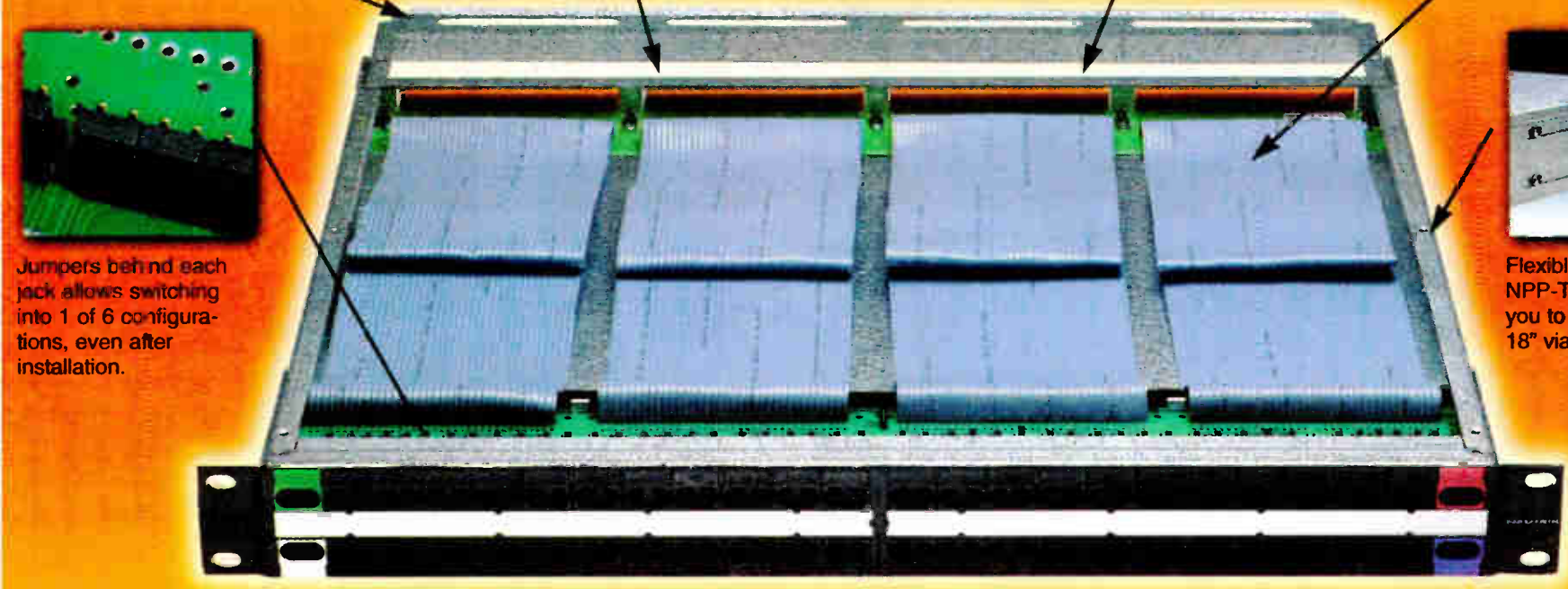

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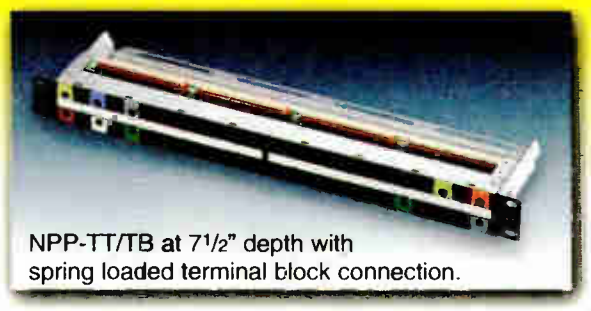

NPP-TT/TB at 7½" depth with spring loaded terminal block connection.

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World Radio History

NAB Radio Show New Product Wrap-Up

Radio Buzz: Digital, Upgrades, Dominate

So what are radio station equipment buyers looking for these days? What trends can we detect when we walk the exhibit floors at the trade shows? RW Technical Editor Alan R. Peterson asked these questions of several suppliers

Jim Woods, Harris Corp.:

Solid-state and digital: that's what everybody wants. We see digital being the key issue, as everything prior to the transmitter site — signal path, STL, right into the exciter — is moving to AES 3 (AES/EBU standard).

The push is on for solid-state transmitters and the all-digital path. Ownership is looking towards solid-state for reliability and redundancy. And we just can't build those 10 kW-and-below units fast enough.

On the AM side, don't even talk to me about tubes. We're looking even more at solid-state here and recently pushed our transmitters up to 2 MW.

Tom Rodman, RCS:

The biggest thing I see now is the suite of integrated applications. Now that everything at the radio station is a computer, traffic, production and programming must be able to communicate.

Let's say Company A has a music system and Company B provides the music scheduler. The jock goes in and plays a song different from what's on the music log. The music system may not be able to send this information back to the scheduler for reconciliation. That level just isn't possible. With integrated applications running as a suite, the communication between elements is there.

Hank Landsberg, Henry Engineering:

Broadcasters want everything yesterday and they want it free (laughs).

Actually, more stations are being run by fewer people today, and the hard-drive systems are catching on everywhere; they're flocking to that stuff. I've noticed a lot of interest in our custom hard-drive music loading service.

Most stations I've talked to are leaning towards 32 kHz MPEG

See BUZZ, page 34 ▶

NAB Impresses a Tough Crowd

Lynn Meadows

The NAB and the exhibitors who attend its shows do not always see eye to eye. In the case of The NAB Radio Show this year, it appears that the NAB and exhibitors are agreed: it was terrific.

"We thought the show went exceptionally well," said spokesman Dennis Wharton. "It is really amazing the positive feedback we've gotten from the show."

In the past, the NAB has received criticism from exhibitors about overloading the conference schedule, keeping foot traffic off the floor. The NAB also irked many exhibitors before NAB '97 when it increased the cost per square foot of exhibit space. But that was not on exhibitors' lips when they talked about this show.

Positive reaction

"This was the single best show event from a radio perspective that the NAB has ever been involved with, and that includes an assessment of the spring shows," said Ernie Belanger of Energy-Onix. "The foot traffic was wonderful."

The NAB took extra measures to encourage attendees to visit the show floor. Beth Tepper, sales manager for TM Century, praised the cocktail party and luncheon the NAB held on the exhibit floor. "Both of those events were great," she said.

This was the first radio-only NAB show in four years. World Media Expo wrapped the conventions of radio, the RTNDA, the SBE and SMPTE into one event.

Exhibitors and attendees became concerned that the radio show was lost in the shuffle. After WME in 1996, the NAB decided to return to its roots.

"Primarily, we thought the NAB did a great job of reinvigorating a radio-only show," said Amy Huson of Orban.

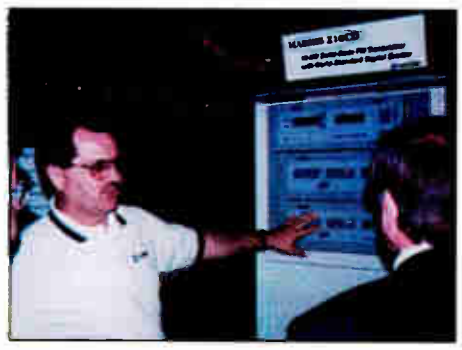
Dave Burns of Harris Corp. said of the radio show, "It's not a better show, it's not a worse show, it's a different show." Exhibitors who geared their booths to that difference had a good show, he said. It gave exhibitors a chance to show their products to people who might not normally see them.

The NAB has formed a new Radio Show Exhibitor Advisory Committee (EAC), intended to give exhibitors a chance to voice concerns. The group met for the first time in New Orleans and discussed booth prices, among other topics.

Burns is on the EAC. The exhibitors "took great pains to sensitize and galvanize the NAB staff about price increases," he said. The earlier price increase to exhibit at the spring show met with resounding silence from exhibitors. Burns and others told the NAB that the "silence was not tacit approval" of that increase.

Burns said the committee also discussed the accountability of contractors. One exhibiting company at the spring show lost a box with more than $30,000 worth of equipment in it. There was no recourse to recoup their money.

Burns said the EAC will look into something like a "group health policy" for exhibitors.



Dan Sessler explains Harris' new Z series of FM transmitters

For now, exhibitors sounded cautiously optimistic about the future of the radio show. "From a manufacturer's point of view, we have kind of a wait-and-see attitude," Huson said, "but we think that the show was strong enough that everyone is really ready to back it and looking forward to next year."

Next year, the show moves to Seattle, which Wharton called a "fantastic venue."

Among the goals of the Exhibitor Advisory Committee for The NAB Radio Show EAC: "to establish and maintain a cooperative relationship between The NAB Radio Show Management and its exhibitors ... to represent and assist exhibitors in their dealings with Show Management ... to counsel Show Management in defining and positioning The NAB Radio Show in a manner mutually beneficial to attendees, sponsoring organizations and exhibitors alike."

Here are the members of the EAC, according to a list provided by the NAB:

- Michael Rau, Radio Data Group
- Jack Neff, Dataworld
- Teresa Zieminski-Myers, Orban
- Dave Newton, Broadcast Programming
- Dave Burns, Harris Corp.

The NAB Marconi Radio Awards Winners

Legendary Station of the Year
KVIL-FM, Dallas, Texas

Personalities of the Year
Network/Syndicated: Dr. Laura Schlessinger, "The Dr. Laura Show," Synergy Broadcasting

Major Market: Don Imus, WFAN(AM), New York

Large Market: Bob Kevoian and Tom Griswold, WFBQ(FM), Indianapolis

Medium Market: Van and Bonnie, WHO(AM), Des Moines, Iowa

Small Market: Bill O'Brian, KRKT-FM, Albany, Ore.

Stations of the Year by Market
Major Market: WCBS-FM, New York

Large Market: WFBQ(FM), Indianapolis

Medium Market: KKOB(AM), Albuquerque, N.M.

Small Market: KFGO(AM), Fargo, N.D.

Stations of the Year by Format
AC: KVIL-FM, Dallas

Adult Standards: KOGA(AM), Ogallala, Neb.

CHR: WNNK-FM, Harrisburg, Pa.

Classical: WQXR-FM, New York

Country: WSOC-FM, Charlotte, N.C.

NAC/Jazz: WLOQ(FM), Orlando, Fla.

News/Talk/Sports: KFGO(AM), Fargo, N.D.

Oldies: WWSW-AM-FM, Pittsburgh

Religious/Gospel: WMHK, Columbia, S.C.

Rock: WDVE(FM), Pittsburgh

Spanish: KLVE(FM), Los Angeles

Urban/R&B: WVAZ(FM), Chicago

World Radio History

The World Standard

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3. Dalet Provides Custom Solutions

Why should you have to accommodate someone else's design for your radio station? Solutions in a "box" are an outdated concept. Why pay for features you don't need or won't use? Why accept a system that won't do everything your station needs? Each Dalet installation is fit like a glove to your specific station needs.

4. Dalet Is Flexible To Your Future

Dalet's design allows you to make changes as they are needed. You won't have to worry that a solution you bought today will be put on the shelf a year from now because it can't be adjusted to your new needs.

5. No Planned Obsolescence

Unlike many companies, we don't intend to sell you a unit today, wait for technology to change in a couple of years and try to sell you a whole new system. Our unique architecture is perhaps the only system which can easily change as technology changes. You won't be forced to live in the past just because you bought a system that can't be easily upgraded.

6. Group-Wide Productivity Gains

All your radio stations can pool their resources, whether they're in one building or in different cities: Share production work among stations Book orders from one station to another. Send journalists on the road, and let them file their reports over the Internet. We aren't just talking about cart replacement here. Reap the benefits of group consolidation with Dalet.

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World Radio History

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NEWS ANALYSIS

Internet Sounds Off at Radio Show

Alan Haber

NEW ORLEANS "Internet audio sounds great... sounds like shortwave."

"There is money on the Internet... No one is making money."

"The numbers will be there... The numbers aren't there."

So goes the back-and-forth we've heard about the Internet. While much has changed since the word "browser" came into being, the way radio people look at the Internet has not changed much.

At The NAB Radio Show, it was the same old yin and yang. Either the Internet was the best thing for radio in years, or you heard someone waffling on the subject.

Well, the Internet is that kind of thing. Why does it invite such difference of opinion? As the best minds in radio ponder the Internet's value, cyberspace resembles a Ping-Pong game with more volleying than point-scoring.

Interest

On the floor, there was interest in the development services offered by such exhibitors as Broadcast Web (*www.broadcastweb.com*), ElectricVillage (*www.electricvillage.com*), Radio-Active Net-Works (*www.radio-active.com*), Radio Data Group (*www.rdgcom.com*), and WebcastCenter (*www.Webcast Center.com*). There were products such as Lariat, Free Range Media Java-based streamed media content management tool (*www.freerange.com*) and in webcasting purveyor AudioNet and Internet audio companies Telos and Progressive Networks (now "RealNetworks").

Most important, there was interest in developments in audio quality.

Microsoft was everywhere: in its front-of-hall booth, in partnership at other booths (thanks to growing Microsoft industry alliances) and in the session milieu (NetShow Product Unit Manager Jim Durkin sat on the dais for a prominent Internet session).

How serious is Microsoft about the Internet? Enough to consider it a broadcast medium. The company announced a number of alliances in July, licensing RealNetworks' RealAudio and RealVideo 4.0 technologies towards incorporating them into the NetShow streaming server. Microsoft also announced a minority investment in Progressive.

Microsoft activity doesn't stop there. AudioNet is adopting NetShow. Telos announced the Audioactive professional encoding suite would support NetShow 2.0. Many companies are working to "define future standards based on Microsoft Active Streaming Format (ASF)," a Microsoft press release stated.

RealNetworks will use ASF "as the native format for its next streaming media products," according to the release.

Microsoft's belief in the Internet includes audio and video. Durkin sees a parallel to television's early days. He said, "As time goes on, people start creating for the new medium and taking advantage of video technologies and the like.

"I think you're going to see the same thing in the case of audio and video on the Web," he said.

At NAB '97 in Las Vegas, audio and video came together in the convention multimedia exhibit area. It seems apparent for stations to compete with other sites, there has to be audio/video pairing. But maybe later. Now stations need to develop a presence with commanding content and crystal-clear audio streams. Or do they?

Keynote speaker Robert Pittman, AOL Networks president and CEO, told a packed room that the Internet was going to affect their lives and that radio stations could benefit by having websites that provide listener conveniences. But he put a damper on the radio/'net relationship when he said that Internet broadcasting is "primarily going to be for techies," although there are opportunities, he said, "especially for special events."

When an audience member asked Pittman to address audio and video distribution on the Internet, he wondered, "Will there be a profitable business there? Probably, because people who love it will pay a lot for it." Assuming, that is, people will want to pay for it at all, rather than receive it free as they do now.

On the other hand ...

NAB President and CEO Edward O. Fritts told journalists during the show, "I don't see the Internet as being a substitute for local stations." He did allow that webcasting is "an interesting concept. It's given radio broadcasters something to look at, to experiment with and to think about as a new opportunity."

And there is plenty of opportunity out there, even from the consumer perspective. Marty Roberts, product manager for RealNetworks, said the company's customer base is becoming more consumer-oriented as the Internet veers in that direction.

Roberts thought Pittman's techie-esque comment was shortsighted. "Internet audio really is hitting the mainstream and (RealNetworks) is all about turning the Internet into the next mass medium," Roberts said. "To do that, we need to reach everyone." But will everyone want to be reached?

Michael Rau, CEO of Radio Data Group, which has built websites for radio stations, said about webcasting, "I just don't think it's a very good business for radio stations to be in. The notion that you're broadcasting to the world and you're expanding to the world is a false notion," he said. "It's really not true, because there are technical limitations on what the actual audience can be at any one time."

Rau believes there are possibilities: "Subject to owner rights limitations and the program rights issues, I absolutely do." Bandwidth limitation, he thinks, "is the number one difficulty making this sort of a reality."

Time marches on

New technologies to make the Internet palatable seem to be introduced daily.

Take universal players, for example. One was shown in the Telos booth. Telos President Steve Church said he understood it would be possible "for a third party to make a universal player that would play Microsoft (NetShow), RealAudio, pure MPEG III files — either streamed or local — CDs and so forth. As far as I can tell now, there is no impediment to doing that."

The Telos player supports these formats except for RealAudio. "We've explored supporting it," he said, "and it looks like it's possible as well."

The emergence of more universal players can only give stations impetus to bring their signals to the Internet because it will be easier for Web surfers to listen to stations with one player. Church said, "As it moves toward a mass medium, you have to have widely accepted standards."

At press time, 763 stations were hitting the cyber-bricks, according to the BRS site (*www.brsradio.com/webcasters*). More are coming on-line.

Prior to The NAB Radio Show, AudioNet announced it was picking up all 70 SFX Broadcasting radio stations using NetShow 2.0. In New Orleans, Telos unveiled *audiolounge.com* where 21 stations and providers used Audioactive and/or NetShow to make signals available.

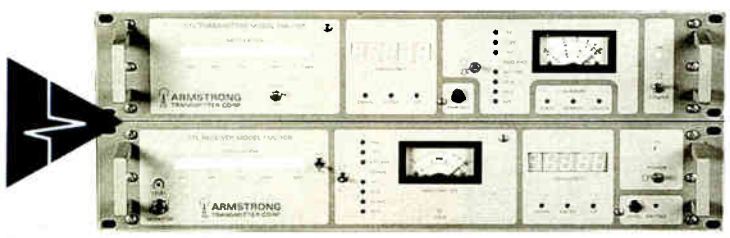
Church is sticking to his idea of quality instead of quantity. "You have to have a certain level of quality in order for this to make sense as a mass medium. There has to be a standards-based approach so that all of the pieces can come from various sources. We don't think it's going to grow past a curiosity unless that happens.

"We still don't have ... widespread implementation of multicasting in the Internet so that mass audiences can be reached economically," he said. "When we finally get that third element in there, we're serious in business."

Is there money to be made on the Internet? That is the "$64,000 question" for broadcasters. There might be, and stations in the game early on will likely be first to reap the benefits.

If this were a Ping-Pong game, a tight hold on your paddle is in order.

Frequency Agile STL Systems



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The NAB Radio Buzz

▶ BUZZ, continued from page 31

Layer II audio for hard drive, so we support that. With the cost of hard drives coming down, it's really taking off.

I'm also noticing stations looking towards software-only products like BSI (Broadcast Software International) for automation. Instead of paying $40,000 for a system, they trade out a computer and pay maybe $7,000 for the software.

Clark Novak, Pacific Research & Engineering:

We've seen consolidation projects on the high end, but we are also seeing upgrades on the low end as well. Smaller consoles will continue to go to the smaller users as they switch over to digital storage systems, but for larger installations, well, not always. They will tend to stay with the big mixers.

One comment is made to us more than any other: the simpler you can make things, the better. Most engineers want jocks to just push a button and have something happen. It is possible to keep things simple on the surface and have the more complex things happen inside.

Also with consolidation, it may become necessary for seven or eight separate station audio lines to be routed through one central point. This might mean some elaborate mixing system, possibly computer-controlled.

Debra Grobman, WHo DId THaT MUSiC?:

Radio is still theater of the mind; remember that. A lot of people have forgotten it. When stations ask for commercial music, they want "real" music: acoustic sounds, real instruments. Music that is always moving ahead.

When you need to weave all the elements together and create an environment, stations want IDs and elements that fit and not interrupt.

World Radio History

New Hardware Aplenty at NAB

The NAB Radio Show is an excellent equipment show as well as a forum for programming and management ideas. Here's a quick rundown of the new and interesting products we found on the exhibit floor.

360 Systems unveiled its new Shortcut Version 2.0, adding several new features.

The self-contained, two-track hard disk digital audio editor with built-in waveform display offers cut, copy and paste editing, a realistic scrub wheel and conventional tape transport controls along with 360 Systems' D-NET file transfer capability.

Also displayed, a Shortcut interfaced to the Telos 1A2 telephone system, allowing the capture of telephone audio onto the internal hard disk.

Antenna Concepts FM antenna line included the Ultra Tracker, available in a half-wave spaced, RFR eliminator, line-fed Low Power version (up to 10 kW).

The company said the Ultra Phantom antenna eliminates downward radiation and cuts multipath at more than 10 kW.

Other antennas include Prodigy, Beamer, Bull's Eye, Double Dipole, and the FM Tracker.

The company manufactures a complete line of TV, FM and MMDS transmit antennas.

Arrakis put the spotlight on its DigiLink 4 hard disk digital audio workstation with DL4-AUTO or DL4-WIN95 software.

The workstation operates in both production and on-air studios and features dual stereo audio outputs and Layer II compression. The DL4 digital cart machine, shipping soon, interfaces with the DigiLink 4.

The DL4-AUTO software is designed for automation, live assist, limited live assist, manual cart control, audio editing, voice tracking, extensive scheduling and reporting.

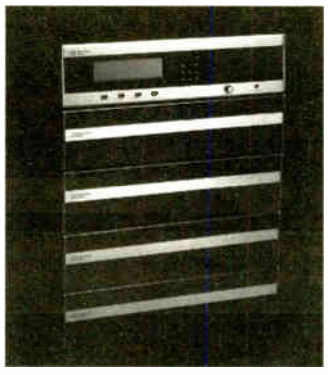
The DL4-WIN95 is for stations not needing automation scheduling. It provides manual cart control and MPEG-II audio editing.

The company also brought its Digilink 3 system, its line of audio consoles and the TrakStar 3 digital multitrack editor.

Audio Precision introduced 1.5 version APWIN Windows software for its System Two audio test set. This software includes new analyzer reading rates for high-speed testing and a Learn mode that memorizes operator keystroke sequences.

Also at its booth, Audio Precision previewed the new Portable One Dual Domain test set. According to the company, the Portable One Dual Domain is a full-featured true dual domain audio test set in a portable package. The firm said owners of Portable One Plus test set may upgrade their units to the new digital capability.

Audio Pro Technologies (APT) demonstrated the ITC Audio Switcher.



A single switching matrix routes audio signals from multiple sources to multiple destinations. It reduces the need for patchbays and distribution amplifiers. A pre-programmed command system of "salvos" allow manual and automatic matrix changes at a particular time of the day or during the week.

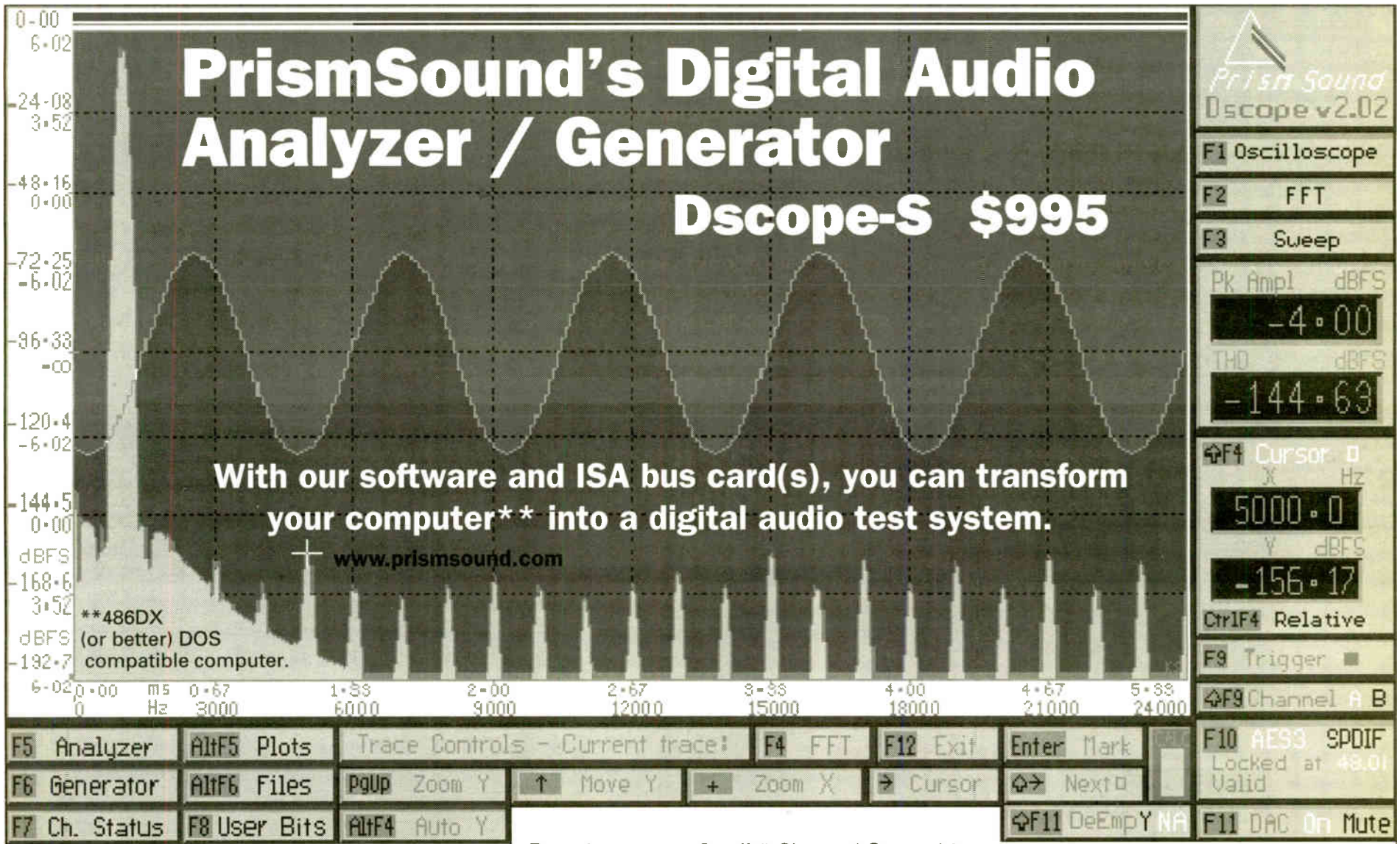
The ITC Audio Switcher provides "wild audio" capability to enable automatic routing of a mono input source to a stereo output and vice versa, as well as mono to mono and stereo to stereo routing.

Audio Technologies Inc. (ATI) displayed the growing line of Nanoamp Series mono and stereo mixers and input expanders.

The MXS100 stereo field mixer has three low-noise balanced XLR mic/line inputs, phantom power, switched low-cut filters, stereo tape in and tape out mini-jacks (new), and a test oscillator driving stereo, metered, low-distortion XLR balanced switchable mic/line outputs with switchable peak limiting, and a stereo program/cue headphone output.

The MXS200 is a lower-cost stereo studio mixer with three XLR mic/line

See PRODUCTS, page 37 ▶



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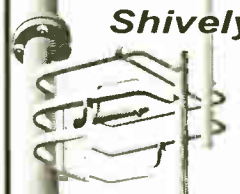

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World Radio History

▶ PRODUCTS, continued from page 35

inputs with pan pots, phantom power, metered and balanced line-level stereo outputs. Mic and line level expanders are available for both. Accessories include a carrying case.

Also shown were Vanguard Series consoles featuring VCA level controls, muted monitor drivers, electronic audio switching, two mic preamps, and a four-input headphone amp.

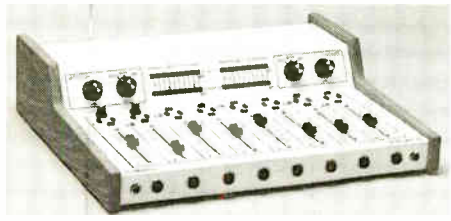
Auditronics featured a new control system for the NuStar digital console series.

"It's the TouchStar," Bob Greenwald, Auditronics sales manager, said. "A PC-based touch screen system that will replace the console in controlling the rack audio of our DSP. You can actually touch the screen and move faders up and down."

According to Greenwald, "We are still working with this product, especially since it represents a backup to the console surface, which may go down for service reasons."

Auditronics also presented the NuStar 3000 Series Broadcast Digital Audio Consoles. "In this digital and computer age, the life of products is shortening dramatically, so we've created this in a modular manner so the cards can be updated and designed with newer interfaces as they come up," said Greenwald.

The Solution-20 from **Autogram** provides "blocks" when installing a radio station or commercial audio system. The company saw a void for a rack-mount system that could use modules outside the rack.



Five cards are offered: the RC-1 twin-SPDT relay card; the TSG-2 auto-sequencing 4-tone generator; the DA-3 1-in/3-out low-noise distribution amplifier; the SMA-10 10 W-per-channel monitor amplifier and the MPC-1 mic processor card with preamp, compressor and EQ. The Solution-20 rack frame holds up to 10 cards.

Mini-Mix and Pacemaker consoles are available from Autogram as well.

A-Ware Software promoted MusicMaster DOS/Windows software that interfaces with most automation systems. MusicMaster allows on-air scheduling right from the user's desk. The new schedule is updated instantly in the studio on RealTime and in the automation system.

Nexus continuously monitors MusicMaster, synchronizing changes and working automatically with scheduling and traffic.

Also from A-Ware was the TrafficMaster, allowing instant system updates and scheduling of new accounts when commercials are already dubbed into the hard drive.

At **Belar Electronics Laboratory Inc.**, "We're completing our Wizard System," President Arno Meyer said. "You can use this with an ASVD (analog simultaneous voice and data) modem."

The new class of telephone modems allows simultaneous transmission of digital data and analog signals over the same standard telephone circuit. "We complete the monitoring picture," he said. "It is now easily possible to hear the air product of any station being monitored by the Wizard System."

Belar also showed monitoring equipment for AM and FM.

Bext highlighted the LEX 25 programmable FM exciter/low-power transmitter. Its rear panel offers programmability in 10 kHz increments; power output is adjustable to 25 W.

The P10 is a 10 W portable, programmable FM model that also can be used as a stand-alone transmitter. The unit has a switchable composite or direct microphone input.

Bext's XT20, XT30, XT100, XT150, XT300 FM models are PLL-programmable exciters/transmitters with soft-start from RF mute status. Optional built-in stereo generators are available.

The HPT series FM is an exciter/transmitter that has up to 90 dB typical S/N ratio. It can be purchased as an exciter only, or as a translator/booster.

Bradley Broadcast demonstrated Sound Forge XP 4.0 audio editing software for Windows, allowing recording, editing and processing of digital audio files.

The XP 4.0 features an active streaming format (ASF) and boasts three record modes: multiple takes, automatic retake and punch-in.

