LUCENT'S MULTI-STREAMING IBOC DAB. SEE PAGE 5

||||||

◆ NEWSWATCH ◆

Calif. Owner Fined $71,000

The FCC has fined Pacific Spanish Network $20,000 for public file violations for two California stations: KTTA(FM), Esparto, and KLNA(FM), Dunnigan. Pacific's principal, Jaime Bonilla Valdez, was also fined $15,000 for not having the proper materials in the public file for KIEZ(AM), Carmel. In each case, the FCC said, important documents were missing from the public file from 1994 to 1998 and the files were not kept in a place that was easily accessible to the public.

Valdez also received three $11,000 fines for the unauthorized transfer of control of three stations — KSBQ(AM), Santa Maria, KJDJ(AM) San Luis Obispo, and KRQK-FM, Lompoc — when licensee Padre Serra Communications went through bankruptcy proceedings.

KURS(AM), San Diego, licensed to Quetzal Bilingual Communications, was fined $3,000 for not filing a construction finance contract and ownership information when due.

Valdez had 30 days to tell the FCC why the fines should either be reduced or dismissed.

Plagiarism Kills Radio Wire

WASHINGTON States News Service has closed its radio and Internet news operations. The news service made the move after learning some contributors were pirating material from the Associated Press.

As a result of the discovery, SNS President and Editor, Leland Schwartz, said the service lost its only radio client, the ABC NewsWire, produced in the radio division of ABC News. Schwartz said SNS could not control the way its States News Service stories outside Washington, D.C., were collected unless it switched to a full-time staff.

The four-year-old service ceased operating in late June. The move does not affect SNS' core business, which is reporting Washington news of regional interest to newspapers across the country.

See NEWSWATCH, page 3 ▶

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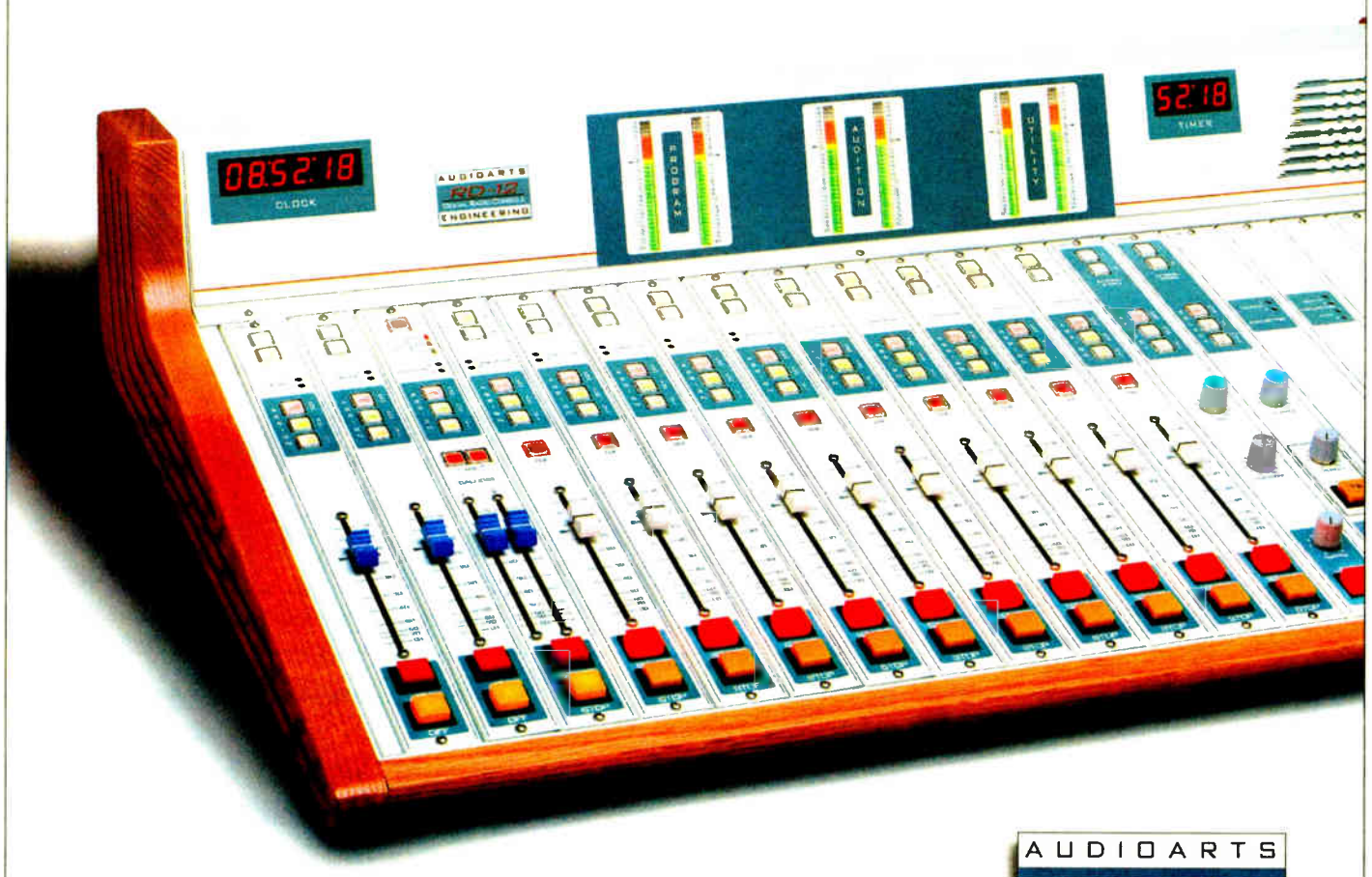

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World Radio History

VOA, RFE/RL Vital to Yugoslavs

by Susan Ladika

VIENNA, Austria Throughout nearly three months of aerial bombardment by NATO forces, a steady stream of information was transmitted to the people of Yugoslavia by several alliance broadcaster services.

Following the start of NATO airstrikes on March 24, most independent reporting in Serbia and Montenegro was replaced by broadcasts from the state-run Radiotelevizija Srbije (RTS). To present the NATO position to the people of Yugoslavia, Voice of America, Radio Free Europe/Radio Liberty and the international services of other NATO member states increased their broadcasts to the area.

Operating in unison, they broadcast to Yugoslavia 24 hours a day.

"It was not my duty to open the minds or open the eyes of the people (of Serbia). My job is to broadcast all sides," said Nenad Pejic, director of the RFE/RL South Slav service, which airs 13.5 hours a day in Yugoslavia. "It is up to the listener to make a decision as to what is right."

In addition to its Serbian-language broadcasts, RFE/RL airs one hour of programming a day in Albanian, targeting the hundreds of thousands of ethnic Albanians who fled the southern Yugoslav province of Kosovo in fear of a brutal ethnic-cleansing campaign conducted by Serb military, paramilitary and police forces after the beginning of the NATO airstrikes.

The demand for unbiased broadcasting soared during the conflict.

The demand for unbiased broadcasting soared during the conflict — particularly after the government took control of the highly regarded independent Belgrade station B92. RFE/RL and VOA tried to bridge the information gap.

Maja Drucker, head of the VOA Serbian-language service, said the reporting from RTS was one-sided, so VOA began airing Serbian-language programming for two hours 45 minutes each day, in addition to three hours of Albanian-language programs.

Demand for the U.S.-financed broadcasts was high, according to the broadcasters. Statistics from the RFE/RL Web site showed nearly 1.5 million hits during March, up 38 percent from January.

NATO airstrikes

The bulk of the increase came at the end of March, after NATO airstrikes began. On average, demand increased 10 to 12 percent each month.

Use of the RFE/RL RealAudio South Slavic broadcasts soared 262 percent, rising to nearly 18,000 listeners. The service, launched in late 1993, is staffed by journalists from Serbia, Croatia and Bosnia and Hercegovina, with programming in all three languages, along with a one-hour Albanian-language show.

At the height of the conflict, Pejic said each day he got a wide variety of e-mails — both pro- and anti-Serb, and pro- and anti-NATO.

Freelance coverage

"If I got only one type of remark — only pro-Serb or only anti-Serb — then I would consider that I am doing something wrong," he said.

Because it was extremely difficult for Western journalists to get visas for Yugoslavia, and reporting from Kosovo during the conflict was nearly impossible, Pejic, who is based in Prague, Czech Republic, relied on a group of 10 to 15 freelancers spread across Serbia.

"No other domestic or foreign broadcaster had been connected so well with events in Serbia," Pejic said.

And RFE/RL reported on subjects the local media would not, he said. For example, antiwar protests in several cities in Serbia were ignored by the local media, but RFE/RL covered them. In fact, Serb police arrested one RFE/RL freelance reporter because of his coverage.

Like other media outlets, the service had no correspondents in Pristina, but it did manage to receive information from people who remained in the Kosovar capital.

Although no Serbian stations carried RFE/RL after the airstrikes started, six affiliates in Montenegro continued to carry news services from RFE/RL and other foreign broadcasters.

In response to the crackdown, RFE/RL and VOA set up a network of

See YUGOSLAVIA, page 8 ▶

◆ NEWSWATCH ◆

▶ NEWSWATCH, continued from page 2

SBE, NFL to Coordinate

INDIANAPOLIS The Society of Broadcast Engineers and the National Football League have a frequency coordination agreement for all regular and post-season NFL games beginning with the 1999 season. For every NFL game, the SBE will provide a volunteer to serve as the on-site frequency coordinator who will work with local and visiting teams, the radio and TV networks, equipment suppliers and other spectrum users within the stadium area. Problems that cannot be resolved by mutual consent will be reported to the NFL for resolution.

For years, SBE coordinators have coordinated frequencies for NFL season and playoff games with various users, but now the coordinator will be an official position at each game. The NFL is providing resources for the frequency coordinator, including a computer software program to help select available frequencies. The coordinators will still be volunteers, but the NFL will reimburse their out-of-pocket expenses.

"The ever-growing media demands of NFL games along with the enormity of playoff games, especially the Super Bowl, require a massive effort on the part of these local volunteer coordinators to coordinate the hundreds of requests for frequencies," said SBE President Ed Miller. "Coordination is essential, not only to keep the users of these frequencies from interfering with each other but also with those of local broadcasters."

Broadcasting Manual Revised

WASHINGTON The FCC has released the revised edition of "The Public and Broadcasting." (The last edition was published in 1974.) Under the FCC's rules, a copy of this manual must be kept in the public inspection file of each applicant, permittee or licensee of a station, whether commercial or noncommercial. The commission also requires that free copies of the manual be given to any member of the public who requests it.

"Free" means that stations cannot charge the public for photocopying the manual, nor can they charge for mailing it if the station maintains its public inspection file outside of its community of license. Stations that keep their public inspection files within their communities of license do not have to mail copies to those requesting them. If they do so, they may charge for postage.

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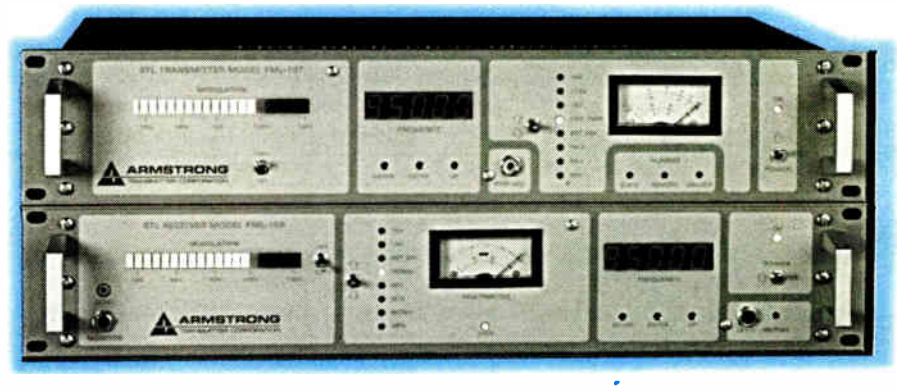

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World Radio History

RW Writer Heads Up OCBO

The new director of the FCC's Office of Communications Business Opportunities is Francisco Montero, a partner in the Washington, D.C., law firm of Fisher Wayland Cooper Leader and Zaragoza. He was appointed by Chairman Bill Kennard.

Frank Montero may be better known to you as a regular contributor to **RW**, where he has written over the years about radio, business and regulation. I'm pleased at this further evidence that the people who write in **RW** are among the most respected in our industry, whether they are engineers, attorneys, owners or production people.

OCBO is charged with promoting and assisting small business development in the telecommunications industry. Montero's position is a political appointment that will have him working at the FCC until the end of the current administration, after which we hope to find him back in his familiar perch and writing for **RW**.

Hispanic ties

In making the announcement, the FCC noted that Montero has worked extensively with major Hispanic and Spanish language broadcasting groups in the United States, including Puerto Rico, and in Latin America. He helped form the American Hispanic Owned Radio Association, and he has represented the Hispanic Radio Association and the Puerto Rico Broadcasters Association.

In addition to his work as a writer, he has assisted the Department of Commerce compile its annual analysis of Hispanic broadcasters, and he is a recipient of the Puerto Rico Broadcasters award for "Service to the Puerto Rican Radio Industry."

He told me he plans to initiate programs to make entrepreneurs and small businesses aware of opportunities in the communications industry, and to help them learn to participate in FCC proceedings such as spectrum auctions or put them in contact with financing sources or other assistance.

"Chairman Kennard has a particular interest in ensuring that everyone can participate in new technologies, and has asked me to find ways to help new entrants into the Internet and the high-tech sectors," he said.

"We are also the FCC's primary contact with the Telecommunications Development Fund, which is a fund that was established by the Telecomm Act of 1996 to make investments in new small and minority owned telecommunications ventures."

Given the consolidation of large groups and the perception that the era of "mom-and-pop" stations has passed, is it really feasible for a business person today to succeed in radio, starting from cold?

"I agree that getting into the radio business from scratch is more difficult that it has ever been," he told me. "The start-up costs, especially when you look at station prices today, can be prohibitively high in many markets.

"Still, there are those that are jumping in and making a run at it. I believe that in radio today, there are still opportunities to find an underserved niche market and go for it. And while that philosophy isn't new, it is far more critical today."

With the growth of other media, such as direct satellite delivery systems and Internet Webcasting, Frank Montero feels programmers have more options. At the same time, those media present radio with its biggest competitive challenge, especially in mobile, wireless form.

Most amazing to Montero is the growth of Spanish language media over the past 10 years.

"What started in radio as, largely, a stand-alone AM 'mom-and-pop' industry, has turned into a big business. Spanish radio is now entrenched in the FM band, and it's very competitive in the market place."

Big business

Cities like New York, Miami and Los Angeles have Spanish FM stations that top the ratings and revenue lists.

"This has led to a rapid growth in the support industries for those stations, including specialized Spanish rep firms, ad agencies, consultants, brokers, you name it. Both Spanish television networks are publicly traded corporations, and currently one of the Spanish radio groups, Hispanic Broadcasting (formerly Heftel) is public.

"Recently, we've seen Internet companies targeted at the Hispanic community go public, and I think we can see more IPOs in the near future."

The Small Business Administration reports that Hispanics own more businesses in this country than any other ethnic minority, he said, and the U.S. Census predicts that, in the next decade, Hispanics may become the largest minority.

"That's a big market. And with broader delivery vehicles such as the radio networks, Internet Webcasting, or satellite radio, you can include all of Latin America in your demographic."

You can reach Frank Montero via e-mail to *fmontero@fcc.gov*

From the Editor

Paul J. McLane

Congratulations to Broadcast Electronics, which celebrated 40 years in business this summer with a special open house at its headquarters in Quincy, Ill.

BE was founded in Silver Spring, Md., in 1959, and moved to Quincy in 1977.

At the event at its 60,000-square-foot facility, President John Pedlow provided a brief history of the company, and saluted the 250 people who work for BE. Bob Carroll, the president of BEI Holding Corp., and Larry Cervon, the first president of BE in Quincy, were among the guests.

"The business is a tribute to the people we have," Pedlow said.

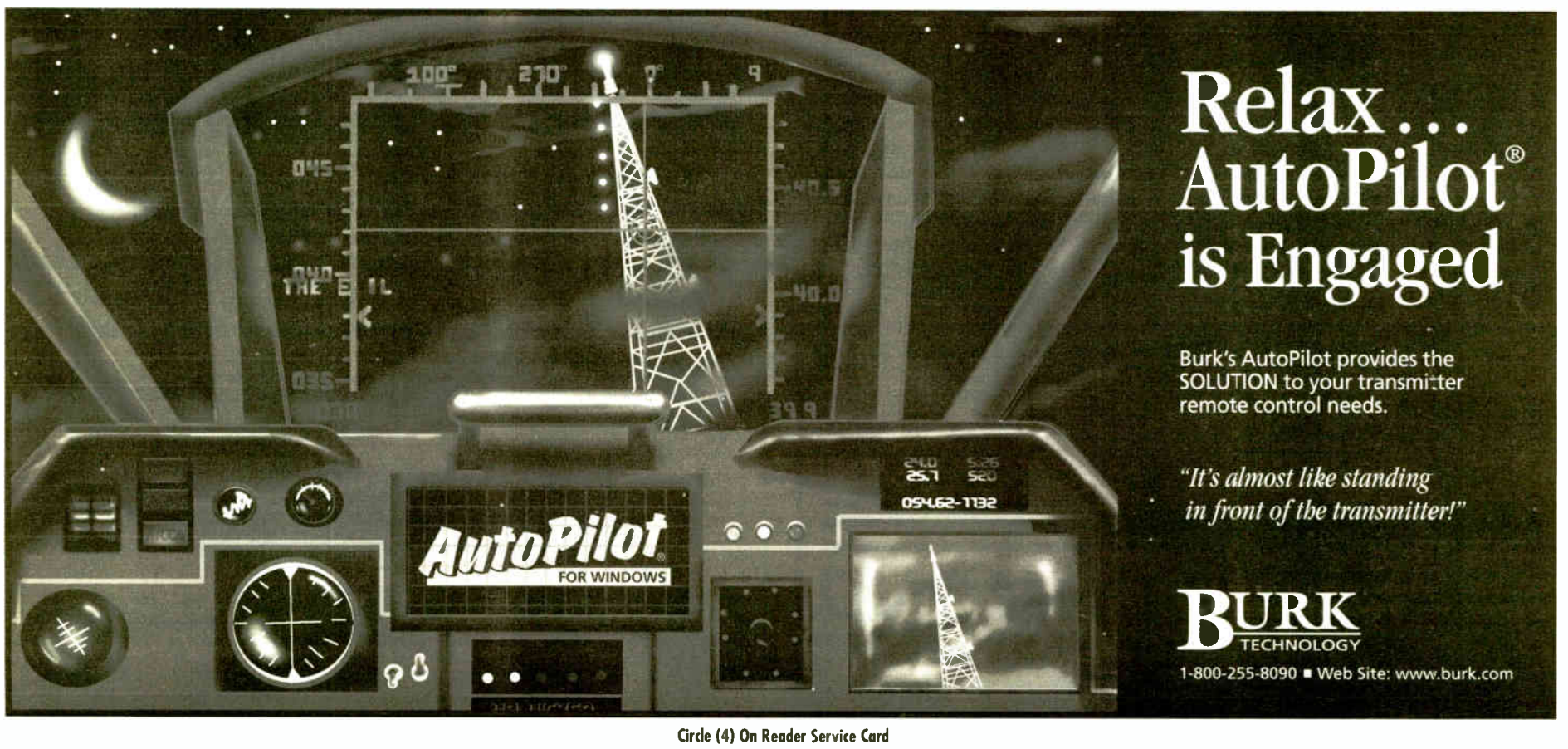
BE was honored with plaques from **Radio World**, presented by Sandy Harvey, and from the mayor of Quincy, who honored the company with a proclamation of BE Day.

On the plant tour, company officials told visitors about the philosophy of "Kaziens," a Japanese term meaning "continuous improvement." This is part of the company's management style: to brainstorm, to implement new procedures for improvements and efficiency. The facility also is ISO-9000 certified.

BE, which makes transmitters, digital audio management systems and other radio products, is active in its community. It presented $30,000 to Quincy University's GOAL 2000 Campaign on the day of the open house.

Here's to 40 more years, guys.

Sandy Harvey, representing Radio World, presents John Pedlow with a Cool Stuff Award for the BE FM-10S transmitter.



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World Radio History

GUEST COMMENTARY

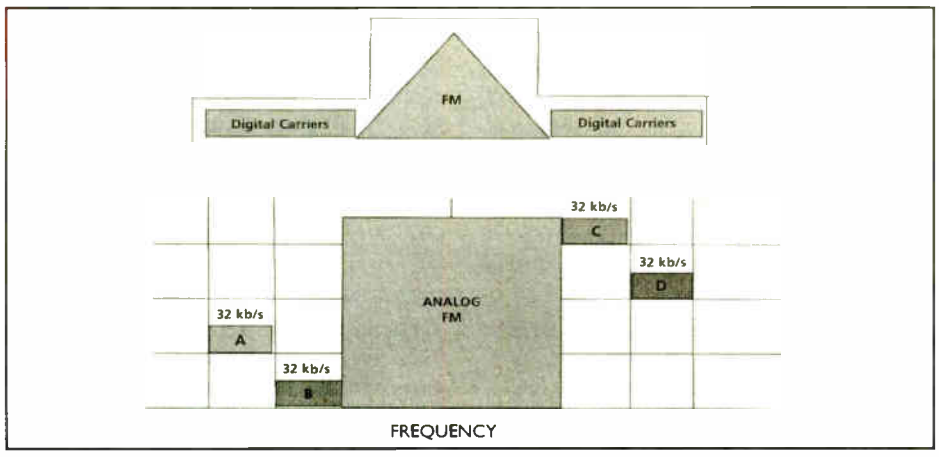
Lucent's Multi-Streaming IBOC DAB

by David Mansour and Deepen Sinha

Lucent Digital Radio is using its patented multi-streaming technology in its in-band, on-channel digital radio systems to improve system performance significantly. The specific IBOC benefits compared to other, conventionally designed systems include:

- Improved signal robustness to first- and second-adjacent channel interference
- Significantly extended range of digital signals
- Graceful digital degradation at the edge of coverage
- Fast digital station acquisition time

Multi-streaming, which is incorporated in the latest generation of Lucent's Perceptual Audio Coder (PAC) and channel coding design, offers robustness to degraded channel conditions, including interference and fading. This technique enables high-quality digital reception of audio, even when part of the signal is severely interfered with, by recombining the remaining streams. Under fading channel conditions, part of the spectrum is impaired at a particular time. With multi-streaming, the system continues to operate smoothly by constantly switching to the highest-quality combination of streams available.



The improved signal robustness, thanks to superior interference tolerance and higher error protection, leads to a significantly extended range of digital signals, compared to previously available digital designs.

A related benefit arising from multi-streaming is that it emulates the graceful degradation characteristic of analog signals. Earlier digital systems have typically accompanied the annoying "cliff effects" or "digital drop-outs," significantly diminishing the listening experience. Graceful degradation of audio quality allows for high-quality digital audio at the edge of analog coverage.

In addition, station acquisition time is minimized because the receiver can initiate the capturing process with only one of the streams, whereas in other systems the receiver has to wait until the entire single stream is delivered.

How multi-streaming works

Multi-streaming breaks audio information into multiple packets (streams), each of which can stand alone and provide quality audio. Adding up streams will increase the audio quality. When all streams are added, CD-quality audio is recovered. LDR calls the concept of splitting an information source into complementary streams "information diversity."

As a specific example of information diversity, audio coding operating at 128 kpbs can be broken into four 32 kbps streams. The streams can be reassembled at the decoder in any combination to provide increasingly better-quality audio. When all four streams are combined, the original audio is recovered.

By breaking audio information into separate streams, the information can be spread across both time and frequency. LDR's implementation of multi-streaming takes advantage of time and frequency diversity available in the IBOC channel. As illustrated in the FM-band example (at left), the LDR algorithm generates four streams of 32 kbps each. These four streams are distributed not only across the different frequencies in the FM band, but also across time, as illustrated by the streams designated A through D in the figure.

At the receiver end of the audio delivery chain, the decoder incrementally recombines the building blocks as channel conditions dictate. Thus, the audio quality to the user is not uniformly compromised due to bad channel conditions. The table above compares single-stream to multi-stream across different criteria.

	SINGLE STREAM	LDR SYSTEM WITH MULTI-STREAM
Coverage of digital signal	Limited	To noise-limited analog contour (today's listenable area)
Audio quality at edge of coverage	Analog	Gracefully degraded
Digital station acquisition time	Relies on analog for tuning	Fast digital acquisition
Coverage under 1st and 2nd adj.	Problems under fast fading conditions	Improved coverage (>10 dB margin improvement)
Performance under slow fading	Simulation results indicate coverage problem with slow fading	Significantly improved performance for slow fading

■ ■ ■

David Mansour is the vice president of research and development and Deepen Sinha is the principal engineer for Lucent Digital Radio.

BUSINESS DIGEST

BE Sells Programming Arm to Jones Networks

Broadcast Electronics will sell Broadcast Programming to Jones International Networks Ltd., the parent company of Jones Radio Network.

Terms were not disclosed. The deal is expected to close by the middle of this month.

BE Chief Executive Officer John Pedlow said the move will allow the manufacturer to concentrate on its core business in technology-based products and services.

"We were in the position of having to go out and build our business with things that fit with them (BP). We decided it made more sense to find a better partner for them."

He said the Jones deal "is a great fit for BP" and predicted the programmer would prosper in that relationship.

Broadcast Programming President Edie Hilliard said BP will continue operating under its current management team in Seattle.

Hilliard said that while Broadcast Programming's TotalRadio music format service works with all brands of digital programming systems, BP will continue to have a partnership with its former parent.

Pedlow said the partnership is a continuation of a sales relationship between the two companies for BE's AudioVault digital programming system, which is used in many BP client stations.

Since coming on board as BE chief executive officer earlier this year, Pedlow has said BE is looking to make acquisitions. Pedlow said recently that BE is developing new RF and digital audio storage products and continues to look for acquisitions that would lend themselves to those projects.

— Leslie Stimson

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World Radio History

Crown to Build NWS Transmitter

Supplier to Help Fill Out Weather Radio Network; NWS Looks for More Partners in Project

by Lynn Meadows

SILVER SPRING, Md. Broadcasters outside the service range of a National Weather Service radio station can take heart. The NWS recently certified a manufacturer to build its new transmitters and is looking for and working with partners to help fill out its weather radio network.

In addition to funding for new transmitters, the NWS needs places to house those transmitters and tower space for its antennas — facilities that some broadcasters may be able to provide.

In many states, stations monitor the nearby NOAA Weather Radio station for Emergency Alert System purposes. With a transmitter vendor approved and assistance from private groups and companies, the network is likely to fill out rapidly — something that can only make EAS more efficient, experts said.

The National Weather Service has its critics in the broadcasting industry with the introduction of a synthesized voice last year on the weather stations. Broadcasters have complained the voice is hard to understand. Other broadcasters have complained about the "spotty and rather ratty network of NWS transmitters."

When Vice President Al Gore toured the ruins of a tornado in Alabama in 1994, he said he would like to see weather radios become as common as smoke detectors. He also said he wanted the NWS to set a goal of reaching at least 95 percent of the population in the United States with weather radio service.

Today, the NWS has more than 500 transmitters. Ken Putkovich, national manager for NOAA Weather Radio, said the weather radio network reaches an estimated 80 to 85 percent of the U.S. population.

"It varies from state to state," said Putkovich of the percentage. "We hope to cover 95 percent of the population in each state."

The challenge, said Larry Krudwig, regional field systems manager for the NWS Central Region, is reaching all the rural areas. In South Dakota, he said, there are five NWS radio stations on the air that probably reach 80 to 85 percent of the population. He said it would take up to seven more stations to reach the remaining 10 to 15 percent of the population to achieve the 95-percent goal.

Why the delay?

Expansion of the weather radio network was stalled for nearly two years while the NWS searched for a new transmitter manufacturer.

The last large-scale purchase of transmitters by NWS was in 1976, the most recent significant expansion of weather radio stations by the NWS, Krudwig said.

Since then, whenever a transmitter failed and could not be fixed, or a new station was required, technicians fixed or added transmitters using spares from that purchase. By 1997, the NWS had only two "spares" remaining and they were used for training, said Krudwig.

Although states and private groups wanted to purchase transmitters for the NWS, the NWS had no legal standard or approved supplier for donated transmitters. No existing transmitter did what the NWS really needed, said Krudwig.

"In November, 1997, the agency developed its requirements for a new transmitter and no new transmitters were added to the system for almost two years," he said.

The NWS wanted a transmitter that could be diagnosed from a remote location. When there were around 300 weather service field offices across the country, the NWS could monitor at least 90 percent of its weather radio stations right off the air.

Those 300 weather service offices now number around 120. Those remaining can only monitor about 30 percent of the total number of weather radio stations in the network right off the air, said Krudwig.

The monitoring device on the new transmitters, said Krudwig, looks at 20 different parameters so technicians know before they go to the site if a problem is in the transmitter, the generator or the primary communication link.

The NWS also wanted a smart back-up system. If the primary transmitter fails, the system automatically switches to the back-up transmitter. If the back-up is not as good as the original transmitter, the unit will keep the best transmitter on the air.

Only two bidders responded when the proposal was issued in spring 1998. The NWS selected a transmitter developed by Crown Broadcast International. Testing began in early 1999 of the three configurations: 100 W, 300 W and 1,000 W transmitters. The lower-powered transmitters were expected to be ready by the end of July and the 1 kW units were anticipated by the end of August.

Several private initiatives were put on hold during the two-year bidding process.

The state of Iowa, for instance, received relief funds from the Federal Emergency Management Agency after a flood. To reduce the amount of damage from future weather disasters, Iowa emergency managers decided to fill out the NWS radio network in the state.

Though approved for two years, the Iowa project had to wait for the NWS to select a vendor.

Ellen Gordon, administrator for Iowa Emergency Management, said the goal is to complete NOAA weather radio coverage for the entire state by the end of the year. Iowa has 22 transmitters on order from Crown.

"We're very excited about getting the project done," said Gordon.

FEMA funds

To match the FEMA funds, Iowa asked its electrical co-ops if they would partner in the project. The co-ops offered tower space for the antennas. The Iowa Department of Public Safety also offered to put some antennas on their towers.

Gordon said one broadcaster wanted to lease space on his tower, but the state could not afford to pay. She said it would be "wonderful" if a broadcaster offered tower space, but said she realizes broadcasters can get "fairly good monthly lease payments for tower space."

Krudwig said the state of Wisconsin appropriated money to add seven weather radio stations on its educational television and radio towers. Wisconsin funded seven stations in 1976 and has been maintaining those under a cooperative agreement with the NWS.