Also on display, the Roland DM-800 workstation, a stable hardware platform featuring waveform editing with 100 layers per track, time compression, pitch correction, MIDI machine control and scrub preview.

Broadcast Electronics introduced several new products, including applications for its AudioVAULT digital studio systems.

AV-Edit is an integrated 32-bit visual cut-and-paste editor that allows direct editing of compressed or uncompressed AudioVAULT files. The package records and assembles new material and minimizes the steps

See PRODUCTS, page 38 ▶

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Low-cost Compressor/Limiter/Filter assures NRSC compliance. Also available in several versions for international short-wave service.

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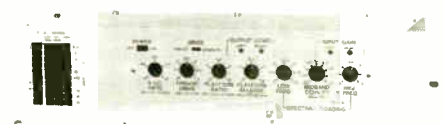
255 - "Spectral-Loading" FM Processor
A very aggressive Triband-PWM Stereo Processor tailored for contemporary music formats. Broad parameter control over the gated AGC and 3-band Compressor/Limiter.



260 - FM/TV "Utility" Processor
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708 - Digital Synthesis Stereo Generator
A basic Stereo-Gen with impeccable specifications. Includes front-panel metering, internal subcarrier combining and a built-in Composite Processor.

530 - Off-Air FM Modulation Monitor
Accurate, easy-to-read display shows total modulation, pilot injection, stereo separation and crosstalk, RF signal strength and multipath distortion. Alarm outputs for overmodulation, carrier and program audio loss. Eight station presets facilitate quick modulation comparisons.

630 - FM "Relay" Receiver
A *professional* receiver for translator (re-broadcast) and other demanding off-air pickups. Features composite MPX *and* balanced stereo program outputs, synthesized tuning, selectable bandwidth, metering, alarms and remote control.

710 - RDS Encoder
A PROM-based "static" RDS/RBDS Encoder. Very easy to set-up and use *without the need for a host computer!* 15 separate memory "frames" may be programmed with station and program ID codes, service flags and radiotext messages. May also be used with a PC for song titles, promos, etc.

510 - RDS Decoder/Reader
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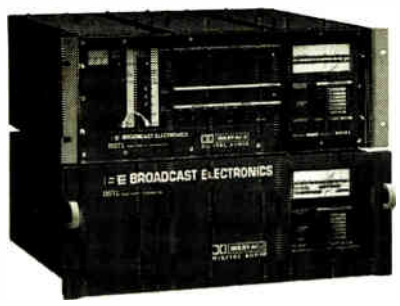
▶ PRODUCTS, continued from page 37

required to identify a clip within an audio file.



The AV-Schedule simplifies the creation of playlists and provides the tools to manage and adjust them. The playlist can be altered by dragging and dropping elements and by inserting cuts from inventory. The AV-Schedule can produce out-of-date and missing cut reports.

The introduction of AV-Voicetrack allows talent to preview song transitions and record tracks directly into the playlist for later playback by AudioVAULT.

B-E introduced its AM10A, a 10 kW AM transmitter with updated RF amps and power supplies in a compact cabinet; a new 6 kW version of its new line of PowerMizer transmitters; the Predator digital FM transmitter/exciter; and the T-Series of high-power FM transmitters with updated circuitry.

The Marti division of B-E showed the Smarti POTS codec, and its line of RPU and STL products.

Florida-based **Broadcasters General Store** demonstrated the popular HotLine POTS codec from Comrex, the 360 Systems Shortcut digital audio editor, several new problem-solving radio products from CircuitWerkes, and the offerings of digital audio system manufacturer MediaTouch.

Included in the **Broadcast Supply Worldwide** BSW booth were the Mackie 1202VLZ and 1402VLZ audio mixers. Both have studio-grade mic preamps with discrete circuitry for high headroom, low noise and wide frequency response

Also at the BSW booth, the Audioarts R5 Audio Console and Fidelipac's Dynamax MX/D Digital Audio Console.

BSW featured a full line of studio microphones, including the popular Electro-Voice RE20 and the Shure SM7, along with products from Audio-Technica, Neumann and AKG.

Burk Technology showed its ARC-16 transmitter remote control system and the LX-1 six-input stereo selector. Its line of EAS products includes a decoder/encoder, an EAS monitor receiver system and an LX-4 EAS program interrupt.

Sales Manager Bill Gould hinted at some "new, exciting developments" on the horizon for the ARC-16 remote control systems.

"You'll hear more about it in the fourth quarter," Gould said. "But we can't release it yet. We're very excited about it."

CartWorks/dbm Systems rolled out CartWorks MHD, a hard drive system demonstrated at the show.

CartWorks MHD provides the ability to record voice tracks that coincide with time-of-day events. Users can switch between live and automated modes with one button. The system can import logs from most music and traffic scheduling software. Prices start at $9,995.

The company offers a full line of cart replacement and satellite automation systems. All CartWorks systems feature Pentium processors, 16 MB RAM and Windows 95.

CartWorks offers 24-hour tech support.

From **Circuit Research Labs Inc.** came the DAA-50, a belt clip-on device that can receive and decode audio data, do frequency checks, inspect the transmission link and report status of all signals.

The unit contains a D/A converter and volume control to monitor signals through headphones and is meant to perform tasks normally done with oscilloscopes, probes and meters. The DAA-50 is $539.

Demos of the CRL SC-100 Radio Broadcast Data System continued throughout the show. The SC-100 can stream digital station information to radios with smart displays. Built into the SC-100 is a personal paging package that supports up to 300 pagers.

CRL featured its DP-100 Digital Processor/Stereo Generator System, recently upgraded with version 1.2 software; it includes a "power users" menu for complete control of processing parameters, and an easy-to-use touch screen interface.

Computer Concepts Corp. introduced new products and updated the NewsRoom program with web server capabilities to send text and audio directly to web pages.

NewsRoom now converts text to HTML language and converts audio to Windows True Speech, allowing stations to update their web pages in a timely manner. The NewsRoom program can place logos, pictures, graphics and advertising from sponsors on web pages.

Computer Concepts also introduced Windows-compatible VT, or Visual Traffic, a Windows NT system capable of handling as many as 128 different stations. The system can manage combos, "trombos," LMAs and duopolies from one location.

The new CutMaster transforms a Windows-based PC into a 4- to 24-track workstation. It has parametric EQ, time compression, expansion, CD writing and other features. The CutMaster offers real-time effects editing with ultra-fast 80-bit signal processing capacity.

New this year from **Comrex Corp.** is the HotLine POTS codec, combining a high-speed V.34 modem and a digital codec designed for the lower connection speeds of analog telephone lines.

Connection speeds range from 12 to 33.6 kbps. Audio bandwidth ranges from 4.5 to 10 kHz.

The HotLine receives up to 10 kHz full duplex audio on standard telephone lines, and can be used for news, sports and weather.

The company also showed its Mix-Minus Bridge which creates five separate mix-minus feeds; the Nexus ISDN codec; and the Buddy Remote Mixer.

Continental displayed its completely solid-state 5 kW FM transmitter with 802B 50 W exciter and the 816R 25 kW FM transmitter with 802D digital exciter. Continental also displayed studio and RF gear.

The 816R transmitter is self-contained with a single power amplifier tube. The exciter and IPA are all solid state.

The 815C is totally solid-state and compact. The 802D digital exciter utilizes DSP technology to produce a digital audio signal.

Crown Broadcast focused on promoting its SpectraCast product line.

"It's a satellite digital audio MCPC (multiple channels per carrier) transmission and reception system," said David Molinaro, sales and marketing director. "The system has the ability to input our transmitter ... multiplex it all on a single system and output a DVB compliant transport layer."

The FM2000A amplifier package includes a DC power supply and a 90-percent efficient PFC amplifier. Crown also offers the FM1000A 1 kW amplifier package and several stereo transmitters, translators, exciters, microphones and amplifiers.

Cutting Edge announced the release of the Omnia.fm Processor, which includes a stereo encoder and selectable composite clipper with

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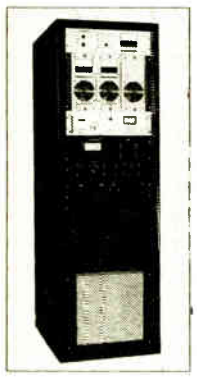
Problem:



I have a duopoly. I need back-up transmitters for my stations:

Solution:

Don't buy two transmitters-- buy ONE!

Our Legend Series, Solid State, FM transmitters are Frequency Agile and Broadband. Your engineer can instantly tune one to any frequency !

We've designed the Legend Series to ensure long transistors life with "wind tunnel" cooling & brute force power supplies.

Legend Transmitters make perfect main transmitters too!

Available from 1KW - 11KW

Two or more stations; One back-up transmitter. GREAT IDEA!

Great Products Great Solutions!

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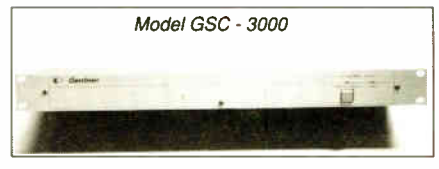
Introducing the next generation of remote control for broadcast transmitters



Gentner

No matter where you are, you're in control
- home or anywhere with any telephone (including cellular) or by computer with modem connection
- dial in and see what's going on at transmitter site
- access from virtually anywhere and take corrective action
- unit can be programmed to take corrective actions on its own
- notification by pager, telephone, or computer modem connection
- full-time access or periodically check on a number of transmitter sites from anywhere

* Voice Interface available end of summer

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phase linear composite low-pass filter. According to Cutting Edge, the Omnia.fm is "capable of employing composite clipping while maintaining an ultra-clean spectrum in the SCA range."

During the show, the company held a drawing to give away a free processor. The winner was Joe Stack, assistant director of engineering at ABC Inc. in New York.

The Omnia.fm is software-configured with data contained on a PCMCIA card. Changes are made by swapping cards or by remote download. Cutting Edge has included a second PC card slot for a combined 10Base-T modem connection.

The Cutting Edge brochure states, "it is a must that the exciter have a dual-speed phase lock loop (PLL) in the AFC or it may unlock," Cutting Edge notes "loudness will be lost" if this point is overlooked. The product won "Cool Stuff" honors from **RW** in the spring.

Dalet promoted TeamRadio, a solution that allows several departments access for a variety of tasks. It consists of several components.

The Proposal Generator automatically adjusts rates; the Sales Manager creates current rate cards and promo packages; the Account Manager creates multiple proposals. The Intelligent Continuous Scheduler (ICS) tracks spots to ensure all criteria are met; the Billing and Accounts Receivable module automates the reconciliation and billing process for multi-station orders.

The Copy Management System allows copy and deadline notices to be available to all departments. Real-time reporting displays past and present performances and projects future performances.

Also shown: the DWP (Dalet Web Publisher) providing integration to the Dalet database, automatic file conversion, website updating and maintenance in real time. The company also demonstrated the Dalet Production Suite multitrack editor.

Dataworld promoted DataXpert, a specialized database containing information concerning a station's geographical coverage.

Users can locate prospective markets by ownership, size, format, network, market, power, frequency or upgrade capabilities. The user can target sales material to the correct person, know his or her audience, or show the signal coverage area.

Dataworld updates the software monthly. The system operates using Windows95/ NT and requires a Pentium 90 or greater. Dataworld recommends 32 MB RAM and a 12x CD-ROM.

The **Dielectric** team announced its first TDM antenna customer. A North Carolina station placed a $300,000 order for the top-mounted, omnidirectional FM antenna, which Dielectric adapted from a television model.

Dielectric FM antennas and broadcast components include the DCR-M series antenna, with high input power capacity of 18 kW per bay. The DCR-R series antenna is mounted on a 3-1/8-inch feedline for power ratings up to 40 kW. Half wavelength element spacing is available. The DCR-H series antenna has input power capacity up to 4 kW per bay.

Eastman Kodak Company showcased two CD-Recordable (CD-R) systems, one developed by Rimage for writing and printing CD-R discs for program distribution and syndication.

The Kodak system features the Kodak disc transport that automates the recording of up to 75 CD-R copies. The system includes the writer, software and 200 discs.

The Rimage system combines recording, handling and surface printing capabilities into one automated system, using special Kodak recordable media. The Perfect Image Producer includes the Automation Station, which consists of the recorders, transport robotics and surface printer; the CD-R Control Center, which consists of pre-mastering, recording and printing software; and Automation Protocol, an optional Unique Information Publishing software package.

ENCO debuted the DAD_{PRO32} and promoted the DAD_{PRO}, the DADSAT and the DAD_{JR}.

The DAD_{PRO32} digital audio delivery system features 32-bit operation and multitasking with third-party applications such as wire capture. The system also supports Global Wide Area Networking, which permits facilities to link and to share audio, scheduling and billing data.

The DADSAT and the DAD_{JR} permit satellite-based store-forward control of audio as well as scheduling instructions to specific downlink sites.

The DOS-based DAD_{PRO} is a software package coupled with DSP boards, allowing the recording, editing and archiving of audio. Minimum suggested hardware requirements: Pentium PC with DOS 6.22, 16 MB DRAM and 64 KB SRAM.

Energy-Onix unveiled three new products at the Radio Show. "We introduced our solid-state Pulsar AM transmitter line," said Ernie Belanger, vice president of marketing.

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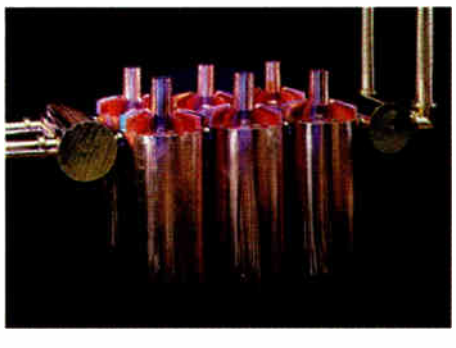
"Transmitters from 250 W to 100 kW."

Energy-Onix also featured the SST 30B. "It's an evolution from our SST 30 exciter," Belanger said. The frequency agile 30 W FM exciter/transmitter has a precision LED bar graph modulation meter with peak hold indicators.

The new SSA Series "B" low-power solid-state FM amplifier features plug-and-play installation and increased reliability.

The company showed the Digital One STL Encoder/Decoder and the STL 1 Frequency Agile STL System.

ERI was on hand with products to help protect air chains from lightning. Bill Elmer, vice president of sales for Electronics Research Inc., said, "This year we showed our lightning dissipation devices as well as some of grounding devices, including the K-ROD improved electrolytic grounding system, and the MAG-ROD combined



cathodic protection and grounding system." New products include the Lightning Dissipation Spur, described as 16 times more efficient in dissipating a charge than a standard lightning rod.

Established products from the company include omni and directional FM antennas, and lambda mounting systems, towers, filters and combiners. The X series FM antenna can combine multiple frequencies in one side-mount antenna.

Eventide added two new libraries to the 4000 series Ultra-Harmonizer models. The presets are on PCMCIA cards inserted into the front panel of the 4000 series Ultra-Harmonizer.

The GTR II Preset Library contains 166 presets designed for musical instrument applications, including electric guitar, acoustic guitar, keyboards and bass guitar. It includes studio-quality emulation of stomp box type effects.

The Broadcast Extension Library was developed for the DSP4000B Ultra-Harmonizer. The Broadcast Extension Library combines presets found in both the DSP4000 and the GTR4000 Ultra-Harmonizer effects processors.

The DAC-20 digital-to-analog audio converter DynaTools from **Fidelipac** is a 20-bit AES converter with headphone monitoring. Other features include automatic de-emphasis, LED indicators for emphasis and data error conditions, output level adjustment, and a headphone jack with volume control.

The Dynamax MX/D digital audio console comes in three models: the MXDF, which has an 8-channel power supply, excluding input modules; the IM-D, which has a digital input module with SRC; and the IM-A, which has an analog input module that includes a A/D converter and MIC pre-amp.

Fidelipac offers a full range of Dynamax MX series modular audio consoles and accessories.

"When it comes to transmitter tubes, stop spending more money than you should." That was the message presented at the **Freeland Products Inc.** booth.

By purchasing rebuilt tubes rather than new ones, companies can realize approximately 50 percent in cost savings, according to company estimates. Freeland has rebuilt tubes since 1940.

The company fabricates and installs new filaments, reseals and tests the stem, bakes the tube to remove gases, then tests the rebuilt tube to confirm that the characteristics meet the original specifications. This process ensures that customers receive a quality product for a lower price tag.

Gentner announced its new Voice Interface accessory for its GSC3000 transmitter remote control product line. Currently in the beta stage of development, the Voice Interface is designed to expand the features found in the GSC3000.

The GSC3000 controls and monitors remote transmitter sites. The Voice Interface allows access and control of the site from any telephone.

The Voice Interface allows accessibility to the power of the GSC3000 modular networking approach coupled with DTMF to control multiple I/O units from a single telephone line. Gentner took telephone control features from its VRC2000, such as site control from any telephone, meter readings and command events plus alarm reporting and put them into the Voice Interface.

The company also showed its new DH20 broadcast phone hybrid with auto-answer/disconnect, selectable caller AGC, mic/line inputs, ducking, record out, and auto mix-minus. The DH22 is a dual version for conferencing callers on air.

Gepco International featured several breakout box configurations and modular options. Two models are available: a standard single-width or a side-by-side double-width.

Also displayed was the Gepco "Passive Direct Box." The GDB-1 can be utilized for remotes where lines longer than 50 feet would be susceptible to noise. The Gepco box converts these signals to a low-impedance, balanced format which can be fed over several hundred feet directly into a mic input. A paralleled jack allows the original signal to be directed to another input, such as on a stage amplifier.

The company showed its line of multipair, single-pair, multi—conductor, mic and speaker cable.

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Caveman Art.

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For a $50 fee, EAS manufacturer **Gorman-Redlich** will program EAS1 encoder-decoder units to be ready to operate when they arrive at the radio station. The engineer can connect the audio inputs from the radios (tuned to the proper monitoring assignment) and loop program audio through the unit.

Other products available from the company include the NOAA Weather Radio, model CRW; digital antenna monitors for AM stations; and directional array model CM for stations that have the studio located at the transmitter site. Gorman-Redlich offers its OMR model for locations where the antenna monitor readings must be taken with remote control equipment.

Digital audio was easy to find at **Harris Corp.**, which featured the

DRC2000 digital console, powered by 32-bit internal precision floating point DSP technology. It provides 16 fader/11 AES3 (22 mono) inputs, and a dedicated "dump" button for use with a delay option.

The DRC2000 offers built-in mix-minus, gating, pan, compression and a five-band parametric EQ per channel. Any input can be assigned to any fader via internal DSP routing. This system also offers Braille channel indications for the visually impaired on its control surface.

Also on display at the Harris booth was the CD 2001 cart machine, upgraded with an automatic servo adjustment and a 16-bit micro processor.

The Audio Bit Buddy (ABB-1) portable digital/analog audio monitor was shown. The ABB-1 is a portable beltpack unit for monitoring digital audio.

The IMP-12B Impedance matching panel is a 1 RU panel designed to match 75-ohm unbalanced BNC to 100-ohm balanced XLR signals within a digital audio system. It provides rejection against hum and noise.

Harris exhibited CD Link, a 950 MHz STL that delivers uncompressed digital audio over a standard 300 kHz microwave channel; the CD Link won **RW**'s "Cool Stuff" award at the spring NAB convention. Harris also showed its Digit CD digital FM exciter, now with more features, as well as its line of Platinum ZCD FM transmitters and the DX 10 digital solid-state AM transmitter.

IBM introduced the StarTrax station management and automation solution that offers broadcasters digital audio capabilities in five suites: programming, traffic and billing, automation, digital library and reporting. Developed by ADC Labs, StarTrax will be sold and supported by IBM.

StarTrax is an integrated management system that enables one or more radio stations to store digital audio, manage advertising, schedule programs, and operate in automated or live-assist mode. The technology is based on IBM PC server technology and is accessible from any PC or workstation.

The graphical user interface allows drag-and-drop performance.

StarTrax is available in three "sizes": StarTrax Lite, StarTrax Corporate and StarTrax Global.

Debuting at the Radio Show was the third-generation Digital Broadcast Studio from **IMAKE Software and Services Inc**.

This utilizes Web browsers for control and ISDN Basic Rate Interface (BRI) and Ethernet for audio playback, record and distribution. The Digital Broadcast Studio is available in two models: the Model 300D, designed to be a small PC version and the 500S, designed to be a large scaleable system solution.

New features include playlist setup and execution, multiple user access authorization and control, new and improved Java user interface and ISDN call setup and control, BRI server support, Ethernet audio distribution support, bi-directional digital audio capability and multiple business system support platforms.

The company calls the system "the first ISDN Primary Rate and Basic Rate digital audio server to be delivered with guaranteed delivery on a point-to-point network."

Several ISDN codecs are supported to work with the system.

Innovative Devices showed the new MITS Roadshow System at its booth. The Roadshow is an integrated, remote operated, multi-line broadcast phone system that allows producers to run on-location broadcasts as they would in the studio.

The Roadshow can handle as many as 15 telephone lines and has a built-in LCD for screening calls. All information from any phone call is available at the remote, as are all phone line control functions. Five function keys allow staff to delay, dump and record, among other functions. A built-in modem uses a single POTS phone line.

Inovonics Inc. is promoting its "dirt-cheap" RDS coder which allows radio stations to broadcast radio data IDs, service flags and text messages. The stand-alone operation does not require a dedicated host computer. Available since June of this year, the unit is priced at $390.

Two RDS applications supported are Program Service Name, through which the station ID is displayed on the front panel of the radio, which can

See PRODUCTS, page 42 ▶

Audio Art.

The Key to your success is the R-60 console manufactured by the broadcast industry artists at Audioarts® Engineering.

The R-60 has a totally modular design that's already being used in many successful stations all around the world.

It's the perfect console for medium format buyers determined not to compromise on quality and performance. The Audioarts® Engineering reliability that you've come to expect is a big part of the picture too.

But don't let this beauty fool you, it truly is a masterpiece—at starving artist prices.

Contact Harris Broadcast to learn how you can make this console a part of your collection.

1-800-622-0022
FAX: 765-966-0623

http://www.broadcast.harris.com

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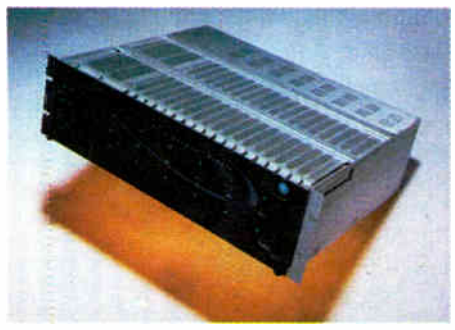
be call letters or a slogan; and Program Identification, which identifies the station with a numerical code calculated from call letters and becomes the station's "digital address."

Also new, an FM subcarrier monitor/demod, an AM broadcast processor, and a telco line product for devices requiring central office connection. The Inovonics line features an array of audio processing systems, FM stereo generators, modulation monitors, and RDS encoders and decoders.

Intraplex demonstrated the abilities of the OutBack ISDN codec. Broadcasts of the syndicated G. Gordon Liddy Show were transmitted via standard ISDN circuit from the Ernest N. Morial Convention Center in New Orleans to WJFK in Fairfax, Va.



The OutBack codec provides a fully bi-directional 1228 Kbps mono audio feed and supports MPEG Audio Layer II and G.722 coding. The feature set includes two-way encoding and decoding in a single box, preprogrammed dialing capabilities, "one-touch" call set-up, auto-detection and an auxiliary data port.

Intraplex displayed the IntraLink 6000 Series ISDN Multiplexers which provide transmission connectivity over Basic Rate ISDN (BRI). Also shown: the STL Plus digital stereo STL/TSL with no digital compression.

The full line of "Penetrator" series side-mount antennas from **Jampro** was on display.

Power handling ranges from 1 kW to 80 kW. Some models allow two FM frequencies to be diplexed into one antenna. Customers have a selection of horizontally, vertically or circularly polarized panel antennas.

Designed with a variety of standard directional patterns, Jampro panel antennas offer excellent bandwidth, rugged construction and multiplexing. Jampro also maintains a 7,000-foot full-scale test range, one of the few in the world. Broadcasters may choose to have a custom pattern designed on this test range.

Jampro RF Systems manufactures a line of RF components, ranging from multi-channel combiners and single frequency filers to patch panels and waveguide.

Kintronic Laboratories displayed a range of isocouplers, including models FMC-0.1X, FMC-30, FMC-20, FMC-7.5 and FMC-0.1. These allow the installation of transmit-receive/FM/TV antennas in the 30 to 1,000 MHz range without disrupting AM antenna characteristics.

Also on display was the DAC-MOD-12 series for complex or large multi-tower antenna systems. The unit interfaces with remote control systems and requires less rack space than other hard-wired relay control systems. Customized controllers and input/output modules are standard features.

The company showed its new DSE-CBX-50AM digitally synthesized dual AM exciter, and its line of AM antenna systems, tuning units, diplexers, monopoles, combiners and other specialty products.

MediaFORM introduced the CD2CD/PRO Series stand-alone duplicator, which copies up to six CD-Rs simultaneously "on the fly" from a single CD source.

The CD2CD/PRO features Pre-Scan, which scans the master for errors prior to burning and allows audio producers to interface their existing DAT drives to the CD2CD/PRO via the S/PDIF port.

Also at the MediaFORM exhibit was Easi-DAT, an add-on product to the CD2CD/PRO that offers simple conversion of DATs to CD-DA discs. Other highlights include selective track extraction, multi-sample rate support, Start ID editor and CD player emulation from hard disk.

Another new product is the CD-2601 4X stand-alone CDR duplicator, delivering one-button operation and unattended duplication of as many as 36 CDRs.

MediaTouch demonstrated the Super Duopoly software suite, integrating on-air, production, digital editing, network recordings, traffic and scheduling.

"Link and Lock" from Media Touch is an innovative live-assist, multi-user on-air touchscreen controller for radio programming.

The Media Disk Digital Audio System manages what goes on the air while simultaneously being available for production and loading of updated logs, all with a few simple clicks at the mouse or the keyboard.

WBZ(AM) in Boston, has utilized MediaTouch digital systems since 1986, and. became the first North American radio station to upgrade to the second generation of digital

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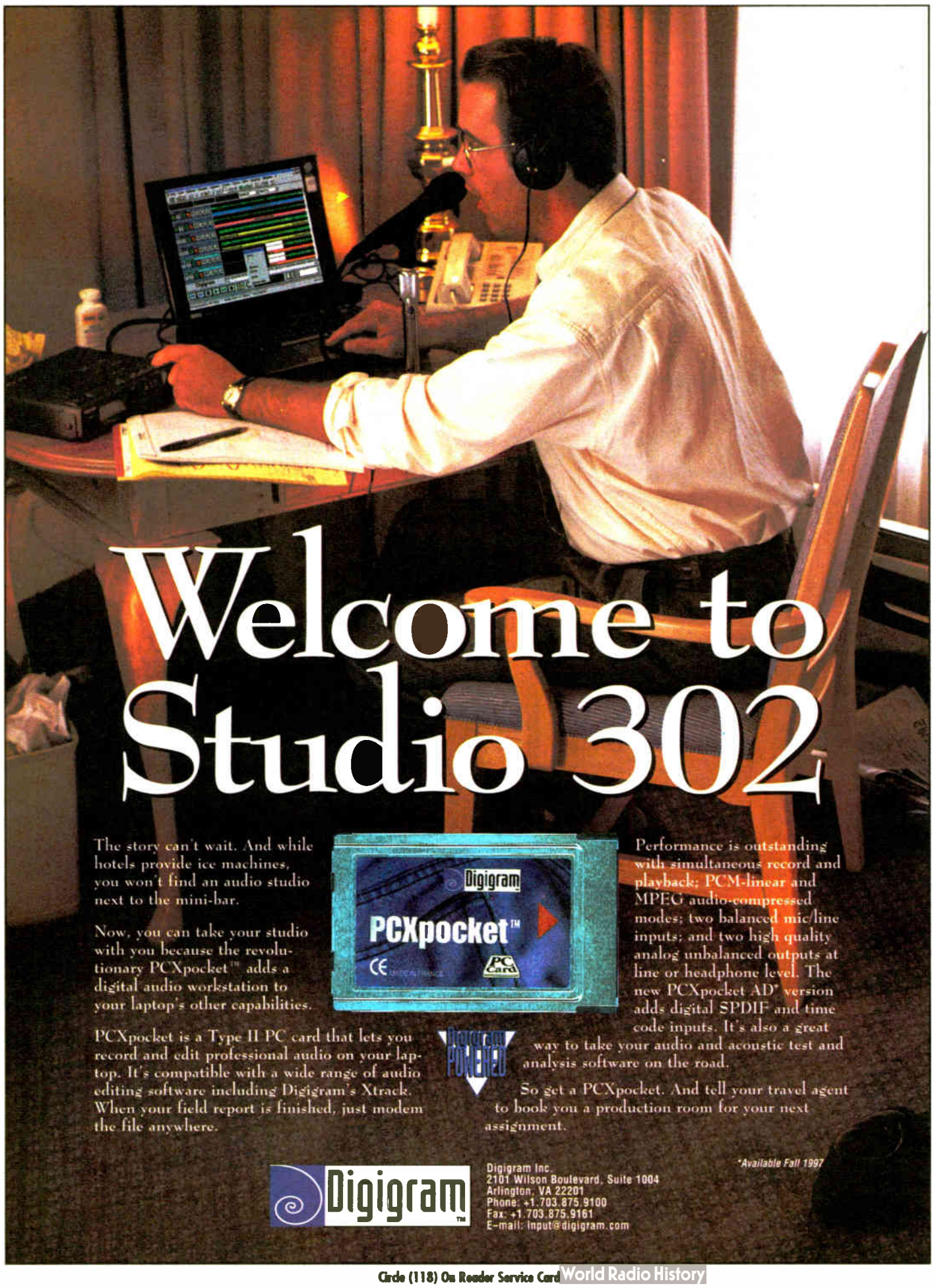

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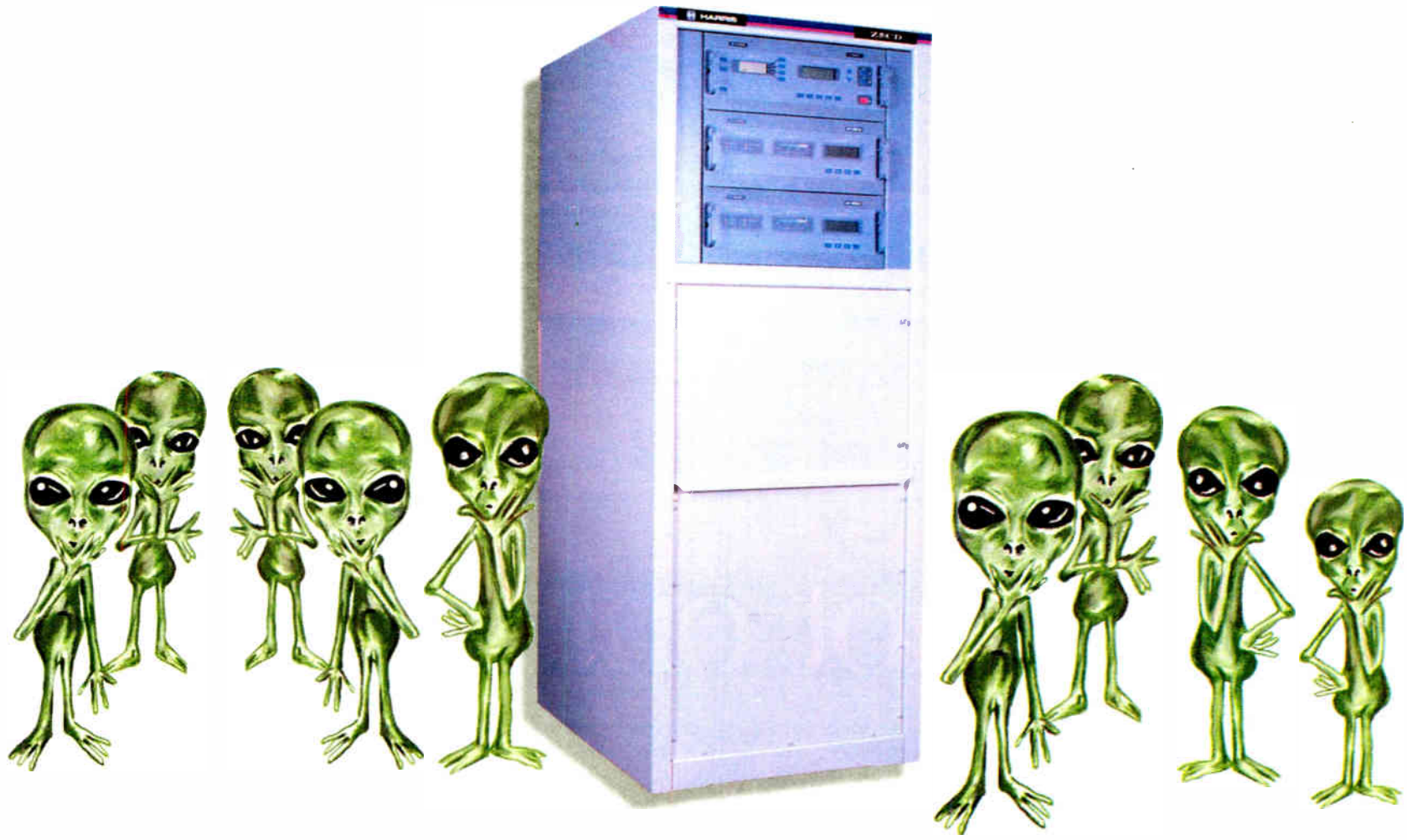
DIGITAL FM TRANSMITTERS

Someday They'll Wonder How We Did It!



Platinum Z Solid-State FM Transmitters.

"Here for future generations"

You have to encounter it to believe it!

Extraterrestrial CD-quality sound is provided by true digital FM generation. The ***Platinum Z*** provides the reliability of solid-state digital technology. The performance of digital modulation, and the confidence of third generation solid-state amplifier technology.

Platinum Z transmitters also use innovative Z-plane combining, which enable seamless transmission during maintenance and enhances redundancy. If you remove a hot-pluggable RF module from a ***Platinum Z*** transmitter at any time, for any reason, the remaining modules will compensate to continue broadcasting at nearly, full power. Incredible RF module MTBF of 250,000hours further ensures the reliable performance of ***Platinum Z***.

Digital CD-quality phenomena performance... solid-state reliability and redundancy...with a price comparable to tube type transmitters.

Harris Platinum Z Transmitters - Harris is not responsible for any extraterrestrial activity that might occur in the presence of a Platinum Z*

**Shown with optional DIGIT CD™ Exciter*

Platinum Z features:

- Digit CD exciter (digital or analog input)
- Hot-pluggable RF modules
- Redundant IPA system
- Redundant power supplies
- Broadband design (N+1 capable)
- Life support backup controller
- Dual output power switching
- Built-in auto exciter switcher
- High overall efficiency

If you're wondering how the ***Platinum Z*** will fit in your budget, your space or how your human listeners and your ratings will increase... Stop wondering and give us a call, we're conveniently located right here on earth!

CLEARLY DIGITAL

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BROADCAST DIVISION

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A new world of broadcast solutions

Radio-FM: DIGIT CD™ Digital FM Exciter • SuperCiter ™ Analog FM Exciter • CD LINK ™ Digital STL • Quest Platinum and Platinum Z Solid State FM Transmitters • HT Single-tube FM Transmitters • FM Antennas **Radio-AM:** DX Digital Solid State AM Transmitters • GATES® Solid State AM Transmitters **Radio DAB:** DAB 2000 Transmitters **Studio Products:** Digital and Analog Studio Equipment **Systems:** Mobile and Fixed Studio and Satellite Systems

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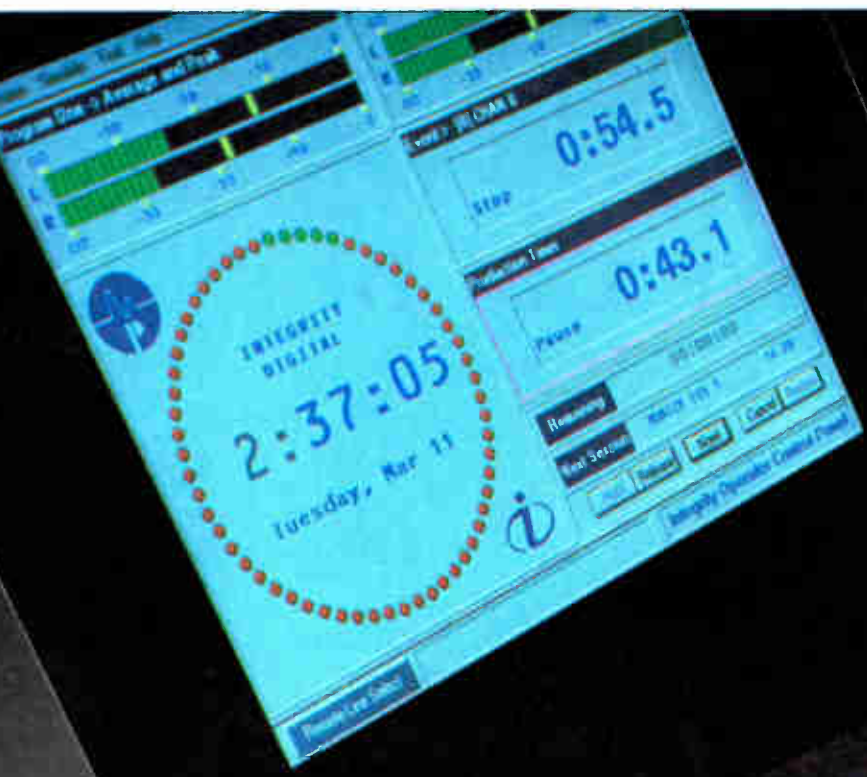
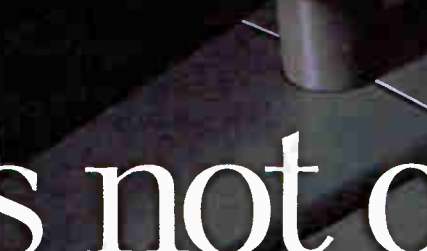
It's not only digital. It's



The LCD displays audio levels, time-of-day clocks, session status and event timers with a Windows® interface to powerful configuration management and session-based features.

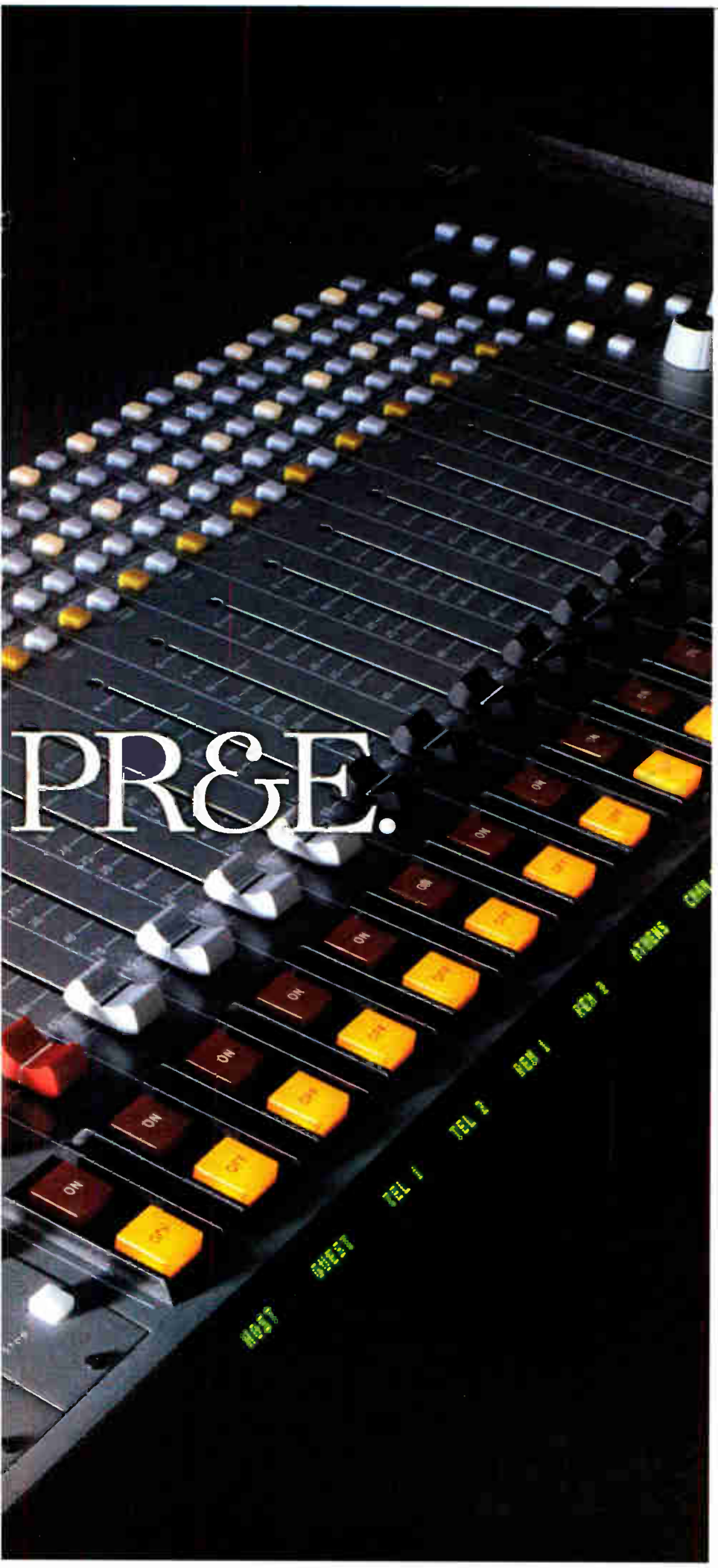


Integrity's difference is more than just digital. It also offers four special-purpose buses to provide automated mix-minus for telephone and remote feeds, each with IFB.

Integrity uses an array of state-of-the-art floating-point digital signal processors to perform its mixing, routing and other functions.

Each fader has a 10-character alphanumeric display. The display changes when another audio source is assigned, which can happen either manually or at a preassigned time.

World Radio History



Introducing the Integrity™ digital on-air console from Pacific Research & Engineering.

To all of you who waited to buy a digital console, congratulations.

Patience is a virtue.

Because now you can get both digital technology and PR&E reliability and performance in the same console.

Integrity is the first digital board which also speaks fluent analog. All 16 inputs can handle analog signals. Ten will also accept digital inputs at any sample rate. So you can deal with the hodgepodge of equipment in real-world studios.

In addition, Integrity's unique architecture guarantees a level of reliability other digital consoles can't match. So you can rest assured your signal will stay on the air.

What's more, you get on-board DSP voice processing, remote or local configuration controls, and channel-specific remote control connections. And you can set, save and recall board configuration at the touch of a button for seamless transitions from show to show.

To get an Integrity brochure, visit www.pre.com, e-mail sales@pre.com or call 760-438-3911.

Controls are designed for the fast and furious pace of live radio. For example, our exclusive button guards reduce the risk of accidental changes.

Integrity can accommodate a variety of options, including multiple flat panel displays for delivery systems and other computer devices.

Where great radio begins.™

World Radio History

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integration from the same vendor.

All-news WINS(AM), New York, installed the Link and Lock System in February 1997. Three OpLog touchscreens have dedicated digital audio playback units for audio redundancy of commercials, liners and sounders.

New at the show from **Mediatron** was AirControl NT for live assist or full automation. It runs under Windows NT, using plug-in technology based on hard-disk or disk array technology and MPEG audio compression. AirControl 2000, which uses the Pioneer CAC-V5000 CD audio changer for live-assist and automation, was also introduced..

Other additions to the Mediatron line are the DigiReporter transportable audio workstation for use with ISDN, GSM or modem, and the X-fade Edit Plug-in Module, a crossfade and segue editing plug-in for AirControl NT. Also: NewsEdit, ProTracks, AirEdit NT, NewsControl, SatControl and ComUnit.

Moseley promoted the Starlink series of program conveyance products. The company previewed its soon-to-be-released SL9003Q 950 MHz linear STL. Moseley also promoted the SL9001SS 2.4 GHz Spread Spectrum Link which, according to Moseley, allows a stereo remote, free from the interference associated with the congested VHF and UHF bands. The unit requires no license and offers a line-of-site range of up to 20 miles. Moseley reports that the product is being used in some markets as a primary STL, Inner City Relay and emergency back-up of telco lines. It supports ISO/Layer II coding with AES/EBU and analog I/Os. The package comes with transmitter, receiver, transverters, line and antennas.

Moseley also showed the Starlink 9003T1, an open-architecture, digital transmission system for transmitting linear audio over T1/E1 circuits. The Starlink series of products feature a common source encoding and decoding modules with 16-bit linear PCM at 32, 44.1, 48 KHz sampling, AES and analog I/Os and T1 trunks. A digital multiplexer and optional daughter cards for voice and data allow for full duplex network configurations.

Among the new products exhibited by **MUSICAM USA** was the Road Runner Plus.

The package consists of a RoadRunner codec, ISDN terminal adapter, analog line interface and a high-speed modem. This package allows quality audio transmission over either ISDN or analog phone lines. The codec features three mixing inputs and two separate headphone monitoring circuits.

Also new at the MUSICAM booth was the FieldFone II, allowing better broadcast-quality audio over a standard telephone (POTS) line, and its companion StudioFone. FieldFone II operates up to 10.2 kHz (at 33.6 kbps), as much as 20 percent faster than the original FieldFone. The system offers three mic inputs, two headphone jacks, balanced line output, individual volume controls on each input and a switch allowing users to plug into their own mixers.

MUSICAM USA also demo'd a new "all software" codec, dubbed EditIt and SendIt. These programs allow recording and editing of audio programs, and can simultaneously send and receive stereo audio over ISDN. It also supports audio transfer via POTS line. The company said this is the first product that allows desktop or portable computers to connect over ISDN and exchange quality stereo in real time.

Nautel Maine brought its FM5, a solid-state 5 kW FM Transmitter, with typical efficiency of 70 percent, a compact footprint and a digital exciter with AES/EBU digital or analog composite input. Nautel also showed the new XL60 AM Transmitter, a solid-state 60 kW model with efficiency of 85 to 88 percent, dual exciters with auto changeover, excellent VSWR, available AM stereo, and more.

Also in the booth: the FM8 FM Transmitter, a solid-state 8 kW unit with high efficiency, digital exciter and on-air serviceability.

The company showed its range of AM transmitters, from 1 kW to 300 kW systems.

At the **Orban** booth, the 8218 Stereo Encoder/Generator with peak overshoot limiter was on display. Engineered to complement the OPTIMOD-FM 8200 processor, the Orban 8218 is an all-digital FM stereo encoder with a built-in limiter that controls peak overshoots.

See PRODUCTS, page 47 ▶

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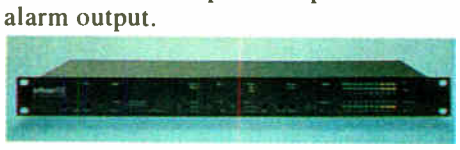
World Radio History

▶ PRODUCTS, continued from page 46

The 8218's all-digital encoding accepts either analog or AES/EBU digital inputs, with levels adjustable over 20 dB in four ranges. In addition, the system detects errors received at the AES/EBU input and provides an alarm output.



Orban also exhibited new 2.0 version software for the OPTIMOD-FM 8200. This software allows more control of the 8200's audio processing power, with expert parameters to better tailor a station's sound.

Also on display was the AirTime on-air digital delivery system using QNX; OPTIMOD AM-9200 digital processor; and Audicy RAM-based workstation.

Pacific Research & Engineering featured the Integrity digital console, winner of **RW**'s "Cool Stuff" award at the spring NAB convention. The 24-bit console has six analog and 10 switchable digital or analog inputs, and accepts digital inputs from 26 to 52 kHz.

A computer allows broadcasters to reconfigure and automate console settings and functions easily. The Integrity boasts a pure digital signal path and features fully automatic, redundant backup systems to ensure uninterrupted operation. An active matrix TFT flat screen provides operator interface.

The company featured its BMX III radio console and QuikBilt studio furniture, which is ready to ship flat via standard carrier.

PR&E also showed its AirWave analog radio console, with all-electronic audio switching, gate-array logic control with built-in machine interface, automatic telco mic system, all-steel RFI-immune construction and 12- or 20-input mainframes.

Penta Laboratories promoted its selection of electron tubes, including the 3B28, the 3CX2500H3 and the 4-400C/6775.

The company inventory lists more than one million parts. The company also offers products from other manufacturers.

Penta engineers can design, test and manufacture new tube types, as requested. The custom-design team promises to take ideas "from concept to prototype in under six months."

PreSonus Audio Electronics introduced its Blue Max smart compressor/limiter.

The Blue Max can be run in manual mode, giving the user control over compression parameters, including variable input/output, attack and release times and ratio settings from 1:1 to 20:1. Full on-board metering displays input and output levels and gain reduction. The Blue Max can be operated in stereo or mono with a high-gain mono input. The unit is 120/220 V switchable and is housed in a steel chassis, occupying half of one rack space.

Also introduced at the PreSonus booth was the ACP-22 stereo/compressor with spectral gates. It provides two clear compression channels with control over compression threshold, ratio from 1:1 to 20:1 and release times with switchable hard/soft knee. A link button allows true stereo operation.

The noise gates on the ACP-22 allow control over threshold, variable attack and release and switchable gate range. An independent gate key side chain is included for external triggering.

Pristine Systems displayed several systems, including the Pristine RapidFire digital studio system. "It's a total on-air system for live assist and walk-away," said Pristine President Boyce Williams. RapidFire features a graphical interface that uses a touchscreen, trackball or mouse. There is access to playlist editing, a main operator screen with four players showing loaded items and other statistics, the ability to play back three audio sources while recording a fourth simultaneously and compatibility with EAS.

Pristine also promoted the Pristine Music Plus, a multi-pass playlist scheduler. Fully-integrated with RapidFire, Music Plus controls music rotation rules, breaks format schedule stopsets by time or by sequence, generates playlists for an hour, day or week, can interface with most traffic and music scheduling systems and more.

Other Pristine products on display were the Pristine VoiceTraxx, a voicetrack production program; the Pristine TimeWarp, a delay broadcast timeshifting program; and the Pristine Audio Commander, a hard-disk audio production utility.

Propagation Systems Inc. displayed its antenna line: the STL Antenna, FM Antennae and the FL Antenna.

See PRODUCTS, page 48 ▶

A Treat Full of Tricks

The latest innovation from Tascam gives you double the DAT power of anything else out there.

THE TASCAM DA-302 IS IN STOCK, AND NOW COMES WITH A DOUBLE TREAT: 10 FREE TDK DAR-60 DAT TAPES!

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- 2 masters at one pass
- 8 hours of continuous record/play
- Dual S/PDIF connections
- Optional balancing and interconnection kits

Tascam brings a whole new meaning to the word "versatile" with the powerful DA-302. It offers options you simply could not have considered before, like high-speed DAT dubs, complete with time code copying! The DAT-302 functions as two completely separate units—to give you two masters in one single pass—or as one double, continuous recorder for up to 8 hours of record/play power. With Tascam's Append Dubbing function, you can start dubs at any location on the master. And, of course, it features dual S/PDIF connections for digital transfers and archiving, plus output selection in either S/PDIF or AES/EBU. And just to underscore its amazing versatility, the DA-302 offers great expansion capabilities, such as the optional LA-D302 balanced analog I/O kit and the WR-7000 kit for interconnecting multiple DA-302s. Never has something which seems to be so full of tricks been such a treat.

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World Radio History

▶ PRODUCTS, continued from page 47

The STL Antenna is shipping. The PSI is broadband for the 800 to 1000 MHz aural STL band and is Category B rated in vertical and horizontal planes. The four-foot parabolic antenna features a 16-degree, half-power beam width.

The "FM" series antenna is a shunt-fed slanted dipole design constructed of brass and copper materials. Each element is fed by a 1-5/8-inch flange, which is fed by a 1-5/8-inch rigid interbay feedline. The antenna is pressurized to the element feed point and is capable of input powers to 12 kW.

The PSI-FL antenna is an omnidirectional, circularly polarized antenna intended for low power. It is constructed of stainless steel and is non-pressurized. An optional high-power feed system is available.

Prophet Systems displayed its Audio Wizard automation system featuring Windows and Novell technology. Audio Wizard features drag-and-drop functions, touchscreen integration, more than 1,000 liners, jingles and songs per shift with as many as 99 shifts, auto-roll of buttons and pause /reposition of spots and songs.

According to Prophet, Audio Wizard can run an unlimited number of stations from one system. The system was designed for flexibility and contains the Prophet Digital Reel-to-Reel, VoiceTRAC System, On-line Copy Module and Music Automation System.

The Audio Wizard mirrors all commercial spot drives, and Prophet makes drive mirroring available for all system drives. The Prophet Local Backup modules allows a control room computer to continue running up to four days worth of logs, if the file server is unavailable.

Radio Computing Services introduced SelectorReach, a product combining Selector music scheduling and Arbitron radio ratings. Selector Reach adds reach and frequency data to the Selector, allowing radio programmers a wider range of information in choosing their musical selection.

Also introduced at the RCS booth was its new RCS web data streaming product, NetRCS, which includes Microsoft's Netshow. NetRCS provides a continuous stream of radio station data to the computers of listeners, including song titles, artists, station promos and various graphics. Microsoft's Netshow is being offered as a complement to RCS data streaming. Netshow takes data from the digital on-air system and streams web audio in real-time.

Radio Systems developed the new Millenium line of products, including consoles, single and dual digital hybrids, CT-6 timing products, CT-6 Global Positioning System products, and distribution amplifiers.

The Millenium consoles are available in six-, 12-, 18- and 24-channel sizes; all feature three output busses, complete remote control and metering, a monitor section and a clock/timer. The cue function is enabled via front-panel switches or automatically when the channel is off; it also doubles as a cough switch. All input and output audio wiring is via removable barrier strips.

The DI-2000 single-line digital telephone hybrid answers the phone, puts callers on hold, connects the producer or host and puts the caller on the air. The hybrid has a lock position for dedicated remote feeds.

The CT-6 timing products are fully remote controllable, and feature digital masters that drive analog clocks. ESE time standard is available.

The CT-6 GPS miniature satellite receiver should be mounted where the sky is unobstructed. Within 15 minutes of connection, the antenna will "acquire and lock" to the CT-6 board.

Register Data Systems (RDS) featured The Replicator program time shifting device. RDS representative Jay Brastell said, "Radio stations that have Rush Limbaugh and G. Gordon Liddy, Dr. Laura, etc. that are being fed roughly at the same time and they want to carry all these programs. ... This unit will download all the audio and the contract closures from the satellite, then schedule them to play back whenever the station wants, or it can just do a simple time shift."

Traffic 32 is a Windows95-based traffic and billing system. Other traffic and billing systems from RDS include Traffic Master II and System 6. The Phantom PE and PS provide digital audio delivery for live assist music.

Roke Manor Research displayed its Gold Pack DAB receiver at the DLR booth. Roke hopes to prompt companies to introduce radio and hi-fi products to the Eureka 147 DAB digital broadcast standard and came to the radio show to seek partners who want to use its module to build DAB products for Canada and other markets

The Gold Pack contains a single board DAB receiver, L band/Band III antenna, power supply, and Windows 95 PC software.

See PRODUCTS, page 50 ▶

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World Radio History

Nobody Does Decks Like Denon

Let's face it. When it comes to selecting CD and MiniDisc products for studio applications, it doesn't make any sense to work with consumer decks in a +4 dBu environment. Denon, the first name in digital, has developed the DN-C680 CD Player, DN-M1050R MiniDisc Player/Recorder and DN-T620 Combi-Deck specifically for these demanding applications.

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- External Control (Serial RS-232C/ 422A, 9-pin, Parallel 25-pin)

DN-T620 Combi-Deck (CD & Cassette Deck)

- Variable Pitch +/- 12%
- Record CD to Cassette
- XLR Balanced I/O
- Dolby B Noise Reduction
- Wired Remote Control Terminal
- Cue To Music (CD)
- Auto Repeat (Cassette Deck)

DN-C680 CD Player

- AES/EBU, SPDIF, Balanced and Unbalanced Analog Out
- Optional SMPTE Kit and FS Converter Kit
- Variable Pitch +/- 9.9%
- External Control (Serial RS232C/ 422A, 9-pin, Parallel 25-pin)
- Auto Cue Function/Jog Shuttle Wheel

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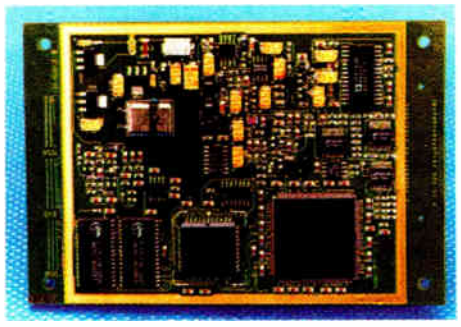
World Radio History

▶ PRODUCTS, continued from page 48

Also on display was a new, smaller and more affordable OEM module, using the



same technology but greater silicon integration. Thus OEM users can develop their own products now using the Gold Pack, ready for launch in 1998 based on the OEM board.

The BOSS VT-1 voice transformer from **Roland Corp.** is aimed at disc jockeys and karaoke users. The device can create wacky effects by adjusting the pitch and timbre of the voice. The VT-1 has large sliders for pitch, mix balance and reverb control.

The VS-880 digital studio workstation allows for 64 virtual tracks of digital recording, mixing, editing and effects processing. A "V-Xpanded" version includes 10 new algorithms and a microphone simulator that models German large- and small-diaphragm condenser mics, and other high-end microphones. A mix automation feature allows for playback of mixing data for a song without using an external sequencer. EQ and effects insert capabilities and more editing functions round out the new features.

Also from Roland, the DM-800 multitrack disk recorder is a portable eight-track system for production, broadcast and post-production.

Scott Studios spotlighted its new Spot Box, a digital audio product to replace cart machines.

The left side of the monitor screen looks like a triple-deck cart machine, with large Start, Stop and Pause buttons. A countdown clock is displayed, along with a visual level check. Carts can be started manually or automatically.

Carts are slotted into the "machine" either by inputting the cart number or by scrolling through a list on the right side of the monitor.

An unlimited number of Spot Boxes can be connected by LAN to provide spot access to all the studios, and spots can be "locked" to prevent playing on the wrong station.

The company also showed its new PCI Linear Audio Card, which plays four uncompressed stereo streams while recording, and a Digital Long-Form Recorder to catch network programs unattended for later playback.

Shively Labs concentrated on demonstrating balanced and branched combiners, broadband panel and side-mount antennas and B-line rigid transmission line. A special focus was on economical solutions for medium- and low-power stations that need to combine.

Shively has noticed the growing trend of HDTV and the resulting increase in demand for tower space created by new allocations. That also creates an increasing number of low- and medium-power FM stations that need to combine on a single antenna. Shively has redesigned some of its products to address the issue.

The company demonstrated its B-line coaxial transmission line, FM and UHF antennas, k filters, combiners and other components.

Silicon Valley Power Amplifier created an FM amplifier that is anything but battleship gray. The B-150B FM Broadcast Amplifier is an attractive blue and yellow.

No tuning is required and installation is simple, requiring no tools except a screwdriver. The unit is ideal for continuous use in remote locations where access is limited and reliability is paramount.

Other products from Silicon Valley Power Amplifier are the B-1000, a 1 kW solid-state power amplifier for 86 to 108 MHz FM broadcast. The B-1000 features LCD displays, remote monitoring, type N connectors and multiple high capacity fans. For smaller applications, the B-600 power amplifier is appropriate.

SMARTS Broadcast Systems showed the RIDZ Switcher, the SMARTtouch and the Right Touch, and discussed the concept of the Spider.

The RIDZ Switcher (the name is an acronym for the engineers who developed the product) is a computer controlled switcher, designed to be used with the SMARTCASTER digital audio system.

The SMARTtouch interfaces between a SMARTCASTER, conventional control board and a telephone line to allow unattended control of the radio station from a remote site. The SMARTtouch, through a dedicated phone line, detects DTMF signals from any standard touch tone phone or broadcast set and converts them to switching and control signals for the SMARTCASTER.

The Right Touch provides buttons in a Windows95 platform that can be used to play individual audio files, switch networks or handle several other live programming functions in the studio.

The Spider uses both hardware and software products from SMARTS and the Internet to create an efficient radio group.

Solidyne promoted the Solidyne VA-16, a system that provides stations with remote control of 16 transmission quality parameters. This FM system also allows stations to evaluate the parameters of competing stations.