Krudwig said in El Dorado, Kan., an oil company is working with its local NWS office and county government to have a station installed on its tower near Beaumont, Kan.

Power co-ops

The electric cooperatives are playing a large role in filling out the NWS weather radio network in Missouri, too.

Robert Stagner, general manager of M&A Electric Power Cooperative in southeastern Missouri, said the co-op is buying and installing three new 1 kW transmitters. This project also was held up by the bidding process.

"We've been waiting to have transmitters available to buy and install," said Stagner.

In order for the NWS to guarantee it will take over the maintenance of the transmitter equipment, the transmitters must be certified by the NWS. In addition to buying them, M&A will provide the power and building space for the new transmitters and the towers to house the antennas.

Once the transmitters are installed, they will provide NWS service to all of M&A's customers.

"This is an ideal way for us to provide

See TRANSMITTER, page 10 ▶

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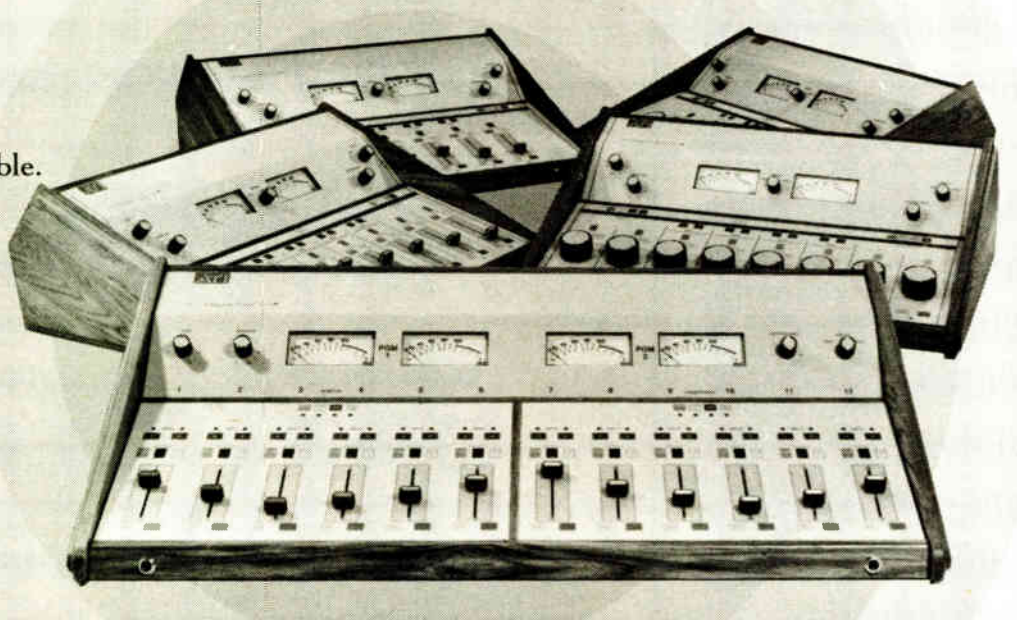
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World Radio History

Ramko Founder Dies; Buyer Sought

by Kathy Merritt

SHINGLE SPRINGS, Calif. When Neil Armstrong said his famous words from the surface of the moon, the world could hear because of audio equipment from Ramko Research.

The Voice of America used Ramko; so did the White House. But now the California-based company known for its innovations in audio products has shut its doors.

Ramko Research founder Ramon "Ray" Kohfeld died of a heart attack on April 30. He was 60 years old.

Kohfeld's widow Anita, vice president of Ramko, is looking for a buyer. She said the company had scaled back in recent years as her husband anticipated retirement. Ramko moved to a smaller building and was contracting out some jobs. At its close, Ramko had about 10 employees, though it once employed nearly 100.

Even as Ramko weathered economic ups and downs, Kohfeld never lost his excitement about the company.

Anita Kohfeld said it will be up to the company's new owner whether to keep the Ramko name and how to provide service and parts to Ramko customers around the world. Past clients have included the major TV networks, the U.S. Navy and U.S. embassies in other countries. She said the company has shipped out parts in recent weeks but is making no repairs.

In a eulogy for his brother, Dr. Bruce Kohfeld described the early days of Ramko Research. He said Ray "began on a shoestring with his garage as production and his kitchen table as accounting and sales."

From that modest start, Ramko Research went on to develop the first solid-state VU meter for professional use, the first solid-state switching broadcast console, the first electro-optical tape recorder and cassette head alignment device and many other products, according to company promotional material.

Behind all the innovations was the man who founded the company.

"Ray was brilliant," said Anita Kohfeld. "Ideas always came to him and then he'd have to see what he could do with them."

Ray Kohfeld's interest in electronics started early. According to his wife, Kohfeld began tinkering with crystal sets and radios at age 9 or 10. After a stint in the Air Force, he signed on with Sparta Electronics in Sacramento as an electronics engineer. Kohfeld moved up through management, gaining experience that would prove helpful when he formed his own company.

Kohfeld took that step in 1971. The first product Ramko Research produced was a collimeter, that promised precise head alignment in cart machines, according to company literature. From there, Ramko evolved to a full audio electronics design and manufacturing company.

According to a product list, Ramko made audio consoles, switchers, compressors/limiters, miniature audio and video modules, mixers and distribution amplifiers and ambient sound controllers.

Anita Kohfeld said Ray liked to do all the work in-house from metal fabrication to silk screening. She said Ray believed Ramko could do the job better and faster than sub-contractors. He also stressed customer service offering two-year warranties on many products. He once wrote to a customer that his company worked to find "new inexpensive methods to solve expensive problems."

Even as Ramko grew and weathered economic ups and downs, Anita Kohfeld said her husband never lost his excitement about the company and designing new products.

She said Ray also had a wonderful sense of humor. He once made a hat out of a photographic lamp, screwed a light bulb out the top and hooked it to a battery. He would go to meetings with it on his head, turn it on and say "I have an idea."

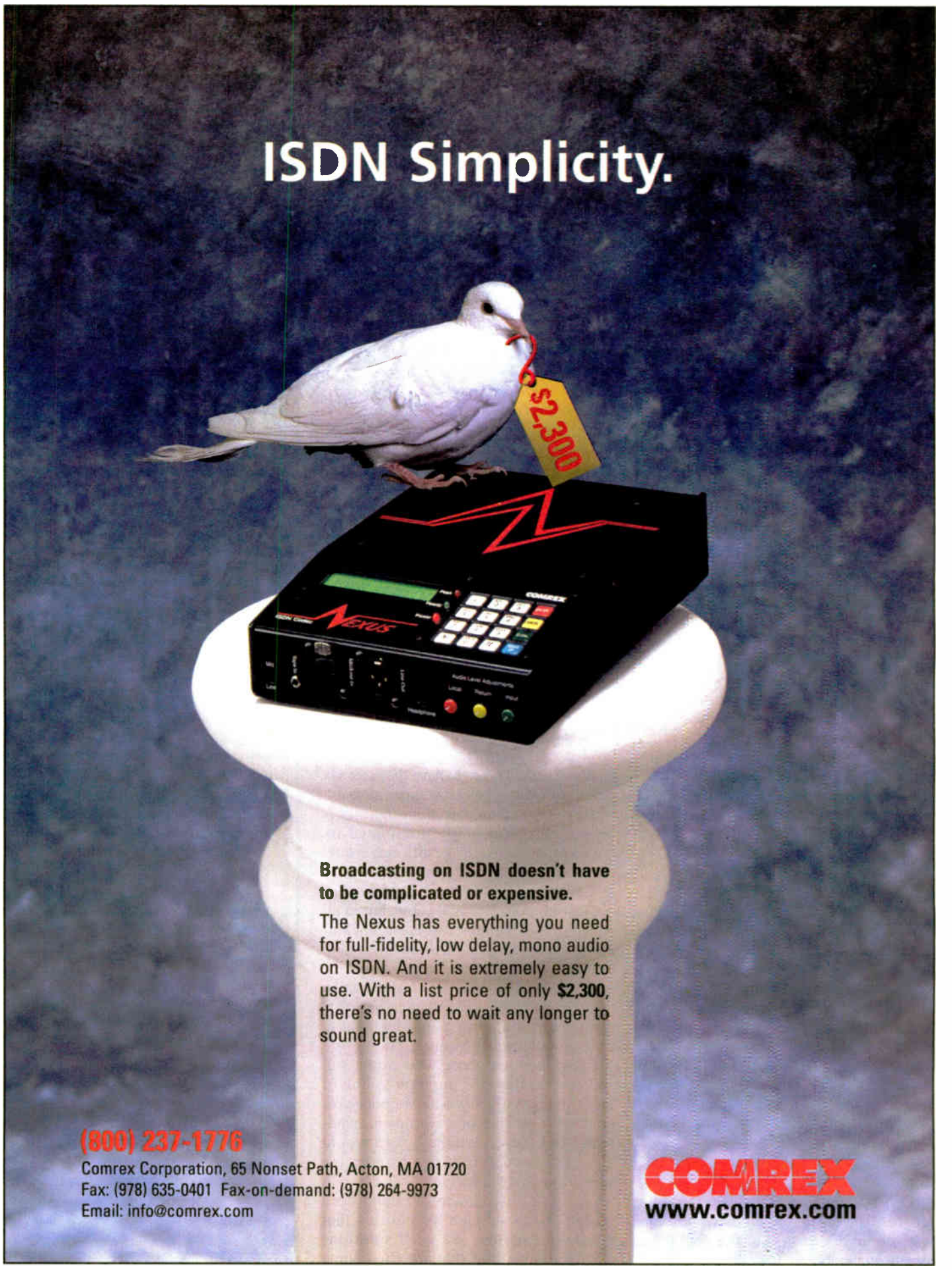
Ray Kohfeld was still working on his ideas at the time of his death. He was preparing to attend a trade show to display a new console when he was stricken with chest pains.

Anita Kohfeld said she's talked with several potential buyers for Ramko Research, but had not found a purchaser as of early July.

■ ■ ■

Kathy Merritt is news director of WAMU(FM), Washington, D.C.

Ramon 'Ray' Kohfeld



Circle (7) On Reader Service Card

World Radio History

NEWS MAKER

Kennard Seeks Tax Certificate

NEW YORK *FCC Chairman Bill Kennard has long supported bringing back a tax certificate program to spur station ownership by minorities and women. Now, he has spelled out how that should happen. In June, Kennard outlined the elements of a new tax certificate program and urged Congress and industry to support it. Excerpts from that speech follow:*

The communications industry is reshaping our society and culture. Through phone lines, cable wires, and the airwaves, Americans can now access information wherever and whenever they

FCC Chairman Bill Kennard

want. Everything from parenting to educating, from commuting to comparison shopping has been touched by the communications revolution.

And it's fueling our prosperity. As much as one-fourth of our economic growth — growth which has produced the longest peacetime expansion of the economy in history — comes from the information technology sector.

A recent study estimated that last year the Internet economy generated $300 billion in revenue and was responsible for 1.2 million American jobs. Impressive. But that number is constantly changing because the technology and the industry are constantly changing — churning with the energy of entrepreneurs and the innovations of engineers.

I know that there is more opportunity than ever before, for I meet with the CEOs of these companies every day, and go to a different trade convention almost monthly.

Lack of diversity

But what I notice in these meetings and at these shows is that the communications industry ... does not reflect the rich diversity of our nation today. And it certainly doesn't reflect what our nation will look like in the coming century.

I have a picture of my father in my office. And sometimes I look at that photo and think about the opportunities that he had — and didn't have — as a black man in America.

He was a professional, and he was able to create a successful architecture practice. But he did so in spite of the opportunities that he didn't have.

I think about how society changed from his generation to mine.

Our nation has made tremendous progress, progress that we have all seen just in our lifetimes. But the challenge for this generation is to open this door of opportunity even wider.

How do we create the conditions for positive change in the communications industry?

In the 1970s, members of Congress, the Carter Administration, and activists wanted to open up opportunities for minorities in broadcasting. Their plan was to set aside broadcast licenses for these groups.

The NAB said don't do that. We'd rather have a tax certificate plan. And after working together, that's what we got in 1978.

Defer capital-gains tax

Under this program, if an owner of a broadcast property — like a radio or TV station — sold it to a minority, they would not have to pay capital-gains tax.

Since 1978, the FCC issued 359 certificates to companies who sold to minorities — most of which concerned the sale of radio stations. Although a small number, the impact of this program on opening up this industry has been great.

Before 1978, minorities owned approximately .05 percent (or 40) of the approximately 8,500 broadcast licenses.

As of September of 1994, that number increased eight-fold to 2.9 percent of 11,128 licenses.

But this program wasn't perfect. It could have been improved. But before we could do anything, the program ran into partisan politics, and it was killed by Congress.

But that doesn't mean ... that we must stop our efforts to open the doors to opportunity.

Already, the debate is underway on how to create this opportunity.

Some are focusing on partnerships between big broadcast companies and small minority businesses. Some are establishing investment funds. Whatever their approach, they are focusing on what works, and that means focusing on money — on how to develop capital.

Why bring certificates back

We know that the tax certificate program worked. That's why we can and should initiate a new tax certificate program.

A new tax certificate program should level the playing field by allowing small businesses of all types to have the same tax advantages that large corporations have.

Just as the communications industry is becoming increasingly dominated by large corporations, tax certificates would rejuvenate the role of small companies and entrepreneurs. And it would do so not just in radio, TV, and cable, but in all telecommunications businesses, including wireline, wireless, and satellite.

And within this incentive should be an added boost — an additional incentive to give minorities and women an affirmative opportunity to gain a foothold in the communications business.

Now, there are those who would yell and scream that this program is unfair; that this is just a back-door quota program or a scheme of government handouts. And there are others who would argue that opponents of this program are supporting discrimination.

This is a false choice. We don't need wedge issues or identity politics that divide our nation. We need solutions that recognize that that we tried some approaches in the past that did not work and some that even subverted other principles that we as a nation hold dear. But we need ... to find ways that promote equality of opportunity for all Americans.

A new tax incentive program should follow this course. First, it should not be a quota or a government mandate. It should give new entrepreneurs a ticket into the marketplace, but once there allows market forces to choose the winners and losers.

To this end, it should impose limits on how many times you can benefit from a certificate. This must be a hand up, not a hand-holding. The responsibility lies with the new license-holder to make the best of it.

Also, we need strict standards on firms eligible to purchase licenses so that large corporations or unscrupulous dealmakers operating as fronts are not the ones to benefit from this program.

And we need safeguards to make sure that we don't attract those to this business interested in the indiscriminate flipping of properties.

Diverse century

Perhaps as early as 2005, and certainly within the next ten years, Hispanics will become the nation's largest minority group.

By 2050, Hispanics will constitute almost one-quarter of the U.S. population, while Asians will total more than 8 percent. At the same time, the percentage of Americans classified as non-Hispanic whites will fall to under 53 percent.

Anyway you cut it, the next century will be a diverse century.

We remain the world's greatest — and successful — experiment in democracy. Now, the experiment is becoming whether the world's strongest and most powerful democracy can also be its most diverse.

VOA, RFE/RL On Air During Kosovo Crisis

▶ YUGOSLAVIA, continued from page 3

FM transmitters in surrounding countries to broadcast into Serbia. In addition, the programming could be heard on AM and shortwave, as well as via the Internet.

Sources scarce

Following the start of the air attacks, both RFE/RL and VOA devoted the vast majority of their coverage in the region to the Kosovo crisis. But VOA spokesman Joe O'Connell said the conflict was difficult to cover from outside.

Prior to the airstrikes, VOA had a network of correspondents in Yugoslavia. The service was particularly popular in Kosovo, where the Yugoslav federal government had closed the local Albanian-language radio stations, said Elez Diberaj, head of the VOA Albanian-language service.

Drucker said that during the airstrikes, the VOA Serbian-language service had trouble finding accurate reports, because local journalists stopped reporting, either fearing retribution from the Yugoslav government or in protest of the bombing.

Radio Antena M Survives Conflict

PODGORICA, Montenegro Despite pressure from the Yugoslav army, radio stations in the republic of Montenegro managed to maintain their independence during the recent conflict in the region.

"We decided not to allow them to do what they did to our colleagues in Belgrade. As long as we are on the air, we are going to be the editors of our program," said Zoran Ljumovic, director of Radio Antena M, the oldest independent radio network in Montenegro.

After NATO airstrikes began on Yugoslavia — comprised of the republics of Serbia and Montenegro — in late March, the station received several "invitations" for an "informative conversation" with the Yugoslav military, Ljumovic said.

Radio Antena M refused to meet with the military and continued to air foreign Serbian-language programming from Radio Free Europe, Voice of America, the British Broadcasting Corp. and Radio France Internationale.

Moreover, the station adhered to its anti-war policy, supporting multiethnic coexistence and reconciliation in the Balkans.

The station was founded with the goal of promoting an open civil society. It also aims to strengthen the European identity of Montenegro in terms of politics, economics and culture.

The airstrikes were only the latest conflict Radio Antena M had with the Yugoslav federal government. At one point, station founder Miodrag Perovic was forced to flee the country after the Yugoslav military issued a warrant for his arrest for a critical editorial he wrote in Monitor, an independent Yugoslav newspaper.

"Having a free media in Montenegro is critical for the survival of the pro-Western administration of the democratically elected president, Milo Djukanovic, who is trying to keep Montenegro as uninvolved as possible in the conflict between NATO and (Yugoslav Federal President Slobodan) Milosevic," said Ljumovic during the conflict.

Radio Antena M was launched in June 1994 and reaches about two-thirds of the population of Montenegro.

— *Susan Ladika*

World Radio History

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World Radio History

CRL Finds a Buyer

▶ CRL, continued from page 1

CRL co-founder and former majority owner Gary Clarkson will remain with the company under terms of a three-year employment contract. Clarkson will direct the company's Advanced Products Engineering department. He retains his role as chairman of the board.

Dennis Drew, vice president of operations, remains as well.

Brentlinger, 44, said he expects CRL to recover quickly from the months of uncertainty over the company's future. Clarkson announced the company was for sale in January.

"We have resumed production and will have a new management team in place soon," he said. "We will re-focus our marketing and advertising efforts to ensure that our current customers and new customers know we are back on solid financial footing."

Executive changes

Brentlinger said the company will hire a new marketing director. That person will be responsible for reviewing the company's worldwide dealer network, which Brentlinger feels needs strengthening.

According to CRL's filings with the Securities and Exchange Commission, the company lost a net $170,524 in the first quarter of 1999. It has lost money five out of the past seven years.

Clarkson said the decision to sell or close CRL came after the death of co-founder Ron Jones in January of 1998. A sharp drop in sales to Pacific Rim countries during the past two years worsened its financial condition.

Brentlinger said he began negotiating with Clarkson in April.

"I had always used CRL products and had a natural interest in the company, living in the Phoenix area. When I heard about a possible sale, I became very excited about the challenge of bringing it back," Brentlinger said.

Serious negotiations began after the shareholders voted for the dissolution of the company in May.

Brentlinger has been a radio engineer for 26 years.

"I bought my first CRL processor in 1980 for a radio station I was working for. This company has a great history of being a solid broadcast equipment manufacturer," he said.

Brentlinger said immediate plans call for restructuring of the product lines with some CRL products getting face-lifts.

"We know we have to update to be competitive. We will concentrate on better product development, in particular, software. We have to continue to develop our digital systems. I want to make sure we focus on new technologies."

CRL's DP-100 digital FM processor has been a very good seller, said company executives. A software upgrade that adds remote-control capability to the DP-100 is available free through CRL's Web site at *www.crlsystems.com*

The 46-year-old Clarkson's role will be developing that new technology.

"I'm happy with my role. Research and development is always what I did best," he said. "I'll visit customers and be at the trade shows as well."

Clarkson and Jones founded CRL in 1974. The company currently has nine employees, but Brentlinger plans to add production staff.

Brentlinger owns KBZG(FM) and is in the process of purchasing KESP(FM). Both are licensed to Payson, Ariz., an hour's drive north of Phoenix. He also owns KBZR(FM) in Arizona City. Brentlinger said he would spend most of his time at CRL.

After the expected closing of the sale in September, Brentlinger will control 51.6 percent of the company's stock. He will have paid $941,876 for 308,812 shares.

Within a year of the closing, expected by Sept. 30, Brentlinger will buy an additional 171,250 shares of CRL common stock at $2.50 per share for a total of $428,125. He has a five-year option to buy an additional 500,000 shares of common stock at $2.50 per share for a total of $1.25 million.

CRL is traded on the NASDAQ stock exchange under the symbol CRLI.

We know we have to update to be competitive. We will concentrate on better product development, in particular software.

— Jay Brentlinger

National Weather Radio Network Build-Out

▶ TRANSMITTER, continued from page 6

service of great benefit to our consumer owners," said Stagner.

The first step for anyone interested in getting a transmitter in their area, said Stagner, is to make sure the NWS agrees there is a need.

Interested?

The cost to install a NWS transmitter varies by the power of the transmitter, hardware required and tower, said Krudwig. The 1 kW dual transmitter in a side-by-side cabinet, he said, is $45,500 while a single-cabinet dual transmitter model costs $43,500. The 300 W transmitter costs about $25,500.

The antenna is an additional cost. For the 1 kW transmitter, Krudwig estimates the antenna cost between $3,000 and $4,000. If no shelter is available to house the transmitter, Krudwig said, that can add $8,000 to $10,000 to the cost.

Once a station is in, NWS will cover recurring costs for maintenance and telecommunications, said Krudwig. He said under the cooperative plan, the cooperator is required to provide the site at no cost for at least five years. The plan does allow for some minor site costs to be paid by the NWS. In some states, he said, agencies are required to recover their out-of-pocket administrative overhead.

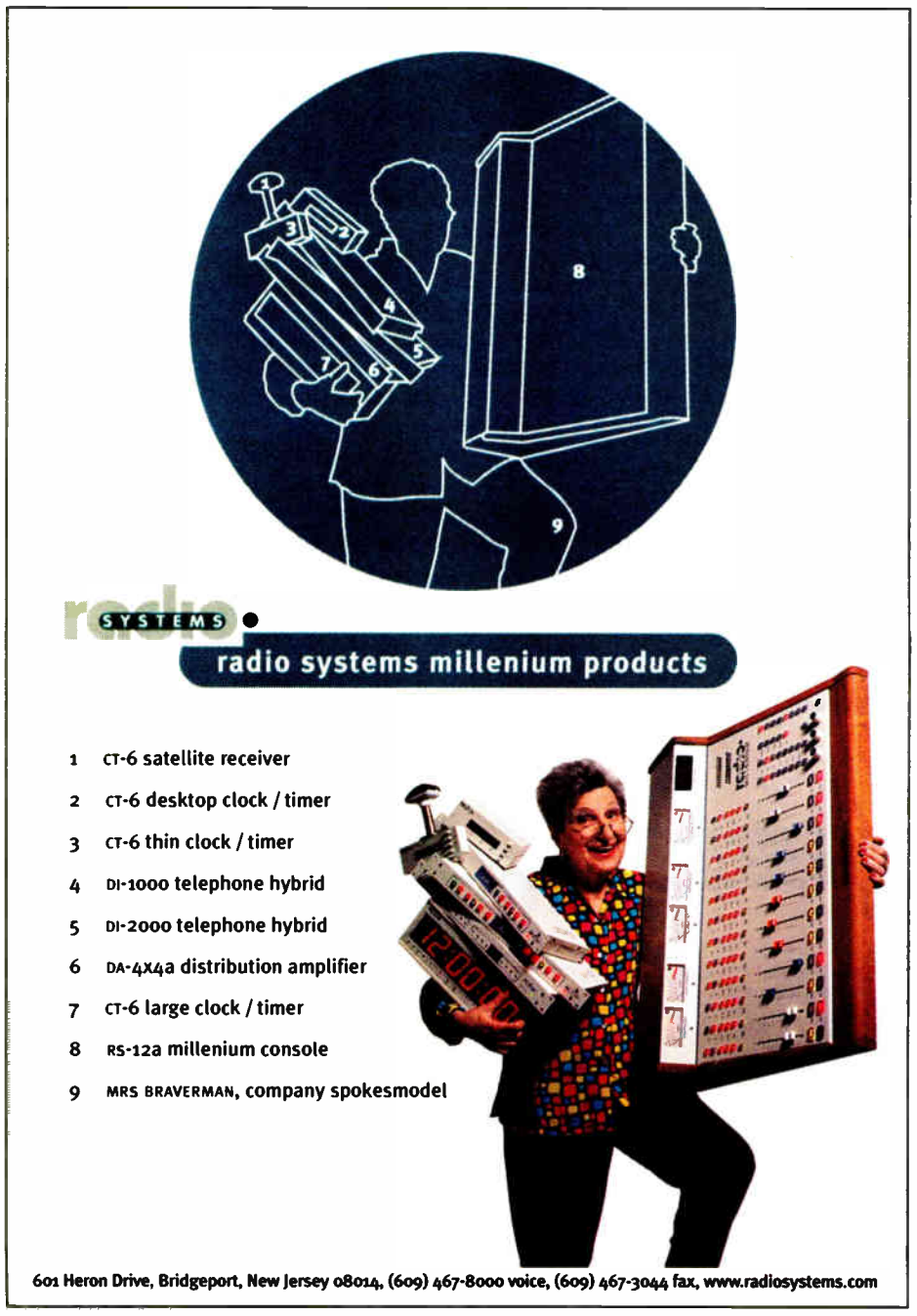
Asked who is helping to fund the new transmitters, Krudwig said, "Just anybody who is interested in public safety and has money in their pocket."

The NWS receives money from Congress to maintain expansion stations, but generally not to add new ones. In its 1999 budget, however, Congress did appropriate $1.6 million for new NWS transmitters in South Dakota, Illinois, Georgia and Kentucky.

In the Central Region alone, Krudwig said, there are "80 solid proposals on the table" where outside companies, local/state governments and individuals and groups have identified the site and the funding to buy and install transmitters. He said many more groups are getting all the pieces together to buy transmitters.

Meanwhile, the first few months of production for the new Crown transmitters are already paid for, he said.

NWS needs transmitter sites and tower space for its antennas — facilities that some broadcasters may be able to provide.



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Circle (10) On Reader Service Card

Common IBOC Tests Debated

▶ LUCENT, continued from page 1

third parties. Representatives of each proponent that submits data are to meet with members of the subcommittee before December to review what will be submitted.

Common testing is likely to be discussed at the Aug. 31 DAB subcommittee meetingof the NRSC.

Submitting data

Participation in the NRSC process is voluntary. The data each proponent would submit would become public soon after its submitted. Given the sensitive nature of revealing technical information, and the competitive attitude between the proponents, experts believe that if one company does not submit data, there is a good chance that none will, making the NRSC process moot.

How this would affect a future FCC rule making on IBOC is unclear, as the commission has yet to say what it expects of the NRSC on this issue. The FCC is an observer of the committee process. A source close to the commission said the FCC would like to have a consensus emerge from the NRSC process.

Common testing is not a new idea. When the DAB subcommittee was revived more than a year ago, common testing was discussed, but discarded by all three proponents, several sources said.

When the NRSC asked proponents if there should be direct comparisons, "USADR and Lucent did not want specific time frames for direct comparisons," said NRSC Chairman Charles Morgan.

Pai later stated in letter to the NRSC that "comparative testing under identical conditions is necessary for a fair selection."

In a recent letter to **RW**, Pai stated, "Lucent's view of such standardized testing is not shared by other proponents, creating the potential for them to submit partial results." He said later, "If you do not standardize testing, it creates the potential for a proponent to submit only the best results" or results from a test that was conducted five times, for example, without telling the NRSC it was conducted that many times.

Some participants wonder if a debate over testing now could further delay the IBOC process.

Pai said Lucent's position on common testing has not changed, but that the company is now pushing the concept harder, because of the FCC's intention to release a rule making on IBOC by the end of the summer.

He said the FCC's involvement gives "a higher sense of urgency" to speeding up IBOC development.

Several sources said they saw Lucent's push for common testing as a delay tactic to give it more time to complete field testing.

One committee member said, "If somebody tries to derail the Dec. 15 deadline, that tells me something about the company."

Pai said the push for common testing is not a delay tactic and that Lucent believes common testing will expedite the IBOC development process.

Pai said LDR's field tests are underway. It is testing its FM single-stream system now and will begin testing its multi-stream system later this summer, with AM testing to follow. Multi-streaming, said Lucent, enables high-quality digital reception of audio even when part of the signal is severely interfered with, by recombining the remaining streams.

"The issue is not whether or not we can meet the deadline. It's ensuring we are testing to the right criteria and using a process that will yield meaningful results," Pai said.

Significant improvement?

The NRSC plans to take the test results and compare each system to analog "to know if it's worth it to go further with this process," said one committee member. He said. "We don't have to make it a shoot out at this stage" to get the information it needs.

The NRSC's evaluation committee intends to write up three reports comparing each system to analog. Several sources said common testing may occur after that, if the committee members agree.

In response to Lucent's letter, NRSC's Morgan wrote, "The current efforts of the DAB Subcommittee are now focused on establishing whether IBOC DAB represents a significantly improved service over existing analog services ... This is an important first step on the way to developing a DAB standard."

Morgan said it would be "premature" to skip this step and go directly to common testing.

Lucent does not believe that comparing each system to analog is the best way to reach a common standard and wants to go directly to common testing.

Pai said, "We've made a significant investment under the knowledge that we will have a system that's better than analog. Putting out a system that is only equal to or worse than analog does not make it commercially viable for any of us."

Several committee members said common testing makes sense in getting to one standard — but later, after the systems have been compared to analog.

Morgan said assuming more than one IBOC DAB system meets the NRSC criteria, the NRSC would be willing to be involved in direct comparative testing. "If asked by all the proponents, we could begin to work on those procedure to be developed and used *only* if more than one proponent wants comparison."

He also said if only one system is submitted and it meets the criteria, that system could be the standard for IBOC DAB.

USADR President and Chief Executive Officer Bob Struble said, "We're committed to what was laid out. ... Our plan is to stick closely to that. ...We're working very hard to make sure we meet that deadline." USADR was to begin field testing by the beginning of August.

Who pays the tab?

DRE investor Dwight Taylor said, "We are well underway with the practical aspects of our testing. ... While we are doing this independently, if a practical way to do that (common testing) arises, we'd be for it." He said DRE planned to test in about 20 markets and take on extra staff to accomplish that.

Morgan said selecting an outside lab, stations, determining the costs and payments would take about six months.

Costs, he said, would have to be worked out and proponents would need to pay the major portion of those costs.

In EIA tests in 1994 to 1996, in which several DAB systems were studied, the government, NAB, EIA and the proponents bore the costs of common testing. In those tests, IBOC, in-band adjacent channel, Eureka-147 and a satellite-delivered system were studied. All systems took part in common lab tests. Several systems took part in common field tests, except the IBOC systems developed by USADR and AT&T/Amati.