According to the company, installation of the VA-16 is quick and does not involve the opening of a PC, because it is connected to the series port, in the same manner as the mouse. It works simultaneously with other programs, with Windows 95 or through the PC that controls digital audio. By means of DSP processing and new measuring technologies, the VA-16 provides detailed information on modulation, noise level, channel separation and field intensity. Parameters that were previously unobtainable — but are audible to listeners — are measured with the VA-16.

Another offering from Solidyne is the new 262-X digital processor. A redesigned version of the early 262, it is programmable from the front panel or through a PC. The Orion 462 processor is a reduced version of the 262-X.

Shipping soon from **Sony Electronics** is the UHF synthesized wireless microphone system. Main features include a synthesized body pack transmitter, a synthesized wireless handheld microphone, a synthesized diversity tuner, a synthesized diversity tuner and a synthesized tuner module.

The system is compatible with Sony 800 series equipment. It comes with new 800 MHz UHF wireless mics, a remote battery alarm and a modular design for six to 11 simultaneous channels.

Also on display were several MiniDisc products: the MZ-B3 MiniDisc portable recorder, the MZ-R3 portable MiniDisc player/recorder, and the MDS-B5/B6P MD recorder/player.

Sony also showed its DTC-A6 digital

See PRODUCTS, page 52 ▶

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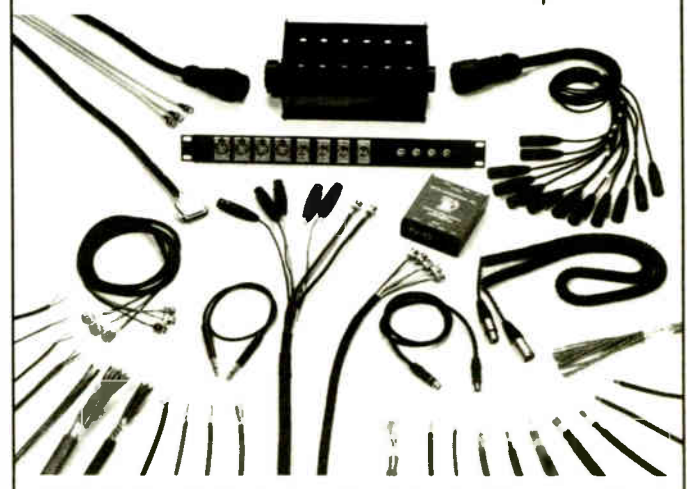

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Products & Services Showcase

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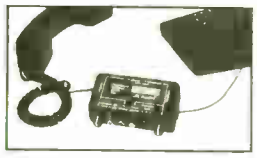

No Batteries or AC Needed

$225.00

JK Audio Remote Broadcast Gear

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815-786-2929 • Fax: 815-786-8502
www.jkaudio.com

READER SERVICE NO. 36

World Radio History

▶ PRODUCTS, continued from page 50

audio tape deck, the PCM-R500 digital audio recorder and the MDM-X4 MD multitrack recorder.

Spectral Inc., a Euphonix company, showed the radio Turnkey digital audio workstation solutions. In addition, Spectral displayed the new Express 1.5 and Producer 2.5 software along with the MediaMaker CD software package.

Express 1.5 software was designed for broadcast production. Express 1.5 features include direct import/export of WAV files, one-button interface to transfer finished audio material to digital on-air delivery systems, built-in backtimer to facilitate countdowns in on-air and dialog editing applications and support for Microsoft NT operating system.

Producer 2.5 software expands the functions of Express.

MediaMaker CD givers users the ability to burn audio material directly to CD-R from the Turnkey. CD-R provides a medium for storage and playback operations.

StarGuide Digital Networks introduced the newest addition to the StarGuide Receiver product line, the StarGuide III Receiver.

The StarGuide III digital multimedia receiver is designed to be a solution for radio, television and private multimedia network broadcasters. It features user-selectable SCPC or MCPC operations, MPEG2 - DVB compliant transmission and variable aggregate output rates of 128 Kbps to 8.0 Mbps. Standard equipment includes a single analog stereo pair output, one high-speed synchronous data port, one low-speed asynchronous data port with data packet filtering and dialback capacity. Options include two slots.

Superior Broadcast Products offers factory-direct sales of a line of products including FM transmitters with stereo generator and compressor limiter; FM STL transmitter and receiver; 20- W FM exciter; and 5 kW, 10 kW, 15 kW and 20 kW FM transmitters.

All Superior transmitters and translators offer a high degree of redundancy. Multiple RF output devices operating in parallel eliminate the single final output tube. Advanced combining techniques allow for the transmitters and translators to stay on the air even if an output device should fail.

The Superior antenna inventory includes the FM3 series, which is built like their FM10 version, but is priced for the Class A station. It provides performance for stereo and SCA and is designed for custom directional antenna patterns.

SWR (Systems With Reliability) presented its new FM Directional Antenna design and certification service, intended to explain how to custom design, manufacture and provide antenna certification for an FM antenna based on a customer provided pattern.

In the duration of an 8- to 10-week period, an exact replica of the antenna, tower and associated feedline system is manufactured and installed on the SWR Test Range. Extensive computer-aided testing is performed to confirm that the antenna pattern is FCC compliant. The customer is provided with final antenna patterns, associated tabulated data, installation drawings and antenna performance test results for filing the necessary documents with the FCC.

Telos Systems exhibited its new Zephyr Express, a portable digital audio codec and mixer. The Zepyhr Express features MPEG2 Audio Layer III, a mixing console, two 48-V phantom-powered mic inputs, a stereo line input, a built-in ISDN terminal adapter, and two monitor outputs with individual mixer controls.

The Zephyr Express is shipped in a lightweight case. Its interface is designed for users with or without technical skills. The system enables broadcasters to work in the

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Products & Services Showcase

For more information on the products shown below, circle the appropriate Reader Service No.(s) on the enclosed Subscription/Reader Service card or contact the advertiser directly.

Tower registration regulation got you stumped?

Do you know where your towers are?
Are you sure?

Let TRS provide the solution.

Certification of exact location and height can be a problem for some tower owners. Tower Registration Services provides Real Time Differential GPS and Laser Rangefinder measurements for broadcast tower owners nationwide. We file FCC Form 854 and FAA 7460-1. Our field engineers cover the entire nation, so as your FCC filing window approaches, don't delay.

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Helping tower owners nationwide

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READER SERVICE NO. 108

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READER SERVICE NO. 149

Excalibur Electronics
HA-1 Hybrid Adapter

The HA-1 Hybrid Adapter allows you to use your favorite broadcast hybrid with almost any telephone — old, new, single line, multi-line, etc. Since the HA-1 hooks up through your telephone instrument's handset connector, no connection to the telephone line is needed. With the HA-1's front panel push-button out, your telephone functions normally. With the button pushed in, the handset is disconnected and your hybrid is now on line; nothing could be simpler or easier. The performance of your hybrid will be the same as it would be if hooked up directly to a C.O. line.

EXCALIBUR ELECTRONICS, INC., CHANTILLY, VIRGINIA

READER SERVICE NO. 107

Fits In Even "STINGY" Budgets!

DOZENS SOLD!

The hot new "DELUX"™ quality built *SPACEWISE* system!

BASIC SYSTEM $1245!
FULL SYSTEM $2540!

GENERAL FEATURES: Basic system consists of main counter top and two PC system pedestals ... then you add on what you need from there, such as racks and shelf wings or talk table wings for a full system.

USER FEATURES: Two PC system base pedestals ... heavy rack rail systems with easy access standard ... passive ventilation systems throughout ... adjustable shelves ... wiring block backplane ... customizing ... quick installation.

DURABILITY BUILT IN: Top counters are two ply 1 1/2" thick with quality name brand laminate with protective 1 1/2" solid wood trim raised on the outside perimeters. Plus ... generous vertical and horizontal solid wood trim and recessed kickboards.

SPACEWISE® Broadcast/Furniture

CALL 800-775-3660

Visit our web catalog: www.spacewise.com

READER SERVICE NO. 33

The best compact way to *squeeze* a great sound through a telephone line...

Zercom CORPORATION

You don't have to settle for less than the best!

The 'Max-ZII' 2 channel remote console

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Merrifield, Minnesota 56465-0084
218/765-3151-Fax 218/765-3900

Available through all major dealers

READER SERVICE NO. 111

World Radio History

▶ PRODUCTS, continued from page 52

field and receive quality sound at the same time.

Also demonstrated was the Telos Call Screener for Windows, an advanced multi-line talk show system that can handle

multiple studios. It enables a producer to provide the talent with information on callers, send other messages to the talent and control the status of multiple telephone lines.

Telos demonstrated Audioactive, its Internet audio streaming technology, compatible with Macromedia's Shockwave audio standard. Telos also announced that the Audioactive professional encoding suite would support NetShow 2.0, and unveiled a new site, *audiolounge.com*, on which 21 stations and audio providers are using Audioactive and/or NetShow to make their signals available on the Internet.

TFT Inc. Marketing Director Darryl Parker said the company had a successful year with EAS. "As a result of the EAS we're moving into the cable and into the emergency management arena," he said. "But now we've put a re-emphasis back on our digital STL products (and) on our Reciter products for FM synchronous boosters."

TFT has developed a patented technique to synchronize on-frequency FM transmitters, reduce interference and improve coverage of FM stations.

"This technique phase locks multiple FM on-frequency transmitters to provide clear reception to target listeners," said Parker. "It eliminates the need for FM translators on different frequencies."

USA Digital Radio and its development partners at Lucent Technologies provided listening comparisons between FM, AM, CD and computer simulations of its improved IBOC DAB systems. The DAB system provides CD-quality digital audio and data signals in the AM and FM bands. The system is intended to provide smooth transitions between analog and digital broadcast technologies and creates datacasting services for AM and FM.

USADR staffers said they believe their partnership with Lucent has provided the momentum to bring a realistic DAB solution to the U.S. radio market.

In the IBOC DAB application, the task of coding the source signal into a sequence of bits is performed by the Perceptual Audio Coder (PAC). The PAC provides a 20 Hz to 20 kHz signal bandwidth, and encodes monophonic and stereophonic audio with a compression factor as high as 20. The AM system uses 16, 32 and 48 kbps, with 48 kbps providing FM-like audio quality. In the FM system, 96 kbps provides CD-quality audio, with 32 kbps PAC used as a time diversity backup.

Specializing in fiberglass whip antennas, Canadian antenna maker **Valcom Ltd.** exhibited the V-147-CL2 Series 49-foot medium frequency antenna. The base and second section are inductively loaded to the resonant frequency specified by the customer.

The pedestal base mounts the antenna to its foundation and is made of a continuation of the same high-strength filament fiberglass used in the antenna. The result is an integral base insulator with exceptional electrical and mechanical properties.

The premier product from the firm is the 74-foot coil-loaded V-33070 series whip antenna, particularly well-suited for use as a backup for AM broadcast radio stations. This coil-loaded antenna has a high efficiency rating, contains a high strength filament wound fiberglass base, has a low cost of installation and low maintenance. The whips are freestanding, eliminating the need for guy wires.

Warner Electric introduced its Stabiline WHR Series Automatic Voltage Regulators for radio use. The regulators automatically feed voltage-sensitive equipment a constant voltage level, even when the power line input and system load vary widely.

The Stabiline Voltage Regulators maintain an efficiency rate of +/- 1 percent and feature a high overload capacity, power ratings from 2 to 1,680 kVA, a maintenance bypass switch, zig-zag neutral generation and analog or digital control. There are single or individual phase controls, single- or three-phase models, and 19-inch rack versions.

Wheatstone highlighted three audio consoles at its booth: the Wheatstone D-500 digital audio console, the Wheatstone A-6000 and the Audioarts R-5.

The affordable R-5 features program, audition and telco assign switches, a cue switch, machine start/stop logic, illuminated mic on/off switches and VU meters. Wheatstone announced that it lowered the price of the R-5 from $5,795 to $4,995.

The Wheatstone D-500 digital audio console features DSP processors and can accept both analog and digital input signals, process them in the digital domain and provide output signals from the console in both digital and analog formats. Wheatstone announced that the D-500 is now shipping.

According to Wheatstone, the A-6000 console "continues to be our best selling analog console." The A-6000 was designed for major-market stations and is based on an open architecture mainframe.

■■■

Information for RW product listings was collected by Susan Gary, Paul McLane, Chris Hamaker, Brian Galante, Bob Rusk, Patrick Martin, Sharon Rae, Leslie Stimson, Don Elliot, Ann Schwab, and Joanne and E.J. Barney.

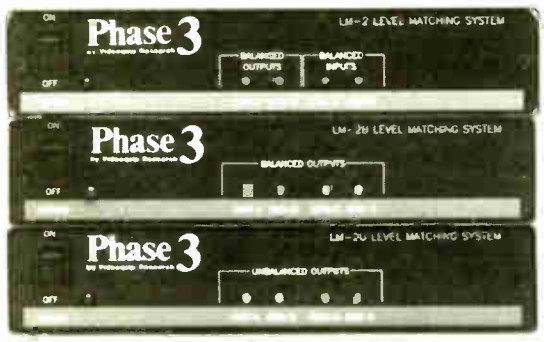
Circle (129) On Reader Service Card

World Radio History

Products & Services Showcase

For more information on the products shown below, circle the appropriate Reader Service No.(s) on the enclosed Subscription/Reader Service card or contact the advertiser directly.

Phase 3 Audio Level Matching Systems



LM-2: 2 channels balanced to unbal , 2 channels unbal to balanced
LM-2B: 4 channels unbal to balanced LM-2U: 4 channels balanced to unbal

Desktop or rackmount. No AC adapters.
Broadcast quality throughout. No compromises.
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READER SERVICE NO. 73

ERI - Electronics Research
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READER SERVICE NO. 76

The CircuitWerkes AC-3 Autocoupler

AC-3 shown with optional rack mount

More Features. Better Price.

- Auto-connect and disconnect.
- Two-Year limited warranty.
- LED Indicators for incoming rings /on-line status & power.
- Answers on user selectable number of rings.
- Momentary or latching dry contacts at pickup.
- Open collector output for ring/online
- Metal case can be wall/desk or, optionally, rack mounted.
- Audio, control and power connections on screw terms.
- Optional ComboLok provides password security.
- Suggested list only $229.
- Simple, active hybrid with unbalanced, In/Out for simultaneous send & recieve communications.
- Remote connections includ: aux. relay closure, pickup-enable, remote pick up trigger, call end sink, & Ring / Online sink.

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http://www.circuitwerkes.com

READER SERVICE NO. 193

SOUND GREAT — INSTANTLY!

AIRcorp 500PH Microphone Processor

- Eliminate flanging (hollow room) effect
- Eliminate bad room acoustics
- Hold absolute levels
- Correct voice symmetry
- Front panel input level select +4 to -50 dB
- Three section variable boost and cut equalization
- Compander/Expander cross coupled for maximum punch
- Built-in earphone jack
- DE-ESSER designed to protect pre-emphasis curves
- Simultaneous mic level and line level outputs
- Internal 48 Vdc Phantom Supply

AIR corp

Call your dealer
or call **972-304-0455** or fax: **972-304-0550**

READER SERVICE NO. 153

THE COST EFFECTIVE ALTERNATIVE TO MANUFACTURER SERVICE

SERVICE, REPAIR & CALIBRATION
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Consolidation? NO COMPROMISE!

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From Modulation Sciences, Your Processing Authority

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StereoMaxx gives your station "dial presence"—an unmistakable sound that draws listeners, whether you're a mega-group or independent.

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READER SERVICE NO. 71

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PTEK

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Exciters	Power Amplifiers
10W.....$1375	150W.....$1,815
	300W.....$2,750
	500W.....$3,663
	1000W.....$7,326

All of the above need just 10W drive

CALL 408-448-3342 FOR DETAILS

READER SERVICE NO. 113

World Radio History

You Need It? You Got It!

From T-shirts to Corporate Analysis, Service Providers Can Do It All for Radio Stations

Promotions directors, sales managers, news directors and corporate managers found plenty of services and ideas to help them do their jobs in the booths of The NAB Radio Show.

The $2.95 Guys are a couple of enterprising young men from San Diego, producing custom-printed heavyweight T-shirts for ... you guessed it ... $2.95. Up to four colors printed onto quality shirts are included for that price.

The $2.95 Guys have a promise: Every 100 percent cotton T-shirt that they print has a printed clear underbase to keep original ink colors bright after washings. This process comes at no additional charge. All orders require a 50 percent deposit.

ABC Radio International announced the launch of The Entertainment Report, which will be delivered daily to European markets in each station's local language. The show, produced in Los Angeles and Germany, is a joint project with the Berlin-based On Air Syndication. The service promises to deliver fast-paced entertainment in the form of celebrity news and interviews, entertainment and sporting event news, movie and TV clips, and behind-the-scenes event coverage. Information will be delivered via satellite, ISDN and the Internet.

ABC also touted its Globecast satellite service, which specializes in digital audio and commercial radio distribution. It can be received by more than 6,500 radio stations across America and is compatible with automation.

New from **AirCraft Production Libraries** are American Travelog, described as "a drive- through of American musical cultures"; X-Treme Rock, consisting of Generation X anthems; and International Series, Volume 2 Irish ballads and traditional tunes.

Making the AirCraft libraries user-friendly are several features. With SpeedSearch, for example, the title cuts on each CD are up front in 30-second edits for finding the right track. Co-Pilot brings versatility by allowing customization. Musical elements are drawn from each full mix, presented as split mixes or solo instrument stereo mixes; these elements can be used separately or together — with or without the minus melody mix. Two-second beeps that proceed each mix facilitates the synchronizing of elements.

The Arbitron Company debuted its "At-Work Listening Study," performed in conjunction with Edison Media Research. *(See related story, page 71.)*

Arbitron also showed the new Maximi$er 97 V. 3.3, featuring the Instant Qualitative Profile report and Quick Qualitative Ranker for easy-to-produce one-page reports.

Combining the organizational benefits of a computer with the familiar aspects of production, the **Associated Press Broadcast Services** SoundDesk promises to make radio news production a less hectic process.

Rather than editing, cutting, and splicing a piece by hand (and then wondering how the finished cart disappeared), news producers can now edit with cut and paste commands, then use drag and drop motions to slot the elements and spots from the "virtual cart rack" into the "virtual cart machine."

Newscast segments can be pre-produced, saved and played in sequence; automatic and manual sequencing are available. The SoundDesk provides an unlimited number of "carts" for current and archived material.

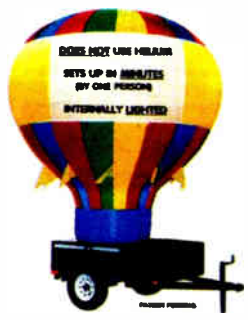
With a mission "to be the leading aggregator and distributor of audio and video content on the Internet," **AudioNet** offers broadcasters three services: content aggregation and distribution, business services and media hosting. Now two years old, AudioNet has produced several large-scale events on its website, including Super Bowls XXX and XXXI, the 1996 Major League Baseball World Series and the NHL Stanley Cup Finals.

Broadcasters can deliver live and on-demand Internet broadcasts of radio and television stations and networks, college and professional sporting events, corporate events, concerts, on-line shows, full-length music CDs and audiobooks.

AudioNet also provides solutions for organizations wishing to air press conferences, product introductions, seminars and other live events.

Balloon on Wheels offers broadcasters a distinct attraction for sponsored events. The trailer-mounted balloon is 14 feet tall and contains an internal lighting system for night-time illumination.

The balloon does not require helium because it never leaves the ground; it contains a blower that inflates the balloon. The balloon can be connected to a power generator, or plugged into a standard 110 V outlet for longer display.



The interchangeable banners containing call letters, logos, slogans and other messages use a Velcro backing and can be changed to reflect the station and message for the event.

BIA Research Inc. was on hand in New Orleans, touting its new operational audit service. The research company said the service can assist radio's growing groups in performing due diligence, researching acquisitions, complying with corporate and FCC guidelines, meeting general accounting principles and in general bringing stations into "compliance, conformity and accountability."

The company offers a range of research services for radio professionals.

Bloomberg News Radio provides financial market updates, produced live from London, New York and Tokyo, 24 hours every weekday. Reports are timely, concise and only two minutes in duration.

Other major features from Bloomberg News Radio include world and national news headlines; 90-second agricultural and commodity reports; "Business Features," an adjunct to the financial market updates; a two-minute report focusing on lifestyles in the fields of arts; comedy; entertainment; health matters; legal reports; marketing; medical; nostalgia and sports.

Bloomberg produces the 60-minute "Radio News Magazine," delivered Saturday and Sunday at 9 a.m. and noon EST. Hosted by Charlie Pellett, it is targeted to an upscale audience of consumers and financial professionals.

Repeat Marconi Award winners Bob (Kevoian) & Tom (Griswold) began working together in 1983 at Indianapolis' WFBQ and started syndicating from there in 1995. **The Bob & Tom Show** now is carried in 25 markets via satellite.

"Program directors know us and they're convinced; now we're convincing general managers that we can make them money," said Network Coordinator Drew Carey. The pair have won several major radio awards, including this year's Marconi as Large Market Personalities of the Year.

The show equally touts its strong ratings and the fact that Bob & Tom's comedy albums have generated more than $4 million for charity.

News from Britain is available from the New York-based **British Information Services (BIS),** an extension of the British Embassy. The purpose of this free programming "is to explain developments in government policies and society to people (in) the United States."

Radio stations can dial a toll-free number for immediate ISDN access to "Headlines from London," hard news coverage of the day's top stories, financial reports, and other news. In addition, there are live feeds of press conferences and pool interviews given by the British Prime Minister, Foreign Secretary and other senior government officials are offered.

The Thunder Truck from **Broadcast Products** is an equipped, customized studio on wheels. The outside can be custom-colored and can include the station call letters and frequency.

Equipment includes a 320 W Crown CSL 800 power amplifier to drive a set of subwoofers, a Denon ND2000F dual CD player, a dubbing cassette deck, two JBL DJ monitor speakers with a Rolls RA2110A power amp to drive them, and a Gemini mixer.

Price tag for the Thunder Truck is around $55,000, depending on the options package.

Broadcast Programming offers consulting and programming, including libraries, music logs and shows. The most recent addition is the live, country-specific night-time show "NEON NIGHTS" with host Scott Evans. BP also produces the adult contemporary evening show "Delilah," featuring Delilah René, heard in more than 70 markets.

BP offers services that include "consulting, format programming in all categories, weekly new music service, music on CD and hard drive and new digital technology." The services are configured to run live or on digital systems. BP can also create custom format libraries and systems.

Columbine JDS Systems showed off its latest creation, Sales Analysis Plus.

"It features interactive capability for stations and station management to see sales figures to forecast their revenue, and to look at last year's comparisons," said John McDonald, CJDS general sales manager. "It has a graphical user interface, runs in Windows, hooks up to our Columbine and JDS traffic systems and displays all the information right before your eyes. You no

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World Radio History

▶ SERVICES, continued from page 55

longer have to wait for old-fashioned reports to print out."

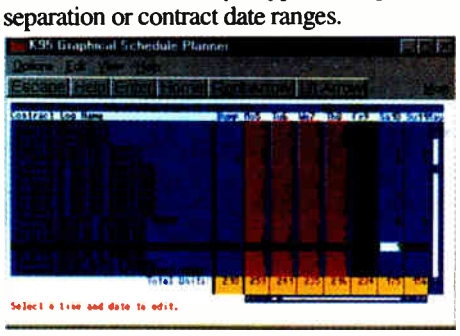
According to McDonald, the Sales Analysis Plus is "a big time saver and money maker. Now you can slice and dice the information and know where sales are coming from."

Claiming "Nobody Makes Radio More Visible," **Communication Graphics** of Broken Arrow, Okla., can design whatever a station wants in a durable bumper sticker or a window decal, utilizing high-tech screen printing processes and computer-generated art. The company maintains the images on computer files for backup and future jobs.

Communication Graphics use metallic and other special inks, carefully controlled during the printing process. The finished product is either packaged on a roll or shrink-wrapped in set quantities.

New from **Custom Business Systems** is the Graphical Schedule Planner, which makes the user interface for managing spot scheduling and re-scheduling more accessible, and offers the traffic manager the efficiency and convenience of point-and-click operation.

The Graphical Schedule Planner combines the use of a spreadsheet with a straightforward, calendar-style visual interface, allowing views of up to 16 months of scheduling data on a weekly basis. The user can decide whether to display all accounts, or to filter accounts by daypart, competitive separation or contract date ranges.



CBSI's Graphical Schedule Planner streamlines scheduling and inventory management. For more information, call CBSI at 800-547-3930 or 541-271-3681

Also introduced: Windows NT compatibility for all CBSI station management systems. The CBSI update program includes frequent software updates for CBSI clients.

Also new: the company's website, *www.cbsi.org*, designed as a customer service resource and an information source for radio professionals.

Datacount, which offers traffic and billing services, has unveiled its Datacount 32 broadcast management software. This traffic system is "designed exclusively for the computer technology of tomorrow as well as the anticipated needs of multi-station consolidation and group ownership."

The features of this Windows 95-based package include advance scheduling of orders for exact avails information; on-screen account history; and sorting and filtering capabilities. Management reporting is provided on corporate, management and traffic levels. Multi-station reporting is standard. The system supports 999 stations and has the foundation for corporate flow charting of stations and locations.

The DARTS package encompasses aspects of logging, traffic, co-op billing, accounts receivable, and sales and management reporting. A multi-station version is designed for LMAs and duopolies.

Standard features include multi-station entry reporting and billing.

Digital delivery was the showcase of the **DG Systems** booth. DG Systems displayed information about its electronic distribution services for the broadcast industry, linking advertisers, agencies, syndicators and music labels. These services include delivery of spots, music singles and short-form programming to stations, along with traffic and promotional material.

The most recent example was the distribution of Rolling Stones single "Bridges To Babylon." It was delivered to 1,780 stations via the DG Systems digital delivery process.

The reference publications from **Duncan's American Radio** have been a valuable industry resource since 1976. The *American Radio* quarterly reports, for example, offer an overview of ratings, formats and ownership changes after each Arbitron sweeps period.

Duncan's Radio Group Directory contains addresses, phone numbers and contact names including major shareholders.

Of particular interest to engineers is *The Facilities of American Radio,* an updated FM coverage atlas. It includes more than 1,300 coverage maps — one for each viable FM station in the top 100 Arbitron-rated markets. The book allows for a quick, side-by-side comparison of the signal coverage of all of the FMs in a market.

Eagle Marketing has created the "Work Perks" direct-mail campaign for radio stations, designed to increase TSL among people at work.

The mailing includes a reply card and a "Work Perks" desk tent. Respondents fill out the reply card, with names of co-workers who have agreed to listen and pay, and fax or mail it to the station. If the respondent is listening to the station and displaying the desk tent when the station visits the workplace, he or she wins $1,000. If the original respondent and the co-workers who signed-up are listening, the original respondent gets twice the money and the co-workers win a cash prize.

Eagle Marketing also provides research data to radio stations.

Eternal Word Television Network Radio (EWTN AM/FM) provides religious programming of all faiths to stations around the world free of charge.

EWTN offers stations up to five minutes

per hour of local commercial time, and the opportunity to take anywhere from 30 minutes of programming to the entire daily lineup.

In North America, EWTN is available via Galaxy 1R, Transponder 11, Freq: 5.40 (English) and 5.58 (Spanish). Programming also is available on CD and cassette.

Curt Hahn is president and founder of **Film House** in Nashville, producers of television-based marketing campaigns for radio stations. Film House has done work for stations such as major radio stations as well as group clients and networks.

The Film House strategy is to direct TV audiences to a specific time on a radio station with a tight, powerful 60-second message.

Film House spots let radio stations promote their personalities and contests or just inform listeners via television the reasons why they should tune in to the station.

LiquidTrax by OneMusic was the featured new product at **FirstCom Music**. This music library is designed to give production directors greater flexibility and control in mixing, particularly when blending music with voice elements.

The library supplies split tracks of each piece of music, allowing producers to bring specific elements to the forefront or take them back down, so as not to overwhelm voice tracks when building "donuts."

OneMusic Regional Manager Mike Baer said, "This is the first time a library's been designed (in split tracks) to this degree, to this depth and breadth, in stereo." He said earlier libraries either did not create split tracks of selections or only split some of the selections, forcing producers to spend a significant amount of time trying to juggle elements.

Booth visitors received a T-shirt warning, "Don't Tell My Mom I'm In Radio."

What better way to get your audience's attention at a remote than to have a money machine blowing cash or coupons for listeners to grab? **Fun Industries Inc.** debuted its new Traveler Cash Cube.

Improvements in the design allow the Traveler to be more easily portable: its one-piece, lighter, more compact design requires only one person and only a minivan for transport, and the machine requires no set up, according to Fun Industries.

"People never forget the money machine and they never forget the station that brought it to them," said Sales Executive Randy Hill.

Adding to the appeal of the flying dollars are a programmable message board, electronic countdown clock, and flashing side lights. The Traveler is available for rental; unfortunately, stations must provide their own cash for use inside.

The Great Gazebo Inc. introduced its gazebos to the radio industry. A gazebo provides a colorful, attention-getting visual presence at remotes.

Station logos can be displayed on the top and sides, and according to the firm, the countertop is strong enough to support a person sitting on it. In spite of the gazebo's strength, it sets up in only 10 minutes, according to the firm.

See SERVICES, page 57 ▶

Audio Solutions

Audio testing requires specialized solutions. Audio Precision offers three lines of audio analyzers for engineering and production testing.

ATS-1
* Analog audio test system – 2 channel with advanced front panel operation & GPIB interface
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World Radio History

▶ SERVICES, continued from page 56

Gazebos can be customized by color and printed logo.

InXsys Broadcast Networks Inc. announced "RadioDate Online." Using the Internet, customers can evaluate the physical appearance of a potential date. If users have a voice activation option on their computers, they can hear an audio message from their potential dates as well. Listeners who do not have Internet access can find the data with a touch-tone phone.

InXsys is courting national advertisers to take part in "RadioDate Online" by targeting ads to specific users. The ads appear each time a user logs on to the RadioDate site.

For stations that do not already one, the company will create a website, contingent on those sites having a link to RadioDate. Stations can bring in local advertisers, generating revenue for their station.

InXsys also promoted "RadioNet Classified," where a customer can place a classified ad for $29.95. The ad will be posted until it sells. Also new: RadioRecall, which allows listeners who might have missed vital information in a radio ad to call a local number and hear an expanded form of the same commercial.