In the EIA tests, the systems were not compared to analog first.

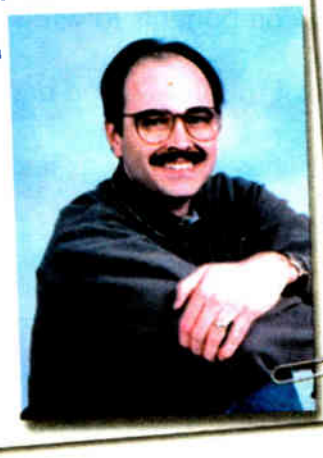
Lucent took part in common testing with TV's Grand Alliance in search of a single standard for digital TV. In that case, Lucent said, there were 24 technologies at first, which was narrowed down to six. The final system that was field tested was a marriage of the most compatible aspects of those systems.

Radio's Most Wanted

PROFILE: Jeff Littlejohn

Vice President of Engineering, Chancellor Media Corporation
Cincinnati, Ohio
Radio World reader for 15 years

Hometown: Gary, Indiana
School: ITT Technical Institute (Bachelor's Degree)
Favorite radio format: Chancellor's Jammin' Oldies
Favorite place to listen to the radio: In the car
Favorite color: Green
Favorite piece of equipment: Neutrik A2 test set
Hobbies: Spending time with my wife, Tina; my dogs, and flyfishing
Coffee: Black
Proudest moment: Any time a major studio or transmitter project goes "on-the-air."
Favorite Section in Radio World: Workbench
Best thing about your job: Working with the best engineers in the world!
Reads RW because: Radio World is the ONLY publication that focuses on the things I need to know about radio.



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BUSINESS DIGEST

D.A.V.I.D. Picks b-i-t-s

Digital Audio & Video Integration and Development GmbH, a broadcasting solutions supplier based in Germany, has tapped Broadcast Information Technology Services Inc. (b-i-t-s) as its systems integrator and exclusive distributor for North America, and as a non-exclusive distributor for Asia.

B-i-t-s will provide sales, installation and customer engineering support. D.A.V.I.D. makes digital radio newsroom production systems for radio and TV.

Gerhard Möller, general manager of D.A.V.I.D, said the supplier is strongest in Austria, where it claims 65 percent of the market, and Germany, where it claims 30 percent. D.A.V.I.D. sees strong growth potential in Europe, North America and Asia.

B-i-t-s will expand its Washington, D.C., office to include engineering and sales support. A Seattle office will handle the West Coast and Asian markets.

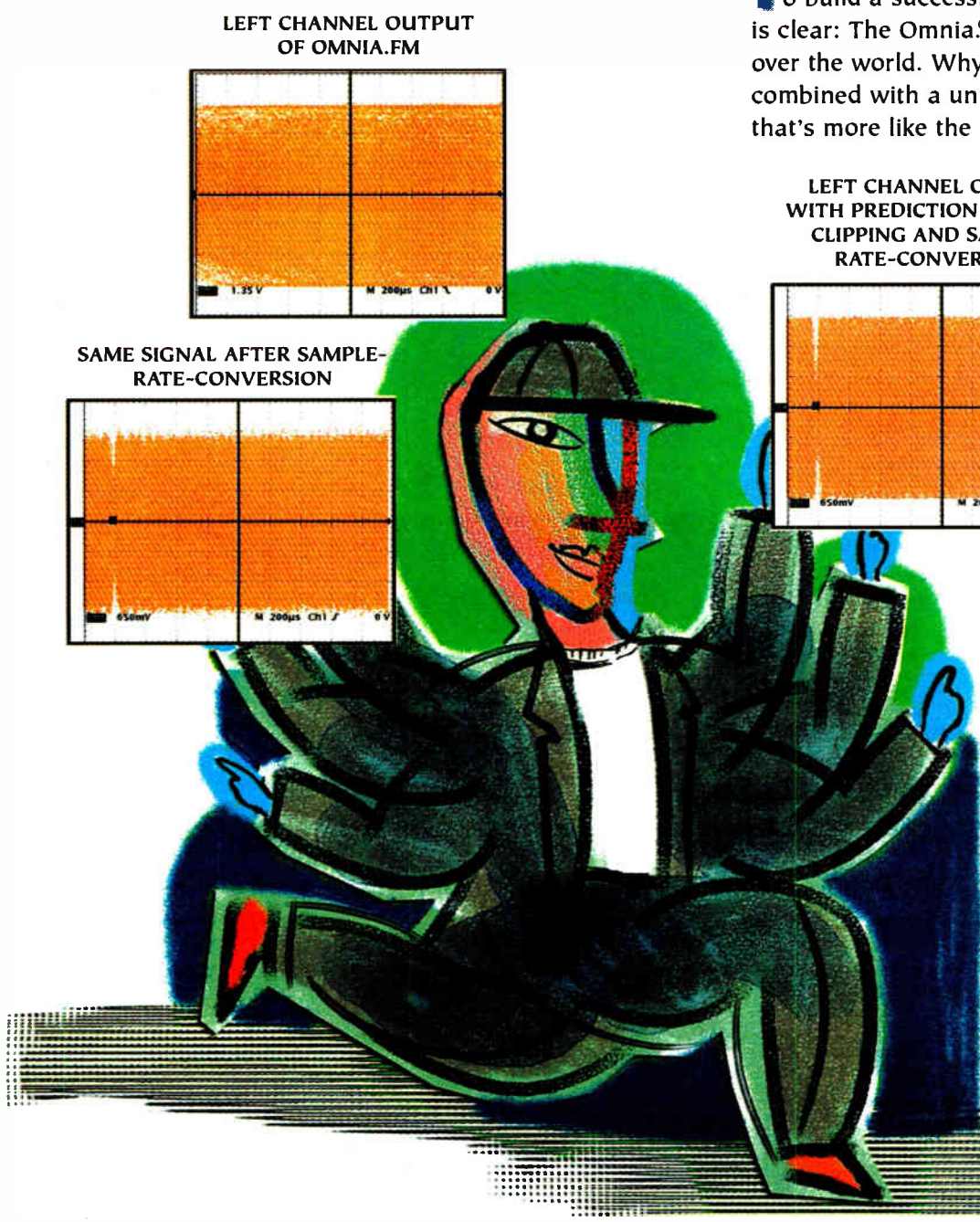
Claude "Marty" Martin, CEO and president of b-i-t-s, said the D.A.V.I.D. relationship will not be affected by the subsequent sale of D.A.V.I.D. by Harman International Industries Inc. to new owner Management Data AG.

B-i-t-s also is a broadcast distributor and consultant.

Its Web site is *www.b-i-t-s.net*

World Radio History

DECIDE



To build a successful station and stay on top of the ratings, one decision is clear: The Omnia.®fm from Cutting Edge. It's the processor of choice all over the world. Why? Because the Omnia.fm's 48kHz sampled operation, combined with a unique anti-aliasing final limiter, gives you audio quality that's more like the source and far superior to yesterday's 32kHz sampled systems. And the Omnia provides rock-solid peak control, awesome loudness and unlike the outdated processors, absolutely ***no digital grunge.***

But when the Omnia.fm is incorporated into transmission systems sampled at 32kHz, overshoots can result from sample-rate-conversions and their attendant low-pass filtering. Until yesterday's systems catch up to the Omnia.fm, the unit's built-in Prediction Analysis Clipper will predict and eliminate overshoots. The result? All the benefits of the Omnia.fm, without the inevitable flaws of 32kHz systems. Check out the oscilloscope graphs to the left and see the results for yourself.

And to make your decision even easier, contact your Omnia.fm dealer for a no-risk, sixty-day demo and money-back guarantee*.

Here's how: *Using program material, the Omnia.fm was set to process aggressively. Programming with substantial low frequencies and clean high frequencies was used to provide a good challenge for the control of overshoots. The analog Left Channel output was connected to a Tektronix TDS-744A digital storage oscilloscope, which was set to the infinite persistence mode. Each waveform was stored for at least one minute so that the display "fills in" with traces of audio waveforms.*

The "flat" lines along the top and bottom of the filled in section represent clipper performance. Any "dots" that exceed the reference level of 0.650 volts are overshoots. The lower left graph shows "blips" representing overshoots 15 to 20 percent beyond the reference peak level of ±0.650 volts. The Prediction Analysis Clipper reduces overshoots in the sample-rate-converted signal path to an insignificant three percent.

For more information on the technical background of overshoot mechanisms, call us for a copy of our paper entitled "Omnia.fm: An Engineering Study." Or visit our web site: www.nogrunge.com.

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World Radio History

Workbench

Radio World, August 4, 1999

Winterize Your Sites — Now

John Bisset

As we enter the last month or so of summer, it's time to prepare for the cooler months ahead. This means varmint-proofing your sites. With a can of foam sealant — see Figure 1 — plug all the cracks in your transmitter building.

Figure 1: Seal a site to save time and money in repelling rodents and insects.

Not only will this keep dirt out of the transmitter, you'll reduce the mice, insects, birds and small animals that might decide to winter at your facility. Don't forget the antenna tuning unit. Even small holes where cables or bolts used to go can be great entry points for these pests.

Mice will chew wires, and the last thing you want to be repairing on a cold winter night is that contactor wiring the mouse chewed through. If your transmitter building has floor troughs, make sure any exits to the outside are also plugged.

Now is a good time to also do PM on your site air conditioners. Some easy things you can check include new filters, and clearing the condensate drain. Anti-algae tablets placed in the condensate pan will guard against algae clogs. Since you've got the units open, also check the fan belts. Get the problems corrected now, before the bad weather hits.

If you have economizers at your site, make sure the louvers that mix the outside air with the air conditioned air are working, and don't bind. As many readers may have discovered this summer, an airtight transmitter building can cause a tremendous amount of equipment damage should the air conditioning fail. Make sure backup systems work — this includes emergency exhaust fans, or remote control temperature monitoring.

While you're at the site, check to make sure that major service disconnects are properly marked. The example in Figure 2 with engraved labels is nice, but most of us don't have that kind of budget. Settle for Brother P-Touch or even cart labels or a Sharpie marker to identify the various disconnects.

Another tip: if the disconnect is fused, write the amperage of the fuse on the front of the box — then make sure you have a spare or two. This is especially useful for contract engineers, who may need a variety of fuses for their different sites. In some of the larger boxes, there is room to store a few spare fuses at the bottom of the box.

A spare fan is probably the best 'under $50' investment you could make.

If you do this, do yourself another favor — *throw away* blown fuses! There's nothing more frustrating than seeing a workbench filled with a dozen fuses, and finding out all of them are blown! Talk about a false sense of security!

★ ★ ★

Figure 3 is a novel way of getting half-inch coax into a ceiling.

Bill Lambert of Lambert Technical Services in Benson, N.C., used the electrical box approach to finish an installation where the line had to disappear into the ceiling. There was already a hole present, and the electric box neatly covered the ceiling entry.

Figure 3 : An electric box provides cable support and finishes the cable entry to the ceiling nicely.

Before readers complain that the bending radius of the line has been exceeded, let me assure you, it's a photographic illusion. The sweeps are wider than they appear in the photo — kind of like that side-view mirror thing, only this one is attributed to my Nikon!

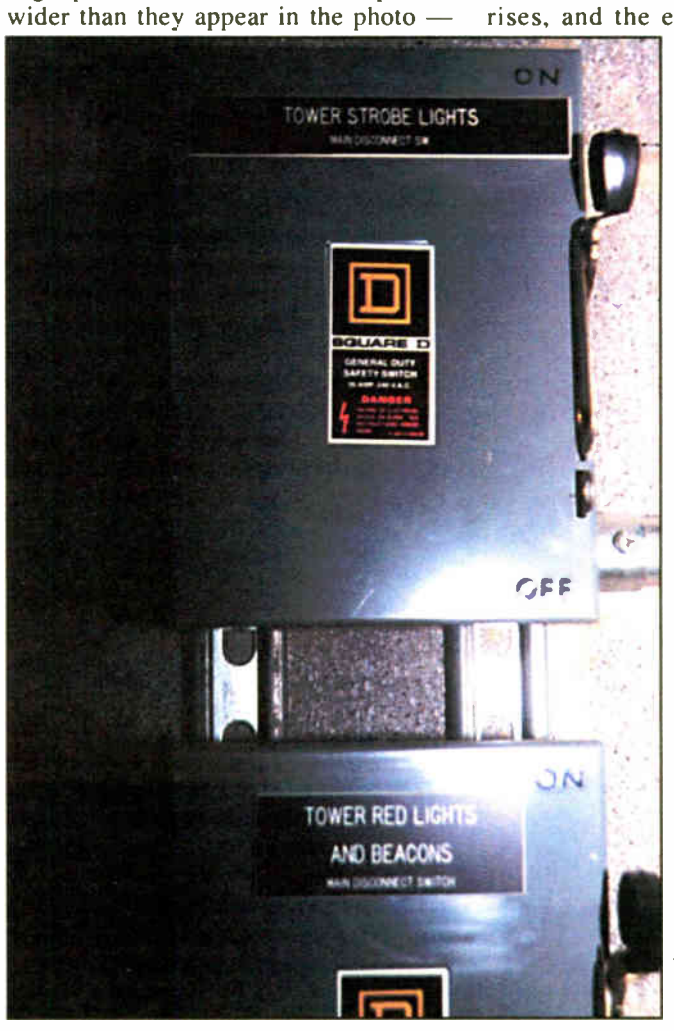

Figure 2: Label all AC disconnects to guard against life-threatening mistakes.

When Bill completed the new installation, he added extensive grounding, tying the studios and transmitter room equipment together with wide ground strap. The elimination of hum was nothing short of miraculous. It's nice when owners give you the time and resources to "do it right"!

★ ★ ★

This has been the summer for older exciter failures.

The problem: the muffin fan seizes, and soon thereafter, the temperature rises, and the exciter shuts down. In some models without any kind of temperature sensing, the entire exciter cooks till components char and you're off the air.

If you don't have a spare fan, it's probably the best "under $50" investment you could make. Remember, these fans need to be kept clean as well. Dirt clogging the blades and working into the bearings will result in eventual failure — always in the middle of drive time on a holiday weekend!

Thanks to Jeff Tharp for sharing these tips with *Workbench* readers.

■ ■ ■

John Bisset has worked as a chief engineer and contract engineer for more than 20 years. He is a district sales manager for Harris Corp. Reach him at (703) 323-8011.

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

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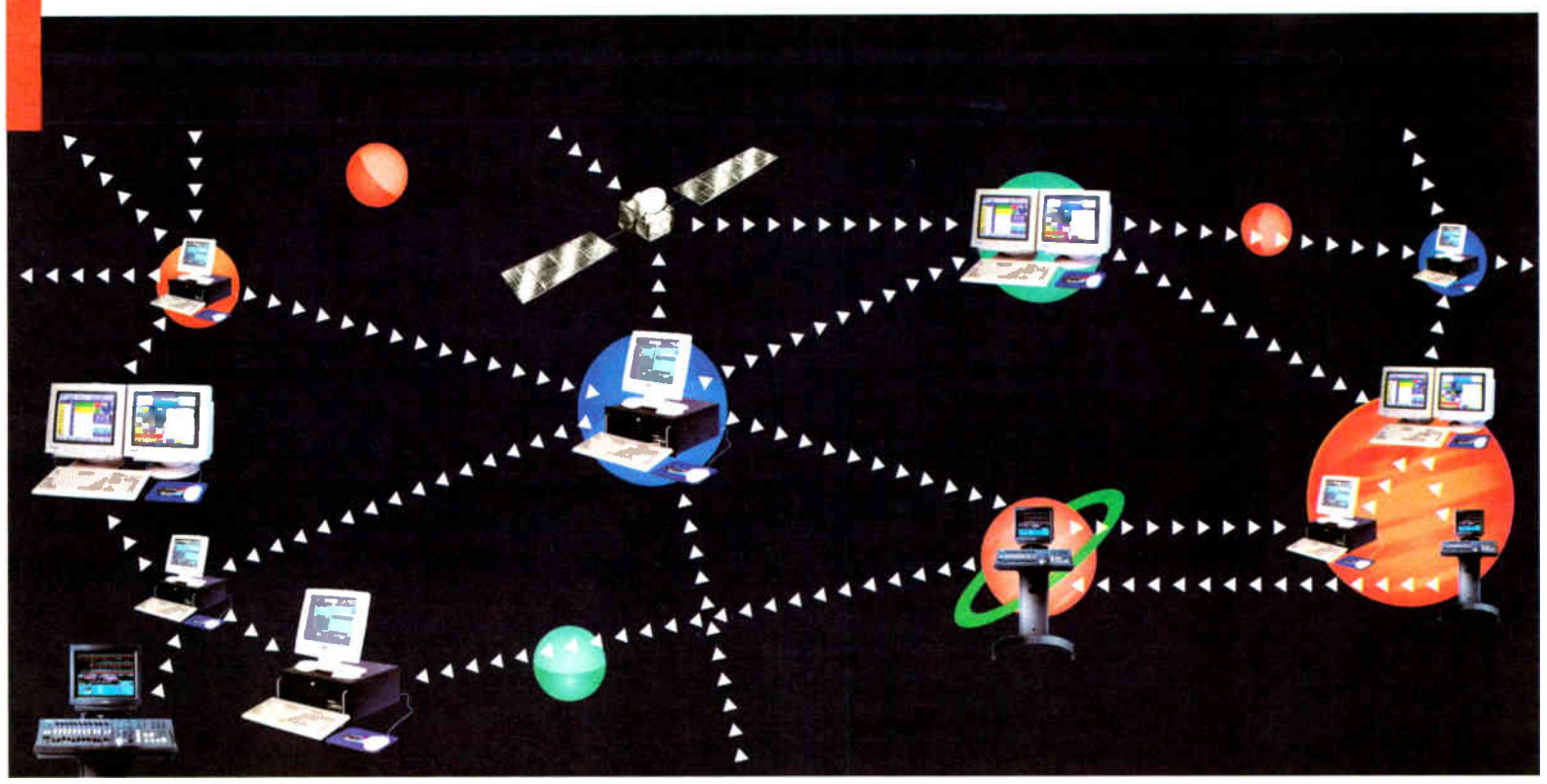

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World Radio History

Take Accurate Meter Measurements

Ed Montgomery

This is one of a series of articles on the basics of AM radio.

Many transmitters, phase monitors, antenna current meters and remote-control systems still employ analog meters. Everyone responsible for the operation of the broadcast facility must understand how to read meters accurately.

Digital readings are quite simple; however, it is important to read an analog meter and understand decimal conversion when necessary. It is also important to know if the reading is positive or negative.

By the letters

Most of the readings involve voltage, current or power. Voltage is electric potential, a requirement for electron flow when a conductor is connected between the positive and negative charges. The electron flow is measured in amperes.

Resistance is the opposition to the flow of current measured in ohms. The amount of work performed is known as power, measured in watts. Power is the combination of voltage, current, and resistance. It relates electrical energy physical work performed. There are 746 watts in one horsepower.

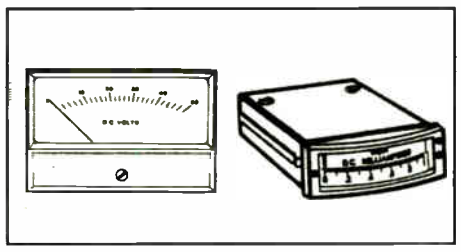

Figure 1

Voltage, current and power have several electronic designations. Depending on what manual or book you read, the following symbols will be used:

Voltage: V or E (for Electro-Motive Force)

Current: A for amperes or I for intensity of electron flow

Resistance: R or Greek letter Omega

Power: W for watts

Readings are taken on the scale of the meter. The scale consists of numbers and incremental markings or graduations. It is important to understand exactly what is being read. The scale is often simplified by omitting zeros.

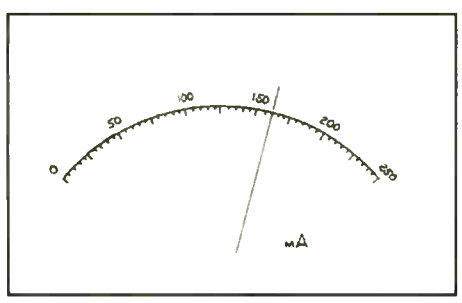

Figure 2

Prefixes are then used to convert the meter reading to the actual value. The most common prefixes in broadcast transmission equipment are:

Milli - Thousandths
Kilo - Thousand
Mega - Million

A meter may display a reading of 10, but if the meter has "mA" printed on it, the actual reading would be 10 milliamperes. Meter displays normally indicate clearly whether they are displaying volts, amps or watts.

In practice

Figure 1 illustrates the types of analog meters often used. One is a traditional meter with a needle that moves in an arc across the face. The other has a needle that spans the meter face edgewise.

Figure 2 illustrates a meter with a scale from 0 to 250. The scale includes a number of graduations that are not marked. Note that each space between numbers contains 10 marks. Each mark on the scale is equal to five units. The meter indicates it is measuring milliamps. Observing the number sequence, you will find that each incremental mark is equal to five units. The meter is reading 160 units. Because the meter indicates "mA," the reading is 160 milliamps.

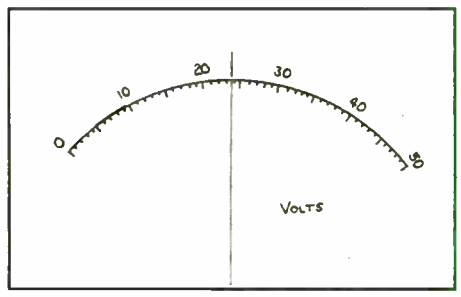

Figure 3

Figure 3 illustrates a scale extending from 0 to 50. Each graduation on the scale equals one unit. Note that this meter is reading in between two graduations. This requires an accurate estimate. The meter is reading 23.5 volts.

Figure 4 displays a scale numbered from 1 to 10. Each graduation here equals two-tenths (0.2) and only even numbers are printed. The larger, unnumbered graduations halfway between the printed numbers represent odd numbers.

This illustration has the meter needle between the printed 6 and 8, clearly to the right of the unnumbered line that indicates 7. The reading is between 7 and 8 with the needle between the graduations. Again, an estimation is necessary. The meter is reading 7.5. The meter face indicates kV. The answer is 7,500 volts.

Figure 5 is an "edgewise mount" meter. In this illustration, the meter needle moves horizontally across the scale. Applying the knowledge you now know, you will see the meter is reading 0.52 mA.

Analog antenna monitors read in a manner that is quite similar to the above readings. However, they will read "degrees" or "ratios." The degrees are the relative phases of the currents flowing in each tower of the directional antenna while the ratios indicate the relative amplitudes of the currents in the towers measured against the array reference tower.

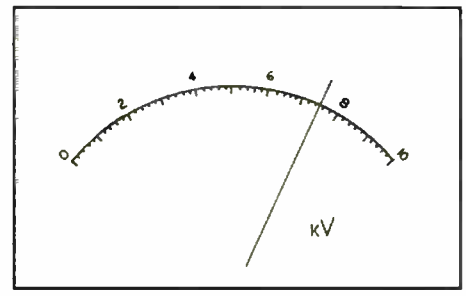

Figure 4

The phase monitor has a button or switch that indicates whether the ratios and angles are positive or negative.

Data on the phase monitor can be compared against values printed in the station license. This information is one way of determining how accurately the antenna is operating.

Everyone responsible for the operation of the broadcast facility must understand how to read meters accurately.

Determining station power

All AM broadcasting stations have an RF (radio frequency) current meter that is used to calculate power. Directional antennas have a "common point" meter while non-directionals just have an RF meter. This is the total amount of current being sent to the antenna.

This meter can be used with the power equation $P=I^2R$. When using this formula, it is assumed that the antenna resistance measurement is correct. The station license indicates what the antenna current should be.

The following math equation can be used to determine just what percent the current meter varies from the licensed value. Start with the licensed value, and subtract the measured value. Divide the answer by the licensed value. Multiply the result by 100.

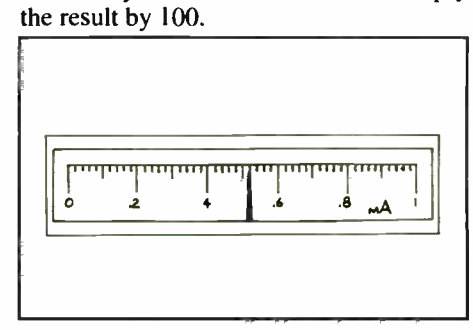

Figure 5

For example, say the licensed value is 1.5 amperes and the measured value is 1.45 amperes. Using the formula, we find that the current is 3.33 percent below the licensed value. The broadcast license lists the percent limits on the antenna currents.

Station power can not be less than 90 percent or more than 105 percent of the licensed power. If this is unavoidable, the FCC should be notified of when the problem was discovered and when it was corrected.

■ ■ ■

Ed Montgomery is the video technology and communications lab director at Thomas Jefferson High School for Science and Technology, Fairfax County, Va.

He has worked as a broadcast engineer and college-level instructor. Reach him at emontgom@lan.tjhsst.edu *or by phone at (703) 750-5090*

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World Radio History

BOOK REVIEW

A Worthy Guide to RFR Compliance

W.C. Alexander

For a number of years, broadcasters have had to deal with the issue of RF (RFR) radiation from a regulatory standpoint. In prior years, those of us who were in the business were aware to at least some extent of the risks, but we did not have Big Brother telling us what was and was not safe.

Today, both the FCC and OSHA tell us what levels of RF radiation are safe and how to deal with the RFR environment. The guidelines within which we must work are more restrictive than ever.

What are these guidelines? Where can I find them and how can I be certain that my station is in compliance? How can I know I am answering the RFR questions on the renewal form correctly?

These are legitimate questions that broadcast licensees may ask when confronted with the issue. The answers are available from a multitude of sources, if you know where to look.

'Acceptable' levels

An excellent one-stop source is the fourth edition of "A Broadcaster's Guide to FCC RF Radiation Regulation Compliance," a publication of the NAB Office of Science and Technology and the NAB Legal and Regulatory Affairs Department.

This reference has two major divisions: the "NAB Primer on FCC RF Radiation Regulation" and an exhaustive appendix. The primer is written to answer everyday questions that a station engineer, manager or owner might have about RFR and help him or her deal with the regulatory and safety aspects of the issue. The appendix contains the applicable rules and other reference material.

In the primer, FCC RFR basics are presented, including a brief history and a definition of controlled and uncontrolled

environments. The purpose of the FCC's RFR rules also is discussed.

Did you know that there is no conclusive connection between exposure to relatively low levels of RFR and health effects in humans? Many broadcasters assume that the adverse health effects which the FCC's RFR rules are designed to protect against are well established, but this is not the case.

The regulations as they exist today were adopted as a preventive and precautionary measure. These regulations define "acceptable" levels for human exposure.

Why does the FCC regulate RFR? The more cynical among us might say, "Because it can," but in reality the FCC does so only at the insistence of Congress. The National Environmental Policy Act of 1969 (NEPA) is the body of law that requires the FCC to evaluate the potential environmental significance of the facilities it licenses and regulates. The primer deals with this and many other historical facts about RFR.

Common problems

A great deal of practical information is presented in an easy-to-understand Q&A format that will give even newcomers to the industry a clear picture of their responsibilities in the area of RFR. The primer defines which facilities are regulated and which are not, what ongoing responsibilities broadcasters have, and what is required to assess compliance at a particular site.

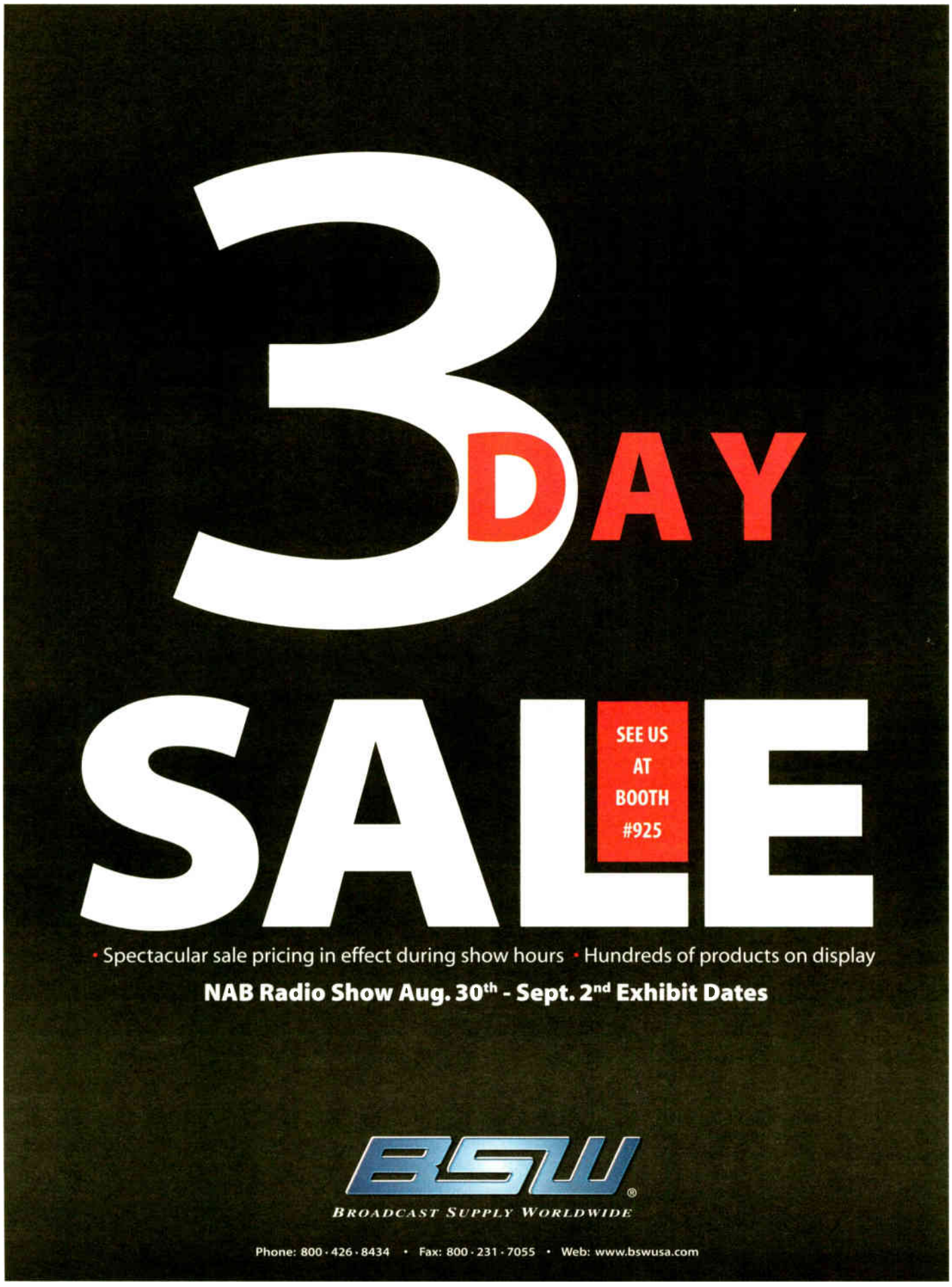
There are three basic evaluation methods discussed: tables and figures, calculations and measurements. The advantages and disadvantages of each are dealt with in sufficient detail that the reader understands them, and the pertinent reference materials are mentioned.

Multi-user sites, which tend to be more problematic for RFR compliance, are addressed along with tower leases and the joint obligation of lessor and lessee. Maintenance techniques and procedures are emphasized to ensure that workers are not exposed to RFR levels in excess of the FCC limit.

What station licensee has not become a little nervous when those RFR questions on the license renewal form have to be answered? No matter who he or she is relying on to provide the information, the licensee is personally certifying that the statements being made are true, and mistakes can lead to big trouble with the FCC — perhaps even putting the license in jeopardy.

The NAB primer does a good job of dealing with the certification questions

See RF, page 25 ▶



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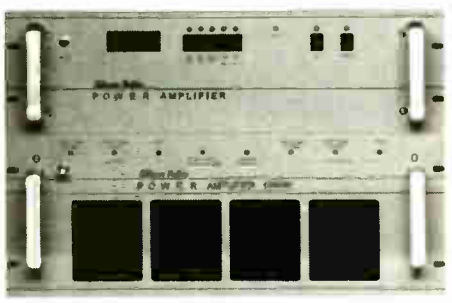

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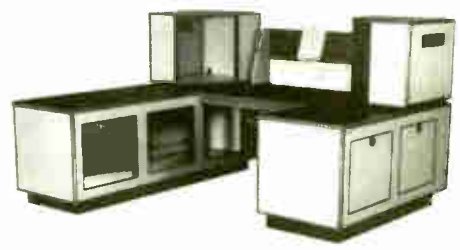

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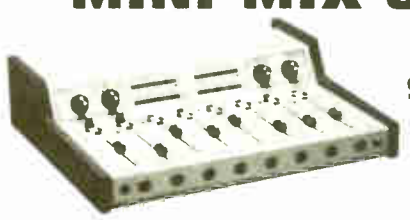

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READER SERVICE NO. 210

World Radio History

FIRST PERSON

The Final Minutes of CBL on 740

Scott Fybush

In June, 62 years of radio history came to a close in a small white building at the end of a dead-end road in the tiny hamlet of Hornby, Ontario.

The Canadian Broadcasting Corp. has been converting many of its AM operations to FM, and this spring marked the end of the line for Toronto flagship CBL on 740. As an inveterate CBC listener and radio junkie, I had to make the trip from Rochester to Toronto for the occasion.

I arrived on Friday afternoon, June 18, the last day of regular programming on the 740 frequency. It had been 14 months since I had traveled to Toronto for the inauguration of CBL's replacement, CBLA on 99.1 FM.

Historic plant

When the FM signed on, the occasion was marked by a huge open house at the CBC Broadcast Centre in downtown Toronto, complete with fireworks, live broadcasts, studio tours, even souvenir T-shirts.

This time around, it was just me, a friend and the engineers — a lot of engineers, as it happened. When we pulled up at the building on Eighth Line Road, more than a half-dozen engineers were working on one of CBL's two identical Continental 317 transmitters, trying to fix a problem that was keeping that unit off the air. The good news was that retired engineer Rod Hillman had time to show us around the facility.

The Hornby plant was built in 1937, when CBL (then at 840 kHz) became the CBC's Toronto flagship station. The 650-foot vertical tower at the site was, for some years, the tallest structure in Canada, and the transmitter site itself became a tourist attraction in the years leading up to World War II.

As a result, the building was designed to accommodate visitors, who watched the transmitter operators from a viewing platform just inside the door to the transmitter room.

The Art Deco door and steel-railed platform are still there, but today's visitor sees a different transmitter room. The old console is gone, as are the Northern Electric transmitters that once walled in two sides of the room.

Today, there are the two Continentals for CBL off to the left, two more identical transmitters for French-language CJBC (860) straight ahead, and in front of CJBC, racks of equipment for audio processing and transmitter monitoring. Behind the rack is a wall topped with several rows of glass block. When this site was new, Hillman tells us, the entire wall was glass.

After taking some photos of the transmitter room, we head downstairs, past the generator room, towards the basement. That's where a Cold War-era fallout shelter holds a small studio, and where the last words to be uttered on CBL will be heard in just over a day's time.

Moving on

Right now, though, we're headed back outside and out to the tower. The current tower, Hillman tells us, was put up just a decade ago to replace the 1937 stick. The new tower is just 18 inches on each side, about half the size of the old one (the base of which still sits on the lawn outside the transmitter building).

At its base sit not one, but three, tuning buildings: the original, a later version that proved unsatisfactory, and the current one, where the CBL and CJBC signals are combined and sent out to the antenna — at least for the moment.

Our tour completed, we drive away from Hornby listening to the CBL signal, complete with frequent interruptions reminding us that CBC Radio One will move to 99.1 FM for good in just a few hours. Later that night, we visit some fellow aircheck collectors in nearby Georgetown, then head back to Hornby around 11:30 to hear what will happen at midnight.

Midnight comes and goes with no change to the CBL signal. But a few minutes later, when the CBC hourly news ends and the FM side returns to the second hour of "That Time of the Night," CBL slips into a nonstop loop advising listeners where to tune on the FM dial to find the Radio One signal.

Saddened, we pull out of the transmitter driveway, out to Trafalgar Road, and over to Tim Horton's for donuts.

The final minutes

The next day, as the loop plays on, we distract ourselves by heading into downtown Toronto and taking in a Blue Jays game.

From our seats in the top deck of SkyDome, we note that in addition to being able to hear the Jays game on four stations (CKGL 570, CJRN 710, CHAM 820 and CHUM 1050), we can't hear the new CBLA FM signal very well. That's because we're looking right up at all the other FMs on the CN Tower, while CBLA's directional signal emanates from First Canadian Place a few blocks away. CBL still comes in just fine, albeit with nothing but that loop playing on and on.

After dinner, it's back out to Hornby, this time to find a transmitter site full of people. The CBC has invited all its current and former transmitter engineers to be at Hornby for the occasion, and 10 of them are there. The middle of the transmitter room now sports a table filled with food and drink. The time is almost at hand.

As the 1937 clock ticks off a half-hour remaining, engineer Tom Holden and Philip Savage, of the CBC communications department, head downstairs to the studio. Meantime, we remain upstairs, telling various CBC engineers just why it is that we can't hear 99.1 in Rochester ("You see, we have this 50 kilowatt local FM on 98.9...").

With just a few minutes left, we go down to the studio, where Savage sits waiting for the end. The loop nears its end, plays again, and finally Holden pots up the mic and Savage begins reading:

"This is CBC Radio One, broadcasting from the Hornby transmitter at 740 AM. In the Toronto area, we now move to 99.1 FM, with additional frequencies throughout Southern Ontario. This transmitter has served the community well since 1937, and at 740 AM since 1941. This is the end of an era in Canadian broadcasting history. Signing off now from CBL, adieu."

In the meantime, we've sprinted back upstairs, where Savage's announcement is playing over the loudspeaker in the transmitter room. As he reads the final "adieu," engineer Art Slade has his hand poised on the "high voltage" button on transmitter 2.

Slade is the veteran of the group, having worked at Hornby from 1956 until 1990. Around him, the engineers click their cameras as he reaches for the button, presses it — and 740 goes silent.

Silence on 740

Once Savage and Holden have returned from the basement, the toasts begin, to the new 99.1 and the departed 740. The group of engineers poses for photos in front of the equipment rack. The list of those attending is compiled, photocopied and distributed with copies of the script for the final announcement.

See CBL, page 26 ▶

CBC engineers pose a few minutes after the button was pushed. Rear, from left: Kamil Ozmutlu, CN Tower engineer; Philip Savage, CBC Communications Dept.; Martin Marcotte, engineering supervisor; Vladimir Dicur, CN Tower engineer; Ken Jang, CBC senior engineer; Art Slade, retired CBL engineer (and button-pusher). Front: Fred Benedikt, CBC engineer; Roberto Vissani, CBL/CJBC site engineer; Tom Holden, CBC engineer; Rod Hillman, retired CBC engineer.

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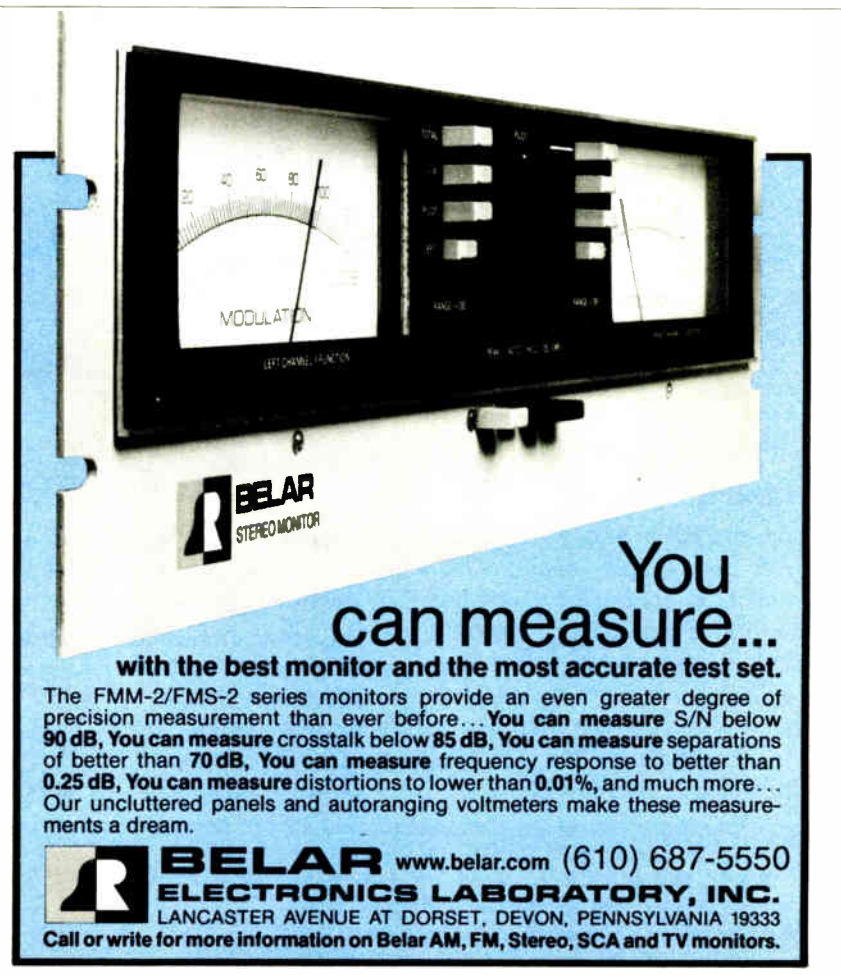

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World Radio History

A Special Link, a Special Show

Al Parker

Mike Dorrough, a partner at Dorrough Electronics, is an admirer and supporter of the shortwave program known as "Tom and Darryl," so when the opportunity to host a remote broadcast was offered, he jumped at the chance to put his specially crafted studio in Oregon, Wis., to the test.

Dorrough, inventor of the Discriminate Audio Processor, has had a lifelong dream to buy a large piece of land and build a home combined with a tasteful, compact shortwave radio station. His ultimate goal would be to operate a 24-hour radio service for and by visually impaired persons and in the process have the means to test and demonstrate new technology.

Tom DePauw, left, and Darryl Roberts broadcast worldwide on WBCQ, via the Dorrough facilities in Wisconsin.

The programming would be a universally appealing mix of new material and classic radio plays where the stage direction was spoken to create a mind's-eye view of the action.

Tom DePauw and Darryl Roberts are visually impaired persons already broadcasting on the shortwave spectrum one night per week. Since the Dorrough transmitting plant (to be known as World Beacon Radio) is on hold due to unanticipated local resistance, there had been no opportunity to fully test the completed studio facilities on the air.

Special "touch-sensitive" analog and state-of-the-art digital equipment with oversized controls has been assembled to accommodate blind or visually impaired on-air talent and archivists. "Tom and Darryl" is the preeminent, nationally broadcast shortwave program produced by visually impaired persons. The weekly program (broadcast Saturday from 9 p.m. to midnight Pacific Time) is normally broadcast from the Macomb, Ill., studio of Tom and Darryl via satellite connections through the facilities of shortwave station WBCQ in Monticello, Maine.

A little while ago, Mike suggested that if the satellite link could be transferred to the Dorrough facility, his studio could come to life at least for one night. That is exactly what happened on Saturday night, March 28.

Tom and Darryl, along with Mike and a number of mutual friends, worked feverishly the day of the broadcast to establish the links required to bounce the program from Wisconsin to Maine via satellite. WBCQ, a 50 kW station, would then relay the program over shortwave on 7.415 MHz to its rapidly growing audience. Such shortwave programs are desired by more and more people desperate for listening alternatives to what some folks consider an overly homogenous "corporate media."

Thanks to the increased availability of low-cost, high-quality shortwave receivers, it's easier than ever to become an "SWL" (shortwave listener). This medium has the potential to be a totally wireless adjunct to the Internet. The two mediums are already connected via Web sites that allow listeners to learn the short-wave broadcast schedules and even carry archives of programs already broadcast. The "Tom and Darryl" program has its own Web site, *www.tomanddarryl.org* There are even links to hear the show live on the Internet in the event of poor local reception.

It wasn't surprising that the special program emanating from the Oregon facility was one of the most exciting ever for listeners and the broadcasters themselves. Being the first to generate programming from such an elegant "virgin studio" was a once-in-a-lifetime thrill, even for pros like Tom and Darryl. Nearly a dozen people comprised a live studio audience, adding to an electric atmosphere not seen since the "Golden Age" of radio.

On the air, Tom and Darryl exhibit a style that is free-swinging and friendly. There are no obnoxious music bumpers or commercials between privately underwritten segments, just warm friends talking, spinning discs and the occasional classic radio transcription. The sounds of real people moving

See TOM & DARRYL, page 26 ▶

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CD Radio Contract To Wheatstone

CD Radio's digital facility in New York City will use 12 of the new D-600 digital radio consoles from Wheatstone.

The consoles will be installed in a dozen of CD Radio's 18 rooms and will be used for basic production and control, said Mark Kalman, vice president of CD Radio's National Broadcast Studio.

Kalman expects the facility to be complete this fall. The digital satellite service expects to begin airing programming in the fourth quarter of 2000.

For information, contact Wheatstone in North Carolina at (252) 638-7000, fax to (252) 637-1285 or circle ***Reader Service 87.***

Navy Upgrades Sub Network

Continental Electronics said it won a major five-year contract worth $34.5 million, including options, to upgrade the U.S. Navy's Very Low Frequency network for submarine communications.

The contract is part of the VLF Ashore Lifetime Upkeep Effort, or VALUE, program.

The upgrades, which include software and hardware, will bring a higher level of automation to the VLF network.

The VLF technology, in the spectrum between 3 kHz and 30 kHz, has been used for submarine communications since the first systems were designed in the 1950s and '60s. Continental described it as the most reliable form of long-distance and underwater communications ever developed. The signals can penetrate solid rock and the ocean surface, both of which block radio waves at higher frequencies.

The Navy has already exercised part of the contract by placing an order for modifications to the Naval Radio Station, Jim Creek in Arlington, Wash.

For information, contact Continental in Texas at (214) 381-7161, visit the Web site at www.contelec.com *or circle* ***Reader Service 95.***

USIA Chooses b-i-t-s

The U.S. Information Agency awarded a contract to Broadcast Information Technology Services Inc. (b-i-t-s) to provide the government with the Bits-Information Switching System for use at the International Broadcasting Bureau Network Control Center.

The digital signal processor hardware is made by Lighthouse, based on specifications developed by b-i-t-s, the customer and Lighthouse Digital products.

The b-i-t-s DSP is the first product in a new BISS product line that b-i-t-s will distribute. The system includes an easy-to-use control program interfaced to an automated scheduling system from CL International, using DSP hardware from Lighthouse.

It handles analog and digital audio, and digital video in either a mixed or separate configuration which can be ordered with redundant capabilities in the same frame. It is scaleable up to 1024 x 1024, and will handle 100 switches per second.

For information, contact b-i-t-s in Virginia at (703) 684-6488, visit the Web site at www.b-i-t-s.net/ *or circle* ***Reader Service 97.***

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Companies with news of unusual or prominent sales should send information and photos to: Radio World Managing Editor, P.O. Box 1214, Falls Church, VA 22041.

World Radio History

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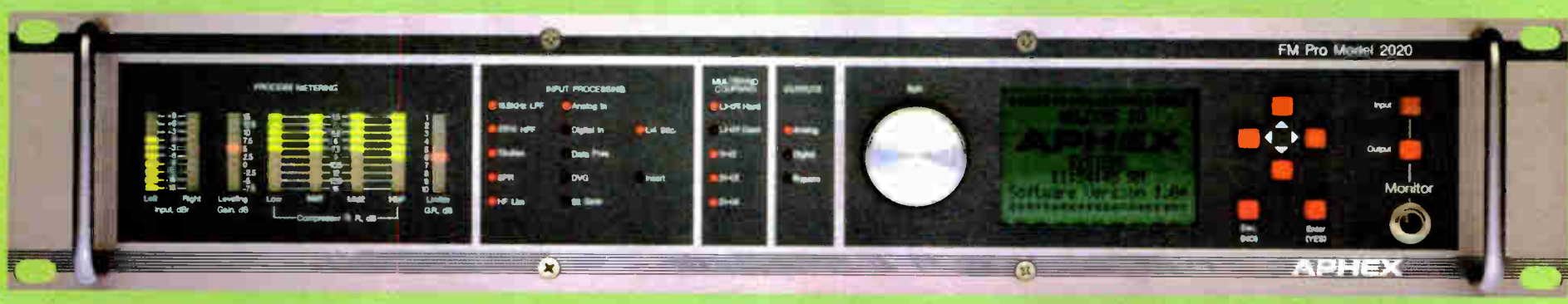

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World Radio History

SBE NEWS

SBE's Year of Certification

Society Touts Benefits to Engineers and Employers; Creates New Broadcast Networking Level

Terrence M. Baun, CPBE

Six times each year, RW provides this space to the SBE as a service to the industry.

The Certification Program of the Society of Broadcast Engineers has existed for almost 30 years, but 1999 marks perhaps our most ambitious effort ever to spread the word about the value of this unique program. SBE has resolved to make these 12 months of 1999 the "Year of Certification."

Certification is not something "extra" that SBE members accomplish; rather, it is an essential component of the educational process that broadcast engineers must experience.

As we move into the digital 21st century, it will be more important than ever for the radio business to depend upon the knowledge base that certified engineers exhibit. That can only mean good things for our industry and its profitability.

And looking at it from the engineer's point of view, Certification presents to that industry a benchmark of technical skills that can serve as a meaningful tool in the hiring and promotional process. That can only mean good things for our certified members and their income.

Higher salaries

SBE believes that something that is good for our industry and good for our engineering membership is something that needs to be heavily promoted; hence our decision to make 1999 a special year for Certification.

We've known for years through salary surveys that Certified Engineers, on the average, enjoy higher levels of compensation than non-certified engineers do. That is simply a reflection of the fact that higher skill levels result in higher pay.

But in my view, what is even more important than the monetary benefit of certification is the truth that certified members continuously exhibit their dedication to self-improvement by upgrading their skill level and knowledge base throughout the five-year certification period.

Think of how valuable that educational growth can be to a radio manager structuring a business plan to move the broadcast business into the digital age.

Simply put, Certified engineers are ideally positioned to serve as the critical resource in that decision-making process.

I find it interesting that radio station management will routinely use accountants, financial planners and appraisers who are Certified in their particular specialty, but often do not consider the benefit of employing Certified engineers in critical areas of their own technical plants!

SBE decided to tackle that issue with a personalized letter mailed in March to every radio station general manager in the country. Here is the core message:

"The Society of Broadcast Engineers is the only internationally recognized organization dedicated to testing the skills, education and experience of Certified broadcast engineers ... with millions of dollars in equipment acquisition and maintenance on the line, a Certified broadcast engineer may be your best investment of all.

"But there's another benefit for you. Because SBE Certification is valid only for a period of five years, the engineer must re-take the examination or earn re-certification points through continuing education and active involvement in the broadcast engineering profession — which means that your Certified engineer will make it a priority to maintain an active interest in keeping up with the latest technology."

It is our hope that this letter may lead radio management to a better understanding of the financial benefits that accrue from hiring qualified, Certified broadcast engineers.

Demand for quality

Now let's talk for a moment about the most critical event to happen in the radio industry in the past 10 years: the station consolidation brought about by the Telecommunications Act of 1996.

The increased reliability of hardware, coupled with the advantages realized through consolidated studio and transmitter siting, may have reduced the requirements for the number of engineers, but has most certainly increased the demand for quality engineers.

What is most evident is that the range of talents required to perform broadcast engineering services in today's consolidated radio climate is markedly different from the skill-sets required in the vacuum-tube age.

Today's radio groups require engineers who have skills in RF-based technologies as well as in computer-based LAN data and mass-storage audio distribution systems. SBE recognizes that our current Certification program does not contain the emphasis on the networking that is required in today's employment climate.

Therefore, beginning in 2000, we will be offering an entirely new level of Certification: Certified Broadcast Networking Technologist, which will allow broadcast engineers the ability to demonstrate mastery of the essentials of networking technology.

We think this certification level will provide an important educational tool for our members. Employers will be assured that engineers so certified have mastered the basics of broadcast LAN installation.

Beginning in 2000, we will offer a new level, the Certified Broadcast Networking Technologist.

The year 1999 also marks the inauguration of several strategies to make the Certification Program more user-friendly. We are offering the tests more frequently (now four times per year) and we have reduced the administrative time needed to prepare the tests, thus shortening the application time cycle considerably.

Our Certification Committee is reviewing the entire question database and is preparing to add a significant amount of digital material in 2000. We've updated and released the computer-based sample tests and reading/study lists, and are in the initial stages of preparing a CD-ROM— based study guide.

We have also initiated the Millennium Certification Project, which through the end of 1999 will offer engineers with expired Certifications the opportunity to restore those Certifications without taking another test. For details, please contact Certification Director Linda Godby-Emerick, *lgodby@sbe.org*

I invite you to visit our Web site at *www.sbe.org* to learn more about the Program of Certification and the many other things we are doing to make 1999 the "Year of Certification."

SBE knows that it is "mission-critical" to help engineers prepare for the opportunities and challenges of the 21st century radio broadcasting industry, and our Certification program intends to lead the way.

■ ■ ■

Terrence M. Baun, CPBE, is the vice president/director of engineering for Cumulus Broadcasting, and chair of the SBE National Certification Committee.

Circle (20) On Reader Service Card

World Radio History

Useful RFR Rule Guide

▶ RF, continued from page 18

and points the licensee to a little-known FCC public notice (included in the appendix) which describes the basic expectations in this area.

OSHA and the FCC

While the vast majority of broadcast sites easily comply with the FCC's RFR rules, some sites are troublesome, either because of the large number of high-power transmitters at the site, low antenna height or a combination of both.

Mountaintop sites are particularly prone to trouble. A good discussion of how to deal with an out-of-compliance site is presented in the primer, giving the broadcaster several options for bringing the site into compliance.

Finally, the primer discusses Occupational Safety and Health Administration RFR regulations. Because the FCC's RFR guidelines are more stringent than those of OSHA, however, the most important OSHA requirements have to do with policies, procedures, training and signage. It is noted that OSHA has cited a number of broadcasters in recent years for not implementing and enforcing proper RFR policy.

After the primer has given the reader a good overview of RFR safety and regulatory requirements, all the reference materials he or she will need to evaluate the site and design a plan to maintain compliance are at his fingertips in the appendix. Included are:

- RFR evaluation procedures for completing FCC applications
- FCC OET Bulletin No. 65 (RFR guidelines)
- FCC reports containing RFR background information
- Special Notice to renewal applicants regarding environmental rules
- FCC public notices regarding AM RFR issues
- Notice of proposed rulemaking regarding federal preemption of RFR laws
- Information on setting up an RFR safety program
- Electromagnetic Energy Association (EEA) fact sheets
- Special supplement to FCC renewal booklet

"A Broadcaster's Guide to FCC RF Radiation Regulation Compliance" lives up to its descriptive title.

For those charged with ensuring safety and compliance in the area of RFR, it is an indispensable reference. For the owner or manager who simply wants to know what those budget line items are for, it is a valuable tool. For anyone involved with broadcast tower sites, it is a worthwhile acquisition.

To order, contact NAB Services at (800) 368-5644, or visit the Web site at *www.nab.org*

List price is $49.95 for non-members, and $29.97 for members. Ask for item #3859, and specify the Fourth Edition.

■■■

Cris Alexander is director of engineering for Crawford Broadcasting.

You Must Remember This

Although I seem to remember this exciting-looking radio as a late 1950s birthday present, it sold well into the 1960s. A 1966 Radio Shack catalog listed this "Giant Crystal Kit" at $4.99, equivalent to about $26 in today's market.

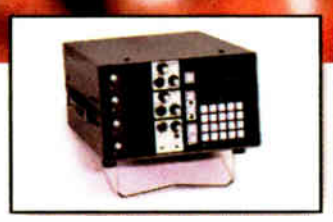
The shipping weight of two pounds tells the story — in spite of the impressive cabinet, the parts consisted of a diode, tuning coil and headphone. An antenna and ground wire were also provided.

What a great present for a kid! Lots more fun and far more practical than gloves or a hat.

This is one in a series of photographs featuring classic and less well-known radios.

The pictures and descriptions are by collector Bill Overbeck, president of the Delaware Valley Historic Radio Club, who has made every effort to ensure accuracy.

To contact him, send a self-addressed, stamped envelope to P.O. Box 847, Havertown, PA 19083.



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World Radio History

'Tom and Darryl' in Wisconsin

▶ TOM & DARRYL, continued from page 22

about in an acoustically natural environment is a unique and compelling experience for sighted listeners normally subjected to a steady diet of computerized sterile corporate programming. The rich acoustical mix coming out of the radio is especially informative and inviting to the large number of visually impaired and sightless listeners experienced in "hearing their way around a room."

The audience is a true cross-section of North America extending clear across the pond to Europe. The subject matter is eclectic: radio, politics, music, nostalgia. The information over a range of subjects flows thanks to calls from listeners.

In sharp contrast to some of the more dominant radio talk shows, the hosts are not ego-driven and don't need to resort to shock tactics to attract an audience. While one popular host openly announces that callers serve the sole function of "making the host look good," Tom and Darryl's goal is to make the callers, and audience, feel good!

On that Saturday night, among other things, the controversial topic of FM microbroadcasting was discussed. The FCC is seriously considering allowing citizen broadcasters to operate low-power FM radio stations to serve their neighborhoods and communities. Ironically, the big commercial, syndication broadcasters who have abandoned local radio markets are resisting.

A fascinating history of the old WLS(AM) out of Chicago followed. Leading that discussion was in-studio guest Rob Hummel, a Wisconsin resident and accomplished on-air personality/radio engineer with a love for radio history. WLS was as historic as radio gets, sporting a lineup of personalities that rivaled WABC(AM) in New York during the "classic rock" era.

As Saturday night progressed and turned into Sunday morning (the show ran two extra hours by popular demand!), tall tales and discs were spun; the telephones jingled with enthusiastic callers. All was well with the world. Long after the show ended, the glow remained. Nobody wanted the experience or the good spirits to end. That night, thanks to Tom, Darryl and a mutual love of radio, Mike's determination to air a unique radio service for visually impaired and sightless listeners was renewed. Quality programming created with the assistance of his tremendous library of transcriptions and rare recordings will enrich the ill-served special-needs community, and all theater-discerning listeners in North America and the world. This is the true and highest purpose of radio.

■■■

Al Parker, a.k.a. N2SAG, writes about ham radio and photography.

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Live tags, trivia and copy are displayed automatically on the screen. Announcers don't need a clumsy copy book or liner cards. They can talk as early as they want before songs fade and over intros or in the clear. VTVI is ***so*** simple to use: a touch of the space bar triggers the next song or the next spot. Voice Trax are recorded with the computer's regular sound card with exceptional digital quality.

Unlike live radio, any or all of the Trax can be reviewed and possibly improved by re-recording. With the VTVI's Segue Editor, announcers can fine-tune their timing of song intros, back sells and donut spots without re-recording.

VTVI is Goof Proof!

VTVI includes Scott Studios' exclusive Voice/Music Synchronizer. Whenever the announcer mentions song title or artist, he or she turns on the link so the back sell or intro plays ***only*** with the correct song.

You Can Even Do Time & Temp!

Scott's VTVI lets you record every possible time check, or do a range of alternate recordings mentioning the time in any Voice Trax. The Scott NT System picks the right one at air time. You can also record all the seasonal temperatures and let Scott's optional temperature announce equipment play the right one at air time.

Here's Scott Studios' Voice Trax Via Internet (VTVI) software, shown with the optional Segue Editor. VTVI allows a distant announcer to pre-record a 4 hour show in about 15-20 minutes with nothing more than a Windows computer with an ordinary sound card, an Internet connection and a good microphone.

$10,000 a Year Cheaper than WANs

When the announcer is done, a click on the VTVI Auto-Send button dials the Internet over a standard phone line and uploads the entire show to your Scott Studios digital audio system automatically. Transfer does take a long time, but your announcer can be answering e-mail, writing copy or creating promos on the VTVI computer while the show transfers.

VTVI isn't limited to music announcements. It gives high quality audio to recorded spots, remotes, weather, stock reports, news and election returns.

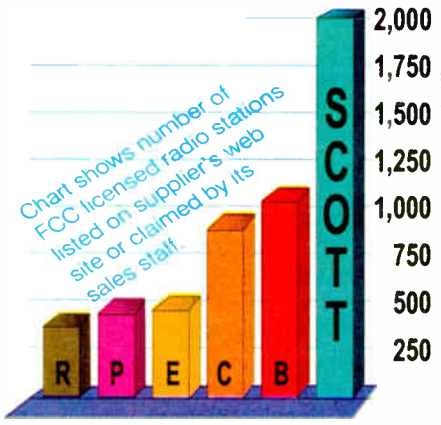
Your station will sound great with Scott VTVI! The only thing you need is an Internet connection on each end, a $29 a month FTP transfer site and the Scott NT System with Remote Recording Router.