JackPot Promotions is helping radio stations "legally capitalize on the multi-billion dollar gaming frenzy that's sweeping the nation." The JackPot Machine is a Las Vegas-style "one-armed bandit." It gives stations control of their prize budgets by determining how many winners there will be and how often they win.

This is not a gambling device. There are no coin slots, so there is no charge to play. Anyone over the age of 18 who pulls the handle is a winner of a prize coupon.

The JackPot Machine is suited for use at festivals, auto dealers, grand openings, grocery stores and malls. It can help boost ratings, bring in new business, and be used as a value-added package.

Eye-catching orange cans of "Whoop Ass" announced the presence of the **John Boy & Billy Radio Network**. The John Boy & Billy BIG SHOW, which began syndication in 1993, is delivered via satellite to more than 50 stations. Can a southern-based show appeal to those in other parts in the country?

"Funny is funny everywhere," said Marty Lambert, director of affiliate sales at the network. The show operates on the philosophy that people (and their interests) basically are the same, and that everyone wants to be entertained in the morning. The show is priced based on market revenue potential, and offers 12 minutes of commercial units per hour in addition to local windows.

Numerous actors, comedians, musicians, and NASCAR drivers have been guests.

The Whoop Ass cans contained show information and a CD show sampler.

K.D. Kanopy Inc. offers the Party Shade, a 9-foot 6-inch by 9-foot 6-inch canopy designed to be used at special events and remote broadcasts. It weighs 59 pounds and can be set up quickly by two people. This steel-framed canopy has a polyester top and is available in purple, blue and white. The retail price is $239.

Other sizes are available. A free heavy-duty carry bag and anchor stakes are included with purchase.

Marketron Inc., provides radio stations with software systems for traffic, billing, inventory control, rate management, and proposal/research needs. The Marketron Proposal/Research system runs on laptop computers, allowing for quick and easy presentations at client sites. In addition, it creates colorful, rotating 3-D graphs for Audience Composition, Ranker, Trend and other research reports.

The Marketron/Great Plains invoicing and accounts receivable software package supports multi-station operations such as non-spot revenue, script, and credit and collection. The Headquarters Reporting program is designed specifically for a station group's corporate office; it provides data on station performance, including comparisons of revenue vs. budget, average unit rate and sellout.

The Media Audit is the primary product of **International Demographics Inc.**

Media Audit is a syndicated local market qualitative audience survey, conducted in 84 markets. The subscriber base includes 747 radio stations that want to know as much as possible about the people who listen to their stations. By the end of the decade, Media Audit expects to be publishing local market reports for more than 125 metro areas.

Media Audit's objectives are to employ a research technique that assures each subscriber a reliable, easy-to-understand database.

Media Audit provides concise shopping habits, lifestyles, restaurant choices, travel histories and product purchasing plans for listeners that make up a station's demographics.

Metro Networks unveiled Metro Source, a digital information service and workstation that allows news affiliates to view, write, edit, report and receive data via satellite in text and audio formats.

Metro Source users will receive updated and breaking local, regional, national and international news, as well as weather, sports, business and entertainment information. Metro Source will provide news on a continuously updated basis, aided by more than 350 broadcast journalists in 70 markets writing, editing, and producing stories specifically for radio broadcasters.

The Metro Source digital audio workstation consists of three basic parts. The News Browser allows radio stations to view and edit stories. The Cool Edit system provides for editing and re-editing audio. Cart-O-Matic displays audio for use in an informational news segment. This component has the equivalent of six five-deck cart machines in one window.

MUSICAM Express promoted its delivery services. It uses ISDN or addressable digital satellite from the existing satellite receiver at the station to send content, including spot advertising, programming, music and video. Three digital radio technologies are utilized in the process: StarGuide II, WinDaX PD Control and JockBox.

StarGuide II is a satellite receiver that electronically delivers CD quality audio, customized IDs and new programming features.

WinDaX PD Control runs off Windows95 and allows the subscriber to preview shows and spot advertising, record releases and electronically sequence them on-screen. It also receives traffic instructions and can include an optional sending capability.

JockBox, nicknamed "Radio's ATM," provides the means through which the DJ can play the audio.

The **National Public Radio Satellite Services** division delivers satellite programming not only for NPR member stations, but also for commercial stations and groups. It announced an agreement to distribute ComStream's satellite broadcast products, including the new ABR202 digital audio receiver.

NPR reminded broadcasters of the importance of planning. The company pointed to problems experienced in January with the TELSTAR 401 satellite and said many broadcasters were affected by the loss in service. Companies that did not have a backup plan scrambled to find satellite space (and typically paid more for that space).

NPR spotlighted its two-tier backup plan, which protects customers against satellite service disruptions and keeps them on the air in the event of transmission problems with the satellite.

Network Music, Inc., which provides radio stations with production music, has released the Short Trax Library, with more than 4,000 tracks on 52 CDs. It includes 59-second, 29-second and short-tag edits in a range of musical styles and categories — from up-tempo, medium-tempo, and slow-tempo themes to solos, industrials, multimedia and specialty tracks. There are more than 400 cuts of familiar classical compositions.

The Short Trax Library is available in a variety of licensing plans. This collection, the largest ever from Network Music, can be used to build unique spots, promos, jingles, and other production elements.

The **PGA TOUR Radio Network** brings golf enthusiasts up-to-the-minute professional golf coverage every week with leaderboard updates and a one-hour golf magazine show, "Straight from the TOUR." The network also broadcasts live, play-by-play coverage of 20 events from the PGA TOUR and Senior PGA TOUR during the 1997 season, providing nearly 14 hours of programming leading up to and during each tournament. The upcoming schedule will expand to more than 40 PGA TOURS events over the next two years.

The network's coverage can be heard on approximately 176 radio stations in more than 200 markets. Also, more than 400 CNN Radio affiliates air leaderboard updates during weekend broadcasts.

"It's automatic" is the phrase that **Powergold Music Scheduling Software** representatives repeated when describing the system; "it's customizable" should be added. The software has an automatic setup feature, which assigns values to a station's programming rules (such as artist separation, daypart scheduling, etc.), then builds a playlist that programmers can accept or adjust.

The auto-editor tests for log violations, and automatically exchanges songs to fix violations. Programmers can "search and replace" songs to fit specific format requirements (for example, for special programming blocks) and can also review at a glance the playlist history of any given song.

The music log printouts and scheduling edit screens can be customized, and

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ZERO.
ZILCH.
The Engineer's Dream Machine.

World Radio History

▶ SERVICES, continued from page 57

Powergold interfaces with all automation systems.

Information on promotional packages was on display at the **Press Promotions** booth, including posters, direct mail programs and its Turnkey program.

The wall poster by Press Promotions is printed on 70 lb. enamel paper at 17 by 24.5 inches. The photographic process is four color and there is a horizontal perforation for ad strips. Calendars or other schedules can be added to the posters as requested.

The direct mail process takes care of the distribution factor, adding revenue and ratings for your station. The Turnkey program includes all artwork, sales training, printing and mailing.

Radio Data Group, a large Internet developer, website hosting and web maintenance service exclusively for radio, added two dozen stations to its client list during a six-week period in August and September.

RDG has spent the last two years building radio-only websites and developing software for radio stations who want a presence on the Web. The company positions itself as understanding the unique needs of radio stations better than conventional web developers.

RDG also is the developer of AdNext software, a website management system for advertising, invoicing and tracking. The company also offers DataNext, providing full SQL database support even to simple Web page forms.

Radio stations in North America that want a voice from Europe can air free programming from **Radio Netherlands.** The programs can be used in any manner desired, as-is or edited for rebroadcast. The only stipulations are that Radio Netherlands must be credited with having produced the programming.

The broadcasts are offered in English and Spanish and are available on satellite (Galaxy IV). Programming includes the award-winning "Newsline," 15 minutes of breaking and on-going international stories.

A specialty of Radio Netherlands is the "Radio Documentary" series. Subjects ranging from the history of the cinema to the sinking of the Titanic have been covered.

To receive the programming, users need a satellite dish capable of receiving Galaxy IV and a Comstream ABR 200 digital satellite receiver.

All Shades of Opinion

Radio Netherlands

Radio One Networks promoted its Satellive digital automation system. The company said it is the only network that uses a dual uplink/downlink system that allows it to deliver fresh updates every hour customized to each affiliate. The system is designed to accept Radio One's dual digital satellite feed, react to the network's commands and deliver localized, hands-free programming. Production and live assist capabilities are provided.

RADIO · ONE

NETWORKS

Radio One touted its new Hot AC format, demonstrating how "true localization" can work simultaneously delivering customized info to each affiliate. Also featured: New Rock and Go Country! formats.

Reuters America Inc. provided information on its new service for daily live satellite feeds. Reuters announced that it was offering a free preview of the Business Network business and consumer package through the end of October.

The new Reuters package for local stations includes business briefs and consumer business capsules, customized local stock indices and high-end Internet support. The complete Reuters Business Network service includes produced, 75-second daily video reports, a local market index service, monitoring of 100 local area corporations and industries, local business and market data information services on financial information and an Internet home page with continuous updates of the local index, business news and consumer economics.

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Roll-A-Sign makes radio stations more visible with an alternative to traditional radio banners.

Roll-A-Sign banners can have a station logo and message printed in up to four vibrant colors on either 4 or 6 mil high-density plastic. Banners up to 6 by 3 feet arrive on 1,000-foot rolls. Simply pull off what you need and cut.

Radio demands clever, innovative promotions, and **RPMC** is in the business of creating and implementing memorable and successful promotional events.

RPMC brings its clients innovative ideas to augment sweepstakes, corporate sponsorships and incentives. The company can provide exclusive access to popular events around the globe as well as "wildly original experiences." RPMC also specializes in obtaining memorabilia from movies, sports and musical groups.

RPMC can assist stations searching for ways to pull off promotions and fun events for listeners to attend.

Promoting its service as "a better way to operate your radio station unattended," **StationWatch Monitoring Service** featured its station monitoring options. Depending on the monitoring desired, the company will monitor a station for EAS alerts, dead air, and off-air status.

Behind the scenes, the company also can take and log transmitter readings, check and log the status of tower lights, and monitor for intruder and fire alarms. StationWatch will take action upon receipt of any alert or improper operation reading. It will alert the designated contact person if there is a problem that StationWatch cannot handle from its location.

Talk America Radio Networks was honored by the state of Louisiana and the city of New Orleans, both of which declared Sept. 18 "Talk America Day."

"People are recognizing our network more and more with each passing day," said company President Tom Star.

"We don't repeat any programs on either network. I think it's a big accomplishment."

Talk America airs two 24-hour networks. More than 60 programs make up the Talk America stable of programming.

Talk America hosts on-hand to promote their programs at the Radio Show included Tom Gresham, host of "Gun Talk," and Jerry Mintz, host of "Education Revolution."

Tapscan celebrated its 25th year in business with tuxedos on Thursday at the show. The company has more than 4,000 product installations at radio stations, advertising agencies, broadcast TV stations, and cable systems.

The company's "Viewing Room" is advertised as the world's first multimedia software presentation designed specifically for radio sales. It combines custom multimedia production with an interactive format that can be viewed on a laptop.

The new Tapscan system consists of four types of software, including in-depth intelligence about clients, prospects and market conditions; radio, television, cable, print, outdoor and media mixing capabilities; systems to manage contacts, account lists, and provide immediate sales information; and simple connectivity to the advertising industry.

Thompson Creative, the Dallas-based radio jingle and promo/production music company, came to New Orleans with new custom jingle packages created for stations in Phoenix, San Antonio, Chicago and San Francisco. Thompson offers "distinctively different" sounds on both custom and syndicated jingle packages for all formats.

TM Century debuted the NBDD (New Business Development Disc) and MA$, custom commercial jingle programs for developing business for radio stations. NBDD and MA$ are available for cash and/or barter depending on market size.

TM Century presented jingle packages including more Big Time Radio and D99. Also available: GoldDrive, the TM Century solution for building an entire GoldDisc library on hard drive.

Yes, **United Press International** does have a place at The NAB Radio Show.

"UPI's style of news has changed from newspaper-friendly to broadcast-friendly," emphasized Ken Sutherland, western region sales manager at UPI. "Everything is targeted to how radio stations use the news, with stories no longer than 300 words."

He credits, among other things, the infusion of former Westwood One employees for the evolution of the company into a news source with a greater awareness of radio and how to appeal to broadcasters. Friendlier terms and contracts also help build better relationships with radio, Sutherland said.

The company debuted its website last month and is promoting it as the flagship of a UPI for a new generation.

The company touted WorldView, a real-time global news and information service fed through a serial port, stored to the hard drive of your PC.

Daybreak USA from **USA Radio Network** is a new concept in morning drive programming.

The live satellite-delivered lifestyles "magazine" show entertains without subjecting listeners to blue humor or off-color language.

The show is delivered with built-in breaks for local station advertising, IDs, news and local traffic reports. Nearly 200 radio stations in various market sizes have already signed on with DayBreak USA.

USA Radio Network is in Dallas and has over 700 affiliates as well as the Armed Forces Radio Network.

Weatheradio featured its service, the Digital Weatherman automation, which creates human-voiced weathercasts (automatically, 24 hours a day) from the text in weather bulletins, forecasts, and current conditions information. The company promises that the broadcasts will not be repetitive; employing variations in words and phrases, the weathercast is never read the same way twice.

By using the weather instruments included in the Digital Weatherman unit, stations can monitor and broadcast local weather conditions in the listening area, while additional information is received via phone, news wire or the Internet.

Now the Digital Weatherman can create EAS headers to connect directly to EAS equipment so that weather bulletins can be aired through a station's EAS system.

■■■

Information for RW product listings was collected by Susan Gary, Paul McLane, Chris Hamaker, Brian Galante, Bob Rusk, Patrick Martin, Sharon Rae, Leslie Stimson, Don Elliot, Ann Schwab and Joanne and E.J. Barney.

World Radio History

Studio Sessions

Radio World | Resource for Radio Production and Recording | October 29, 1997

Home-'Groan' Halloween Radio Effects

Gowan Gray

Quick, there are only mere moments before Halloween. You need to cut at least three more scary spots but all of the really great spooky sound effects have been used by everyone else at the station.

Those $4 "Night of Terror" kiddie cassettes in the supermarkets may buy you a little time, but those effects are far from convincing and probably are older than anthracite coal. What do you do?

Relax. You still have time to create some great effects from scratch. You probably will return to them again and again.

I discovered that the sound of a washing machine in the apartment upstairs from me sounds like heavy industrial machinery when an ear is placed against a wall. In place of an ear, a contact *piezo pickup* — much like what is used by guitar players — placed against the wall and connected to a recorder captures clean, flat-response audio. A conventional dynamic mic will work pressed against the wall, but less effectively.

Dump the raw track into a DAW, then clone it to a second track with some pitch change. Pan both tracks hard left and right, paste several repetitions together, add a little DSP of your choice and you have the fundamental base rumble of a mad laboratory.

Wash day

Run your own washer with a lopsided load. The *clang-clang-clang* of an out-of-balance machine can be sampled, pitch-shifted and manipulated to sound like a 50-foot pile driver.

The sound of the water gurgling out into the drainpipe can similarly be pitched down an octave or two, flanged then looped for some truly devilish effect left to your imagination.

Keep that piezo pickup handy. If you have a friend who plays a bowed instrument like a violin or cello, get a couple of really rude scratches and noises with the pickup held against the instrument. You can always use these.

Similarly, there is a method of playing *harmonics* along the length of the instrument. If your friend can do this, loop a passage with multiple delays and flanging: Instant "Psycho."

See HALLOWEEN, page 60 ▶

PRODUCT EVALUATION

Software Suite for Many Platforms

Read G. Burgan

Native Power Pack (NPP) from U.S. Waves is a suite of plug-in utilities designed for use with various digital audio platforms. Among these are Cubase VST, ProTools 4.0, Sound Forge, Deck II, SoundEdit 16, Studio Vision, WaveLab and CakeWalk. I tested NPP for Sound Forge 4.0b under Windows 95.

Up until now, most Sound Forge-type plug-in modules have required that you "build" a preview by selecting your parameters and wait while the module created a preview of a selected portion of your sound wave. It worked, but it took time.

By contrast, all NPP plug-ins run in real time. This alone increases the quality of the finished product by decreasing the time required to achieve it. Look for more Sound Forge plug-ins to operate this way soon.

Eating up resources

Real-time previews can require a lot of processing power and memory, but I had no difficulty using any of the NPP utilities on a Pentium 100 with 16 MB RAM or Pentium 166 with 32 MB RAM.

For me, the jewel in this suite has to be TrueVerb. There are a number of decent hardware and software reverb programs available, but I have never found any I could truly say sounded like real-life environmental reverb.

TrueVerb lets you create your own virtual room by dividing the process into two parts: early reflections you hear almost immediately, and diffuse long-term reflections that are a combination of all of the reflected sounds decaying over time. The early reflections are what gives a room its character.

TrueVerb lets you create a room, then adjust the cubic volume of the room in meters (I wish they would come up with a version that defined the room in cubic *feet*). You then set the distance from the source to the listener.

Having done that, you can adjust the reflectivity of the room's surface by controlling the dampening and the frequency absorption characteristics of the room.

All of this for only the *short*-term reverberation that determines the room's character.

In addition, there are separate parameter settings for the conventional long-term reverberations. You have the option of keeping both short- and long-term reverb parameters locked in sync, or adjusting them independently.

Keeping them in sync ensures that the sound most closely emulates a real-life environment for the room you have created. Unsyncing them lets you create any combination of reverberation you like. TrueVerb comes with a number of presets to get you started.

Second in my choice of favorite NPP plug-ins is the S1-StereoImager. This is designed to be used only on sound files with a genuine stereo content, yet I found it most useful with mono files.

You Would Smile Too: The Waves Man on the NPP Box

How does it sound? Unlike any other reverb software or hardware program I have used before. It is capable of producing reverberation that is remarkably similar to that in real-world environments. I have already used it on several CD projects.

It particularly is good at taking monaural program material and producing a realistic stereo sound. Doing an A/B test on headphones, the sound went from dead flat monaural to sounding as if I was in an actual room with the performers.

More on this in a moment.

The StereoImager is a clever plug-in designed to adjust the center imaging of a file without adversely affecting the overall balance. If a soloist is a bit left or right, you can move him or her "over" until centered.

StereoImager also allows you to adjust the width of the image. Here is where I found it useful in working with a monaural sound file.

On an ordinary mono file, there is no

See NATIVE, page 66 ▶

NIL.
ZIP.

BE No More, No Less.

World Radio History

PRODUCT EVALUATION

Baking CD Tracks in the Big D

Sallie Schneider Sauber

So what's cooking down at the Music Bakery this week? Maybe a warm, medium tempo track with baby grand, sprinkled with a quick jazzy sax? Or, if you prefer, smothered in full orchestra?

Either way, no problem. Jack Waldenmaier and his Music Bakery are "bakin' up fresh music bi-monthly," in a production music library that has a lot to offer, especially for those palates with a taste for the lighter side.

The Music Bakery is produced in Dallas, a city with a legendary reputation of music-for-radio. Many jingle and production companies past and present can claim roots going back to "Big D."

I appreciate the fact that the new music comes twice a month rather than having the full library arriving all at once. This forces me to use what I have, eliminating the urge to wait and hope for what might be coming next.

Good sport

In my opinion, our high school sports coverage is the best I have ever heard and deserved some good kickin' music. Our sports directors really know their stuff, as do our sideline reporters scattered about the region at the games we don't broadcast. Forty thousand dollars worth of advertisers agree.

The selection "Grand Prix," off the April '97 Music Bakery disc, sounded like something straight from ESPN. It was fitting enough for our sports voice to use it as the theme for our Friday "High School Game of the Week." So we gave it a shot.

As in any versatile library, the selection is mixed into several different lengths. There are 60-second donut beds and 15-second drops that we use to introduce each field reporter. There is even a five-second cut perfect for creating new and different IDs exclusive to the games.

Another plus? The :30 version is not merely the :60 with a fadeout halfway through. Each cut is a unique variation on the theme.

Matter of style

I have yet to discover a music library in which the titles of the beds accurately describe the cuts. Although the Music Bakery comes closer than most, there are still those cuts that leave me wanting more after expecting the bed to live up to its description.

For instance, "Generation X" is described as "anything targeting the MTV generation." Our station gets plenty of calls from MTV fans, and what they request generally is rap or urban, way too heavy for our hot AC format.

I expected "Generation X" to have a harder edge, to be more gripping and somewhat rebellious. Frankly, it reminded me of something from Saturday morning cartoons.

Every cut of a given title has its own track number. This means easy cueing, especially when working with machines that will not let you cue to cuts within a track.

Without this feature, well ... Have you ever searched through five minutes of a track, only to go too far and then accidentally taken your finger off the Search button?

Do this for even a split second and some decks return to the beginning of the track when you hit the button again. Drives me crazy!

My reaction to each disc having tracks with different moods, styles, and tempos was negative at first. I am used to discs being categorized by tempo, mood and even instrumentation, a handy time-saver when you already know what you are looking for.

On the other hand, Music Bakery spices up each disc by offering many different elements on one disc. Once again this forces you to use every disc because you just never know what the next cut may have to offer.

This way too you won't become partial to certain volumes, leaving the "Polka" CD to rot in its own shrink-wrap because you already know what is on it.

For a long time I wondered if there were any music library composers left out there who weren't stuck in the '70s. The country-crossover themes, disco backbeats and hot and heavy horn selections seemed endless.

Of course, that might have been in part because the stations for which I worked didn't spend the money on good libraries.

Nice flavor

It is refreshing to savor the contemporary flavor of the Music Bakery. The Comedy and Animation selections are genuinely silly and unique. Most of the comedy stuff I have heard on other collections is little more than corny and annoying.

The overall orchestration is innovative. However, many of the arrangements seem a bit too busy for radio, leading me to believe Waldenmaier and company might have had television in mind when they came up with these music selections.

Radio commercials must get the message across by verbal means, aside from the use of sound effects to create visual images. Television commercials, on the other hand, do not fill the entire message with voice-over, but depend on the picture to relay the message.

My concern as a copywriter and production director is that the spot creates a need in the listener to generate traffic to the given business. If the music bed is more of an attention-getter than the copy, the message is lost.

The wrap

I think Jack Waldenmaier has created an original recipe for a tasteful music library. The Music Bakery is appropriate for radio stations with a craving for something on the lighter side. With a new disc arriving every two weeks, the need for variety in production music is well taken care of.

A free demo CD is available from the Music Bakery, and Waldenmaier himself can be reached by e-mail at *jackw@musicbakery.com*

■■■

For information or a demo CD, contact the Music Bakery in Dallas at (214) 414-0313 or circle ***Reader Service 18.***

Sallie Schneider Sauber is production director at WATH/WXTQ, Athens, Ohio. Her most recent piece in ***RW*** *was an interview with June Foray, the voice of "Rocky the Flying Squirrel."*

If the music bed is more of an attention-getter than the copy, the message is lost.

Horror Effects Easy to Create Inside Studio

▶ HALLOWEEN, continued from page 59

If you buy blueberries or strawberries this fall, save the tiny wood basket they come in. Close-mic it and slowly crush it between your hands. With effective processing, this can be Dracula's coffin cracking open or "Mr. Stretch the Skeleton" relaxing on his favorite torture rack. It all depends on the copy.

If all you can find are plastic baskets, crushing a handful of peanut shells should work fine.

Wetter is better

Halloween isn't complete without some real evil squishy sounds. These are a little more elaborate, but well worth it.

Next time you run out of milk, fold up the carton to throw it out as usual. But first, squeeze the carton in and out while close to a mic. Air will be forced back and forth through the small amount of milk left in the fold and can become anything from Frankenstein's leaky heart valve to a toxic waste pit. Process this one heavily for effect.

The classic rubbing-a-balloon sound can be used to resemble something being forced through a small opening; Warner Bros. used the same effect for a lump on the head. Mix a balloon squeak on a DAW with the milk trick and there's the sound of a ghoul's head and body forcing its way through your mailslot at home.

Need a real good *goosh* effect, like something wet bursting open? This one took a little experimentation, a lot of mixing and some mopping-up-after, but here it is: A water balloon filled with really runny oatmeal dropped from a ladder forms the impact. This is cross-faded against a simultaneous mix of air bubbles, bathtub sloshing, wet clay being squeezed through the fingers and a vocal groan at very low level.

The tail end is the sound of those huge droplets striking the pavement at swimming pools when someone does a "cannonball" off the diving board. This is done in the studio by tossing a shallow bucket of water into the air off the same ladder. Total time of the entire montage: just under two seconds.

By the way, this was done in a large cable TV studio protected in sheet plastic. It obviously cannot be done in a radio production cubicle, but it can be in a large room, preferably when nobody is looking.

Evil animals

Finally, Halloween requires ugly animal noises. A neighbor's dog that enjoys playing tug-o'-war with an old sock will give you all the growls and guttural noises you can process and fit on a hard drive.

Exotic pet birds emit all sorts of chirps, shrieks and clucks. Reverse them, pitch-shift them, ring-modulate them and use every trick you know to turn them into the Budgies From Hell.

This last one is so simple and cheap, everybody will think you are a genius, as long as you don't tell them how you really did it. Wet your finger and squeak it rapidly against a glass window. Double the playback speed, copy and time-shift the effect across several tracks, then pan and high-EQ each to your heart's content. Finish with gallons of long-tail reverb.

Congratulations: you're the proud owner of the scariest *bat cave* in your market. Happy Halloween.

■■■

Gowan Gray is a former radio production director, now applying his audio skills to cable television near Washington.

World Radio History

A Sonic Journey to Jerusalem

Rich Rarey

In our last *Public Domain*, we had received the assignment to go to Jerusalem and record, edit and transmit elements back to the United States that, in the words of NPR foreign editor Loren Jenkins, "would evoke the sights, sounds and smells and emotions that make Jerusalem 'Jerusalem.'"

We also devoted some time to sketching out the equipment connections and listing the items in a spreadsheet, both for our sanity and for customs declaration when returning to the United States.

Now, referring back to our sketches, we begin to assemble, test and pack the components we will use to gather, edit and transmit audio. The first consideration is "power."

Juice in Jerusalem

All AC powered equipment had to have international voltage capability; lugging bulky power converters is a waste of space, in our opinion. It is preferable to carry AC plug adapters to slip on the plugs of capable equipment and go to work.

Israel uses 240 VAC, 50 Hz power with European-style rounded pins. To power a handful of equipment, we prefer to take a Waber-type power strip and simply put a round-pin adapter over its U.S. standard three-prong AC cord, then plug our international voltage equipment into it.

Two cautions: *Clearly* mark the power strip as "240 VAC 50 Hz" with masking tape or gaffer's tape. This will keep unsuspecting colleagues from plugging their equipment into it.

Second, *do not* use power strips that have neon power indicators. The neon lamp's limiting resistors are designed for 120 VAC and the smell they will make when burning is not pleasant.

For battery-powered equipment, we elected to pack a quantity of Alkaline 9V, AA and D batteries, as well as four LCH12V6.5P rechargeable Panasonic batteries.

Alkaline batteries are available readily in Jerusalem, but by bringing our own we were sure we always had enough on hand. Plus, their quality of charge was known and, frankly, they are cheaper here.

Two Patco commercial-quality rechargers can trickle-charge the Panasonic batteries in eight hours or less; they are small and accept international voltages.

'Shortcut' to the Holy Land

Our requirements for the NPR/National Geographic "Radio Expeditions" series indicated we needed simultaneous digital stereo recording capability and single mic sources for interviews. Mid-Side (M-S) recording was considered essential because of the amount of post-production control we would have over the stereo image.

We planned to use a Shure FP33 Stereo Mixer and a phase inverter for decoding the NPR News program material prior to transmission. All monitoring would be done using Sony MDRV6 headphones.

At the time, we happened to have a 360 Systems Shortcut digital editor with us for evaluation and thought a trip overseas would do well to test its editing power.

We wanted simply to cut, organize and paste audio material. We felt field-mixing the Jerusalem sound portrait would be too time-consuming; we had a tight schedule to gather material for three radio pieces as well as "Radio Expeditions" and were uncomfortable taking excessive equipment just for EQ'ing and monitoring a mix.

In the event the Shortcut failed, Plan B was to sequence the cuts onto another DAT, and transmit raw audio back. This would mean more prep time necessary at NPR.

Our personal favorite rig for two-mic interviews consists of two Neumann KMR-81 microphones in zeppelins and an HHB PortaDAT recorder, powered by a hefty Panasonic battery. Those goofy looking videographer vests provide ample storage pockets for the recorder and battery, but makes one look like "Doonesbury" TV correspondent Roland Hedley.

For M-S pickup, we preferred a combination of Sennheiser MKH30 (figure-8) and MKH40 (cardioid) mics mounted in a Rycote zeppelin with fake fur covering. We brought a pair of Shoeps MK2S Omni microphones to be fastened on a 12-inch stereo bar using rubber-banded "clamshell" mounts.

Second rig

Our second recorder setup was a Sony D-8 DAT, powered by a four D-cell zippered pack, giving us eight hours of recording time. We kept a set of four AA batteries in its pouch, as a backup if the D cells expired, or if we wanted to use the rig with the least possible "stuff" attached.

The sound one can get using a Sonosax SX-M2 self-contained mic preamp is quite good, even though the two 9 V batteries become exhausted after several continuous hours.

As the D-8 has no provision for +48 V phantom power, we would have to lug a battery-powered +48 V power supply anyway, so bringing a superior field preamp to give better aural quality and power the mics made the most sense.

A stereo mini-to-mini cable connected the preamp to the D-8's line inputs. We recorded on the Manual setting and taped the Sonosax gain controls to roughly middle position, leaving us to make gain

See JOURNEY, page 64 ▶

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PRODUCT GUIDE

Companies with new product announcements for Studio Sessions Product Guide should send them to:
Radio World, c/o Studio Sessions Editor, P.O. Box 1214, Falls Church, VA. 22041

Orban Audicy Version 1.5

The new Audicy workstation from Orban features updated Version 1.5 software. This upgrade provides more sophisticated machine control when using the Audicy in SMPTE-synched video and film post-production. The software upgrade also allows extensive WAV file import and export capabilities, full sample and bit-rate conversion, new networking features and expanded recording times.

Other Audicy features include simultaneous mixing and processing of 10 audio channels plus submix and stereo input, with PCM linear recording of up to 24 tracks. All editing functions are performed in RAM, with automatic shadowing to hard disk or removable Jaz drive.