Voice Trax play seamlessly without anyone back at the station. And if the announcer forgets to record something, or if songs or spots get changed at the last minute, Scott's Voice/Music Synchronizer automatically substitutes a generic Voice Trax with the same voice for the day and hour of that break.

3 VTVI Models: Good, Better, Best

Scott Studios also offers a $500 VTVI+ that sends your distant announcer telescoped song intros and endings via the Internet. With VTVI+, a telescoped aircheck can be previewed and fine-tuned in the context of starts and ends of songs and spots.

Or with VTVI Deluxe, your announcers record their Voice Trax ***while listening to song and spot intros and endings*** in context!



VTVI is just one of several ways Scott Studios digital systems can improve your sound ***and*** your bottom line.

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AM Signs Off the Air

▶ CBL, continued from page 21

As we prepare to leave, we see transmitter engineer Roberto Vissani making the final entries in the CBL transmitter log, and this, too, is dutifully photocopied and passed around to all in attendance. We dub a copy of the final moments (we were rolling tape in the car, the only ones at the site to do so, it seems) and are presented with two parting gifts: a tube from the site's junk bin, and the CD from which that loop was playing all day.

It's a long drive back home to Rochester, made all the more strange by the silence on 740. There's DX there, strange stations from North Carolina and Texas and Florida (and, who knows, Cambridge?) that were usually buried under CBL — but I'm not ready to tackle it yet, for some reason.

We reach the border crossing just after 2 in the morning, to find a surly customs agent who barely bats an eyelid at our explanation of the trip. Perhaps he's been listening to the Sabres lose the Stanley Cup just minutes before, or maybe he's always that way. In any event, we're waved through for the final 90 minutes of the drive.

Somewhere around Batavia, the last remnants of the 99.1 signal are lost below the hash from WBBF in Rochester on 98.9. When the sun rises in Rochester the next morning, there'll be no listenable CBC signal for the first time in 62 years.

"The end of an era" in Canadian broadcasting? Absolutely. But it's also the end of an era in upstate New York radio listening. No longer a local, the CBC is now a DX signal here, caught on the skywave from Windsor or Moncton at night, or on FM from Kingston when the trops are up, or on RealAudio with all those other distant, exotic outposts of civilized radio — but never again to be a local preset at the start of the AM dial.

Adieu, indeed.

■■■

Scott Fybush is a reporter for the "R News" cable channel in Rochester, N.Y. Once the skywave kicks up at night, he's the editor and publisher of "NorthEast Radio Watch," which can be found on-line at www.bostonradio.org

Circle (22) On Reader Service Card

World Radio History

SDMI May Shape Webcasting

Carl Lindemann

The future shape and form of Webcasting — and, perhaps with it, broadcasting — may depend on the work of the Secure Digital Music Initiative.

Members of SDMI made headlines this summer with the creation and approval of voluntary industry standards for copyright protection on portable audio players.

Jack Lacy

These initial specifications are a first step to prevent portable players from using pirated content. Recording Industry Association of America executives say the specifications embrace some of the principles likely to be a fundamental part of the long-term SDMI specs. Details are at *www.sdmi.org*

So far, SDMI's agenda has yet to formally address Webcasting, the process of streaming audio over the Internet. Still, its current focus on downloadable audio files could have major implications for Webcasters and radio stations that stream their signals online, said Peggy Miles, president of Intervox, a Webcasting consulting company.

The possibility of providing CD-quality audio streams to consumers online could be hampered by intellectual property concerns.

Improving the Net product

Despite apparent differences between streaming audio and downloadable audio, these share many of the same intellectual property issues. Precedents established now for downloadable audio may have drastic implications as Webcasters improve the quality of their product.

Broadcasters are watching the SDMI's efforts. Lynn Claudy, senior vice president, NAB science and technology, said, "We have a vested interest in following the path that downloads take. It does compete with radio for listeners."

SDMI is a diverse consortium of companies and interests gathered by the RIAA at the end of 1998. The initiative is a response to the sudden popularity of compressed MP3 audio files. MP3 has taken on the reputation of being a "pirate" format — ideal for making illegal copies of music that can be delivered free to any Internet-connected computer.

Jack Lacy, chairman of SDMI's portable device working group, sees the music industry as wavering between anxiety and excitement over the potential for Internet audio distribution.

"Legacy CDs have no protection. It's been 'security by size' for all these years until compression came along," said Lacy. Uncompressed, "CD-quality" audio takes up more than a megabyte of data for each minute recorded, making online distribution impractical.

MP3 bypasses "security by size." The problem for copyright holders is that consumers have discovered that the content stored on their CD collections can be compressed, transmitted and copied with no degradation in sound quality.

For this, MP3 has generated fears of widespread piracy unseen in the industry since the outcry over DAT. Despite the enormous potential DAT had as the digital replacement for consumer compact cassettes, industry observers believe that legalistic infighting soured the public's interest. Despite the format's superb qualities, it was relegated to being a "professional-only" medium.

Last fall, the RIAA responded to MP3's sudden popularity by mounting a legal challenge. It sought an injunction against consumer electronic manufacturer Diamond Multimedia to stop it from selling the first portable MP3 player, the Rio.

Legal action

The suit, filed in U.S. District Court, Central District of California, claimed the Rio player violated the Audio Home Recording Act, the same legislation enacted in response to DAT. The AHRA establishes that digital recording devices have copy protection features to prevent pirates from making an unlimited number of copies of protected material. But a federal court refused to issue a preliminary injunction against Diamond. With the legal action stalled (finally settled in favor of Diamond Multimedia in June), the RIAA set to work creating SDMI.

SDMI is an effort to find some way to tame the potential of digital distribution without killing it.

"The electronic manufacturers and the music industry have come together to create something that's both a successful product and a successful consumer experience," Lacy said. Arriving at this balance is an enormous challenge. "It will have to be invisible to the end user. You don't sell security to the consumer. What you hope will happen is that by virtue of the fact that the infrastructure is secure — secure for the people who own the content — the consumer has content available to them," he said.

Claudy said, "We all should abide by the same rules that see that the proper individuals are compensated for the use of their materials. SDMI is a serious, good-intentioned effort to see that we all compete on a level playing field."

Usually, arriving at standards for a new audio format is long and laborious. For example, industry standards for DVD remain unsettled after years of negotiation and debate.

Precedents established now for downloadable audio may have drastic implications as Webcasters improve their product.

Lacy's group started work at the end of March, and arrived at the first of the voluntary specs at the end of June. These apply to Walkman-style players like the Rio. The hurry is to give manufacturers time to design and manufacture products for the upcoming Christmas season.

Leonardo Chiariglione, executive director of SDMI, sees this resolve as indicative of a shared desire to tap the incredible market potential for digital audio distribution.

"Putting together specifications is a task of enormous complexity. There are so many business interests involved here. The speed that (the portable device working group) has been able to accomplish this is unheard of," Chiariglione said.

He should know. He helped create Moving Pictures Experts Group in 1988. MPEG develops international standards for compression, decompression, processing, and coded representation of moving pictures of audio and video.

Protecting what's mine

The anticipated explosion of "legal," CD-quality downloadable audio will likely be an enormous boon for content providers, device manufacturers, software developers and consumers. Webcasters hope a boon in downloadable audio will foreshadow the growth of their audience when increases in bandwidth and compression allow for CD-quality streaming audio to the average consumer.

For downloadable audio to succeed, it must respect intellectual property rights, analysts say. The legal and technical

See DIGITAL, page 29 ▶

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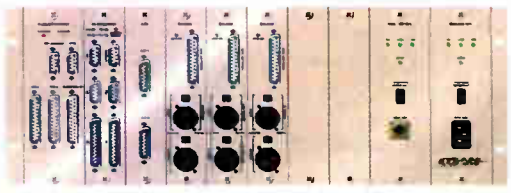

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World Radio History

Downloads Made Secure?

▶ DIGITAL, continued from page 27

framework to make that possible likely will shape the nascent streaming audio industry — perhaps in unexpected ways.

Most Webcasters fail to see this connection, industry observers say, because of a common misconception. There appears to be a fundamental difference between downloadable and streaming audio. Downloads can be saved, streams can't — or so it seems. Because Webcasts are ephemeral, it appears that the intellectual property issues inherent to downloads do not apply.

Miles said that the apparent difference will dissolve as the technology improves. "There is no difference between a Webcast and a digital download save speed," she said.

Chiariglione agreed. He said Webcasts and downloads may be different from a marketing point of view, but technically, the basic concepts are the same.

From an intellectual property standpoint, the similarity between audio downloads and streams could be handled much the same way as DAT and recordable CDs for home stereos. A surcharge is added to the price of blank media to make up for lost royalties.

Chiariglione said this won't work in the digital domain.

"You cannot apply the same model that applies for consumer electronics. There, you have a very clearly identified medium for storage," he said. This model fails with computers because music can be saved by a variety of means such as hard drives and removable media.

Still, it's too early to know if home recording of CD-quality digital audio streams will be widespread. Phil Barrett, senior vice president of media technologies for RealNetworks Inc., believes the differences between downloads and streams make it unlikely because Webcasters retain control of the quality of their streams.

"In the DL (download) model, the user is in possession of the bits. In the streaming model, there is 'recordability,' but that is different from possession since there can be transmission defects and the actual choice of bit rate is decided by the client/server system rather than the user," said Barrett.

Audio quality

It is true that the Webcaster controls the bit rate — and with it, the quality — of the streams. However, consumers are unlikely to accept anything less than high-quality sound.

At present, industry observers believe Webcasters have yet to achieve widespread consumer acceptance because today's Internet cannot deliver that quality to the average consumer. But when that becomes possible, it is unlikely that Webcasters would opt to ignore consumer demand for higher bit rates. If so, in a practical sense, consumers, not Webcasters, dictate the bit rate, said Miles.

When high bit rate streams become standard, the piracy problem could be serious. The current technology for audio copy protection is inadequate to stop some obvious means for recording streams, said Lacy.

As it stands, a listener could simply connect a computer sound card's analog output and input to record the stream. Even if the digital sound is encoded with copy protection, that information is lost when passed from digital to analog and then back to digital. Lacy expects emerging technologies will solve the problem.

"Watermarking and other strategies to prevent this will be in place by the time CD-quality streams become commonplace," he said. "They will be able to encode information inaudible to the listener, but that will persist across conversion to analog," Lacy said.

If the copy protection technology does not arrive in time, Webcasters may be unable to keep the business models they are building in today's unprotected, low bandwidth context.

Steve Marks, senior vice president and director of business affairs for the RIAA, is aware of how streaming audio can pose a serious threat to intellectual property rights. He points to present licensing restrictions that limit certain Webcast programming strategies. Webcasters cannot repeat the same artists too often in a set time period. The idea is to prevent single artist playlists.

"If you had a Jimmy Buffett-only stream, a listener could get the whole contents of his CD library without much trouble," Marks said. However, it is possible to devise devices to scan Webcasts and record selected artists and tracks.

"These strategies are an end run

See DIGITAL, page 30 ▶

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World Radio History

Impact of SDMI Yet to Be Seen

▶ DIGITAL, continued from page 29

(around the licensing) and will be addressed," he said. Ultimately, Webcasters may have to have a sliding scale for licensing fees dependent on sound quality.

"The licensing agreements will take into account how this (the streaming media) impacts sales — that's written right into the statute," Marks said. But resorting only to the law may be too heavy-handed and repeat the DAT problem.

"We're looking for business solutions, not legalistic ones," he said.

Such a business solution will come from maintaining radio's relationship to the recording industry, said Rotem Perelmuter, vice president, strategy/The Buggles Project for MTV Networks Online.

"Radio has always been a promotional element to help sell more albums. Although The RIAA is still worried because they don't know what's going to happen in the future, they see streaming media is promotional and will help sales. But downloads could hurt album sales," said Perelmuter.

> **We want to** give people the best possible experience, but at the same time, we're not going to hurt album sales.
>
> — Rotem Perelmuter

Webcasters and the RIAA will succeed or fail together, said Perelmuter.

"We're all on the same side. We're interested in protecting the labels. We want to give people the best possible experience, but at the same time, we're not going to hurt album sales."

What part will Webcasters have in setting the intellectual property framework for their industry? Miles is concerned that the interests of the RIAA may not match those of Webcasters.

Broadcast role?

"The NAB should be involved," she said, because "if they don't get in now, someone might try to restrict or segment (online audio) in a non-attractive way." Miles said possible limits on bit rates/sound quality could hamper consumer acceptance.

SDMI is set up to allow a diversity of interests. The price for having a voice in these proceedings is membership in the organization — $10,000 per company. AOL, RealNetworks and Microsoft have joined. But such a high fee is well beyond the means of the rank-and-file in the fledgling Webcasting industry.

"Streaming audio is in our agenda," said Chiariglione. How soon will it be addressed? "I cannot say when. The SDMI agenda is set by the SDMI participants."

For Miles, that may not be soon enough. Her worst fear?

"Webcasters may wake up to find their business models won't work," she said.

MARKET PLACE

Sharper Image Gets Wet

Always vigilant for important new radio technology, **RW** hunted down the CD Shower Companion.

The Sharper Image retailer is promoting this new toy as the world's first and only water-resistant stereo CD player made for use in the shower.

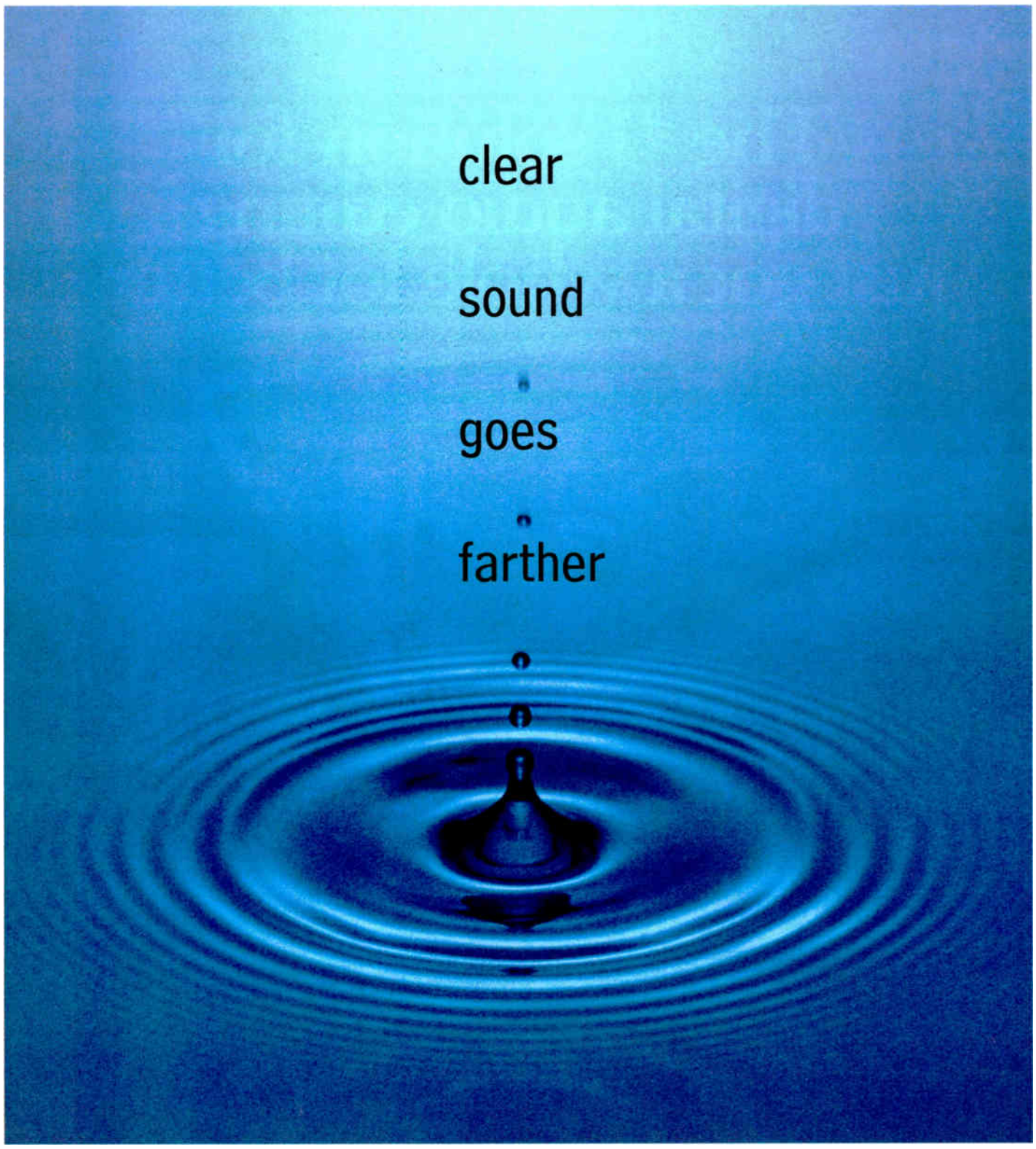
It retails for $189.

The Companion is an AM/FM/FM stereo shower radio with 10 station presets, large LCD screen, alarm, digital clock, and button controls that are "easy to use, even with wet, soapy fingers."

It hangs from the shower rod and delivers "excellent stereo sound from dual quality speakers." The disc stays safe and dry behind a water-resistant sliding door. You can also stand the unit on a counter or mount it on a wall. Power is from four C batteries.

Options include an AC adapter, but don't try *that* in the shower.

To order, visit the Web site *www.sharperimage.com* or call (800) 344-4444 and ask for product SI538.



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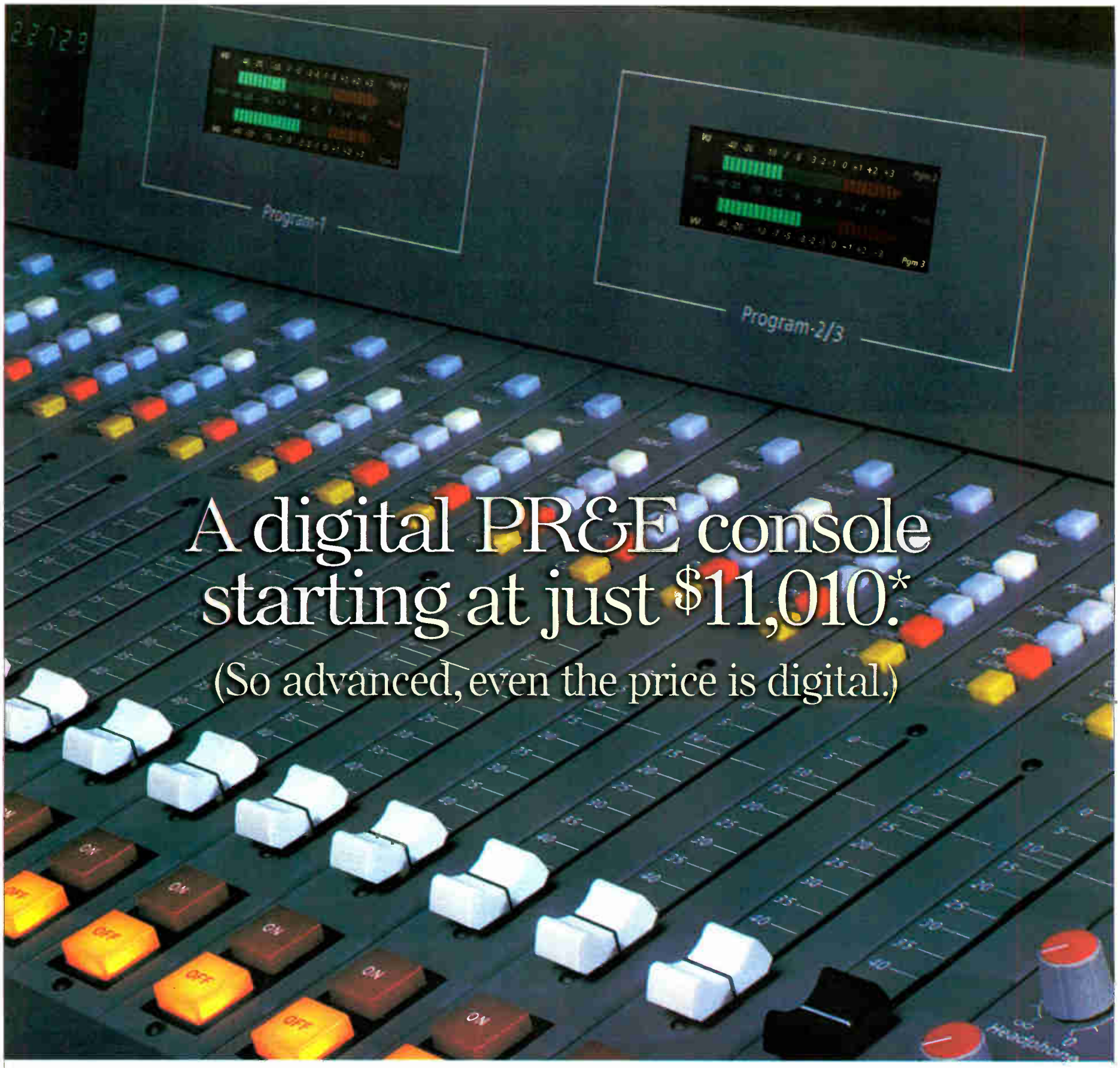

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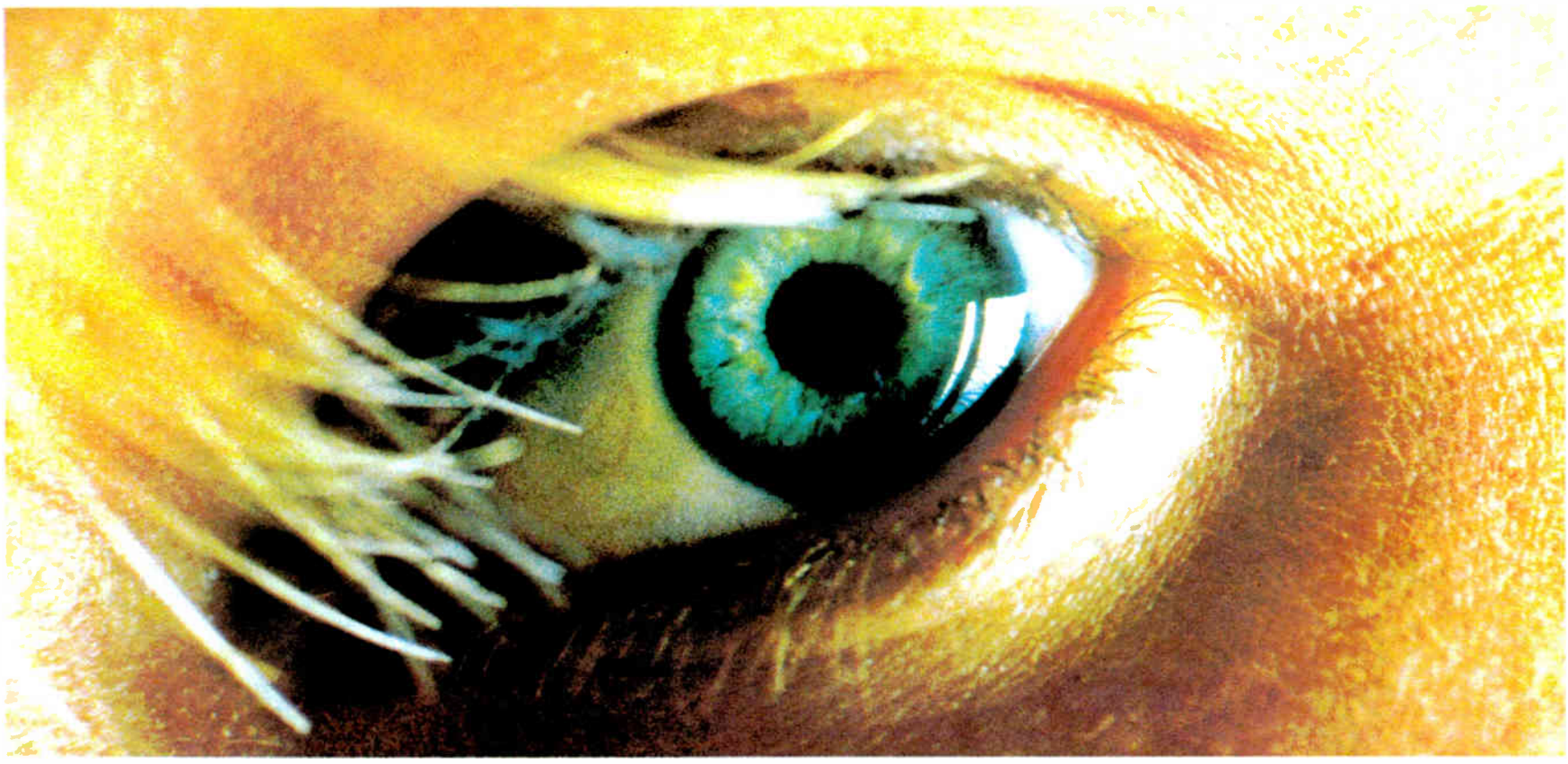

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World Radio History

GM Journal

Radio World | Resource for Business, Programming & Sales | August 4, 1999

Is Your Phone Policy Risky?
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At Mid-Year, Radio Still on a Roll

Lynn Meadows

What is the best gauge for measuring how radio did in the second quarter of 1999? A board member for Clear Channel Broadcasting might consider stock prices an indicator of success or failure. A broker might think the number and dollar value of station transactions might be relevant. The owner of one or two stations might use local advertising spot rates to measure quarterly success.

The Radio Advertising Bureau reported that radio advertising revenue enjoyed its 81st consecutive month of year over year growth in May. Combined local and national ad sales were up 12 percent compared to May of 1998. For the full year to date, radio ad sales were up 12 percent as well.

Groups are looking at ways to boost those national sales numbers and gather non-traditional revenue. Chancellor Media Corp. (NASDAQ: AMFM), for instance, bought Global Sales Development last year and is hoping to have 25 field offices open by the end of the year to pursue non-traditional revenue.

The group opened two more field offices in the second quarter. Gail Onken, internal communications manager for the Chancellor Marketing Group, said the field offices can focus on strategic thinking and planning, creative work and providing research to buyers.

She said unlike an individual radio station sales staff, the field offices can put together a whole campaign combining radio with outdoor advertising and even television spots.

Onken said the development of offices focused on national and regional business is "definitely" a trend in the industry.

Infinity Broadcasting appears to be another believer. The group launched its CBS Radio Promotions Group in the second quarter, which will be a "sales and marketing unit dedicated to developing event marketing and sponsorship opportunities for advertisers."

Fewer transactions

Station sales were down in the first half of 1999. As of the end of June, according to BIA, 514 station transactions had been announced or filed for a total dollar value of $1.988 billion. During the same period in 1998, 781 stations changed hands for a sales amount of $2.423 billion.

The dollars fueling those numbers, said broker Dick Blackburn, president of Blackburn & Company, continue to be found in the merging of groups like Jacor Communications Inc. and Clear Channel Communications (NYSE:CCU), which passed muster with the FCC and the Justice Department.

Capstar Broadcasting Corp. (NYSE:CRB) also completed its purchase of Triathlon Broadcasting in the second quarter. Capstar then dissolved its public relations department in preparation for its merger with Chancellor, scheduled for July 13. A rumor that the Southern Star division of Capstar Broadcasting was now part of the Sea Star division was unconfirmed at press time.

New York-based broker Gary Stevens said multiples these days are 12, 13 and 14 times cash flow. For buyers, he said, "It's like trying to get a parking space in a crowded garage. If you have got to be there, you will pay

See Q2, page 36 ▶

Top of the Stocks

Here's how shares in radio's biggest groups performed in the second quarter.

Company	Share Price April 1	Share Price July 1
1. Chancellor Media Corp.	$47.13	$55.13
2. CBS Radio (Infinity Broadcasting)	25.75	29.56
3. Clear Channel Communications	67.17	68.94
4. ABC Radio Inc.	31.13	30.81
5. Cox Radio Inc.	51.13	54.25
6. Entercom	35.38	42.75
7. Hispanic Broadcasting Corp.	43.38	75.88
8. Cumulus Media Inc.	11.75	21.88
9. Citadel Communications Corp.	33.13	36.19
10. Susquehanna Radio Corp.	N/A	N/A

Ranking: BIA

NEWS MAKER

Katz Radio Looks Ahead

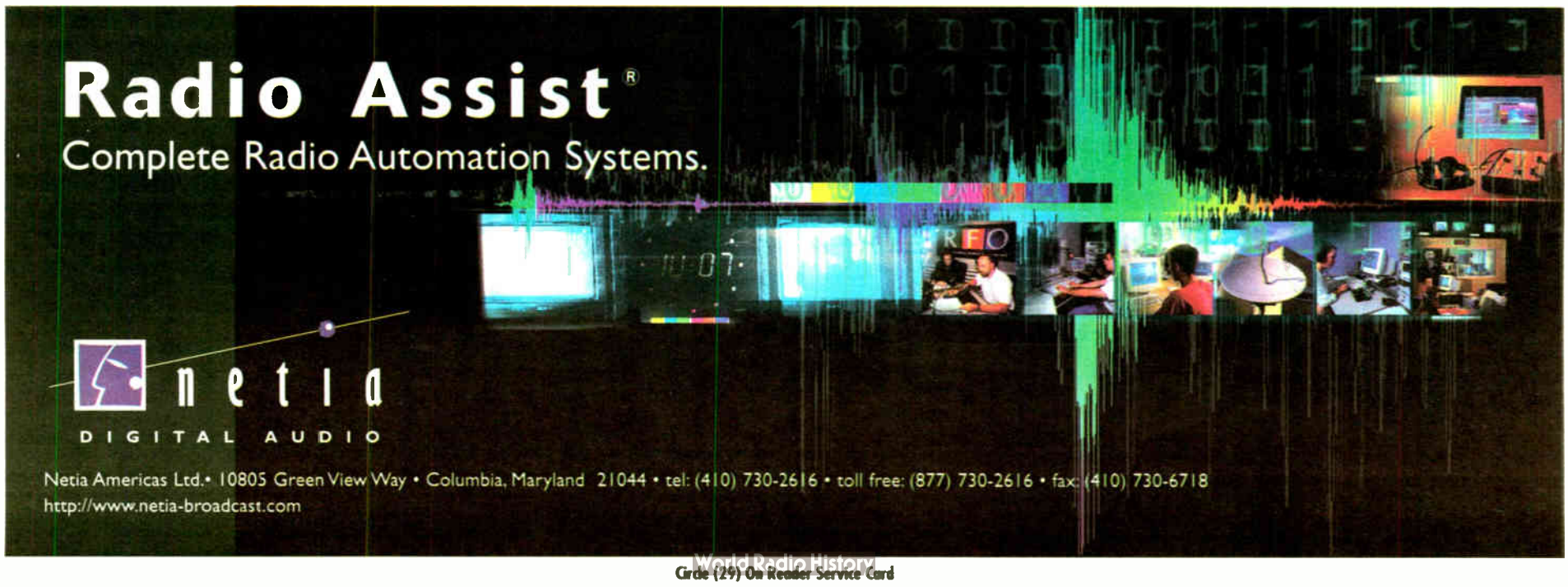
Randy J. Stine

It has been more than a year since the infamous Katz Radio Group internal memo surfaced, discouraging advertisers from buying spots on urban and Hispanic radio stations. The memo sparked outrage in the African-American and Hispanic broadcast communities.