For information, contact Orban in California at (510) 351-3500 or ***circle Reader Service 205.***

Making Waves Sequencer

From Perceptive Solutions Ltd. of England comes "Making Waves," an audio sequencing software package for the PC.

Making Waves can structure samples rhythmically, making it a useful tool for creating interesting production music loops and beds in rap and techno styles.

Sequences are generated by clicking markers on a grid, selecting a series of WAV files and determining the tempo of the production. There is support for up to 64 sample channels and a large number of different samples can be played back simultaneously. Playback can be direct from PC or output as a WAV file.

Making Waves includes a CD-ROM with 400 starter samples.

For information, contact Perceptive Solutions Ltd. in the U.K. at 011-44-1773-821-120 or ***circle Reader Service 206.***

Ethernet Port for Audio

THAT Corp. has designed a computer network interface card specifically for linking workstations in an audio production facility.

The ENET-1 modular card is an OEM (original equipment manufacturer) component that conforms to industry-standard 10Base-T Ethernet circuitry (10 MB per second transfer). It has a self-contained 16-bit microcontroller with Flash ROM and RAM, keeping all network-related functions directly on the card.

This feature lets the host computer work exclusively on audio, rather than divert computational power to network housekeeping. The ENET-1 card manages all Ethernet functions, including addressing, error detection and collision handling.

The ENET-1 board can be included in any product that uses a microcontroller.

For information, contact THAT Corporation in Massachusetts at (508) 229-2500 or ***circle Reader Service 207.***

Martech Reverb Enhancer

Owners of classic EMT Echo Plate reverberation devices can rejuvenate their systems with the Martech EMT 140 Upgrade kit. The upgrade is said to minimize excessive coloration, distortion and hum inherent in analog plate reverbs.

Martech, a division of Martinsound, Inc., has developed a new drive amplifier and transducer set that can be retrofit to an existing EMT plate. The amplifier features a new EQ curve set for optimum frequency response and minimum distortion and noise, while retaining the original character of the plate reverb. Balanced outputs are rated at +26 dBu.

An improved high-pass filter with half-octave resolution helps define the sound of the plate and an internal calibration oscillator generates a warbling sinewave signal for test and measurement. The warble avoids standing waves in the plate.

For information, contact Martech in California at (818) 281-3555 or ***circle Reader Service 15.***

AKG Limited Edition Mic

AKG Acoustics introduced a limited edition of its C414 microphone, to commemorate the company's 50 years in business.

The C414B/ULS Gold is based on the popular AKG vocal and instrumental mic. The body is plated in 18 karat gold and features an engraved serial number from 001/100 to 100/100. The gold version weighs 11 ounces and comes with a wooden case with all accessories and a signed certificate of authenticity.

Suggested retail price of the C414B/ULS Gold is $2,000.

For information, contact Harman Pro North America in Tennessee at (615) 399-2199 or ***circle Reader Service 208.***

Fostex Second-Generation DAT

Fostex debuted a second-generation version of its portable timecode DAT recorders: the PD-4 (Version 2).

This newer PD-4 recorder incorporates a four-head design for off-tape confidence monitoring, critical for on-location applications. The unit also has a built-in 3x2 mixer with three-position pan functions. A three-position mic attenuator, limiter and variable low-cut filters are included.

A standard NP-1B battery offers 1.5 hours of record time and the PD-4 provides for retention of the timecode when batteries are changed in the field. Two "AA" cells are used to maintain the backup.

Owners of the original version PD-4 can upgrade their decks to Version 2 with the Fostex 9710 upgrade package.

Suggested price of the new PD-4 (Version 2) is $7,395.

For information, contact Fostex Corp. of America in California at (310) 921-1112 or ***circle Reader Service 209.***

Korg Virtua Digital Console

The new Soundtracs Virtua console from Korg has been designed for broadcast and music production.

The Virtua is a digital 48-channel mixer with four-band parametric EQ, compressors and gates on every channel. The console has eight auxiliaries and 24 tape outputs.

Touch-sensitive motorized fader controls are combined with high-resolution video and LCD displays. Internal architecture is 32-bit floating point with 105 dB dynamic range on the outputs.

A/D-D/A converters are rackmounted externally, and connected optically to the control surface. There are 32 Mic/Line inputs on balanced XLRs and quarter-inch jacks, eight Group outputs and eight Aux outputs and 16 Direct Outs. Nine-pin machine control and MIDI round out the features of the Virtua console.

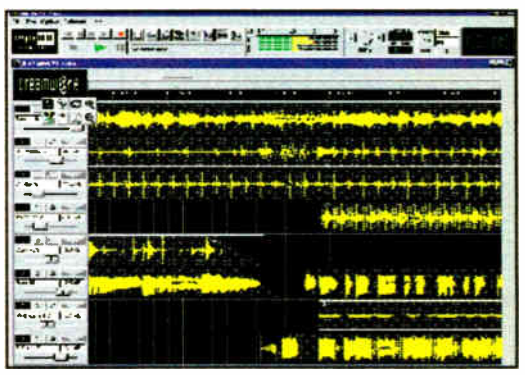
Suggested price of the Soundtracs Virtua console is $35,000.

For information, contact Korg USA in New York at (516) 333-9100 or ***circle Reader Service 54.***

CreamWare Digital Products

CreamWare U.S. has the TripleDAT V2.0 and TDAT16 digital audio systems for music and audio production.

The TripleDAT combines a 16-bit ISA card for the PC, optical and S/PDIF I/O with cabling and an infrared remote control. A suite of DSP filters and effects act as an "equipment rack" for processing each track in real time. The system can handle from eight to 20 stereo tracks, depending on hardware and processing speed.



The TDAT16 workstation combines software with ADAT-compatible hardware. The hardware complement offers two ADAT-type optical interfaces on one PCI board. Each port can be switched between two-channel S/PDIF and eight-channel ADAT formats.

With an optional A16 converter, data from the ADAT ports can be translated to 16 analog inputs and outputs.

For information, contact CreamWare U.S. in Washington state at (604) 527-9924 or ***circle Reader Service 93.***

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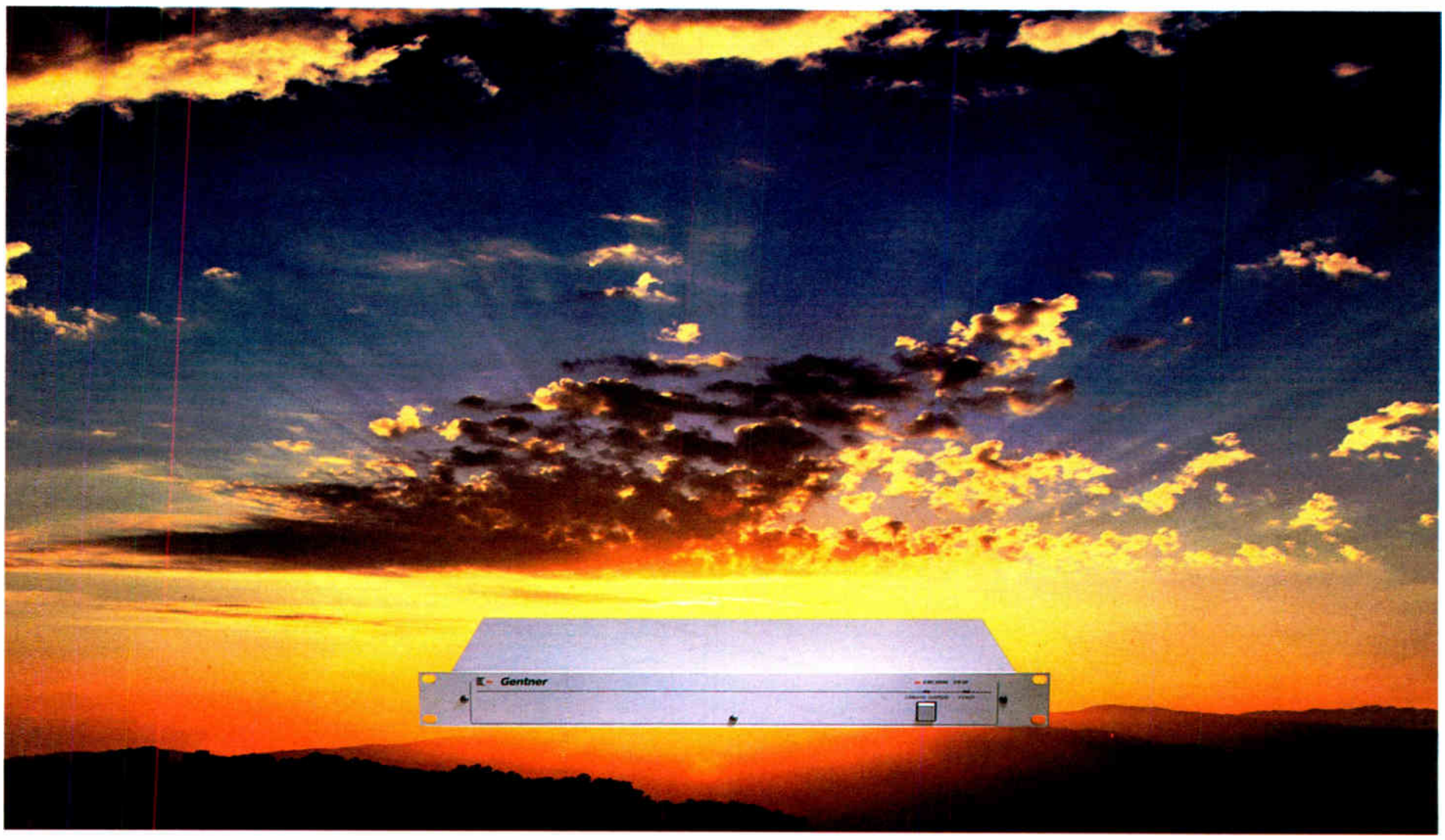

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World Radio History

NPR Jerusalem Journey

▶ JOURNEY, continued from page 61

adjustments at the recorder, one knob instead of two.

The Sonosax and the D-8 are the same dimensions, and can be carefully gaffer-taped together as one unit.

One item we had never packed before was a Shure S15 mic stand. This tripod stand was recommended by NPR Technical Director Chuck Thompson; its use would save arm-holding a clutch of microphones motionless for long periods.

All told, seven road cases were packed with equipment, cables, power supplies and accessories. The DAT recorders and batteries were packed in separate cases, as were the microphones; if some cases got lost in transit, we could still work while our luggage was being located.

We always pack little extras such as alligator clips, because we think we should have the capability to file from just about anywhere, for any reason.

We paid roughly $500 at Dulles Airport for the privilege of taking this amount of equipment on the aircraft as excess baggage; but the ambitious plan called for immediate work upon touchdown in Israel, and we felt we could not tolerate shipping delays.

This wisdom, while considered pricey at first, was vindicated when we tried to have replacement battery chargers sent from the United States, which took four days at premium service rates.

One more piece of gear for the pocket: ear plugs. Experience has proven there *will* be a screaming baby in economy class, so one is advised to bring a set.

Having been exposed to the heightened security for Tel Aviv departures on previous trips, we actually felt more secure moving though the process. For those traveling unaware, the maze of procedures can seem unsettling and confusing. We arrived at our layover in Germany at 7 a.m., Frankfurt time (2 a.m. Eastern) and immediately headed for our departure flight's gate.

Open the bag, sir

Although the schedule lists ample time before departure, there are so many procedures to pass that the time goes by quickly. The first checkpoint is another X-ray machine and all electronic equipment and carry-on computers are inspected and subjected to what amounts to a particle-analyzing vacuum cleaner. Cleared equipment is sealed in a plastic bag and given back.

After walking down a long, straight corridor with armed security, cameras and a one-way mirror at one end, we arrive at our flight's luggage carousel. Here, all tickets and passports are inspected again. All conventional luggage must be scooped up and presented to another X-ray machine — carry-on bags included.

The equipment did not appear on the carousel, because that kind of stuff greatly interests security people. We wheeled over to the conveyor and each piece was rewarded with a bar-coded sticker. The next stop was a counter where the security person scans each case's barcode and a screen dump of the X-ray for that piece appears on her monitor.

Modern technology is left behind for the old-fashioned hand search. Every pocket, zippered section, clothes, and personal items are inspected carefully and politely. If all personal items are in order, the traveler can pass through after a pat-down search of his person by a same-sex security person.

Once this check point has passed, one can then negotiate the passage of the equipment.

Extremely thorough

There is always a line to an unmarked door, behind which is a broad table for examining open baggage. No one ever calls your name, you simply must wait in queue for your turn to open all equipment cases and allow security to take vacuumed dust samples to their analyzer.

Stern soldiers with Uzi machine guns patrolled the area, alternately eyeballing travelers and looking bored. After the equipment turned up a predictable "OK" by the analyzer, we were allowed to drag the cases to another nearby counter, where the equipment was again checked.

After this, one is allowed to walk through a short maze of corridors to the outside ramp, where the waiting aircraft sits, surrounded by heavily armed soldiers and one small armored tank.

After a long overnight flight from the United States, a weary traveler may wonder if he or she is hallucinating or living out a personal action movie. This is just normal security for flights to Israel.

After experiencing these security procedures several times, two truths become evident: First, all security personnel, without exception, are extremely polite, helpful and courteous. They are respectful in handling one's belongings

Second, one cannot miss one's flight if the security personnel are slow to inspect the luggage; the plane will not depart without you. Knowing these two points eliminates travel stress, and reduces the experience to "simply waiting."

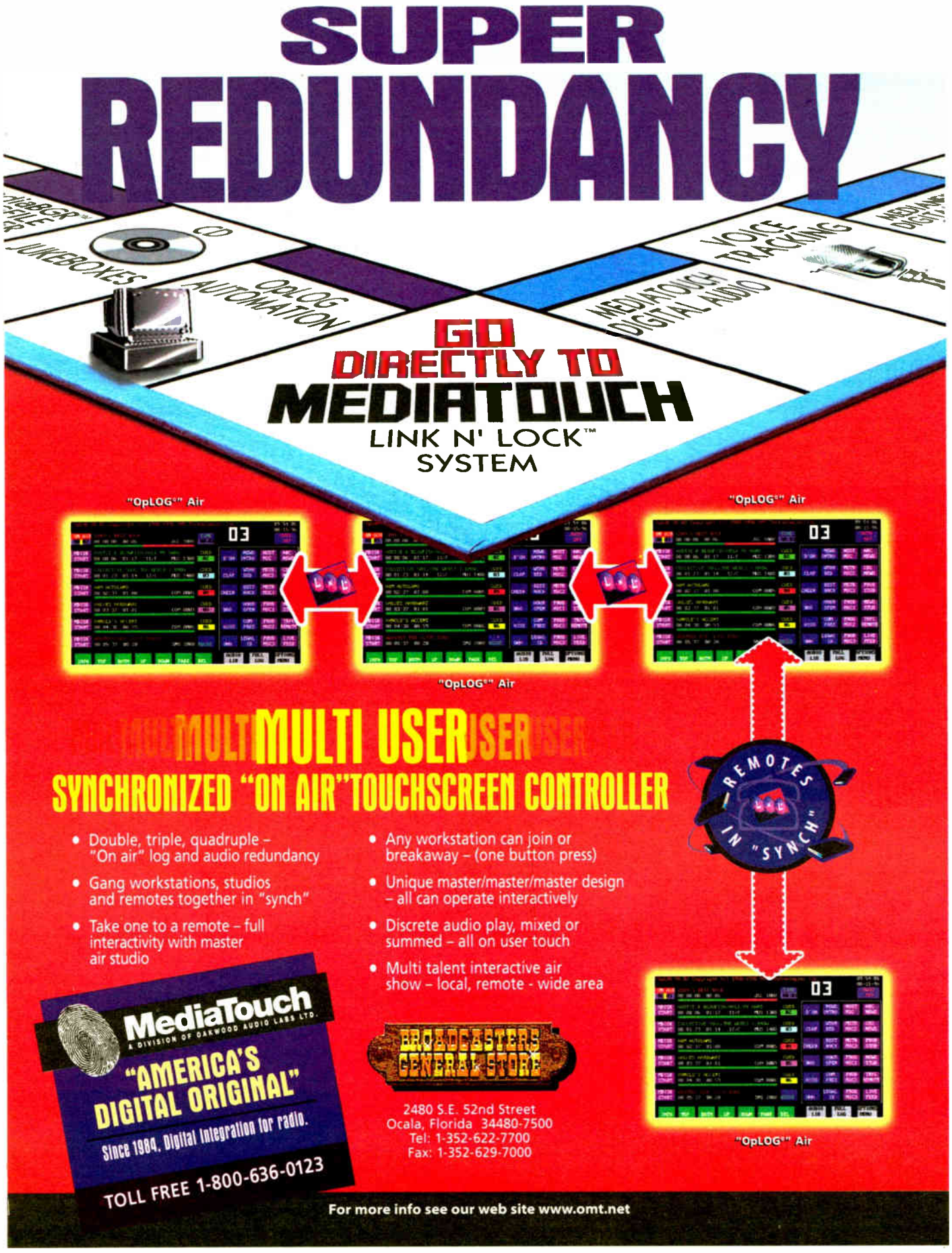
Woe be to those who carry contraband, though, for those are dealt with swiftly and out of sight.

The flight to Tel Aviv finally departed Frankfurt airport at full power.

In our final installment, we will describe the recording process at the site of Christ's crucifixion, at the place Mohammed stepped up to heaven and the experience we had recording the ethereal ambiance at the ancient sacred Jewish cemetery, Mount of Olives.

■■■

Rich Rarey is technical director for NPR's "Talk of the Nation."



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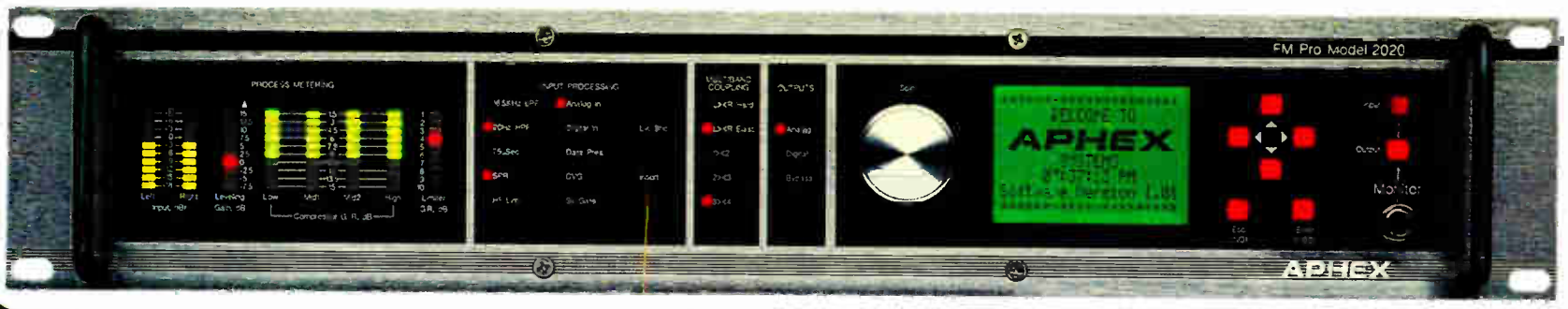

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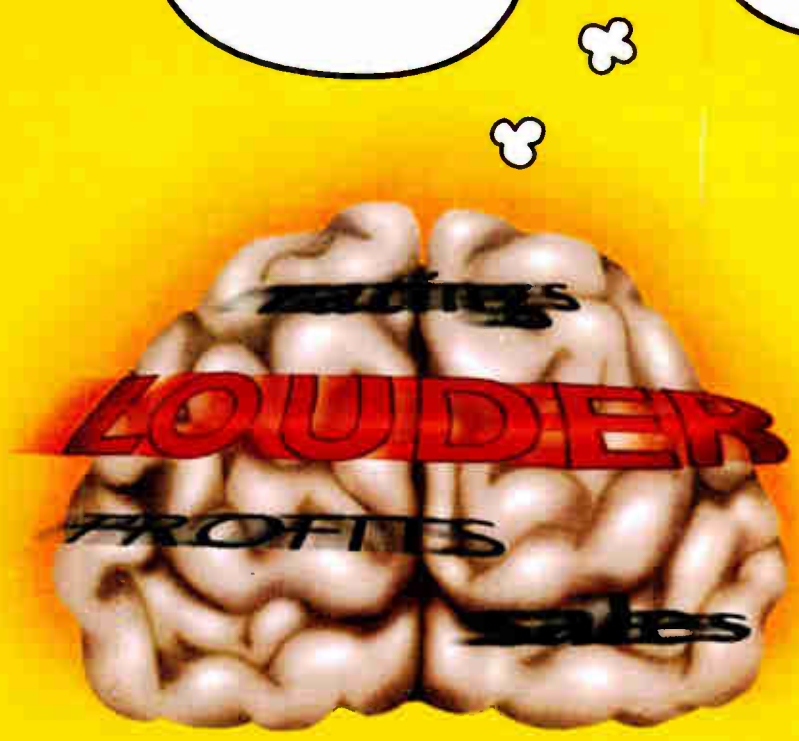
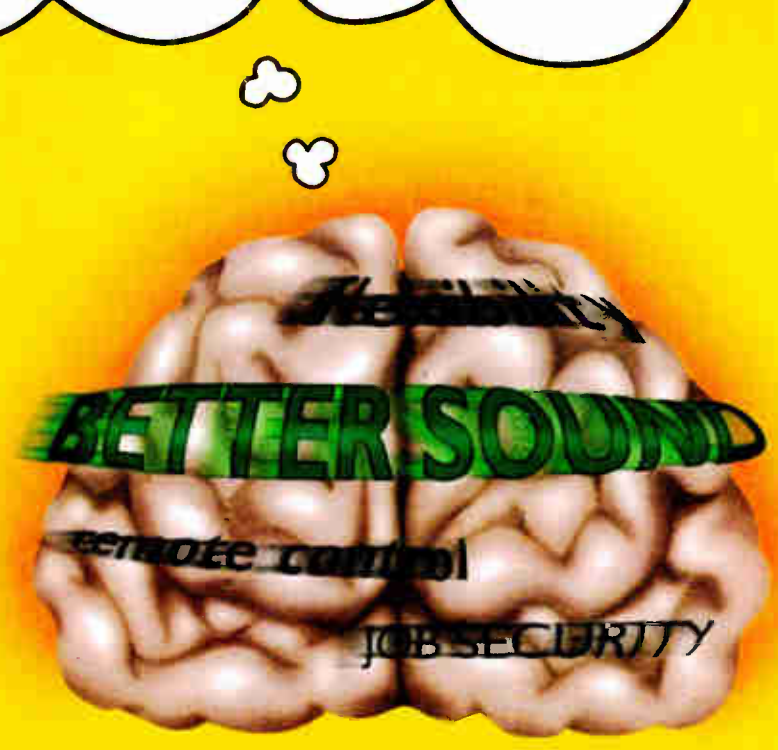


Station Manager



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World Radio History

Native Power Pack

▶ NATIVE, continued from page 59

effect. But by processing it first through TrueVerb, then through StereoImager, you can create a simulated stereo file as wide as you could ever desire..

Most stereo-from-mono methods create frequency cancellation problems when summed back to mono, but this process is natural-sounding and absolutely mono-compatible. For me, these two utilities are worth the price of the entire package.

Big EQ

Running close behind these two utilities is the Q10 Paragraphic Equalizer, with its 10 individual equalizer bands.

Most hardware parametric equalizers have one low-shelf and one high-shelf control. The Q10 provides an impressive choice of parametric, low-shelf, high-shelf, low-pass and high-pass functions on any of the equalizer bands. Each band is adjustable over ±18 dB range.

Adjust individual gain, frequency midpoint and *Q* by clicking on the appropriate mark on the on-screen graph, by entering numerical values on the keyboard or by dragging the mouse pointer up or down on the appropriate box.

You can strap the equalizer so that each setting affects both channels equally; or unstrap it, resulting in separate settings for the right and left channels. Several or all bands can be linked to move in unison with the mouse.

Like all of the NPP plug-ins, changes can be heard in real time as parameters are adjusted. This was helpful for me in creating special equalization curves for older 16-inch transcriptions.

In fact, I now record the transcriptions without any EQ and create the appropriate curve on the computer using the Q10. This is a great utility.

The other three plug-ins included in the NPP package are the C-1 Compressor, the C-1 Gate and the L-1 Ultramaximizer, which was reviewed some time ago. I won't say anything further about it here, except that it continues to be one of the best means of finishing a digital audio project. It provides consistent output levels and minimizes low-level digital noise through proprietary dithering algorithms.

The C-1 Gate and Compressor each perform well. They are easy to adjust and provide anything from soft to hard processing. In the NPP package for other platforms, there is the provision to tie the Compressor and Gate plug-ins together; adjusting one will tweak the other. I wish this feature was also included in the Sound Forge version and hope it will be in the future.

Paper chase

Another plus for the NPP package is the extensive documentation. The written documentation is sparse, but if you print out the accompanying on-line documentation, you will have a working library of information providing both theory and practical instruction.

It runs in excess of 100 pages when printed but I recommend doing so and putting it in a binder.

Product Capsule:
WAVES NATIVE POWER PACK

Thumbs Up	Thumbs Down
✓ Good reverb ✓ Compatible with many audio programs ✓ Real-time previews	✓ Reverb settings in cubic meters ✓ Sparse written documentation

For more information contact U.S. Waves in Tenn. at (423) 689-5395, or circle **Reader Service 132**

All in all, the Waves Native Power Pack software contains well-designed, useful and innovative plug-ins that will greatly add to your digital audio productivity and creativity. NPP has a retail price of $600, but I have seen it discounted to as low as $399.

U.S. Waves is at 6716 Central Avenue, Pike Suite 8, Knoxville, TN, 37912. You can e-mail the company at *waves@waves.com*

■■■

Read Burgan is a freelance writer and a former public radio station manager. Reach him at (906) 296-0652 or by e-mail at rgb@up.net

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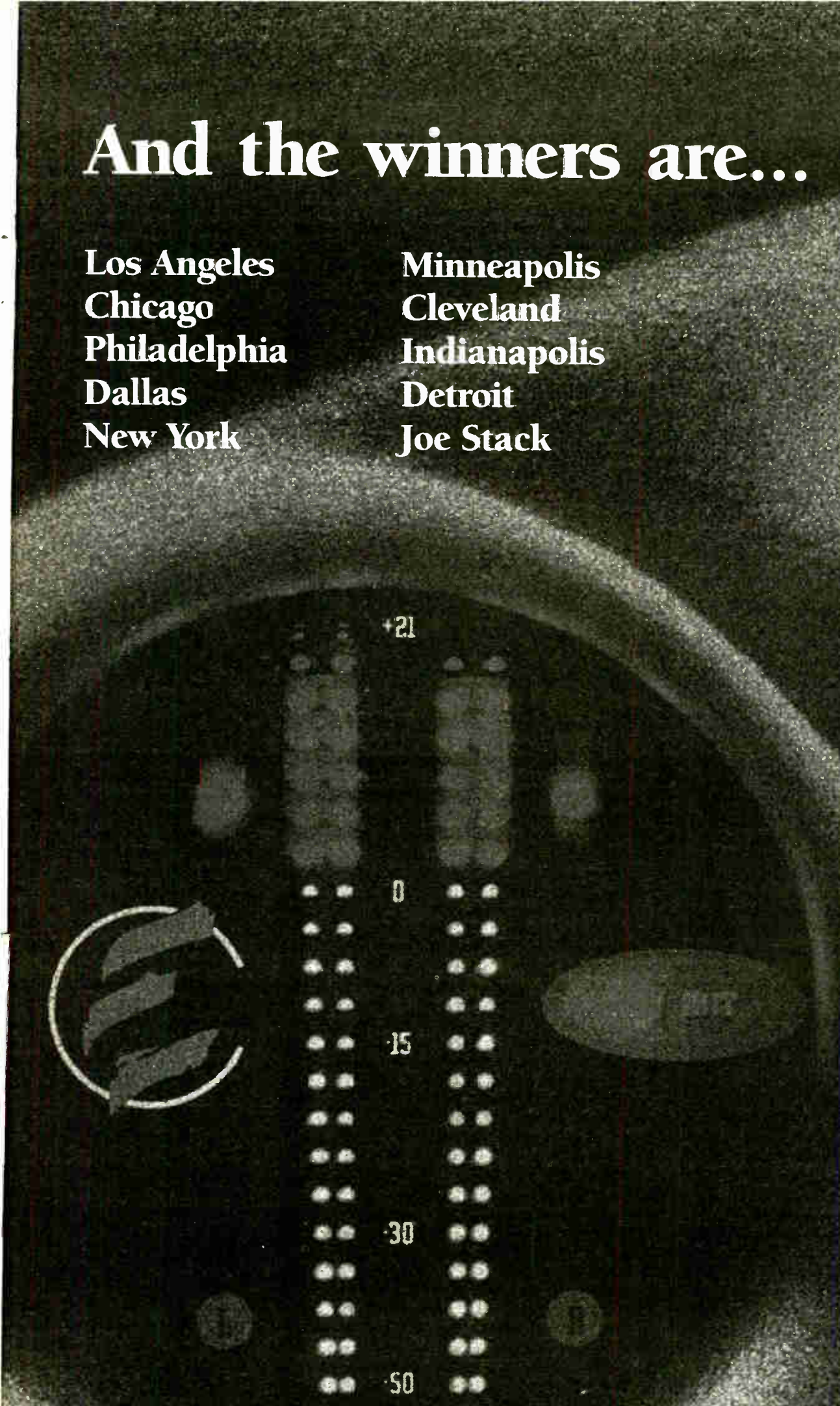

Stations in these markets are participating in a secret beta trial of the new all-digital Omnia.fm processor. They're winning listeners with Omnia's tight, muscular bass, clean, sparkling highs, and amazing loudness - all with no digital grunge.

Joe Stack? He's from ABC Radio, and correctly identified these markets in our contest at the NAB convention in New Orleans. The prize? An Omnia.fm for his company. Where will it go? Sorry, we're sworn to secrecy.