Stu Olds

Since the memo, Katz management has instituted formal diversity training among managers, increased ethnic marketing efforts and sought to diversify its work force.

See KATZ, page 38 ▶



Circle (29) On Reader Service Card

World Radio History

COLE'S LAW

'Caller, You are on the Air'

Harry Cole

Don't pay the ransom — Team Cole's Law has escaped.

Actually, after a nine-month break during which we were forced to confront and contemplate mortality, disease, gross injustice and other similarly cheery issues, we are back in the thick of things, with more stories from the Land of Regulation.

And here's a big surprise. The Land of Regulation hasn't really changed a whole lot in our absence.

Oh sure, the FCC is now located in a fancy new building a couple of light years away from civilization. And yes, the on-going effects of consolidation have further reduced the ranks of radio owners to a shockingly low level.

And the formerly distant rattle and hum of a possible low-power FM service is getting louder as it is driven closer and closer by Chairman Kennard. And EEO is, at least temporarily, no longer a matter of regulatory compulsion. And electronic filing may be just around the corner.

But irrespective of those changes, we still found an unchanged and unchanging monument to regulation just as we left it: the ban on the broadcast of telephone conversations (taped or live) without notice to all parties to the conversation.

This particular regulatory chestnut, nestled comfortably in Section 73.1206 of the commission's rules for the last 30 or so years, requires licensees to inform anybody on a telephone conversation of the licensee's intention to broadcast that conversation, whether live or on tape.

The only exceptions are when the other party is aware, or is presumed to be aware, that the call is being broadcast or is likely to be broadcast. Such a presumption arises when, for instance, the other party has called the station in connection with a program in which telephone conversations are routinely broadcast.

This is not an especially difficult rule to understand.

And yet, as recently as May of this year, the FCC fined the licensee of station WFBC-FM $4,000 for breaking it.

Expensive call

The story is not complicated. The managing editor of a local newspaper alleged that a disc jockey at the South Carolina station called him to discuss an item about the station that had appeared in the paper.

The editor contended that he was never told that the call might be broadcast, even though the conversation was indeed broadcast.

The station's side of the story wasn't much different. The licensee agreed that a conversation had occurred, that it had been taped for later broadcast, and that it was in fact broadcast. But while the licensee asserted that the disc jockey had identified himself during the call, the DJ did not recall whether he had informed the newspaper editor that the call was being taped.

Basically, the licensee pleaded guilty without an explanation.

The result was a $4,000 fine.

Now, in this day and age of megabuck deals, it may be that a $4,000 fine is small change that some licensees could throw out with the lint from their pockets.

But for those of you who would prefer not to have to cough money back up to the government, some simple guidelines may help.

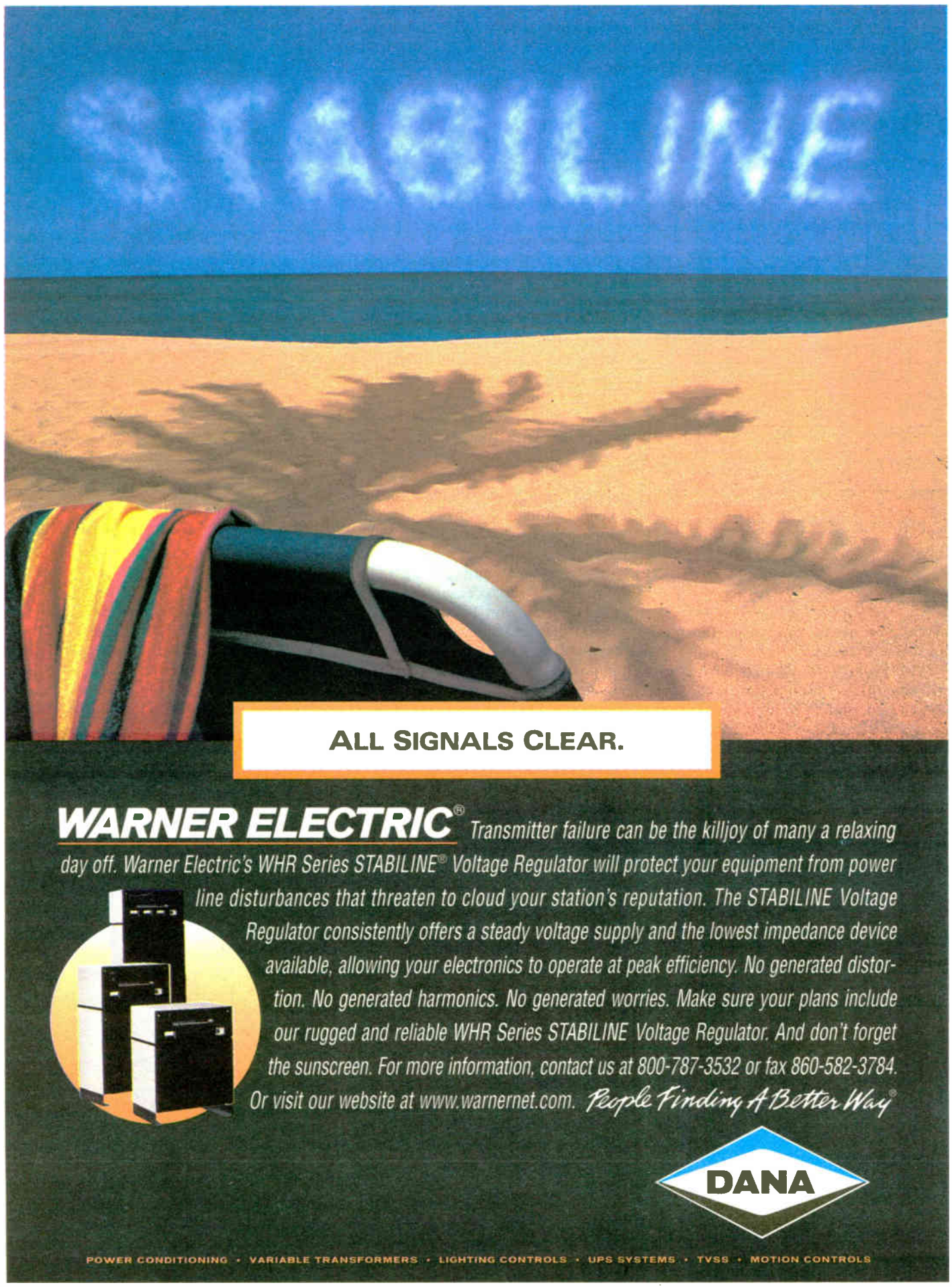
If you are putting callers on the air, these simple guidelines can help you avoid a fine.

First, make sure that anybody at the station who might have the occasion to tape phone calls for the station is fully aware of the prohibitions of Section 73.1206. It's a cute little rule, only two sentences long, written pretty much in English, so comprehending its scope should not be an insurmountable problem.

Second, establish as clearly as possible that station policy prohibits anybody from turning on a tape recorder or opening a phone line onto the air before the outside party to the call has been informed that the call is going to be broadcast.

Third, if the call is being taped, have the station employee doing the taping repeat the notice to the other party after the tape begins. For instance, he or she can say something like, "This is Joe Blow, of Station W-whatever, and we are taping this conversation with Florence Doe for later broadcast, right, Flo?" That way, you

See COLE, page 37 ▶



Circle (30) On Reader Service Card

World Radio History

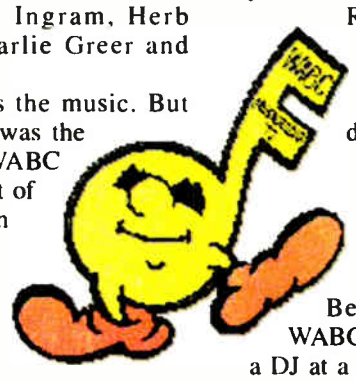
Site Salutes Glory Days at WABC

Alan Haber

One of the most famous and influential top 40 radio stations of all time, WABC(AM) is remembered fondly by those who grew up listening to and having their lives changed by it.

If your adolescence, circa the 1960s and 1970s, was played out to the tune of this most regal radio station, you know what I mean. The magic of WABC manifested itself in the glory and wonder of such golden voices as Cousin Brucie, Dan Ingram, Herb Oscar Anderson, Charlie Greer and Ron Lundy.

And then there was the music. But groovy as that was, it was the unique personality of WABC — the cumulative effect of the greatest jingles in radio history, fun promos and DJs who really connected with their listeners — that made the station king.



When WABC abandoned its music format for talk in 1983, the fallout was akin to the sense of longing that fell over the land the day the music died. In a sense, the day WABC no longer rocked and rolled was the day the music died.

The glory days of WABC are given a great big warm and fuzzy hug at Allan Sniffen's terrific Musicradio 77 Web site at *www.musicradio77.com*

But *musicradio77.com* is no pity clinic; it is, rather, a place to revel in one of the greatest radio stations of all time.

Stop in at *musicradio77.com* (you're greeted with a resung PAMS jingle that lets you know you're in the right place) and prepare to spend at least a couple of lifetimes perusing through a complete archive of WABC weekly music surveys, checking out some of the coolest archive photos in existence (did Cousin Brucie ever look that young?), reading stories about the good old days from Glenn Morgan, who succeeded Rick Sklar as program director, and listening to a wealth of airchecks that show just how wonderful the good old days really were.

Growing up

Sniffen, by day a dentist in a suburb of New York City, grew up in nearby Bedford Hills listening to WABC. He later worked in radio as a DJ at a variety of stations, including WSPK(FM) in Poughkeepsie.

WABC "was the radio station that most everybody was listening to as they were growing up," said Sniffen. Which is not to say that Sniffen wasn't listening to other stations beaming out of the Big Apple — it's just that "the biggest (station) ... was WABC," he said.

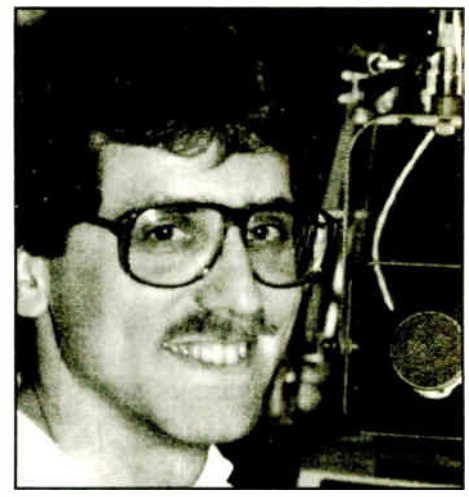
For Sniffen and countless others, WABC had personality. "It wasn't just the disk jockeys either," he said. "It was the jingles, the tie-in with the jingles, the promotions — they didn't just give things away, they tied (the promotions) into what was going on.

"The Beatles, for example — the station was locked in step as close as it could get to with the Beatles in terms of the jingles, in terms of the music, in terms of the promotions, in terms of ... advertising. (The station) kind of locked into popular culture pretty well."

Why did WABC have such an impact? "It was in the biggest market," said Sniffen. "It was the popular station right at the time the baby boomers were coming along — there were a lot of things that happened to fall together all at the right time to make this a big radio station."

Sniffen tips his hat to the late Rick Sklar, former program director at WABC, who is generally credited with shaping the station's sound and success. Sklar "was an innovator with a lot of these things ... I don't think he was doing as much copying as he was being copied," said Sniffen. "When you went around the country you heard similar jingles or a similar format ... the inspiration of that was coming from WABC."

Musicradio77.com strikes a nostalgic chord for visitors. Sniffen: "Most of the e-mail is from people who were listeners of the station (who say), you know, 'I can't believe I found this. This brings back memories of when I was growing up and listening to Cousin Brucie with my transistor radio under my pillow.'"



Allen Sniffen

Good old days

People come to Sniffen's site to immerse themselves in the magic that was the classic WABC. Many are looking to find out about the station's history.

"About 20 to 25 percent" of the e-mail Sniffen gets, he said, "is from people who work in radio now. They usually say, 'This is the station that inspired me to go into broadcasting and it's great to hear all this again and now I know why I'm doing this for a career.'"

And you can't ask more of that from a Web site, now can you?

■■■

Alan Haber can be reached via e-mail at zoogang@earthlink.net

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Circle (31) On Reader Service Card

World Radio History

Sales Up, Deals Down in Q2

▶ Q2, continued from page 33

whatever the cost is."

Asked if stand-alone stations were still fetching high sales prices, Stevens said that "Generally the guys who waited the longest get the best price."

But in one large market, he said, an owner waited so long to sell that the consolidators who would have wanted to buy his station now own all they are allowed to in that market and cannot buy his station.

"There's very little left to buy," said Stevens, adding that much of what is happening these days is trading.

Asked about the single-station owners who think the large groups will eventually have to divest when they realize they are over-leveraged, Stevens said, "I think that's wishful thinking."

"Clearly, there's going to be some mistakes made," said Stevens of the frenzied buying in the past three years. But, he said, those groups are correcting their errors generally by making swaps.

There was talk and innuendo in the second quarter about groups controlling the sale of their stations in terms of who could buy them.

"It's typical. It's not new," said Blackburn. He said the seller has always wanted to control who he sells his stations to.

Sinclair Broadcast Group Inc. (NASDAQ: SBGI) announced it was putting its radio group up for sale in the second quarter. The group is expected to fetch about $900 million. One industry observer said that price is supposedly the equivalent of 15 times year 2000 cash flow. He said that it may be an interesting idea for a consortium of smaller groups to group together to buy Sinclair radio.

Analysts say radio revenue is growing nearly twice as fast as that of outdoor, newspaper and television.

Stock market

Meanwhile, stock prices for the large publicly traded radio groups remained high in the second quarter.

"Things are very good in the radio business," said Harry DeMott, broadcasting analyst for CS First Boston.

He said the biggest changes that affect stock values of radio are interest rates and the economy. The reason radio stocks trade at the prices they do, he said, is the belief that radio will grow.

DeMott said that radio revenue is growing nearly twice as fast as the outdoor, newspaper and television revenues. Asked if the radio industry can increase its 7 percent share of the advertising revenue pie, DeMott said, "I think it will happen. It's definitely increased."

DeMott agreed with Stevens and said he does not think being over-leveraged is a concern for large radio groups.

Interestingly, of the top 12 largest radio groups as ranked by BIA Consulting, Susquehanna Radio Corp. remains the only one not publicly traded. Asked why, a Susquehanna spokesman said that for now, the group preferred to grow its business in different ways. He said the company did offer $150 million in public debt in May to fund its Employee Stock Ownership Plan. The Appell family has owned Susquehanna Radio since 1942.

Some familiar names changed in the second quarter.

Heftel Broadcasting Corp. changed its name to Hispanic Broadcasting Corp. (NASDAQ: HBCCA). Chancellor Media Group announced it would try to change its name to AMFM, which is also its stock symbol, when it merges with Capstar. The move eliminates the last of the name Evergreen Media and Chancellor Broadcasting from radio records. Those two companies merged in September 1997.

After considering putting itself up for sale in the first quarter, Chancellor instead sold its outdoor advertising business in second quarter for roughly $1.6 billion.

Asked about the success of consolidation, one analyst who preferred to remain anonymous said, "I don't think this is what the founding fathers had in mind." He said television is going to pay the price for what has happened in radio.

"They are never going to be deregulated," he said.

May: Another Winner

Radio ad sales were up 12 percent in May compared to the same month a year ago, according to the Radio Advertising Bureau.

That makes 81 straight months of revenue gains for the industry.

The strongest regions in May were the West, up 15 percent, and the Southwest, up 14 percent.

So far in 1999, local ad sales are up 13 percent, national business is up 9 percent, for a total year-to-date growth rate of 12 percent.

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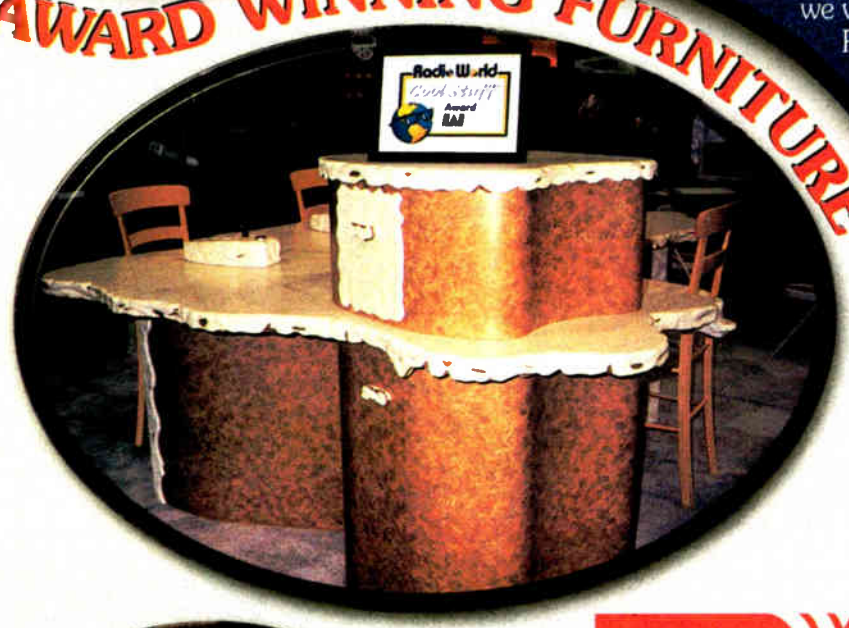

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Circle (32) On Reader Service Card

World Radio History

FCC Fines Station for Airing Call

▶ COLE, continued from page 34

have an uncontestable record that you complied with the rule.

If the call is going out live, the same general goal can be accomplished with a similar restatement of the notice once the broadcast begins — but remember, the notice has got to be given before the broadcast starts.

And even during call-in programs in which callers are routinely put on the air — i.e., programs during which callers may be presumed to be on notice that their calls may be broadcast — it's smart to have announcers open their conversations with "Hi, you're on the air."

This may be a nuisance, and it may even get in the way of some of the entertainment value of some programs. After all, who can deny the occasional hilarity of the unwitting person made the victim of a hoax call by a zany morning DJ? But those are precisely the folks that the rule is intended to protect.

State rules differ

The more adventurous among us may note with interest that the commission's rule does not require the station to obtain the other party's affirmative consent to the taping/broadcast; rather, the rule requires only that the caller be informed. Presumably, if the caller is properly informed and still elects to stay on the line, that is deemed to demonstrate consent.

So, in some circumstances, an "ambush" interview may be legal, as long as the target is informed right away that the conversation is going to be taped/broadcast. If the interviewee stays on the line and answers questions, the station should be covered as far as the FCC is concerned.

What is not permitted is the hoax call in which the station employee pretends to be somebody else in order to get an entertaining reaction from the target.

One final consideration. Many, if not all, states have their own laws about the taping of telephone conversations, regardless of whether the tapes are to be broadcast. Some state laws are more restrictive than the FCC's. You would be wise to consult with local counsel about non-FCC limitations, so that you will not run afoul of them.

■■■

Harry Cole is a principal in the Washington-based law firm of Bechtel & Cole, Chartered. Reach him at (202) 833-4190 or via e-mail to coleslaw@erols.com

Rhythmic Oldies a Format to Watch

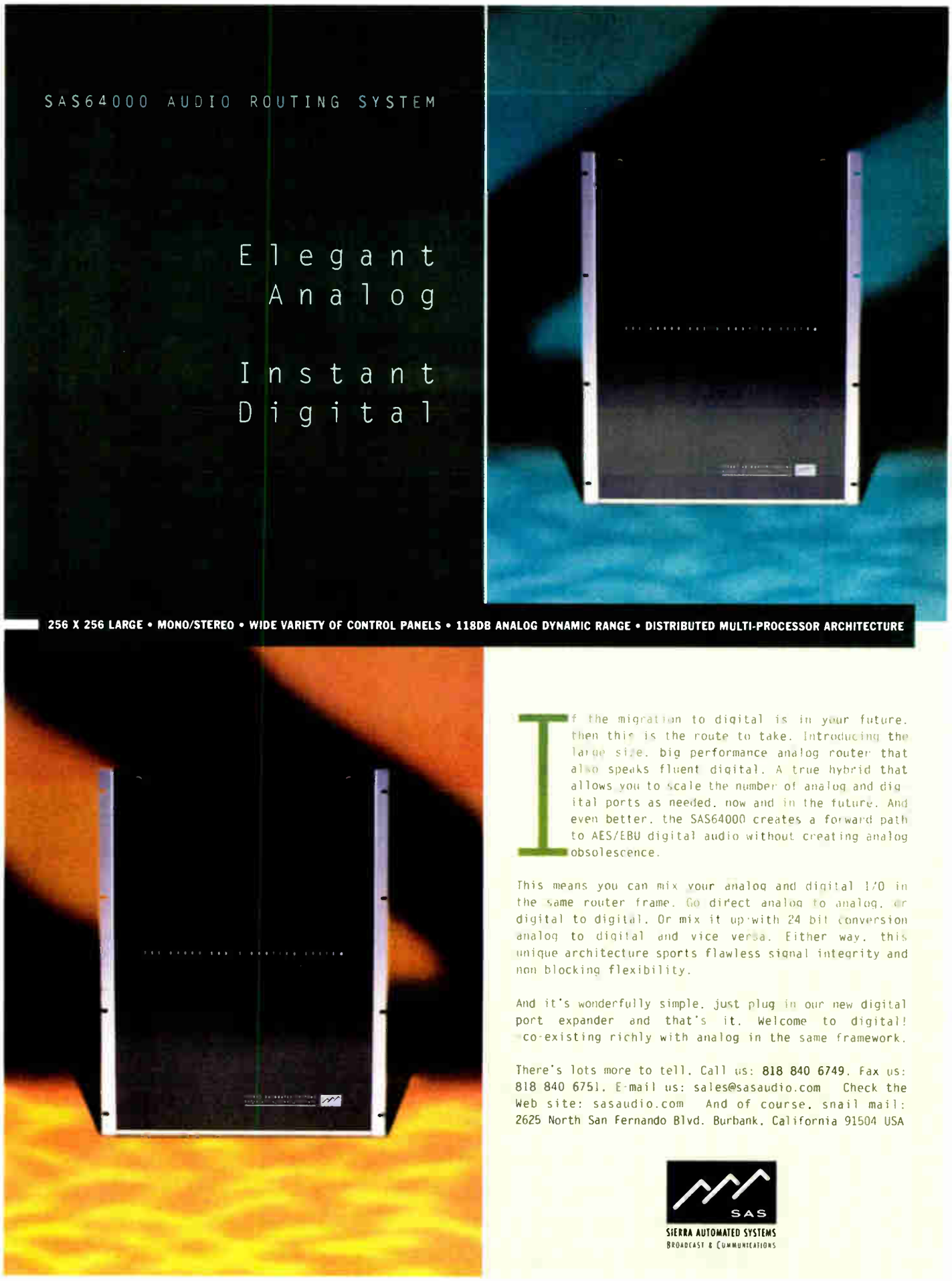
Sharon Rae

Rhythmic Oldies or Jammin' Oldies: Call it what you like, but the format is one to keep an eye on, according to Interep Research.

This new hybrid format has radio programmers and salespeople begging for trend research. According to Interep, Rhythmic Oldies listeners are 56 percent female and primarily aged 25-44, with secondary 45-54 appeal.

Research also shows that listeners are ethnically/racially diverse: 26 percent black, 23 percent Hispanic, and 51 percent other. And, despite the format moniker, listeners are not drawn primarily away from other oldies stations in a market. Duplication occurs most often between CHR and dance CHR, followed by oldies, urban AC and urban contemporary, based on Arbitron Maximi$er Winter 1999, Mon-Sun 6 a.m.-midnight Cume, Adults 18+.

"While we represent only a handful of stations currently programming Rhythmic Oldies, there are a growing number of these stations in radio's major markets," stated Marla Pirner, Interep's executive vice president, director of research. "And while we'll be able to paint a more comprehensive picture of the format's impact over time, this preliminary profile provides answers to some of the basic questions about who is listening."



Circle (33) On Reader Service Card

World Radio History

Olds: Radio 'Most Stable Medium'

▶ KATZ, continued from page 33

The Katz Radio Group is the nation's largest radio-spot sales firm, selling national time for more than 2,100 radio stations in more than 450 markets.

The radio group has 21 offices nationwide and more than 500 employees. Radio billing for 1998 totaled more than $1.2 billion.

The radio group, a wholly-owned subsidiary of Katz Media Group, consists of Sentry Radio, Christal Radio, Hispanic Media, Eastman Radio and Katz Radio. Katz Media is owned by Chancellor Media Corp.

The Katz Media Group serves multiple forms of electronic media, including radio, television, cable and broadcast-related Internet Web sites.

Our commitment to our clients and our customers has been to do the right thing.

Stu Olds, president of Katz Radio Group, spoke with **RW** writer Randy J. Stine about the memo incident and the future of Katz Radio.

***RW:** The memo caused damage to your company and the rep industry as a whole. What are your thoughts as you look back?*

Olds: It was my worst nightmare. At the same time, (we) recognized it as an opportunity for Katz to re-establish its commitment to the African-American and Hispanic communities and the stations that program to that audience. We took steps to make inclusiveness a cornerstone value within our organization.

Our commitment to our clients and our customers has been to do the right thing, not only from a moral standpoint, but also from a business standpoint.

***RW:** Are you putting additional emphasis on the future growth of urban and Hispanic media buys?*

Olds: The two fastest growing segments of our population are the Hispanic and the African-American segment. What we've done is focus on the importance of those audiences and marketing to those audiences. We want to make sure we are an important part of that.

***RW:** What is your business philosophy for Katz Radio?*

Olds: Our main focus is looking to grow with the people we are already in business with, including most of the leading broadcast groups. Companies like Chancellor, CBS, Heftel, Cox, Bonneville and Clear Channel. As these groups grow, we grow. I think that's good.

***RW:** Has consolidation presented more opportunities for you or just new challenges?*

Olds: Both, I think. Putting more radio stations in the hands of better broadcasters has been good for our business. It has resulted in increased marketing flexibility andcreated some non-traditional revenue opportunities.

I think it has been a positive influence on the competitive focus in major markets. The challenges have been in the marketing and structuring of these organizations to maximize the value of these individual pieces as they have put together clusters of stations.

***RW:** Do you have exclusive deals with some of the major broadcast groups to represent them in all markets?*

Olds: Oh, yes. Not all of those I mentioned earlier, but many of them.

***RW:** While on the subject of consolidation, do you anticipate further consolidation in the rep business?*

Olds: I don't think so. There are really only two major players left in the radio rep arena, and that's Katz and Interep. So, in the short term, no.

The new owner

***RW:** You went from being owned by DLJ, an investment banking company, to being purchased by Chancellor Media Corp. in 1997. Any significant differences in ownership styles?*

Olds: Chancellor has been a wonderful partner. Not only do we get to represent all of their terrific radio stations, but they also endorse our philosophy of having great stand-alone individual companies in terms of our structure with Sentry, Christal, Eastman, Katz and Hispanic.

They also have brought us the resources we needed to grow this company. Whether it's training, PCs, software or additional hires, they have been very supportive.

See KATZ, page 39 ▶

Circle (71) On Reader Service Card

World Radio History

▶ KATZ, continued from page 38

RW: How about your Web radio strategy ... are you placing spots there already?

Olds: Our Web work is really a work in progress. Through our relationship with On Radio we have placed banner ads and executed some e-commerce across the Web. We have helped build Web sites as well. We will continue to evolve ourselves in what we consider to be a developing business yet.

Web potential

RW: How big is the potential business?

Olds: The beauty of it is that radio is the perfect partner for the Web business.

I look at sites as being individual retail stores and you have to figure out a way for people to go to them. I can't think of a medium better than radio to target specific audiences with Web sites that are geared to specific audiences. I think it will be a great partnership when we figure it out.

RW: What is the best way to educate advertisers about the benefits of using radio?

Olds: The Radio Advertising Bureau, Katz, Interep, local organizations in individual markets, they are all doing good jobs of selling the benefits of radio.

I think radio remains undervalued vs. other media. I think the consolidation that has taken place has helped with that. We still have a long ways to go.

RW: What advertising industry trends do you see?

Olds: The image of radio has improved dramatically since the consolidation process started. It has raised our profile in the eyes of advertisers.

Radio is also the most stable medium right now. Television is going through fragmentation due to the addition of several more networks and the challenges of cable. Print is getting chopped up in many different directions. I think radio is going in the other direction. We are consolidating and putting ourselves in a better position to compete against any other medium.

RW: The good economy has done wonders for many broadcasters' bottom lines. Assess our business right now.

Olds: The radio business in total remains very strong. The industry has had 80 straight months of growth.

Last year you had almost a perfect bell-curve. You had the top 10 markets up 12 percent. You had 11 through 75 up about 20 percent. And then 75+ up about 12 percent as well.

This year through the first five months, it was just the opposite. The top 10 are up about 17 percent. The 11-75 are up only 5 percent and 75+ up around 14 percent. So overall, all market places are in very good shape.

ONLINE RADIO

Overload Survival Tips

Kim Komando

It's been estimated that there's been more information produced in the last 30 years than in the previous 5,000 years. And no, that's not just because of the Clinton scandal.

What's more, the amount of available information continues to increase at near-geometric proportions. And much of the information that has been contributed to the pool in the last few years owes its existence to the Internet and other electronic media. After all, we're not just reading newspapers and magazines or watching the tube anymore for fodder and topics.

While, in general, more information is a good thing — that is, knowledge is power and as a talk host this is a good thing — this overabundance of information does carry with it real problems. Chief among them is that it's all but impossible to obtain exactly the "right" amount of information.

You're left to choose between getting too much information or too little information. Given this choice, it's wise to opt for excess information. However, that dominoes into the problem of eliminating the glut and then organizing what's left.

For most people, this external information originates from two sources: e-mail and the World Wide Web.

The single most important component of a successful e-mail management campaign is a good, commercial e-mail program like Qualcomm's Eudora Pro or Microsoft's Outlook. Sure, there are plenty of competent free e-mail programs available on the Internet, and for the price, they're hard to beat. However, most commercial packages offer two very important features that the typical free packages don't: robust filtering capabilities and multiple account management.

E-mail filtering is the ability of your e-mail software to take different actions with different messages based on content and most important, without you having to do a thing except set it up. For example, you could have e-mail messages from your top affiliate or your program director or general manager filed away in a separate folder

See KOMANDO, page 40 ▶

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Circle (34) On Reader Service Card

World Radio History

Keep Your Head Above the Flood

▶ KOMANDO, continued from page 39

as they arrive so that you're able to give them the priority they deserve.

Filtering also is useful for weeding unwanted bulk e-mail ads, a.k.a., spam.

There are a number of ways to approach this. If you find yourself getting spam again and again from the same e-mail address, you can have mail from that address automatically filtered into your Deleted/Trash folder. Or if you're tired of, say, getting announcements about the latest porno sites, you can have your e-mail software filter for content words like nude, XXX, college coeds, etc.

You must exercise caution when creating e-mail filters, though. Suppose you're tired of getting spam about the latest money-making deals, so you use "deal" as a filtering term. That means you could entirely miss a message from your brother asking you for advice on how to "deal" with his mid-life crisis. The point: Make sure your e-mail filters don't become so exclusionary that you end up missing important messages, too.

With the proliferation of free e-mail providers like Hotmail and NetAddress, it's easy and cost-effective to have more than one e-mail address.

However, the down side to multiple e-mail addresses — at least if you rely on free e-mail software — is that you have to manually check your mail at multiple locations to round it all up. This is where multiple account handling comes in handy.

Most commercial e-mail software can be configured to check multiple accounts. With one mouse click, you can gather all the e-mail from all your various accounts. And using the previously described filtering techniques, you can still keep it organized according to incoming account.

Whether you use Netscape's Comm-unicator, Microsoft's Internet Explorer or some other Web browser, your Web browsing software includes some ability to maintain an easily accessible list of favorites or bookmarks. And with all the major packages, you can also further organize these lists into sub- categories. If you spend a lot of time researching on the Web, though, a simple list of favorite sites is far from adequate for handling your organizational needs.

First, even if you only plan to come back to a site once, you have to add it to this semi-permanent list of favorites. That means the list can quickly become bloated beyond all usability. Then when you finally get back to a site, you may find that the desired page has changed and the information you want has disappeared.

One way to address these problems is with software that facilitates off-line browsing. In other words, these programs can capture the entire contents of a Web page or entire site — both text and graphics — and store these resource on your hard drive.

This way, you can view the pages whenever you want, even when you're not connected to the Internet, and you never have to worry about the content changing.

There are several software packages that fall into this category. Among the most popular are Blue Squirrel's Web Whacker, Math Strategies' CatchTheWeb and DataViz's WebBuddy. Each of these programs has its strengths.

For example, Web Whacker is among the easiest to use. CatchTheWeb offers a unique feature that allows you to organize multiple Web pages, as well as e-mail messages and other documents, into a portable presentation that you can pass along to your business associates, with no extra software required at their end. And WebBuddy includes a utility that lets you convert a Web page to any of several popular word-processing formats.

Information overload may seem bad now, but it's only going to get worse. Unless you implement the tools and techniques to overcome this barrier, you may find yourself drowning in a whirlpool of digital information from which there is no escape.

Product Information:

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Osgood Scores With 'McGwire'

"The Osgood File" is the winner of the Radio-Television News Directors Association Edward R. Murrow Award for Outstanding Writing in a Radio Network/Syndication/Program Service.

The Murrow Award honors outstanding achievements in electronic journalism. Osgood, who is syndicated by Westwood One, will be honored at an award ceremony in Charlotte, N.C., on Sept. 29.

The winning piece, written and anchored by Osgood on Sept. 28, 1998, was titled "Mark McGwire."

In a phenomenal finish, Mark McGwire hit two home runs yesterday to bring his total for the season to an astonishing 70. Seventy home runs in a single season! It is the most awesome feat in the history of major league baseball.

Records are made to be broken, they say
And maybe McGwire's will be broken some day.
But it's hard to imagine to tell you the truth.
For only McGwire, Sosa, Maris and Ruth
Have ever hit 60 home runs in a season.
McGwire and Sosa this year for some reason
Surpassing what all other players had done
The Babe had hit 60. Maris 61
Remarkable numbers they were looking back
But left in the dust now by Sam and Big Mac.
When McGwire came to bat his last time at the plate
For this fabulous season 1998
He'd already hit one deep … home run 69
Assuring that his name forever would shine
Among baseball immortals. 69 in one year!
An amazing accomplishment, which it was clear
Was a truly prodigious, remarkable feat
But wouldn't one more be incredibly sweet?
If just one more time now that swing could connect
But surely nobody could ever expect
That it really would happen. We thought that we knew
It was possible, yes, but too good to be true.
The crowd in the stadium came to its feet
At a moment like that no one stays in his seat.
And here came the pitch … and that patented swing
Such a powerful, wonderful beautiful thing
We'd been seeing all year ... in the clips of Big Mac
And there came that by now unmistakable crack
As the ball left the bat like a shot on a line
And a thrill ran up every baseball fan's spine
There was roaring and jumping and carrying on
For they knew when the ball hit the bat it was gone.
And as it cleared the wall everyone knew that they'd
Seen a great wonder happen and history made.
Seventy home runs. A seven … a zero
And McGwire ran the bases a conquering hero
Who had done what had seemed an impossible thing.
Nobody can tell what the future will bring.
But nevertheless a great lesson was taught
We can sometimes do better than anyone thought.

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World Radio History

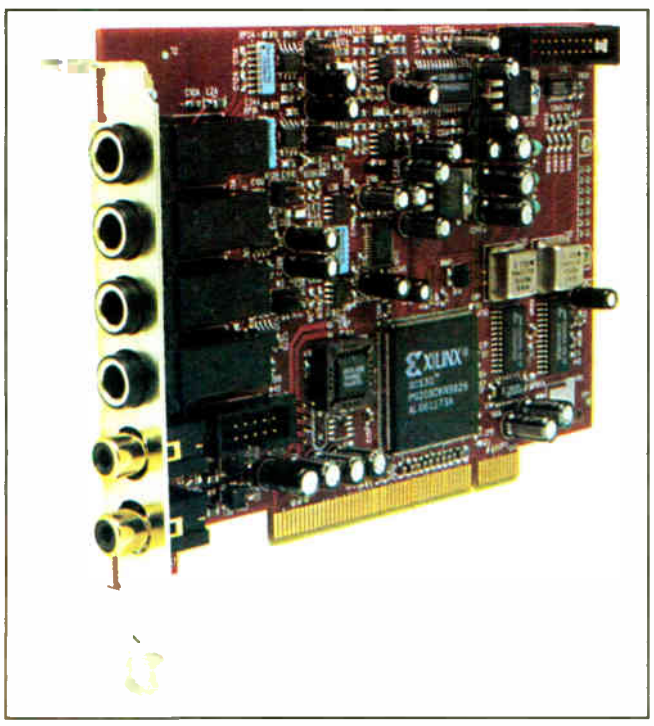
PRODUCT EVALUATION

CardDeluxe Is a Step Forward

Carl Lindemann

When Digital Audio Lab's CardD was introduced in 1990, Windows 3 was new, and a 486 running at 33 MHz was described as "blazing."

Though humble by today's standards, these were the first PCs capable of serious audio production. When equipped with a CardD and the right software, these systems made tape and razor obsolete. For many radio producers (myself included), the CardD opened the door into the digital domain.



CardDeluxe by Digital Audio Labs

Over its lengthy life, the CardD only underwent minor modifications. It was upgraded to the CardD+, and the product line expanded to offer an add-on digital I/O daughter card plus a standalone Digital CardD. But the core design remained: a full-sized 16-bit ISA card with gold plated RCA jacks.

There were shortcomings. The unbalanced connectors were susceptible to RF interference from inside the PC. If you placed it too close to the video card, an occasional high-pitched squeal could sneak in.

Admittedly, this wasn't quite up to par with most professional gear. But if you set it up right, the 92 dB dynamic range was fine for day-to-day radio work. In a marketplace jammed full of PC gaming cards with 1/8-inch jacks, the CardD+ was in a class by itself.

Over the past few years, the proliferation of professional audio cards has offered radio producers far more choices. Though a "classic," the CardD+ was outdated. Soundcards with 24/96 capabilities that extend well beyond 16-bit 44.1khz audio now are commonplace. Worse, Intel and Microsoft have been phasing out the slow ISA bus in favor of PCI's superior architecture. In a few years, "legacy" ISA devices may have no place in the PC platform.

Even so, the CardD+'s popularity continued to the end.

"We'd been looking at the PCI bus for some time, and wanted to move there," said Al Pickard, DAL's co-founder. "Finally, we had our hand forced last year when key components were discontinued."

For those mourning the CardD+'s passing, the CardDeluxe is far more than a replacement of its venerable ancestor. The new PCI-based unit has everything any radio producer is likely to need or want. It has all the bells and whistles: 24/96 capabilities, balanced 1/4-inch TRS analog jacks and a digital S/PDIF I/O.

Like the CardD+, the CardDeluxe doesn't have any onboard DSPs. Still, it's quieter and cleaner than its predecessor with full DirectX support to make it work well with most any of the popular audio production software and plug-ins. For all the added features and improved audio quality, the CardDeluxe sells for the about what the CardD+ did.

Upgraded features

Installing the CardDeluxe for testing was quick and simple. Physically, the card is only about half the size of the CardD. It retains the same jumper adjustable input/output levels with +4 dB and -10 dB options as the original.

But the upgrade to balanced connectors means you don't have to fuss about card location in the case. Stray RF inside the PC can't contaminate the analog signal the way it does with single connectors, so any open PCI slot works fine.

Setting up the drivers under Windows 98 was easy. I've heard Macintosh aficionados complain that weeding through the PC's IRQs and resource settings to install a soundcard is just too confusing. But the Phoenix BIOS in the Intel "Seattle" motherboard managed to carry that out automatically.

As the system boots, just install the drivers floppy, and you're off and running. The CardDeluxe is new on the market, and so there are a few growing pains. Windows NT and ASIO drivers are due before the end of the summer.

See CARD, page 48 ▶

PRODUCER PROFILE

Wilmington Production By Buck

Ken R.

"Great job! That spot you guys produced really pulled in the customers for us!"

It's always good to hear that from a client, especially when the production director put hours of effort into the commercial. Damien Buck, production director for WDEL/WSTW in Wilmington, Del., understands the value.

"We had an apartment rental company run spots only on our stations and they were able to rent 30 units in one weekend. It made me feel great," he said.

Damien Buck is the man who coordinates spot production for Delmarva Broadcasting. His responsibilities include news/talk WDEL(AM), CHR-formatted WSTW(FM) and nine other stations.

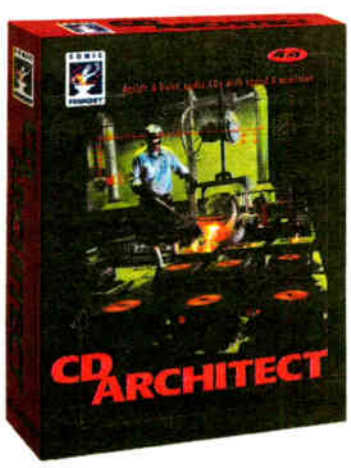
Buck may crank out anywhere from seven spots on a light day to 15 spots on a crunch day. He and his department are proud of a Mercury Award nomination and 21 local advertising honors they've received.

The road to WDEL began in Louisville when Buck was a green 16-year old part-timer at WAKY-AM-FM in Springfield, Ky. His journey took him to stations in Birmingham, Ala., Bainbridge, Ga. and Coco Beach, Fla.

Buck has been in the business for 24 years, half of them spent in his current position in Wilmington. He is married with no children.

Buck said he believes in giving something back to the community.

See BUCK, page 47 ▶



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LINE OUT

Handy Tips for a Great Session

Bruce Bartlett

Each recording session I have done has taught me new ways to improve sound quality or to make a session run more smoothly. Over the years I've collected a number of these methods. I'm happy to pass them on to readers of *Studio Sessions*.

Let's start with miking acoustic instruments such as the guitar or violin.

In a multitrack session, where you're close-miking, it's fairly common to stick a mic up close to the instrument. The goal here is to reject background noise, room acoustics and leakage. But the resulting sound quality can be harsh and aggressive.

The beautiful sound of a great guitar takes space to develop. A microphone up close may not represent the entire instrument.

The beautiful sound of a great guitar takes some space to develop. The sounds from all the parts of the guitar — body, strings, soundhole — blend together in a pleasing way at a certain distance from the instrument. If you mike close, the microphone hears mainly the part of the guitar that it is closest to. That sound may not represent the entire instrument.

When heard from a couple feet away, a good guitar or fiddle has a delicate, airy sound that does exist very near the instrument. If leakage forces you to mike close, try cutting a little around 3 kHz or so to reduce harshness.

Otherwise, consider miking farther away, at least a foot. If you're overdubbing the guitar or violin by itself, leakage is not a problem, so you can take advantage of the beauties of distant miking.

Want more realism in your recordings of the acoustic guitar, piano or other instruments? Try miking them in stereo. Here's a common way to stereo-mike a guitar: place one mic about a foot from where the fingerboard meets the body, at the 12th fret. Place another mic about a foot from the bridge. Pan these signals hard left and right, or partly left and right.

One album I recorded featured a guitarist who overdubbed himself four times. We used eight tracks to record the four stereo parts. It was fun to create soundscapes by using the pan pots.

For a pop-style piece, we panned one guitar part hard left, another hard right, and put the lead in the middle. But on a New Age composition, we wanted a more diffuse, lacy effect. The stereo mics for guitar part 1 were panned hard left and center so that the guitar spread between those two points. The stereo mics for part 2 were panned hard right and center, creating a spacious guitar sound in the right half of the soundstage.

Guitar part 3 was panned hard left and right, so that the guitar was heard in full stereo. The result was a delightfully ethereal quality that worked well for the New Age style.

Sometimes it's hard to tell if our mixes sound "commercial." Do the mixes sound like other productions released on CDs? An easy way to tell is to plug a portable CD player into your mixing console. Play a CD with songs similar to those you're mixing. A-B your mixes with those on the CD. You might hear difference in bass, treble, amount of reverb, mix balances and so on. Adjust your mixes to sound more like the CD.

What's cool about this method is that it works on almost any monitor speakers. Even if your monitors are not accurate, if you match the sound of good CDs played through the same monitors, you know you're in the ballpark.

Imagine that you are set up to record a vocal overdub, which you will add to a mix of instrument tracks. An important part of this procedure is to set up a good cue mix in the singer's headphones. The cue mix is a blend of the recorded instrument tracks and the live vocal to be overdubbed.

Certain simple tricks that anyone can learn will make any radio production session more productive.

Rather than doing the mix on monitor speakers, do it while listening on the same model of headphones that the singer is using. That way you both hear the same thing. Of course, the singer is also hearing their own voice live, but at least you are hearing the same instrument mix and tonal balance.

You've heard of "fix it in the mix," but sometimes you can only fix things in the editing session. Here are some examples.

Suppose you've filled all the tracks on your multitrack, but the client wants to add a synthesizer wind sound before and after a song. You have no other multitrack to sync to the first one. Well, just mix down the existing tracks to a two-track DAT. Copy that DAT to your hard drive using some multitrack digital editing software. Then record the synth part onto two more tracks in the editor. Align the two-track mix and the synth in time, add fades and there's your finished piece.

Cut and paste is another useful tool of digital editors. Sometimes you can use this feature to correct musical errors. For example, I was given a DAT of a song in which the band messed up the second chorus. They played the first chorus perfectly, so I copied the first chorus and pasted it in place of the second chorus. Because the first and second chorus were identical, no one could tell that this trickery had been done.

Quick level changes in an editing session can fix things, too. Suppose that in the finished mix, one note of a sax solo blares out. After recording the mix to hard disk, zoom in on that note. Cut its level a few dB with the editor's virtual fader. This trick also works to reduce breath pops, audience coughs and so on.

■■■

Bruce Bartlett learned about recording before there were any recording schools. He wished he had a textbook, so he wrote one, now titled "Practical Recording Techniques 2nd Ed." in its latest version.

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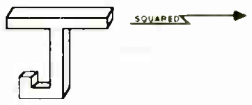

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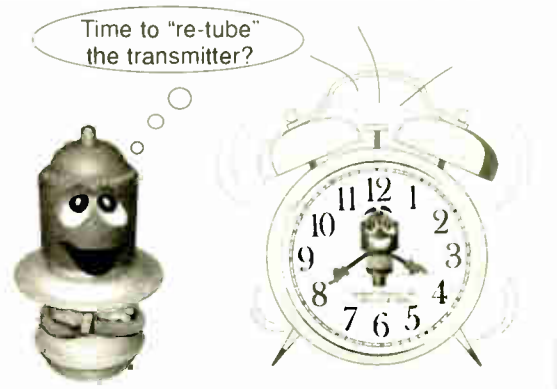

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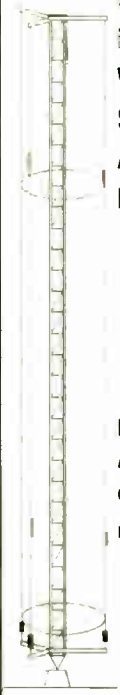

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◆ PRODUCT GUIDE ◆

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Tascam Rolls Out CD Player

The CD-450 from **Tascam** is a compact disc player aimed at the broadcast, recording studio, sound contractor and DJ markets.

Features include auto cue, auto ready, call and end-of-message functions, fader and event start, incremental play and numeric keys.

The call function lets the operator locate the position where Play was last pressed, for confidence in starting the cut reliably. Single-play function is useful in radio applications.

The player is rackable, occupying two spaces. It has RCA unbalanced analog outputs and a coaxial RCA S/PDIF digital output. An optional kit provides balanced XLR analog out, plus an AES/EBU digital output on an XLR connector. Retail price is $760.

For information, contact Tascam in California at (323) 726-0303, e-mail to tascamsales@tascam.com *or circle* ***Reader Service 92.***

'A New Class of Mic Preamplifier'

The **Aphex** 1788 Mic Pre earned a Cool Stuff Award from **RW** at the NAB99 convention.

The eight-channel unit is targeted at remote broadcast work, tour sound, live recording and theater work. The 1788 lets the user place the preamps near the mic, to avoid problems associated with mic splitters, long lines and multiple inputs.

MicLim is a proprietary limiter circuit on the mic output that speeds setup and which Aphex says makes the unit virtually crash-proof. A digitally controlled low-noise amplifier allows the input gain to be adjusted without noise or glitches, changing level in 1/4 dB steps with 1 dB stops.

Suggested retail price is $4,995.

For information, contact Aphex Systems in California at (818) 767-2929, visit the Web site at www.aphexsys.com or circle **Reader Service 151.**

Yamaha Powered Near-Fields

Yamaha is shipping its MSP5. This powered monitor features a bi-amplified design, providing 40 watts to each speaker's 5-inch woofer while separate amps feed 27 watts to each 1-inch titanium tweeter.

The company says the resulting sound features an impressive flat frequency response and well-articulated stereo image, suitable for pro recording and post-production.

Each monitor is magnetically shielded to prevent interference with computer monitors or other sensitive gear. Both +4 dB XLR connectors and -10 dB line level phono jacks appear on each speaker.

For information, contact Yamaha in California at (714) 522-9011, e-mail to info@yamaha.com *or circle* ***Reader Service 131.***

Genelec Offers Digital Stereo Monitoring

Suitable for digital audio workstation projects and broadcast confidence monitoring, the 2029A Digital Stereo Monitoring System from **Genelec** is a compact, two-piece, nearfield system.

The 2029A is based on the successful 1029A two-way, analog active monitor speaker. The 2029A consists of one right master speaker and one left slave. Stereo level adjustment is controlled by a volume knob on the master.

The system accepts S/PDIF digital audio or conventional analog inputs, and feature built-in power amplifiers that can produce 40 watts of output power.

Suggested retail price is $1,325 per pair.

For information, contact Genelec in Massachusetts at (508) 652-0900, visit the Web site at www.genelec.com *or circle* ***Reader Service 111.***

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HARRIS Communications

Circle (37) On Reader Service Card

World Radio History

Sound With the Stroke of a Brush

Steve Wilke

Ours is a world of accelerated stimulus. The human body is designed to detect the most minute differences in what is and what is not perceived.

These experiences are received in the awareness and the consciousness, and humans have the ability to store them in memory.

This ability allows us to recall and reference those experiences, comparing them against what is happening at any given moment.

This enlightenment builds over time and forms patterns can be worked with in different ways.

Some people love to revisit their experiences, staying with things with which they are familiar. Other people are driven to explore new territories, sometimes motivated by fear and other times by enthusiastic adventure.

Needless to say it becomes very complex.

In ancient times, temples were carved with hieroglyphs and painted in vibrant colors to express the experience of the zeitgeist. Musicians always played live before their audiences.

As time and technology progress, humans continue to find ways to express ourselves through poetry, drama, theater, music, photography, etc.

Nowadays, our ability to express ourselves creatively is amazing.

More ways than ever are now available for interfacing with the senses. New tools and techniques can capture nuances, and new media can present them to the masses.

This all means that the human consciousness is feeding more rapidly on new information, and spitting out responses at breakneck speed from all directions of the planet.

Before sound recorders, synthesizers and samplers were invented, people experienced sound in many different ways. They took in the natural sounds of the location they were in, perhaps a busy market or a thunderstorm.

Seeking specific sound

If people were intentionally seeking a specific sound, they isolated themselves in a particular location where the winds and birds felt right for a good meditation.

Another intentional method would be to create instruments with which tones could be generated. This could be a drum that lets them express with different rhythmic patterns or it could be a string that could be shortened to create a melody.

This means of intentionally generating patterns of sound developed into music.

Eventually, humans learned to capture sound vibrations and then project them sounds off a medium by shaking the air through horns and speakers.

This allowed us to capture the best performance and then present that to audiences. We could control our presentation. The artistry of that performance built upon the artistry of the theater with each new invention.

The most inventive people started to take the technology of their time and try to create surreal and imaginative qualities that stretched beyond normal experience.

Now we have gone even further.

With digital sound design tools, we can take traditional music instruments, synthesizers, samplers, digital workstations, sound effects libraries, microphones, endless effects manipulation devices and more.

We also can control, combine, layer and process audio in ways to create endless layers of nuance and expression.

Paint sound

More and more, it is possible to paint with sound to create the same kind of individual expression that an artist's brush captures — the feeling of the artist, the same connection to the body that a dancer has when emoting through movement.

With this range of depth of application, how does one choose a palette of sounds?

Well, it is not easy to accumulate the experience needed to cover the repertoire of demands that clients are likely to demand. Now more than ever, a sound engineer needs to think like a composer and an artist, and not like a technician.

Music and sound are coming together like never before.

■ ■ ■

Stephen Wilke is a sound engineer at Swell, a full-service post production facility in Chicago. He also is a partner in Open Sky Music Productions, where he writes music for commercials.

More and more, we can paint with sound to create the kind of individual expression that an artist's brush captures.

Register For 107th AES Show

Digital audio radio is a prominent theme of the 107th AES Convention in New York City in late September.

The Audio Engineering Society has included a special conference to address the issues of digital radio.

"Broadcast engineers in the United States are developing important DAR technologies and the industry is deeply concerned with establishing a transmission standard," said David Bialik of DKB Broadcast Associates, the conference chair.

The overall theme of the AES show is "Advancing the Art of Sound — Leading the World of Audio Into the 21st Century."

The keynote speaker is Chet Atkins. Sony Corp. Chairman Norio Ohga will receive honorary AES membership.

Look for detailed preview information in the Sept. 1 issue of **RW**.

The convention is Sept. 24 to 27 at the Jacob K. Javits Center in New York. Attendees can register at *www.aes.org*, or inquire via e-mail to *HQ@aes.org*

Arrakis Studio Furniture systems are #1 with over 1,000 sold !

The Master Control Studio, shown right, is one of seven Arrakis studios in Sony's Manhattan network origination center for SW Networks.

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Circle (42) On Reader Service Card

World Radio History

Buck Produces in Wilmington

▶ BUCK, continued from page 41

"I've spent a lot of time training interns here at the station. It's very important to me that when they leave, they know what they're doing," he said. "Curtis Thorton, an intern, is now my assistant."

The Delmarva production department consists of Buck and two copywriters. He has access to seven other station voices, available to him at various times of the day. Buck is himself an accomplished announcer with a repertoire of straight and character voices. In fact, for some commercials he has been known to record all the parts himself.

"Ask me about my 'Homer Simpson' voice," he said.

Tools for the job

Buck has a supportive broadcast organization to work with.

"The station has provided everything I need ... except more time to get the spots done!" he said. His production libraries include Firstcom Music and Killer Tracks for instrumental beds and The Hollywood Edge and Sound Ideas (1000 and 2000 series) for sound effects.

MP3 Internet file transfer and DCI hardware are used to rush spots digitally from one location to another within the station family. A MediaTouch computer system is in place in the three air studios (there is also a smaller news studio).

Delmarva has three production rooms within the facility in Wilmington.

"Our main production system is (PC-based) ProTools. I love it, there's nothing like it, and it's only available in my studio," he said. The station also has a (Macintosh-based) SAW Plus which some of the other people seem to like because it's so easy to use."

The production rooms have access to a voice booth, and Shure SM5b microphones are the workhorses. The main production board is an Auditronics 851, and the processors are manufactured especially for WDEL/WSTW by a consultant.

room, but how the spot will sound when it finally hits the air.

"You don't want it coming out too mashed," he said. In that case, why do stations compress their air signals so much? "A listener tuning across the dial will be drawn to a station that's slightly louder. This is a very big deal especially with CHR and urban formats which require maximum volume and a lot of bass presence."

Buck seems to enjoy his job, and he looks forward to the variety of assignments he gets each day. Asked about the

Damien Buck

frustrations of the job, he laughed and echoed the sentiments heard from production directors all over the country: "It's the deadlines. I often do three or four voices on a spot, then find music, then find effects. It just takes time to do it right."

Does Buck suffer from those wonderful 4 p.m. surprises from the sales staff — when they drop the fact sheet on the desk and need a spot produced to start Monday at 8 a.m.?

Rush jobs

"We try to hold the line on last-minute rush jobs. The sales people respect my time, so by 4 p.m. Friday afternoon I'm through for the week. Sometimes, though, the client will hold onto the copy and not approve it until the last minute, even though the sales rep is trying hard to get it done."

Outsiders can also use the audio production facilities at WDEL/WSTW.

"When we produce a spot that's running on our stations exclusively, there is no charge for production," he said. "Agencies can book time in our state-of-the-art studios and avoid going to Philadelphia and spending hundreds of dollars an hour."

"When production which is running on our stations also goes out of market, we charge $125 per spot. If our studios are used for a spot which is only going to air outside our market, it's $300 per spot. So in addition to our own workload, we're booked by outside agencies quite a bit."

What could manufacturers change in their equipment designs that would make his job easier?

"They're doing it! When I got here 12 years ago, everything was done on a four-track tape recorder," Buck said. "We didn't have any systems in place to get tapes to other stations other than making the dub on reel and sending it in the mail. Technology has been a huge help to us."

However, he does see some changes in the way spots will be produced in the future.

"I think boards may become obsolete. We'll do the mixing on computers in the production rooms, though boards will probably still be used on-air," he said. "Outboard processing boxes may become less necessary too, because of the increasing use of plug-ins with the computer systems."

Buck would like to see an improvement in the delivery of digital audio "so that we can just assign a number from traffic to incoming audio and have it automatically go into our system. That way we wouldn't have to take the time to download and dub it, which is a needless process."

Like many radio people, this production wizard worries about the impact of change in the industry.

"So many station groups now have central locations which produce spots for dozens of stations, like we do in our group," he said. "This really eliminates a lot of jobs! In the future, it might be possible for a single production house in one market to try to supply everyone."

But he does not think this concept would ever completely eliminate the need for local spot creation.

"Those last-minute copy changes which are a part of our daily life would be very difficult to do for someone out of market.

"If an advertiser wants to extend his sale one more day, we have to respond instantly," he said. "Immediacy is very important to local radio. Sometimes we have to make the changes and get the spots on the air with only an hour's notice."

■ ■ ■

This is one in a series of profiles about radio production people. Ken R. is a regular contributor to RW.

WDEL/WSTW Production Gear

Hardware/Software
Digidesign ProTools
IQS SAW Plus
MediaTouch Audio Management System

Studio
Shure SM5b Microphones
Auditronics 851 Mixer
Air Corp. Voice Processor
Yamaha SPX 1000 Processor (2)
Aphex Compellor

Libraries
Killer Tracks
Firstcom Music
Sound Ideas (1000, 2000)
Hollywood Edge Sound Effects

'Those last-minute copy changes ... would be very difficult to do for someone out of market. If an advertiser wants to extend his sale one more day, we have to respond instantly.'

The primary voice-shaping tool is by Air Corp., offering compression, limiting, EQ and de-essing functions. There is a pair of Yamaha SPX 1000s in the rack for reverb and other acoustic effects.

With all those possibilities, does Buck use the plug-ins within the ProTools system?

"No, we use the outboard stuff to get everything sounding right and mostly use the computers for editing and mixing. You don't want to over-process because there is so much processing on the air."