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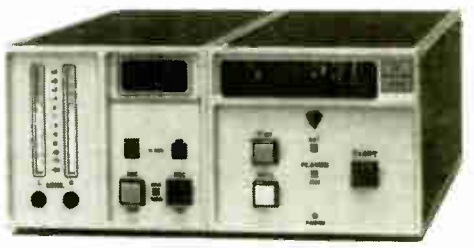

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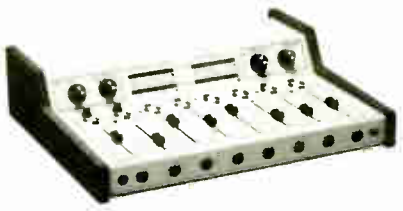

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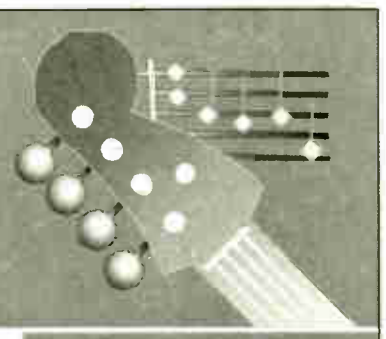

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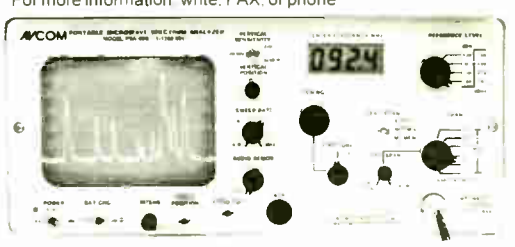

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World Radio History

STATION SPOTLIGHT

WPAX(AM): A Grand 75 in Georgia

Claudia J. Tucker

Lee Robinson, owner of WPAX(AM) at 1240 kHz, is adamant that his station will remain independent, despite the climate of radio consolidation and group ownership. Robinson is the fourth owner in the station's history, and his passion is reminiscent of the attitudes of the original owner.

The third station to go on the air in Georgia, Hoyt Wimpy's WPAX began on Dec. 27, 1922, as a 10 W, one-man station located in a garage. Wimpy's license and call letters were issued by the U.S. Department of Commerce.

Filling a void

Wimpy didn't set out to be a radio station owner. He already owned a business that made radio receivers, but there wasn't much on the air in those days and reception was lousy. Wimpy concluded that a local station would have a built-in audience in need of more receivers.

After WPAX was launched, sales of Wimpy's receivers increased and his station also proved successful. He moved WPAX from its makeshift garage studio into downtown Thomasville, Ga., in the early 1930s, and increased its power to 100 W. Early WPAX programming consisted of local news, music from phonograph records picked up by mic from a Victrola, and local singing talent.

In 1934 Wimpy moved the station to its present location on Remington Ave., stepped the power up to 250 W, and built a 210-foot self-supported tower. The tower has been a community landmark since.

Wimpy retired in 1961 and sold WPAX to Frank Hazelton and Hurley Rudd of Tallahassee, Fla., who incorporated under the name of Thomasville Inc. In 1965 WPAX was sold to George Oliva Jr. of Cleveland, who owned a number of stations in Ohio, Florida and Georgia.

Robinson started working at the station in 1957 when he was 15. Wimpy still was in charge. Working without recorders, station employees such as Robinson worked from a file book and read the commercials live each day. Robinson read certain spots so many times that he can recite them from memory to this day.

Robinson eventually attended college and took a different career path, but in the mid-1980s he visited WPAX to get a public service announcement aired. He had not forgotten his early radio experience, and still harbored a desire to own a station. The manager of WPAX had left the station after 20 years, leaving it vulnerable for new ownership. Robinson realized a long-time dream by purchasing his hometown station from Oliva on Oct. 1, 1985.

"Everything fell into place," said Robinson. "I believe that when things work out like that, the Lord is behind you in a decision. Conversely, when there's a lot of obstacles, a course of action isn't meant to be."

Blending old and new

Community involvement is critical to the station's success. Robinson emphasizes that the station remains local-oriented, covering local sports and news the way it was covered in the past.

WPAX News Director Mark Brannan said, "We have listeners who make it a point to tune in for our news, even if they don't regularly listen to the rest of our format. People know that if they want news and information that affects them personally, WPAX is the place to find it."

Local news is augmented by the

See LOCAL, page 72 ▶

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World Radio History

STATION FINANCING

Crack the Code to Financing

Dain Schult

This is fourth in a multipart series about buying and financing radio stations. The previous part appeared Oct. 1.

Another NAB Radio Show has passed and with it numerous sessions on radio station financing. Obtaining financing can sound easy; but in reality it is similar to the painful and embarrassing process of learning to pay the violin while standing on a crowded city street corner.

Before we go any further, let's examine the difference between legitimate funding sources and "fantasy" sources. Traditionally, the legitimate funding sources are venture capital firms, equity funding firms, mezzanine or sub-debt funding sources, station sellers, banks and institutional lenders.

On the fantasy side, there are countless numbers of "agents," "advisors," and "loan brokers" who, for an up-front fee of between $10,000 and $50,000, allegedly will find all the money you could ever use. You've seen their ads in the classified sections of business magazines.

These rogues usually say you can keep a majority interest of your company and, in some extreme cases, take years before you start paying any interest, much less repaying the principal.

What's wrong with this picture?

Remind yourself of some old adages: "There ain't no such thing as a free lunch," "You can't get something for nothing" and "If it sounds too good to be true, it probably is."

I have yet to find one legitimate, successful funding source in more than 10 years of investigating these kinds of sources. Try getting references from these people and see what happens. They start melting back into the woodwork and can't give you many, if any, references.

Some are more benign than others; maybe these sources won't ask for an up-front fee. But most do, and none of those are willing or able to refund that fee when they fail to deliver.

These operators steal your time and your credibility, which are as important as the money they make off with.

Do it yourself

Perhaps you are in a position to finance your own deal with some help from the seller who will play banker with a first lien on the assets. If not, you must accept that you will end up with a minority equity position when seeking financing from a legitimate source.

Any equity source who becomes your partner, and puts most, if not all, of the equity money into the deal will require at least 80 percent of the total equity of the deal, leaving you and anyone else you have on your management team with 20 percent.

Twenty percent beats zero percent, so quit pouting. Understand that there is more than one Golden Rule.

What to do with that $50,000-plus I suggested you need in the first article of this series? Use part of it (say $15,000 or so) to tie down at least one station deal. Put together a Letter of Intent giving you at least 90 days before you have to have a signed Asset Purchase Agreement. Use the bulk of that time to engage a legitimate investment banking firm or financial advisor in helping you find the rest of the funding you need.

Twenty percent beats zero percent, so quit pouting. There is more than one Golden Rule.

Going to any funding source without having at least one station tied down is an exercise in futility. No funding source (debt or equity) is willing to support a concept. Believe me; I've tried this approach, and it doesn't work. However, the source will support the concept if it appears to have some substance, i.e., you have a station or stations tied down, even if only by a Letter of Intent.

Richard Stowell, president of the Heartland Group in Houston, sums it up this way: "The bulk of radio acquisitions today are being done by large, well-capitalized owners who also have ready access to both public and private capital markets. The entrepreneur, by necessity, has to work harder and smarter for his success. Understanding and accepting the cost of legitimate financing sources is working smarter.

"What does the opportunity need to look like if it were your money backing the entrepreneur?"

If you hesitate before answering, you don't have the right deal yet. I know it's all very chicken-and-egg as to what to do first, but you have to display certain attributes to succeed.

Next time we'll delve into the art of the possible as it relates to finding the station of your dreams.

■■■

Dain Schult is a 30-year broadcast veteran and consultant, based in Austin, Texas.

Got a question or suggestion for Dain to address in an upcoming part of the series? Send an e-mail to pmclane@imaspub.com.

Tips for making the deal:

Remain calm and patient in finding a deal that will make sense on paper.

Winnow out the people who really can't help you put the deal together.

Give the financial advisor you choose to work with the ability to do his or her job without you playing sidewalk supervisor. Remember the old Chinese adage, "The philosopher leaves the cut of his clothes to the tailor."

Hold firm to the conviction that you can and will succeed. Perseverance is the only thing that matters. There will always be people around you who may appear to have more money, more talent, more contacts, more whatever, but perseverance is the great equalizer. If you're willing to hang in there regardless of the outward appearances, you too can be a station owner.

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World Radio History

Surprises in At-Work Listening

Chris Hamaker

Programmers and radio salespeople are underestimating the amount and the scope of radio listening in the workplace. "Radio Goes to Work," a co-venture of Arbitron and Edison Media Research, concludes that radio industry

assumptions about at-work listening are off the mark, making a reassessment of this large block of time a priority for station managers.

The study findings were culled from three sources: Government census data, Arbitron diaries and re-interviews of 1,123 spring 1997 Arbitron diary keepers.

Location, location, location

Fundamental to a study of *what* people listen to in the workplace is a determination of *where* they work and *when* they work. The study found that a lower-than-expected 42 percent of professionals work in an office, and only 25 percent work in the traditional office building environment. Arbitron Vice President, Communications Thomas Mocarsky called the finding a "shocker," noting that radio stations often aim their signal at office buildings.

Another notable finding is that less than 4 percent of the work force actually works 9 a.m. to 5 p.m. A whopping 68 percent of workers are in the office by 8 a.m., rising to 74 percent 30 minutes later.

Once in the office, most workers (65 percent) listen to the radio, with 63 percent deciding for themselves what station they want to listen to. "It's a myth that most people are stuck listening to a station," Mocarsky said, noting that only 14 percent of workers listen to music that is "piped in" by the company.

The only popular assumption Mocarsky said was borne out by the study is that most workers (61 percent) tend to lock in one station throughout the day.

Mocarsky said the assumed format of choice at the office is AC, which indexes well above the norm (153) in the study, but classic rock is a strong second in the index, followed closely by AOR. "Your AOR listener is going to listen to you at work," Mocarsky said. "Don't think only AC gets it."

The only formats that index at less than 100, meaning a worker is less likely to hear those formats at the office than outside the office, are Urban (79) and News/Talk (46).

Another inaccurate perception station managers hold, according to Mocarsky, is that telemarketing efforts to get offices to tune in their station have been exhaustive.

"Only 5 percent of study participants said they have gotten a call at work from a radio station," Mocarsky said. "If stations believe they've beaten at-work listening into the ground with telemarketing, we don't see it."

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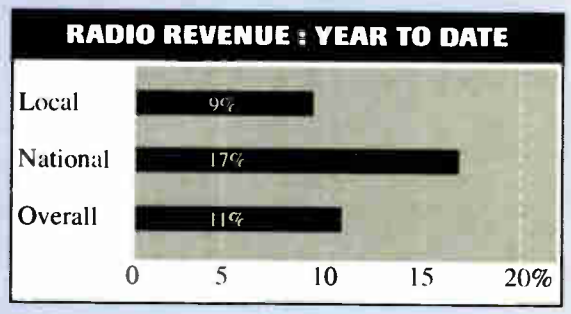
August-only figures show national revenue skyrocketing 33 percent in the Southeast. Every other region registered double-digit gains.



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World Radio History

How to Avoid an FCC Inspection

Jack Layton

That's right, you read it correctly: How To Avoid An FCC Inspection. You can't lock the doors; you can't hide under a rock! However, there is a way to keep the feds away from the door of your radio station.

In 1993 Jim Dailey, deputy director of the FCC Regional Office in Kansas City, was asked by the Missouri Association of Broadcasters to help formulate a mock inspection program. One thing led to another. The mock inspection program led to what today is known as the Alternative Broadcast Inspection Program (ABIP).

Three years of freedom

Broadcaster associations, SBE chapters and others in more than 40 states, with the blessing of the Federal Communications Commission, now have set up ABIPs. The program works like this: Your facility is inspected by an organization that has set up a program with the commission. If it passes the inspection, the commission is notified. If it fails, only you and the inspector know about it. Upon passing, you are immune from an official inspection by the FCC for a period of three years, absent a specific complaint.

The specifics of the ABIPs vary slightly from state to state. In general, however, the broadcaster requests the state broadcaster association or the SBE chapter to inspect their facility. A nominal fee is charged for this service. In at least one state, the broadcaster association pays for the inspection of its member stations.

Upon receipt of the request and a check for the fees, the association schedules the inspection. This immediately triggers a window, usually three to six months, during which the FCC will waive a routine inspection.

The inspection is done by an individual or a company retained by the association. The individuals actually performing the inspections have been approved by the local FCC field office. If the station passes the inspection, the association notifies the appropriate regional FCC field office. Absent a specific complaint, the agreement between the association and the commission provides for a period of immunity from a routine FCC inspection of two to three years.

If the facility does not pass the inspection, there are two options: The station has a period of time, usually 60 days, to make corrections. During this period it is still immune from a routine inspection. If the infractions are minor and few in number, the station can correct the deficiencies and then certify to the inspecting association via notarized letter that the corrections have been made. If the violations are numerous and/or serious in nature, a reinspection is required.

Once the violations have been corrected, a certificate of compliance is issued. Option number two: The station can forget the ABIP inspection and take its chances on being the target of an official inspection.

No problems

Rocky Campagna of the FCC Compliance & Information Bureau (CIB) oversees the Alternative Broadcaster Inspection Program. He indicated that several hundred stations have been certified as "in compliance" since the program began. He reports that there have been no problems with ABIPs.

What does the inspector look for when conducting an ABIP inspection? Sample questions include: Are all authorizations (station license, STL license, RPU license, any STAs) posted or in a binder at the transmitter control point? Is there a Chief Operator designated in writing? Are logs reviewed by the Chief Operator in a timely manner? Is the Public Inspection File in order? Is the antenna structure or structures painted and lighted in accordance with the terms of the station license?

For an AM directional antenna system, are the base and loop current ratios of each element within ±5 percent of licensed values? Are phases within ±3 percent of licensed values? Are measured field strengths at all the monitoring points within tolerance? Is a copy of the most recent antenna proof-of-performance measurements available?

The frequency of the transmitter is likely to be measured. The frequencies of the STL and RPU equipment might also be measured. When was the last time the station made such measurements? Is there a record of them?

Is EAS equipment properly installed and operating? If not has its removal from service been documented? Have any missed EAS tests , either transmitted or received, been investigated and the reason for the omission been documented?

Do-it-yourself

The FCC publishes a Broadcast Station Self Inspection Checklist. There are three versions of this publication, CIB-18AM, CIB-18FM and CIB-18TV. You can download them from the FCC website, *www.fcc.gov/cib*

This self-inspection checklist forms the basis of an ABIP inspection. CIB18 and a current copy of the FCC Rules will go a long way toward assuring a station passing an ABIP inspection or an official FCC Inspection.

Some of the most frequent violations found during an ABIP inspection include documents missing from the Public File (check 73.3526 on what is required), EAS violations (Part 11 of the Rules covers EAS), AM directional antenna systems considerably out of adjustment, tower paint faded beyond FAA tolerances, missing NRSC measurement reports, and failure of the Chief Operator to review station logs and missing license documentation.

A shocking but common lapse sometimes discovered during an inspection is that many broadcasters do not have a current copy of Part 73 of the Rules! It never ceases to amaze me that the owner of a several hundred-thousand-dollar or a million-dollar-plus facility that depends on a license issued by the federal government does not have a copy of the rules with which he or she must comply!

Perhaps 10 to 15 percent of the stations I have inspected pass on the first try. The great majority of the stations that fail have a few minor problems that can be corrected with little or no monetary expenditures. A little over 5 percent of those who do not pass have serious and/or numerous deficiencies.

Stations that request an ABIP inspection are making every effort to be in compliance with the rules. It is futile and a waste of money for those who willfully and seriously violate the rules to request such an Inspection. They have nothing to gain. This program is intended to free up the limited resources of the commission to concentrate on operators who give the broadcast industry a bad name by ignoring the rules and the terms of their license.

Interested in having your facility undergo an ABIP inspection? Contact your state broadcaster association for details.

■■■

Jack Layton is owner of Layton Technical Services in McMurray, Pa. His company does ABIP inspections, facilities evaluations and directional antenna field work.

What An ABIP Inspection Includes

For a more complete list see the FCC Self Inspection Check List, available at *www.fcc.gov/cib*

Administrative
- Are current licenses posted or readily available?
- Are required station logs retained and available?
- Are required equipment performance measurements available?
- Has a Chief Operator been designated in writing?
- Are the logs reviewed as required by the rules?

Public File
- Is the file maintained in the proper location?
- Can copies be made?
- Is the material required by Section 73.3526 or 73.3527 in the file?

Antenna Structure
- Does the description, painting and lighting requirements, height, etc., agree with the station license?
- Has the structure been registered and has the registration number been posted?
- Is the paint within limits of the FAA color tolerance chart?
- Is the fencing adequate and in good repair?

Emergency Alert System (EAS)
- Is the encoder/decoder working?
- Are tests sent and received documented?
- Is there an EAS Operating Handbook and authenticator word list posted?

Transmitting System
- Is the transmitter output power within 90 to 105 percent of what is specified on the station license?
- Is the station in compliance with the frequency tolerance specified in the rules?
- Are directional antenna operating parameters within tolerances specified?
- Are monitoring points specified in the station license within tolerance?
- Is the station in compliance with remote control rules, Sections 73.1350 and 73.1400?

Down-Home Focus Helps Georgia Station Succeed

▶ LOCAL, continued from page 69

Georgia News Network and national and international news from the CBS Network. Other CBS special features also are aired.

WPAX is not automated. Sports is a big part of the station offerings, including the Atlanta Braves, high school sports, and University of Georgia football and baseball.

"The Braves are doing well now, but we covered them loyally during their less-successful years, as well," Robinson said. Similarly, WPAX listeners have rewarded the station with loyalty. The station regularly receives visitors, many of whom say they have been tuning to WPAX since World War II.

Today WPAX broadcasts from 6 a.m. to midnight seven days a week, reaching about 40,000 listeners across Thomas County during the day. Its format is easy listening with a little big band, featuring artists such as Perry Como, Don Cornell, Jerry Vale and Doris Day. The station targets a 30-plus demo, and stresses to advertisers that the loyalty and relative affluence of the WPAX audience is worth pursuing.

Advertisers are loyal, too. WPAX still carries ads from charter advertiser Thomas Drug Stores, which has supported the station through three generations of pharmacist/owners.

Despite its down-home focus, WPAX stays up to date technologically. It moved to AM stereo about 10 years ago and has incorporated the latest audio advances as they became available, including CDs and MiniDiscs. In 1986 Robinson purchased the building permit for country station WTUF(FM), 106.3 MHz. Last year he upped the 3 kW country station to 6 kW. In terms of revenue, Robinson said, his AM station does better than his FM station.

WPAX, located 35 miles north of Tallahassee, is in an unrated market. Robinson is confident that he will always get his share of the market as long as he keeps a local focus. Asked about his plans, Robinson said, "I'm very happy with a small station in a small market. I like being involved in everything from sales to script writing, start to finish. I like knowing my advertisers and audience personally, and that's just not possible when you're a group owner. I'm back in my home town, running the hometown station, and that's exactly where I want to be."

■■■

Claudia J. Tucker is a writer and editor for SCI Systems Inc., a Fortune 500 electronics manufacturing service provider in Huntsville, Ala.

World Radio History

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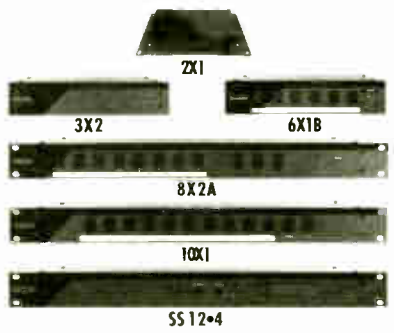

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READER SERVICE NO. 151

World Radio History

Protect Your Radio Revenue

Leslie Stimson

Guard your radio revenue closely. TV wants a piece of it, especially during the morning hours.

That was the consensus at a recent NAB Radio Show session on the major threats to radio revenue.

"TV's in for a rough ride," said NAB's Chuck Sherman. Sherman said as major networks lose audience share in prime-time shows, they will fight to beef up their audience for morning shows.

Look for pushing and shoving also on the equipment side for both media, as TV scrambles to make the transition to digital broadcasting. By November 1998, 26 TV stations will be airing digital programming, Sherman said.

Radio stations leasing tower or antenna space from TV stations switching to digital may be forced to let those leases lapse. A scarcity of tower space, too much weight, wind load and other factors may make it impossible for some FMs to remain on those TV towers.

The TV industry is trying to meet a federally targeted 2006 deadline for the transition to digital, facing a limited number of tower manufacturers and crews that specialize in tall towers.

Other threats

The Department of Justice remains a threat for radio, panelists said. Although broadcasters no longer are surprised when their deals are big enough for antitrust review, they still should be careful.

Howrey & Simon's James Olson said executives shouldn't make the same boastful comments to DOJ attorneys that they use with Wall Street analysts to encourage investors, nor should they keep documents with such comments as "We're raising our rates," or "They can't buy around us now."

Another activity that could cause a problem as concentration increases would be monthly luncheons of radio executives in local markets, said Olson.

"Such lunches may be interpreted much differently if there are six rather than 40 separate owners in a market," he said.

Satellite digital radio presents a threat from above. Now that two such licenses have been awarded, it is imperative for in-band, on-channel, digital radio to move forward, said Randy Odeneal of Sconnix Broadcasting. With 22 Westinghouse/CBS engineers working on IBOC development full-time, it appears the timing for its rollout will match that of satellite DAB, Odeneal said. He predicted a 2000 or 2001 IBOC launch.

Congress

Congressional threats to radio haven't changed. The major networks are not running liquor ads, and the industry is doing a lot to discourage alcohol beverage abuse through public service campaigns, said Jim May of the NAB.

Many of the campaign reform proposals before Congress would mandate that broadcasters give political candidates free time. NAB vigorously opposes this. May said there is a difference between stations willingly giving free time and being mandated to do it. He pointed out that broadcasters already give away valuable free time in public service campaigns.

66 Years Ago

Reprinted from Radio World (October 3, 1931).
Editor's note: The RW of old, printed for a time in the 1920s and 1930s, and today's RW are unrelated except in name.

MARCONI TALK FROM ENGLAND IS HEARD HERE

Coincident with the opening of the public show in New York City, Senator Guglielmo Marconi spoke before a microphone of the British Broadcasting Company, in London, and his talk was carried by the WABC and WJZ chains. The Senator, an Italian, spoke with an English accent, for he has lived much of his life in England. He said in part:

"I am supposed to confine myself to an account of point-to-point wireless telegraphy, but broadcasting has become such an important factor in the daily life of nations that the practice of it depends on principles which are common to wireless telegraphy.

"The thing from which it may be truly said that wireless has sprung was the discovery made by Michael Faraday 100 years ago, that it was not necessary for two electrical circuits to be in actual physical contact in order that electrical energy might pass through the small space between them.

"The great need of the present day is for a better understanding between men and nations," said Senator Marconi. "This understanding can be fostered and helped by improvements in our communications. A most direct and satisfactory means of communication between men is the spoken word. In this respect broadcast telephony occupies a unique position as being the most potent means for the dissemination of instruction and entertainment that the world has ever known. I am happy if by any effort of mine I have been able to make some contribution toward international sympathy and understanding."

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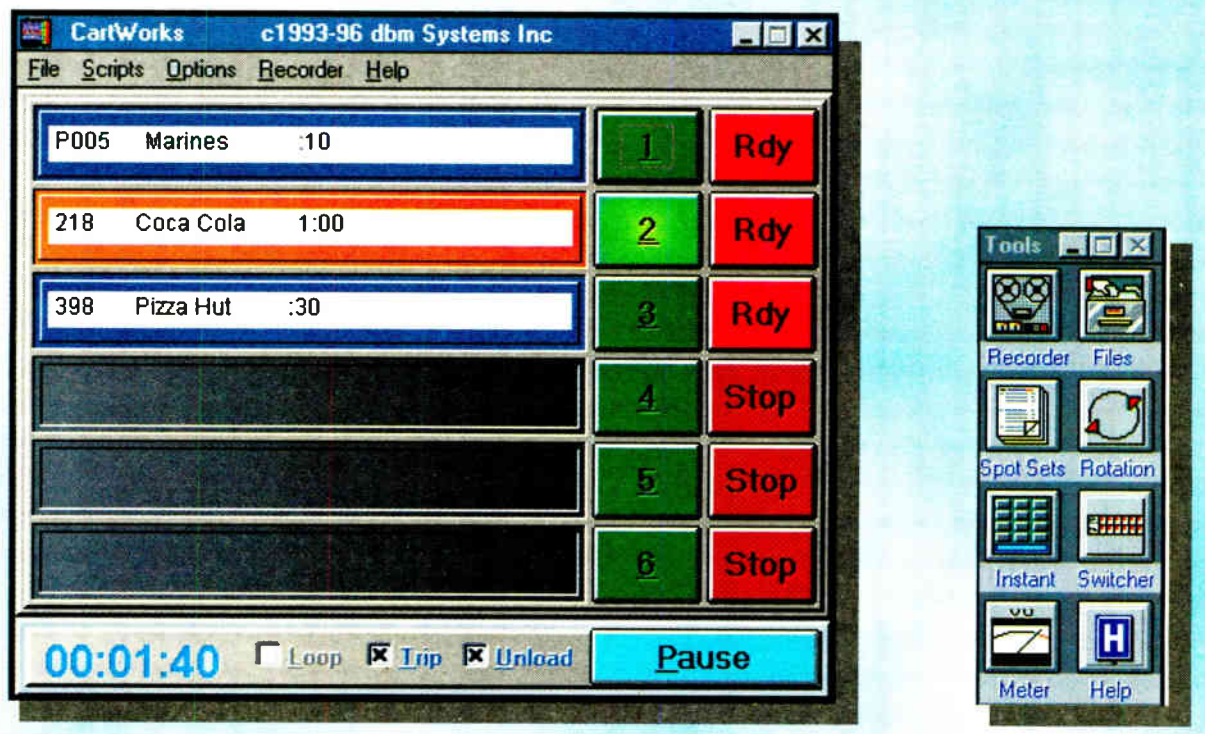

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Circle (198) On Reader Service Card

World Radio History

E-Mail Madness: There Is a Cure

John Gilroy

According to a recent presidential commission, Americans are logged on to computers for more than 200 million hours a day. CompuServe got gobbled up by AOL and it made front-page news. Let's not forget the 900-pound gorilla called "The Internet." As a professional working in the radio industry, how can the Internet benefit you? How can you use it to keep in touch with listeners or promote your station to potential advertisers?

In this environment, it's appropriate to examine aspects of the Internet, to show how to benefit from all this whiz-bang computer technology. A great place to start is a discussion of the most popular use of the Internet: electronic mail or e-mail.

Your mailbox is full

It will come as no surprise to you that there are more than 43 million computers in the United States; some days I think they are all sending me e-mail! Here are some basic principles for you to consider in managing digital communication:

Solicit questions and comments via e-mail. Marketing gurus the world over have told us to find a parade and get in front of it. You can't tell what is in the mind of your listeners without asking. Making conclusions from e-mail surveys is absolutely not scientific; however, such results are absolutely immediate. With fast changing news, you can be on top of listener concerns and interests.

It is also possible that some listeners are not as vocal as others, and do not want to express an opinion over the phone, especially on the air. That does not mean they don't have a well rteasoned thought. If you make your e-mail address on the air or in print, it will encourage listeners to keep in touch.

Always acknowledge a message. An electronic message does not have the impact of a personal letter, but it has more significance than a wave from a passing train. If someone is going to take the time to send your station e-mail, have the courtesy to acknowledge its receipt. If you get five messages a week, it is easy for an individual to respond to each one. However, if you get 100 messages in 24 hours, you can get suicidal.

Fortunately, there is software available to allow you to filter incoming messages and even set up a standard response to all messages. A good example of a product with those capabilities is Qualcomm's Eudora Pro 3.0 ($69; visit *www.eudora.com*). If you are bombarded with e-mail, you can always send an automatic response saying that you are swamped and you will respond when you get your head above water.

Use a signature file judiciously. It always amazes me how much e-mail I receive from folks who fail to identify themselves. It is no problem if their return address is *clinton@whitehouse.gov*, but I am bewildered when I have to respond to a person with a return address like *8989333@compuserve.com*.

Most e-mail programs, or "clients," in the jargon of the trade, allow you to construct a comment at the end of a message, called a "signature" (or simply "sig") file. It is a good idea to include your name, telephone number, call letters, and the address for your home page in your sig file.

Use discretion with sig files. For people on staff, you probably don't have to remind them of your call letters. You also can have a basic sig file and then an alternative sig file. The alternative can be used for specific marketing issues, like a contest or a special program for advertisers. If you are a marketing representative for a radio station, varying your sig file can let prospects know of new pricing policies or programs that you have forgotten to mention in person.

Get listeners involved

Consider using a listserver. The Internet has a variety of ways for users to discuss issues. One easy-to-use method is with something called a listserver. A listserver is a program that can set up an e-mail discussion group inexpensively. It allows all your listeners with computers and modems to get in their "two cents worth" if they couldn't get their opinion heard on the air. Normally, an Internet Service Provider would assist you in setting up a listserver. You select the software you wish to use, and the program will duplicate electronic messages to everyone in the group. A good place to start exploring the concept of a listserver is at *www.l-soft.com*.

Please note that we are not arbitrarily sending out electronic messages to thousands of addresses. The subscribers want the information and can "unsubscribe" whenever they want. If you choose to send out e-mail to thousands without their consent, you may find that computer professionals have aggressive ways to respond to such provocation.

Electronic mail will allow you to keep in touch with listeners, advertising clients and staff members. You might not be able to tame the 900-pound gorilla with a modem, but you just might be able to make it jump through hoops.

■■■

John Gilroy writes a weekly computer column for The Washington Post. He also is a monthly guest on The Derek McGinty Show, heard on National Public Radio. For more details, visit www.wamu.org/computerguys

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World Radio History

News Trends Emerge at RTNDA

Gordon Govier

Radio deregulation is changing radio news and the role of the radio news director. But until the consolidation dust settles, it's not clear whether the new radio environment will be any healthier for radio news.

"(News directors) used to battle with program directors. Now we are more of a program director, as we provide news on multiple stations," said Georgeann Herbert, news and program director for WBBM(AM) in Chicago.

"It's a most amazing time, a time of incredible change and opportunity," Warren Maurer, executive vice president of Shadow Broadcast Services in Philadelphia, said. "Radio's first voice was a newscast. I still believe it is radio's best and foremost goal."

More opportunities

Herbert and Maurer were joined by Metro Network News Vice President Bill Yeager and ABC Radio Programming General Manager Merrilee Cox in a workshop at the 1997 International Conference of the Radio Television News Directors Association in New Orleans.

Yeager agreed that some news operations will expand, increasing opportunities for radio journalists. Some of the newly created radio chains may even establish their own intra-state news departments.

Ball State University professor Bob Papper, who does an annual employment and salary survey for the Radio Television News Directors Foundation, said preliminary information this year shows no evidence that the newly combined station groups are cutting back news. He said stations are slightly more likely to have more news and to pay better salaries.

But all of this is not reassuring to radio news veterans, who have watched cutbacks decimate their ranks over the last decade. Bill Vanko, who works for stand-alone WPOC(FM) in Baltimore, is nervous. "I don't know where it's going to go," he said.

Cox predicted that more and more news directors will become news czars, like Jerry Bell of KOA(AM). His staff now is providing news services for all six Jacor stations in Denver.

"It's like when I first started (in radio)," Cox said. "I was called to do everything. I could learn and do a lot of different things."

Bell agreed that his anchors were developing new versatility walking between the news/talk station and an AOR station down the hall. Ethics and enterprise ideas used to be among the biggest challenges for radio news directors, Herbert said. Now they have a lot more decisions about going digital, going on the Web, and other modern issues.

"The journalists of the future will have the skills that will allow them to move across platforms," said Bill Drummond, who has established a radio news curriculum at the University of California-Berkeley. "Radio is a resilient medium," something that can be used as a fallback in the future or as a supplement for other jobs, he said.

Drummond said some radio news networks, such as AP and Bloomberg, are looking for reporters who are multi-disciplinary.

Papper said preliminary information this year shows no evidence that the newly combined station groups are cutting back news.

WDBO(AM) News Director Marsha Taylor said she experienced fierce competition for newspeople in Orlando. After losing several staffers to cable operations, Taylor is raising salaries to retain her newspeople.

Traffic and news, together?

Bill Yeager said that when Metro Traffic expanded into news, it first tried to convert its traffic people into journalists. That didn't work, so Metro began hiring qualified journalists for its news reporting, he said.

Now Metro Networks has gone one step further with the introduction of Metro Source at the RTNDA and NAB conventions. Metro Source integrates News Browser, a computerized news wire editor, Cool Edit for audio editing and Cart-O-Matic for audio playback.

Metro Source is for Metro Networks news clients, now numbering about 450 in more than 50 markets. Similar integrated text and audio news software, such as the Newsroom program offered by Computer Concepts and Newslink from Radio Computing Services, were on display at the show.

Associated Press Broadcast Services

See TOOLS, page 79 ▶

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World Radio History

▶ TOOLS, continued from page 78

also introduced its latest wire handling software. ENPS (Electronic News Production System) is a drag-and-drop wire handling program with sophisticated search capabilities and the ability to play back sound and video. It was developed by AP for the BBC, and can be used in both radio and television newsrooms.

A digital audio editing program called X-Track was one of the featured products in a "high-tech news toys" session.

Although X-Track is more expensive than the aforementioned Cool Edit, and comes with its own $1,500 sound card, its advantages include the ability to work in both MPEG and WAV audio file formats. It also has a scrub wheel feature.

The Comrex HotLine POTS codec was put through its paces for the workshop. When ISDN connections aren't possible, the HotLine can provide up to 8.5 kHz frequency response on a POTS (Plain Old Telephone Service) line. After dialing up a

Comrex HotLine

strong overseas phone feed from the BBC, KYW(AM) News Director Bill Roswell phoned Comrex engineer John Andrews on the exhibit hall floor for a Q&A on its features.

Roswell demonstrated some of the features of the portable MZ-B3 MiniDisc recorder made by Sony. While more and more newsrooms are adopting the MiniDisc format, most in attendance here seemed unfamiliar with it. Bloomberg reporter Jerry Laird said his network experienced only minor problems in using the MiniDisc. But Roswell admitted his Philadelphia newsroom was still using analog tape decks.

Stuck on tape

Some newsrooms are satisfied with the inexpensive Radio Shack tape recorders, as WTMJ(AM) News Director Dan Shelley admitted in another session at the RTNDA convention. Shelley played reports featuring his morning news anchor experiencing both dirt-track auto racing and "the Ejector Seat" at the Wisconsin State Fair. Shelley said he encourages his staff to report on topics in which they are interested.

WHAS(AM) News Director Brian Rublein said he doesn't put time limits on his reporters. And although it takes more time to incorporate ambient sound into news reports, he said his staff does it because they enjoy it.

"Sometimes the best thing we can do as reporters is just shut up and let the tape tell the story," he said.

■ ■ ■

Gordon Govier is news director at WNWC-AM-FM in Madison, Wis.

STATION SERVICES

Looking and Listening for Love

There's a new hot spot for singles looking for that special someone: the radio. And now a leading radio personals service is expanding its reach to the Internet.

RadioDate, the voice personals service from InXsys Broadcast Networks, has launched a new on-line service, which it foresees as a boon not only to those seeking love but also to advertisers trying to make money on the Internet.

The obvious benefit to the RadioDate user is the visual element offered on line: Customers now can evaluate the appearance of a potential date. If users have a voice activation option on their computers, they can hear an audio message from their potential dates as well. Listeners who do not have Internet access can still find the data with a touch-tone phone.

InXsys President Laurence Norjean said RadioDate Online offers the first opportunity for stations to make money on the Internet. Norjean is courting national advertisers to take part in RadioDate Online by targeting ads to specific users. The concept, which Norjean called "unitargeting," draws on the extensive personal data users provide RadioDate upon signing on to the service, matching the ads best-suited to those user profiles.

The ads appear each time a user logs on to the RadioDate site.

"Best of all," Norjean said of the RadioDate user data, "stations now have a complete user profile for their database."

— Chris Hamaker

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Hillary and the Duck

What do a duck, Congress and Hillary Clinton have in common? Play "Tribond" to find out, or ... keep reading.

SW Networks thinks it has a winning idea with "Tribond," a weekly radio game show and daily feature that will debut in January.

Based on a board game that has sold more than 1 million units, "Tribond" challenges players to find a common element among three clues. The question above is an example. Answer: They each have Bills.

The weekly version of "Tribond" will integrate a live studio audience at Universal Studios Florida, with two contestants ultimately participating in a championship speed round; the one-hour program incorporates two 30-minute segments. The daily "Tribond" will pit call-in contestants against each other and will be hosted by an on-air personality.

"Tribond" is compatible with a broad range of radio formats. The program goes into production later this year.

*For information contact Joyce MacDonald at SW Networks, (212) 833-5400; or circle **Reader Service 59**.*

Boogie Nights

The Nostalgia Broadcasting Corp. lives up to its name, picking up syndication rights for the '70s dance music program "Dance Mix America." The show is brought to stations through NBG Radio Network, a division of Nostalgia Broadcasting Corp.

Dr. Dean Gavoni of the NBG Radio Network said "Dance Mix America," produced by Ten Star Productions, is the only '70s dance program delivered on CD to stations.

*For information contact Ollie Holmes at NBG Radio Network, (800) 505-5640 (ext. 772); or circle **Reader Service 98**.*

Barbara Walters Would Be Proud

If you think you know all about country music and country artists, "The Conversation Piece" could give you something to talk about.

The new daily feature probes country songwriters and performers with questions that are anything but standard fare. Sample questions include, "If you opened a restaurant, what would be your house specialty?," and "Which of the Seven Dwarfs personifies you best?"

"The Conversation Piece" is inspired by a book of the same name, written by Bret Nicholaus and Paul Lowrie.

Backstage Productions distributes the 60-second program weekly on CD, with a one-minute barter commercial included.

*For information contact Lynda Anderson at Backstage Productions, (800) 833-1334; or circle **Reader Service 60**.*

Holiday Movies Without the Pictures

It's getting to be that time of year. "Miracle on 34th Street," "It's a Wonderful Life," "The Bishop's Wife" — but not in black-and-white or colorized. These are classics you can listen to, not watch.

"Radio Movie Classics" from Dick Brescia Associates offers a fourth-quarter line-up of holiday broadcasts. These Lux Radio Theatre adaptations of popular movies include Jimmy Stewart performing "It's a Wonderful Life," Frank Sinatra performing "Miracle of the Bells" and Robert Mitchum performing "Holiday Affair."

Movie critic and WNBC(TV) personality Jeffrey Lyons hosts the broadcasts.

*For information contact David West at Dick Brescia Associates, (201) 385-6566; or circle **Reader Service 137**.*

VP Candidate Speaks

Remember Pat Choate? He was Ross Perot's running mate during the 1996 election campaign.

TALK AMERICA

Choate has a new platform, "The Pat Choate Show" on Talk America Radio Networks. Talk America said Choate "brings you a nationalistic approach" on issues of the day.

"Our future is made of citizens and not international tradesmen," Choate said.

*For information contact Tom Star at Talk America Radio Networks, (617) 828-4546; or circle **Reader Service 176**.*

In the 'Geto'

Radio Shows Ltd. wants the radio industry to face "Reality" with its latest syndication product.

Debuting Nov. 2, "Willie D's Reality Check" will pump two hours of call-ins, guests and "in-your-face truth" onto the airwaves. Host Willie D, a member of the Geto Boys rap group, mans the microphones Sunday through Thursday evenings from 9 to 11 p.m. EST.

With his show, Willie D is trying to do something about the problems that people face daily. In the process, he is trying to give all people ... well, a reality check.

"Let's be real with each other," said the passionate, good-humored host.

Willie D said he looked at other syndicators and chose Radio Shows because the company is "aggressive and progressive."

For information contact Christa Dahlander at Radio Shows Ltd., (800) 988-

Late-Night Jazz

Mainstream jazz is finding new fans.

The WFMT Jazz Satellite Network now is heard on 62 affiliates, including recent market sign-ups in Boston, Seattle/Tacoma and Milwaukee, where the WYMS(FM) station manager called the Network "the perfect cultural programming service for public radio."

The Network feed comprises 11 modular program hours with optional breaks, which WFMT said allows for "minimal local staff attention" during the overnight hours. The modules allow for a tape delay option, for broadcast during other dayparts.

*For information contact David Levin at WFMT, (773) 279-2111; or circle **Reader Service 21**.*

Get Up! With Upcountry

How can a country station on the fringe of a major market compete with the top-rated country outlet and other suburban competitors? "Upcountry" may be the answer.

Launched in September on WUPP-FM in Manassas, Va., Upcountry (formerly country rocker "Thunder Country") wants to carve out a niche by playing only up-tempo hits from 1989 to the present.

"Dancing is fun, and here comes more Upcountry music to help you do it!" exclaims one liner. No ballads allowed, and no heavy rotation of new, unfamiliar songs.

The station has an **RW** connection. Its consultant is Mark Lapidus, author of the column *Promo Power*. Programming Director Chris O'Brien, himself an occasional contributor to **RW**, said the only new songs on Upcountry will be "up-tempo hits that will already be on the charts and the video channels."

The Virginia station is the first Upcountry outlet in the nation. For information contact Mark Lapidus at (703) 383-1805.

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World Radio History

Radio World

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AMPLIFIERS

Want to Sell

Altec-Lansing A323B pwr amp w/6L6 output tubes, custom-built w/Altec transformers, BO +shpg. M Crosby, Sequoia Electronics, 422 Avenida Abetos, San Jose CA 95123. 408-363-1646.

Kenwood KA-5700 stereo amp & loudspeaker system, $265. R Streicher, Pacific A/V Enter, 545 Cloverleaf Way, Monrovia CA 91016. 626-359-8012.

Phase Linear 300 Series II, stereo 300 W, $275. D Jackson, WQQQ, 19 Boas Ln, Wilton CT 06897. 203-762-9425.

Primus P8S/16M dist amp, $200; (3) Roh 212, $150; Roh 203 frame, $250; Roh 201 frame, $200. B Williamson, Digital Radio Eng, Middletown NY 10940. 914-386-4001.

Scientific Atlanta 300-1 low noise amp, BO; California Amp, digi-ready phased-locked block 20 dB downconverter, BO. Skip, WUFM, POB 8470, Westerville OH 43086. 614-890-9977 ext 307.

RTS 410 amps (2), 10 W monitor amp. H Holzapfel, Westar Bdctg Group, 19201 Seventh St East, Sonoma CA 95476. 707-938-1775.

Want to Buy

Tube type amps, limiters, mixers, old speakers etc. J Phillips, The Great Wireless Talking Machine Inc. 419-782-8591.

ANTENNAS/ TOWERS/ CABLES

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AUDIO PRODUCTION

Want to Sell

Dolby 361 Type-A NR, 2 chnls, road case, $600. R Streicher, Pacific A/V Enter, 545 Cloverleaf Way, Monrovia CA 91016. 626-359-8012.

Koss/Optimus Pro-90 stereo headphones, new in box, will trade for an older pair of working AKG K-141 headphones. J Roper, Imperial Sound, 383 N Studio St, Terre Haute IN 47803. 812-877-2663.

Orban 622B parametric EQ, $250; (2) Gentner Prism, $900. B Williamson, Digital Radio Eng, Middletown NY 10940. 914-386-4001.

Spectral Prisma 8 trk in/out digital audio workstation w/PC platform, 1 yr old, perfect cond, $5000. K Thomas, WQIK, 5555 Radio Lane, Jacksonville FL 32205. 904-388-7711.

Yamaha RM-804 8 chnl rcdg mixer, 8 inputs to 4 mix busses, +left & right stereo busses, $1150; Yamaha SPX-90 effects processor, $275; Fisher K-10 SpaceExpander, vintage spring reverb w/tube electr in original box, $500; Audio Technologies AN-2 stereo synthesizer using comb filter tech, $400. D Jackson, WQQQ, 19 Boas Ln, Wilton CT 06897. 203-762-9425.

Sansui AU-555A amp, 2 phono inputs, $40; Sansui SE-300 graphic EQ, $25. E Ribner, Sounds That Matter, 3532-A Wyoming St, St Louis MO 63118. 314-771-2155.

Tannoy 15" speaker pair, newly recond, $1450; vintage record tube mic pre's & mixers, $300-$700; new ADC patch bays 1/4" 52 points, $169; ADC TT bays, $129 up; new ADC TT or 1/4" TRS cords, $9; Furman 1/4" to 1/4" patchbays, $95 ea; like new tape, 1/2"x2500' 456, $15 ea; 1" 456, 226, 250, $25 ea; Digitec 3.6 sec delay, $150; new pwr dist/filter rack mt, $75. W Gunn, Box 2902, Palm Springs CA 92262. 760-320-0728.

Want to Buy

Compressors & EQs, tube and solid state. W Gunn, Box 2902, Palm Springs CA 92262. 760-320-0728.

AUTOMATION EQUIPMENT

Want to Sell

Arrakis Digilink GEM-600 Gemini System w/1.2 gig + network board & software, w/cart wall; Arrakis TS-8C Trak Star workstation w/270 MG w/network board & software, units are 1 yr old, currently on air & working, $11,500/negotiable. L Zeve, WHYL, Box WHYL, Carlisle PA 17013. 717-249-1717.

Arrakis Digilink w/monitor, keyboard & mouse, $3750/BO. S Paris, KYOO, 304 E Jackson, Bolivar MO 65613. 417-326-5259.

Arrakis GEM-600 Gemini w/1.2 gig + network board & software w/cart wall; Arrakis TS-8C Trak Star workstation w/270 meg w/network board & software, one yr old, on air, working great, $11,500/BO. HL Zeve, WHYL, Box WHYL, Carlisle PA 17013. 717-249-1717.

IGM EC controller, $1000; (3) IGM cart Carousel, $250; (2) Arrakis Digilink II, $3500; Arrakis Digilink III, $4500; Arrakis Trakstar, $3500; Audisk 2002, 2 stations, $5000. B Williamson, Digital Radio Eng, Middletown NY 10940. 914-386-4001.

SMC DAS 12, MSP 12, 4 stereo Carousels, 2 slide drawer cart players, $1500. B Strand, KWXD, 1604 E Quincy, Pittsburg KS 66762. 316-232-5993.

Want to Buy

Automation system for FM broadcaster, used or barely used, complete & ready to install, 2 chnl, sat u/l-d/l, live-assist, full auto, documentation, need one, will consider package. C Slacke, WCPE, POB 828, Wake Forest NC 27588. 1-919-556-5178. Cslacke@mindspring.com

CART MACHINES

Want to Sell

Audi-Cord E-Series stereo units (2) + record amp in rack mount shelf, $675; Audi-Cord C-Series A31 (3) side-by-side mono players in rack mount shelf, $550; Audi-Cord A Series stereo RP, needs align

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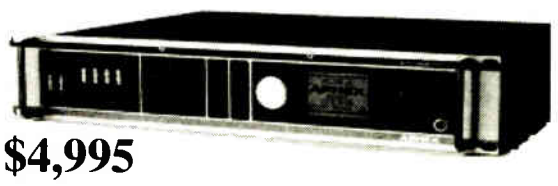

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ment, $200; ITC stereo RP, $350; ITC SP stereo PB, $250; (2) UMC Beaucart mono players, need minor work, $135/pr. D Jackson, WQQQ, 19 Boas Ln, Wilton CT 06897. 203-762-9425.

BE triple deck 3 cue tones, mono, record electr, very clean, $1200. B Hineman, The Sound Man, 2673 Glengyle Dr, Vienna VA 22181. 703-242-7497.

Dynamax CTR-10 cart PBs (3), BO. Skip, WUFM, POB 8470, Westerville OH 43086. 614-890-9977 ext 307.

ITC 3-D stereo players (2), $150 ea +shpg; (3) ITC Omega stereo's, $150 ea +shpg; ITC ESL-V tape eraser/splice locator, $300 +shpg. L Dupree, KQID, 1115 Texas Ave, Alexandria LA 71301. 318-444-1234.

Sonomag Carousels, (2) 350 series, one 450 digital series, w/manuals, BO. C Gill, KATY, 27450 Ynez Rd #316, Temecula CA 92591. 909-506-1222.

Tapecaster 700P PB, $250, mdl 700RP w/delay board, $350; mdl 700P PB, $300; mdl 700RP, $400, all units used seasonally, low hrs, serviced regularly. A Slaugh, Ski Areas of NY, 2144 Currie Rd, Tully NY 13159. 315-696-6550.

BE triple deck w/record electr for deck 3, mono w/3 cue tones, excel cond, $1200. B Hineman, The Sound Man, 2673 Glengyle Dr, Vienna VA 22181. 703-242-7497.

Pacific Tomcat, rack mount, PB, stereo cart deck, excel cond, $100. W Jackson, Broadcast Productions, 1520 University NE, Albuquerque NM 87102. 505-848-8391.

ITC upgrade PB to record, amps only-no deck, 3 tone, stereo, $175. W Gunn, Box 2902, Palm Springs CA 92262. 760-320-0728.

CD PLAYERS

Want to Sell

Denon DN 650F, like new, rack mount w/large read-out, $450/BO. K Thomas, WQIK, 5555 Radio Lane, Jacksonville FL 32233. 904-388-7711.

CONSOLES

Want to Sell

Altec 1567A w/5 transformers, excel cond, $700. M Schackow, M Schackow Recdg, 307 4th Ave E, Lemmon SC 57638. 605-374-3424.

Gates Executive 10 chnl stereo, rebuilt, gd cond, $1900; Gates President 10 chnl mono, rebuilt, gd cond, $2750; Tascam 10, 8x4 studio mixer, transformer in/out w/floor stand & headphone monitor module, excel cond, $800. F Roberts, KUT-FM, POB 7158, Austin TX 78713. 512-475-9073.

Radio Systems ESA-10, stereo 10 chnl, needs some work, spare parts, $1200. G Arroyo, WONQ, Orlando FL. 407-830-0800.

Spirit Live/4 mixing console, $1150. R Streicher, Pacific A/V Enter, 545 Cloverleaf Way, Monrovia CA 91016. 626-359-8012.

Howe 12 pots, $1500. J Arzuaga, WLAZ, Curry Ford Rd, Orlando FL 32812. 787-895-0000.

Soundcraft 600 32x16 w/patchbay, mint, $4950; Tascam 512 12x8 mixer, $750; Tascam 520 20x8x16 mixer, $1750; Tascam 30 8x4, $450; Allen & Heath Syncon 28x24, great sounding, $5000. W Gunn, Box 2902, Palm Springs CA 92262. 760-320-0728.

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Nady 2 chnl wireless rcvr w/2 wireless mics, excel cond, BO; Nady WA150 50 W small wireless PA system w/speaker, amp/rcvr & mic, works on 110V AC or 18V DC, BO. H Holzapfel, Westar Bdctg Group, 19201 Seventh St East, Sonoma CA 95476. 707-938-1775.

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Harris MSP-90, $200; Shure Level Loc, $50; Moseley TFL280, $150. B Williamson, Digital Radio Eng, Middletown NY 10940. 914-386-4001.

Orban 8100 Optimod multiband, $3500; Aphex 320 Compellor, $925. D Jackson, WQQQ, 19 Boas Ln, Wilton CT 06897. 203-762-9425.

Texar Audio Prisms (2) clean w/manual, $1400/pr. B Hawkins, WENS, 950 N Meridian St #1297, Indianapolis IN 46204.

Want to Buy

UREI, dbx, WE, Gates, Collins, Altec, all tube types, etc. J Phillips, The Great Wireless Talking Machine Inc. 419-782-8591.

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

Shure SCR124S VHF wireless mic system, $4000; Countryman TVH tie-clip mic, $165; AKG D-140 dynamic cardioid mics (3), $100 ea. R Streicher, Pacific A/V Enter, 545 Cloverleaf Way, Monrovia CA 91016. 626-359-8012.

EV RE20 (2), reconditioned at the factory. H Holzapfel, Westar Bdctg Group, 19201 Seventh St East, Sonoma CA 95476. 707-938-1775.

Nady 49HT wireless mic & rcvr, $75; Shure 545-D Unidyne III, $35; Superscope EC-3 cardioid condenser mic, $15; EV 645-TR noise-cancelling telephone handset mic, $20; EV RE-50, $70; EV 635A, $40. E Ribner, Sounds That Matter, 3532-A Wyoming St, St Louis MO 63118. 314-771-2155.

Neuman U87A, $1500. J Arzuaga, WLAZ, Curry Ford Rd, Orlando FL 32812. 787-895-0000.

RCA 77DX, BK1A, $395; vintage PA mics, Shure 51 Elvis, $75, EV731, $95, EV 630 or 635, $75, RCA mini 77" shaped, $295. W Gunn, Box 2902, Palm Springs CA 92262. 760-320-0728.

Want to Buy

Shure SM-5, 70s vintage. B Henry, KNME TV, 1130 University Blvd NE, Alguq. NM 87102. 505-277-2121.

RCA, Neumann, WE, all types, on air lights, etc. J Phillips, The Great Wireless Talking Machine Inc. 419-782-8591.

Neumann, Sennheiser, AKG, many models. W Gunn, Box 2902, Palm Springs CA 92262. 760-320-0728.

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New style on-air signs (2), excel cond, BO. H Holzapfel, Westar Bdctg Group, 19201 Seventh St East, Sonoma CA 95476. 707-938-1775.

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Fisher Mode 50R tube AM/FM rcvr w/TV & phono inputs, BO +shpg. M Crosby, Sequoia Electronics, 422 Avenida Abetos, San Jose CA 95123. 408-363-1646.

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Pioneer RT-701 2 speed, rack mountable r-r deck, mint cond, $250 +shpg. J Roper, Imperial Sound, 383 N Studio St, Terre Haute IN 47803. 812-877-2663.

Tascam DA-88, low hrs w/12' d-sub/XLR cable, $2000; Otari MX-5050 MKIII-4 1/2" 4 trk, overbridge, wheels, $500; MX-5050 MKIII-2 1/4" 2 trk, overbridge, wheels, $450; MX5050 BQII 1/4" 4 trk, wheels, $300. 203-840-5167.

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Marantz PMD 220 prof 3 head, mono, 2 speed, portable cassette rcdr, excel cond, $175. S Barker, KAK Productions, 1994 Sillick Terr, Santa Rosa CA 95404. 707-528-4055.

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MX70 video playback system, $900; Gd used 1/2 "x2500' 456 tape, $20, 1"x2500' 996 & 250, $35; new MRL short test tapes, $229 for 2", save $400. Save on all other formats too. W Gunn, Box 2902, Palm Springs CA 92262. 760-320-0728.

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Ampex machines, recorder electronics, mixers. W Gunn, Box 2902, Palm Springs CA 92262. 760-320-0728.

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Symetrix T1-101 telephone hybrid, $325. B Williamson, Digital Radio Eng, Middletown NY 10940. 914-386-4001.

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Burk TC-8 w/67 Hz subcarrier & new relay panel, $1800. J Arzuaga, WLAZ, Curry Ford Rd, Orlando FL 32812. 787-895-0000.

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Marti M-30B, (2) xmtrs, (2) mic inputs, $125 ea; Wegener 1601-50 ST5 RX main frame sat rcvr, $200. M Williams, WMBH, 2510 W 20th, Joplin MO 64801. 417-781-1313.

Moseley 1620 xmtr remote control studio & xmtr units w/modem & Taskmaster software; Marti RPT xmtr 2 chnl battery operated or 110V, 2 inputs; Telos 10 digital telephone interface. H Holzapfel, Westar Bdctg Group, 19201 Seventh St East, Sonoma CA 95476. 707-938-1775.

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Comstream ABR-700 w/Adcom 7550 downconverter, $3000; Fairchild/Comtech DART-384 w/downconverter, $1800, avail cards include S-A AD-4225 dual SEDAT, $750, dual 15 kHz, dual 7.5 kHz & (2) voice-cue, $400 ea. D Jackson, WQQQ, 19 Boas Ln, Wilton CT 06897. 203-762-9425.

Wegener 1601 frame, $100. B Williamson, Digital Radio Eng, Middletown NY 10940. 914-386-4001.

HTS Premier 70 w/descrambler & antenna relocator. H Holzapfel, Westar Bdctg Group, 19201 Seventh St East, Sonoma CA 95476. 707-938-1775.

Want to Buy

Comstream digital sat rcvr. J Stromquist, WNCB, 2828 Piedmont Ave, Duluth MN 55811. 218-722-3017.

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Moseley SCG8 SCA gen, $400. B Williamson, Digital Radio Eng, Middletown NY 10940. 914-386-4001.

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Orban is looking for a broadcast engineer to provide technical support to our customers on our line of broadcasting equipment. This support includes providing information on specifications, applications, installation and setup, troubleshooting and repair, and theory of operation. Must have an AA in electronics or equivalent experience, and at least 4 years of broadcast engineering experience. Experience with IBM-compatible PC hardware is also essential. You must have excellent verbal and written communication skills, and thorough knowledge of electronic troubleshooting and repair techniques.

Send resume to:

Orban, Human Resources,
1525 Alvarado Street, San Leandro, CA 94577.

Audio Board Operator

POSITION REQUIRES EXPERIENCE IN BROADCAST STUDIO OPERATIONS; AUDIO PROD; AND ON-SITE REMOTE BDCT SET-UP. SOME TECHNICAL BACKGROUND PREFERRED. RESUMES ONLY TO: ED BUTERBAUGH, DIR ENGRG, WJR, 2100 FISHER BLDG, DETROIT MI 48202. EOE

ASSISTANT ENGINEER

RADIO KANSAS, A 3-STATION public radio FM network seeks a full-time engineer to assist the Dir. of Engineering in maintenance, projects and on-call duties for all facets of a modern broadcast facility. Related electronics training required. Broadcast technology experience helpful. Position is perfect for the growing technologist looking to contribute to a strong broadcast system. Send resume to Personnel, Hutchinson Community College, 1300 N. Plum, Hutchinson, KS 67501.

CHIEF ENGINEER

For a large Los Angeles audio production facility. Must have extensive experience in studio maintenance, digital work station operation and maintenance, as well as computer network skills. Position requires experience in designing and building new studios and familiarity with all building support systems i.e. air, power, etc. Strong people skills and work ethic a must. Full benefits, moving costs and a very competitve salary discussed upon formal inquiry. Send resume to: Radio World, POB 1214, Falls Church VA 22041. Attn Box #97-10-15-1RW.

POSITIONS WANTED

30 yr pro seeks small market mgmt opportunity in SE. Broad knowledge, creative, organized, high integrity. Potential, POB 14706, Greenville SC 29610.

CE waiting to make FM station worries go away, you have a steak I'll make it sizzle, love clean powerhouse audio, music, penetrating RF. 1-904-467-3122 or mychucky@funport.net

Five yrs news exper, covered local, state, national, can do sports, prefer Kansas City or St Louis metro area. 816-633-7356.

Graduate willing to travel for on-air position or other. Emily 405-745-2286.

Knowledgeable R&B DJ seeking work. Comedy sketches, reviews on movies & sports, commentary on current events, etc. G Foster, 1-800-414-4348.

Morning A/T-M/D, phones, fun, mouth & brains work together, call Mike at 517-362-7251.

News anchor/producer, prod voice talent, AT for adult standards, reasonably priced, many yrs exper, gd pipes, creative. Alex, 513-777-8423.

Voice Overs/Top 30 mkt voice for your custom liners/opens/promos. 25 yrs radio/tv, call Jay for demo, 615-384-4121.

Local weather for your area, accurate dependable, faxed, digital, zipped, low rates, also do voice overs, jingles, etc. Chris 606-293-2341 or e-mail wx1534@aol.com.

PT on-air or prod or writing, any shift, small/med station, Philadelphia area only, exper in producing, V/O, newscasting. Demo's & resume avail. Bob, 215-745-0754.

Reasonably priced, many yrs exper, good pipes, creative, news anchor/producer, prod voice talent, AT for adult standards. Alex, 513-777-8423.

ABOUT OUR EMPLOYMENT SECTION

HELP WANTED: Any company or station can run "Help Wanted" ads for $2/word or buy a display box for $69/column inch. Payment must accompany insert, use your MasterCard or VISA; **there will be no invoicing.** Blind box numbers will be provided at an extra charge of $15. Responses will be forwarded to listee, unopened, upon receipt. Call 703-998-7600 for details.

POSITIONS WANTED: Anyone can run a "Position Wanted" ad, FREE of charge (25 words max), and it will appear in the following 2 issues of *Radio World*. Contact information will be provided, but if a blind box number is required, there is a $15 fee which must be paid with the listing **(there will be no invoicing).** Responses will be forwarded to the listee, unopened.

***Mail to:** Broadcast Equipment Exchange*
P.O. Box 1214, Falls Church, VA 22041 Attn: Simone Mullins

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