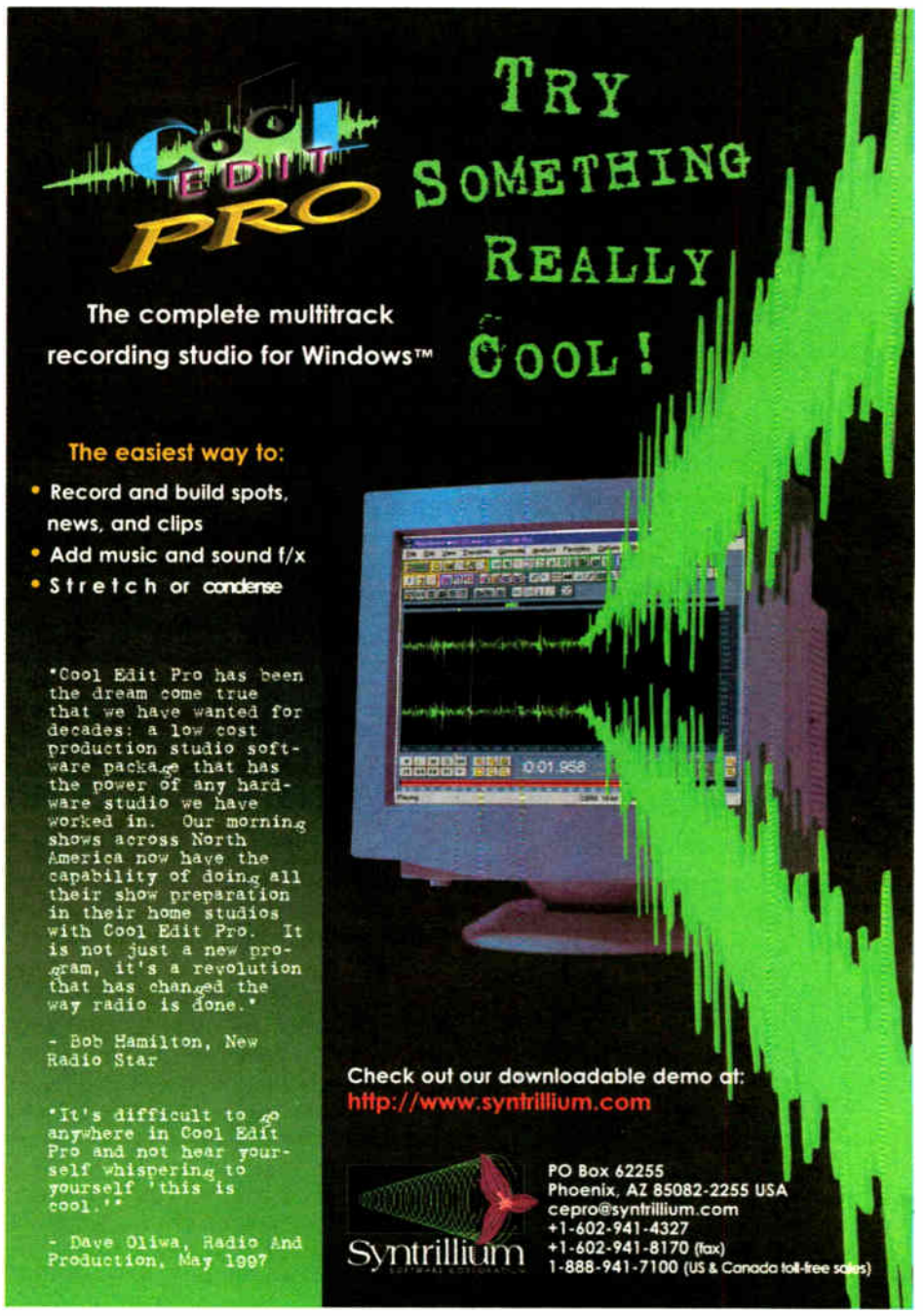
Production polishing tools include an Aphex Compellor for compression.

"It's very transparent. The average person might not even notice it," he said. Also in use: that old "pump up the jam" analog standby, the dbx 1066.

WDEL/WSTW uses Jim Loupas from Dallas as their audio consultant.

Louder and louder

Damien Buck is aware of not just the processing he uses in the production



Circle (38) On Reader Service Card

World Radio History

You Read It Here

Five Years Ago

Over the four years that the DSE-7000 has been shipping, there have been many significant changes. ...

Don't get me wrong, I love my Macintosh Quadra 840 A/V. But for cutting spots and doing all of the other things I've described in this article, the DSE-7000 remains difficult to match.

"Orban DAW: Getting Better With Age"
by Ty Ford
Aug. 19, 1994

Ten Years Ago

It was supposed to be the sound that wasn't heard across America.

But instead, the Radio Advertising Bureau/NAB's cooperative new promotional campaign for radio that included 30 seconds of dead air drew inconsistent and often reluctant participation in the nation's top radio markets.

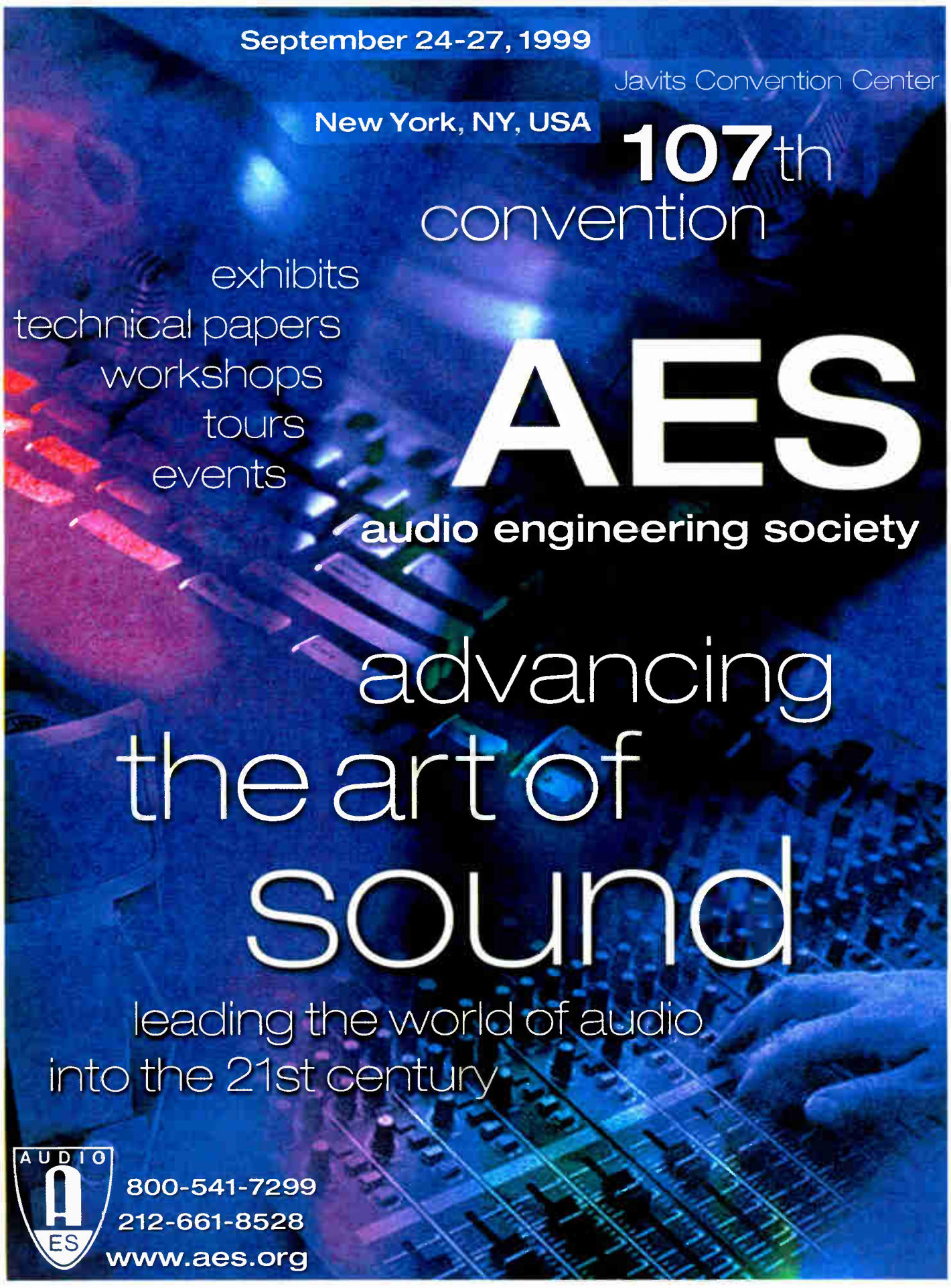
News Item
June 28, 1989

Fifteen Years Ago

William Bragg was eight years old when he traded his prized baseball mitt for a telegraph sounder that was being mishandled by a classmate during "show-and-tell." From that day on, he collected broadcast artifacts until he could no longer fit all the pieces in his house, and eventually established the National Broadcast Museum in Dallas, Texas. ...

(It) flourished to become the largest broadcast museum in the world. But today, the National Broadcast Museum needs help. Following financial difficulties and an eviction notice, the museum closed its doors to visitors on Dec. 3, 1983.

"Museum Suffers Hardships"
June 15, 1984



DAL's New CardDeluxe

▶ CARD, continued from page 41

Support for Macintosh is scheduled for the end of the year.

Testing the CardDeluxe's analog capabilities revealed the limits of the rest of my production setup. Its 110 dB dynamic range is quieter than my studio's ambient noise. It's also quieter than my Electro-Voice RE-20 patched through a Mackie 1202-VLZ.

Recording at its full 24/96 capabilities with IQS SAWPro clearly exceeded all but the most stringent demands.

If you're aiming at winning Grammys with a full-range of pricey accouterments typical to the music producer's trade, you might find a few things to quibble about. For those pursuing Peabodys with the limited budgets of the radio biz, this does it all.

The addition of an integrated digital I/O brings the CardDeluxe up to par with its competitors.

"People are looking for more features," Pickard said. "Consolidating the digital and analog I/O also saves a slot compared to the previous daughtercard setup."

The gold-tipped RCA S/PDIF connectors give access to four channels — if you use both analog and digital simultaneously. The RCA connectors serve DAT users well. MiniDisc users can add an optional AES/EBU bracket with optical I/O.

If you want more inputs, additional CardDeluxes can be synched together seamlessly with a 20-pin ribbon cable. You can add as many as you like until you run out of PCI slots.

In the past, setups like this could suffer from a "stairstep" effect. Individual soundcards wouldn't record or playback simultaneously. Each would be added one after another in the session.

More than one

DAL's new "WavSync" feature overcomes this. It synchronizes WAV drivers so that multiple cards act as one device. While most radio producers are likely to find a single card is plenty, it's nice to know that you can scale up your system if your needs grow.

The CardDeluxe is as cutting edge today as the CardD was at its introduction. What's different is the many other pro audio cards it must compete with — often cluttered with added features for video, MIDI, and whatever else lurks in the Multimedia maze.

Though I was reared on the CardD, I'd been lured away to AdB's excellent (and now discontinued) Multi!Wav Pro24 Analog card. Well, the CardDeluxe has lured me back. If you liked the CardD, you'll love the CardDeluxe. It's a no-nonsense way to get high-quality sound in and out of your DAW, and the PCI architecture guarantees compatibility for many years to come.

■■■

For information, contact Digital Audio Labs at (612) 559-9098, visit the Web site at www.digitalaudio.com *or circle* ***Reader Service 57.***

World Radio History

USER REPORTS

D-500 Controls the Show at WKDF

by David Hodge
Chief Engineer
WKDF(FM)

NASHVILLE, Tenn. Nashville's WKDF(FM), owned by Dick Broadcasting, was a long-time heritage rock station until this spring. On April 1, we began broadcasting country, complete with a brand-new morning show called "Carl P and the P-Team," to launch the new format.

This hot new morning show really takes advantage of the Nashville music scene, incorporating live interviews as well as full-fledged musical performances in a brand-new studio.

Anticipation ...

In fact, in anticipation of the new format, WKDF decided to build an addition to our building simply to accommodate the new on-air and production studios, talent, producers and other support staff. The new annex is 30 by 80 feet with all-new equipment, and houses a control room, a smaller sound booth and a production studio.

We have no less than five mics in the main studio and four mics and tie lines in the smaller room for a wide variety of needs that might change day-to-day. Needless to say, the station really needed equipment that would not only be reliable, but also would handle our current needs and take us through to an increasingly digital future.

We turned to **Wheatstone** because of their good reputation. We evaluated both analog and digital consoles. I first considered the A-6000 because of its top-of-the-line, major-market capabilities. But ultimately, I chose the Wheatstone D-500 digital console, because it allowed us to start analog and become digital later on, as the need arises.

The Wheatstone D-500

Although the morning show studios are brand-new, they are only used for that particular daypart. For our current needs, digital doesn't allow us to change things as quickly as we need during the frenetic pace of morning drive.

Therefore, we still operate pretty much in the analog domain, switching with patch bays. With a producer and technical producer at work during the show, last-minute decisions are made all the time and there's a lot of patching things in and out as needed.

We do, however, have digital sources for commercials and music, including an AudioVault hard disk system, a Tascam DAT, a SAW digital editor and a CD burner right in the studio, which is used for production once the morning show is done.

The D-500 is ideal for the kind of control we need in the mornings. While it operates as a traditional analog control board now, it will be easy to convert to digital in the future. We will simply replace input module daughterboards to shift from analog to digital as needed.

I like the features Wheatstone has built into the D-500. It has four stereo busses, which we really need, particularly when we work with the Tascam eight-track DAT. The console's flexibility allows us to send any module's output to any of the busses.

The D-500 was easy to set up and worked well from day one. I like the way the options were set through dip-switches and the fact that the DB-25 connectors were handy. Another nice feature in the console's design is its meters; our staff especially appreciates meters on the cue, a rarity on most radio consoles.

Our producer and assistant producer operate the D-500 and they found it easy to work with from the start. Wheatstone has designed it with the look and feel of traditional analog consoles so there really is no learning curve involved.

We've had no problems with the D-500 since we went on-air with it at the beginning of April. I'd like to have the ability to pan Left or Right only on the modules, but that's more of a production need than an on-air feature.

Basically, the D-500 is what it claims it is and does what it's designed to do. Best of all, when the time comes to make the switch to digital, we won't have to buy a whole new console.

In addition to the D-500, we also use a 12-channel Wheatstone Audioarts R-60 console to handle production for the morning show. Our Auditronics console, which we had before building the new studios, complete the trio of consoles we use for all the varied operation of the morning show, making the new show an all-Wheatstone operation.

For more information contact Wheatstone at (252) 638-7000, fax (252) 637-1285, visit the Web site at www.wheatstone.com *or circle* ***Reader Service 93.***

TECH UPDATE

Ward-Beck

The **Ward-Beck** R2K radio audio console series features modular, metal construction; connections via Phoenix pluggable, screw terminals; A/B input select on all modules; four stereo program outputs standard; two assignable mono mix buses and six telephone clean-feeds.

Other features include serial control port to facilitate interface to automation, balanced inserts and direct outputs from each module; control room and studio monitoring; timer and clock (all time code standards supported).

The rackmount power supply frame houses two modular supplies for dual redundancy and can accommodate external audio distribution.

The model R2K/12 accommodates up to 12 input channels, while the R2K/20 handles 20, and the R2K/28 provides 28.

The R2K/8 is a 14- x 19-inch rack mount package for up to eight input channels.

For more information contact Ward-Beck Systems Ltd. at (800) 771-2556, fax (416) 335-5202 or circle ***Reader Service 61.***

Circle (39) On Reader Service Card

World Radio History

TECH UPDATES

AMS Neve

AMS Neve offers new hardware and software for its Libra Live broadcast console.

Features include a new ESP processing platform and a RAM-based flash-boot system.

The addition of a RAM-based boot system allows Libra Live to store and load operating system and console configurations from solid-state RAM instead of hard disk. This cuts power-up and configuration time to just a few seconds and reduces the chance of failure due to mechanical problems.

An expanded GPI facility allows external inputs to control many of the switches and initiate functions such as Snapshot Recall. A Snapshot Filter added to the Snapshot Recall automation speeds up the selective recall of different console sections.

For more information, contact AMS Neve at (212) 965-1400, visit www.ams-neve.com, *or circle* ***Reader Service 107.***

Studer

The **Studer** On-Air 2000 MkII digital console features the "Touch N Action" concept. This enables the operator to reach most of the functions from the sweet spot in front of the microphone and/or screen.

The 6, 12, 18 or 24 channels can be equipped with different input cards: analog, digital, two inputs, six inputs and with or without a transformer. The outputs can be analog, digital or both. Furthermore, the mixer can control radio automation systems and be controlled from them.

Other features include user cus-

tomization, snapshot storage via PCMCIA slots, A/B select on mic/line/AES inputs, selectable channel EQ and output bus limiting, built-in clock/timer with external sync option and version 3.0 software offering up to six mix-minus feeds.

For more information, contact Studer at (408) 542-8884, fax (408) 752-9699, visit www.studer.ch, *or circle* **Reader Service 84.**

Fidelipac

The **Fidelipac** Dynamax MX Series Broadcast consoles feature two frame sizes, offering a range of six to 18 channels, 18 to 42 stereo inputs, and interchangeable modules carrying all of the channel electronics.

No active components are mounted on the console input motherboard. The use of voltage controlled amplifiers eliminates scratchy faders and level controls. Gold-plated edge connectors are used for motherboard connections.

For more information, contact Fidelipac Corp. at (215) 464-2000, fax (215) 464-1234, visit www.fidelipac.com, *or circle* **Reader Service 109.**

Harris

The **Harris** DRC 1000, 2000, and 2024 digital audio consoles feature 32-bit internal precision floating-point DSP technology. Each Audio Processing Unit contains six Sharc DSPs.

The APU has seven stereo (14 mono) AES3 output busses. Output busses are simultaneously available in digital and analog for flexibility and reliability. Two of the analog outputs utilize 20-bit digital-to-analog converters. The remaining five analog busses utilize 18-bit digital-to-analog converters.

For more information contact Harris Corp. Broadcast Systems Division at (800) 622-0022, fax (765) 966-0623, visit the Web site at www.harris.com/communications *or circle* ***Reader Service 112.***

Radio Systems

Millennium Consoles from **Radio Systems** are available in 6-, 12-, 18-, and 24-channel sizes. All consoles feature three output busses, remote control and metering, a comprehensive monitor section with standard eight-position selector and a clock/timer.

The selector/switcher controls any external device or Millennium option product, including a squawk box, audio switcher and digital hybrid.

The clock/timer is part of the Radio Systems CT-6 line and connects serially to the external master driver to function as a clock slave readout. The display switches modes between clock and up-timer via front-panel console switches, which also control all timer functions.

Remote control is accessible on a 15-pin "D" connector for every channel, each selectable by A/B input. Remote, timer, muting, channel and remote-control functions are available and programmable by input via internal jumper straps. The console channel on/off switches activate most functions.

Models differ only in their channel count and meter overbridge.

For more information contact Radio Systems at (609) 467-8000, fax (609) 467-3044, visit the Web site at www.radiosystems.com *or circle* ***Reader Service 52.***

Arrakis Family

Arrakis has rolled out its new DM-4 broadcast digital consoles and introduced new digital input, mixing and output options for its popular 12,000 and 22,000 series consoles.

The new DM-4 family can be used two ways. Free Windows 95/98 soft-

ware creates a stand-alone digital virtual console on a customer-provided PC. Faders can be touchscreen- or mouse-controlled. Standard clock and timer are included.

The virtual console has two analog stereo inputs and four digital inputs with sample rate conversion in the smallest configuration. With popular off-the-shelf PC Remote Control Software, stations can control the console from a remote location.

The digital engine is not a PC and thus is not subject to routine PC maintenance issues or virus infections. The DM-4 mounts in two rack spaces and features standard, professional balanced audio connections and easy-to-wire logic and control connections.

The DM-4 can also be used with any Arrakis 12,000 or 22,000 console built since 1989 to achieve a traditionally controlled console with analog and digital I/O.

Both the 12,000 and 22,000 models support a complement of modules in addition to the new TDM1 digital mixer. Use one TDM1 module for each digital input, up to four for each DM-4 in use. For the analog modules, choose either basic On Air configuration or advanced models with pan for mic modules and input mode selection for line-level mixers. Additional accessory modules include Audio DA, Audio Pre-selector, Remote Switcher and Remote Control plug ins.

A built-in audio patch bay is standard in the 12,000 and 22,000 for use even while the console is on the air.

The 12,000 series offers 8-, 18- and 28- mixer position modular mainframes. The 22,000 offers 18- and 28-mixer position modular mainframes. The 22,000 mainframe now has a lower cost.

For information, contact Arrakis Systems in Colorado at (970) 224-2248, visit the Web site at www.Arrakis-Systems.com, *send e-mail to* Sales@Arrakis-Systems.com *or circle* ***Reader Service 114.***

Logitek

Logitek's Numix has been redesigned for greater space efficiency and expanded functionality when used with hard-disk audio storage systems.

The Numix's modular design has been modified, with the functions of the Meter Wedge moved to the Selector Wedge so that now there are only two types of wedges. The Fader Wedge has been updated to include six faders instead of four, allowing larger fader counts without increasing required space. Motorized faders are an option that allows software to change mix levels.

The alphanumeric display on the

Fader Wedge has been changed to a 200 x 640 LCD panel that is half of a VGA size screen. This will allow greater integration with hard-disk audio storage systems, which can make use of the larger display area.

Logitek Audio Engine has been expanded with the introduction of Vmix Virtual Mixer Software for the PC. The Vmix software allows a computer to control the Logitek Digital Audio Engine without using any other control surface or can duplicate another control surface while occupying little space.

Vmix software emulates either a ROC-10, ROC-5 or Numix console control surface, depending on how the Audio Engine has been programmed.

Vmix provides the features of a hardware control surface. With a click of a mouse or the touch of a finger, the operator can turn channels on and off, change fader levels or change input routing, as well as control the EQ, pan and monitor systems.

Vmix operates on a Windows 9x or NT computer.

Vmix, used with a modem, can connect to a remote location and have full control of the Audio Engine.

For more information contact Logitek at (800) 231-5870, fax (713) 782-7597, visit the Web site at www.logitekaudio.com *or circle* ***Reader Service 133.***

World Radio History

TECH UPDATES

Autogram

Autogram Corp. added the new Pacemaker II[K] series to its line of consoles.

Two mainframe sizes are available in Autogram's new modular broadcast audio boards.

The PM228 offers up to 24 input modules while the PM218 can be configured with up to 14 input modules. Consistent with the Classic Pacemakers, the PM II[K] family has multi-line-input modules available. A fully packed PM228 gives the user a total of 60 audio inputs.

New in the Pacemaker II[K] series is the Autogram Bi-Modular concept. With this feature, operator disturbance for maintenance is minimized. A small ribbon cable connects the DC-controlled front-panel modules to the main motherboard, which contains the input and output electronic modules.

In Autogram's new consoles, the operator modules can be changed with no calibration or adjustments needed. Both the front-panel and electronic modules are hot-swappable. To further minimize maintenance, all on-off switches are lighted by LEDs.

An extensive array of traditional lighted VU meters provide monitoring for stereo Program, stereo Audition, Mono Sum, and mono Mix Minus outputs. Six meters are used on the PM228 while four are used on the PM218 with functional switching.

The Autogram New Generation power-supply system is used with the Pacemaker II[K] consoles. This remotely mounted unit is specified to operate from input mains of 85 to 250 volts AC (50 to 400 Hz) with no adjustment required.

The power supply has status indicators to show all operating voltages. Additionally, there are power status indicators on the console motherboard for duplicate verification. Two relays are provided in the power supply for control of on-air lights and other devices.

The Autogram Autoclock is a standard feature in the Pacemaker II[K] series consoles. This unit combines real time, counter, date and outside temperature in one display.

Controls for the Autoclock are accessible on the front-panel module. An additional feature is its ability to link with other Autoclocks via a two-wire serial cable. All consoles (and other Autoclocks) can share time and temperature data.

The Pacemaker II[K] series consoles do not require a cutout in the mounting table. For installation, the consoles use the same miniature plug-in screw-type connectors as the RTV and Classic Pacemaker series consoles.

Optional XLR and RCA jack panels are available to allow easy rear-panel connection of microphones and consumer equipment. The Solution-20 accessory system is available to provide distribution amplifiers, power amplifiers, microphone processing, and an assortment of problem-solving devices.

The Pacemaker II[K] consoles are digital-ready and can be upgraded to provide digital inputs and outputs if required.

For more information contact Autogram Corp. at (972) 424-8585, (800) 327-6901, fax (972) 423-6334, visit the Web site at www.autogram-corp.com *or circle* ***Reader Service 51.***

Klotz Digital

The Vadis DC console by **Klotz Digital** is designed with flexibility in mind for stations requiring semi-custom, on-air, digital audio consoles.

The Vadis DC offers modular construction and is available in six mainframe sizes. It has four stereo busses, PGM, AUD, UTL and TEL, various mix-minus options, and Mono Sum output capabilities.

For broadcast facilities that need more than one or two mix-minuses, Klotz Digital has engineered the N-1 module, which provides as many mix-minuses as there are faders on the console. This feature includes individual talkback to each output.

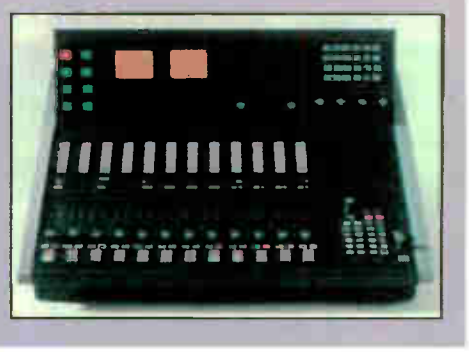
There are mic, analog line and various formats of digital line inputs. Logic follows each source no matter where it appears on the console.

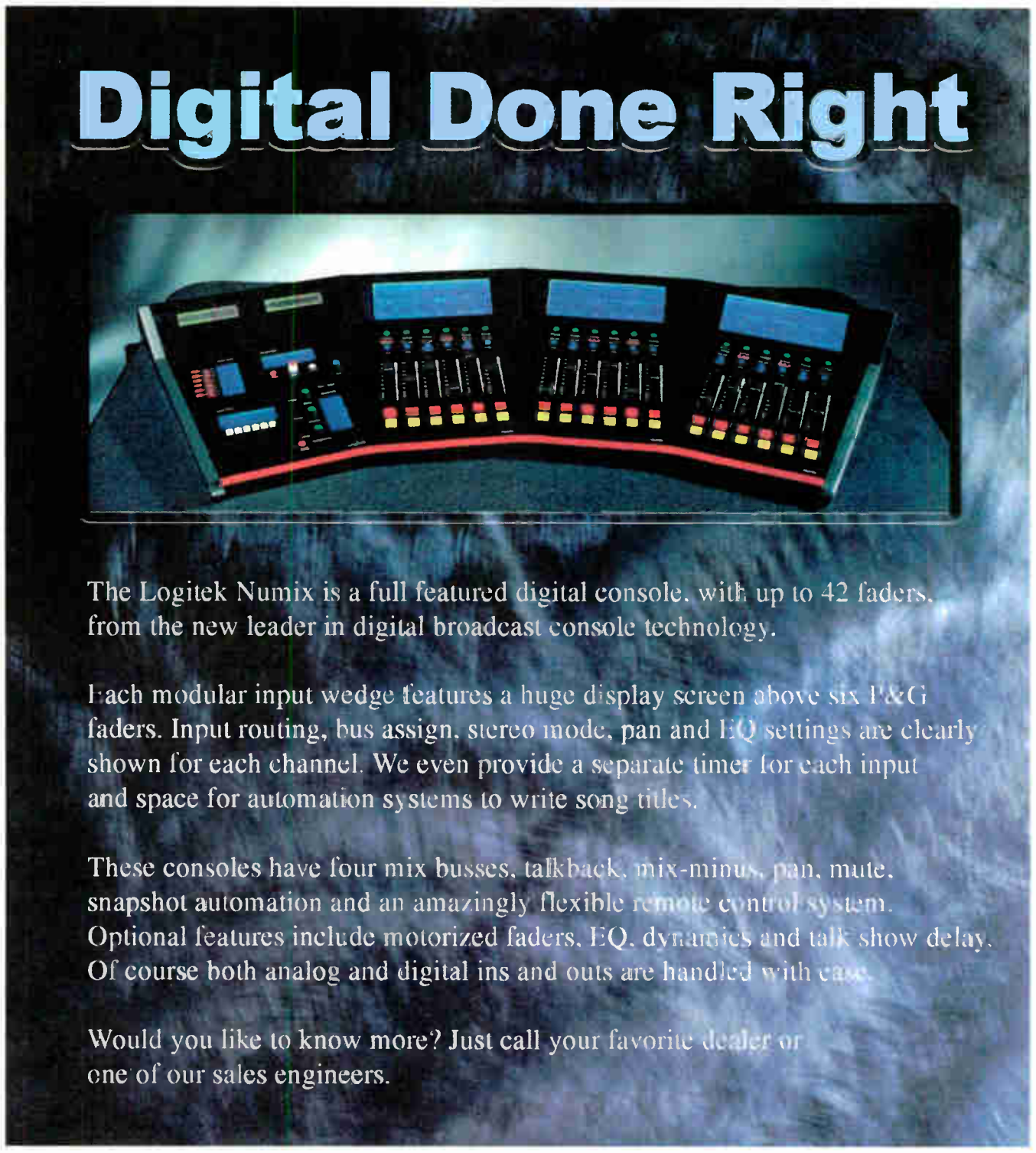
Any source connected to the Vadis DC console can appear on any fader, and at the push of one button, source configurations can be recalled.

Klotz Digital uses its 3d: technology in the Vadis DC, which integrates an audio console, an audio router, logic follow capability and distribution of digital audio sync for live on-air applications. With 3d: technology, multiple control rooms with Vadis DC consoles can share sources, logic, control and DSP options (i.e. EQ, limiters, gates, compressors, delays).

The DC has more than 20 module types. Other features include various meter styles such as RTW bar graph or familiar mechanical ballistic VU meters.

For more information contact Klotz Digital America at (678) 966-9900, fax (678) 966-9903, visit the Web site at www.klotzdigital.com *or circle* ***Reader Service 137.***





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World Radio History

TECH UPDATES

Audioarts

The RD-12 from **Audioarts** features modular design and has the power of floating point 32-bit DSP processing to handle complex tasks. It accepts both analog and digital input signals, processes them in the digital domain and provides outputs in both digital and analog formats.

The RD-12 also features new technology for talk segments, including a digital, error-free mix-minus signal for a selected bus to feed as many as four callers at the same time. There are three stereo busses with both digital and analog outputs.

Output sample rates are user-selectable between 32, 44.1 and 48 kHz and can be set to output any one of those standards as a sync output that can become the house sync. The company says this feature solves the problem stations often face with multiple digital sources and cascading A/D and D/A conversions between various bit rates.

The RD-12's digital inputs accept both AES/EBU and S/PIDF formats, allowing the use of both professional and consumer sources. An external digital line pre-selector can accept a mix of eight analog or digital inputs and has both analog and digital outputs.

Other features include the two-caller Superphone module; full feature control room and studio modules, three VU meters, a clock, timer, optional intercom, preselect and tape remote panels.

Modules can be hot-swapped. The mixer can be converted by the user from analog to digital with a daughtercard exchange on each module.

Available in various configurations, with expansion up to 14 input modules, the RD-12 is suitable for stations with analog operations today, but plans for digital later.

For more information, contact Wheatstone Corp. at (252) 638-7000; fax (252) 637-1285; visit www.wheatstone.com, *or circle* ***Reader Service 113.***

Auditronics

The **Auditronics** NuStar is now a product line from Wheatstone. The mixer is targeted for stations seeking a different configuration than the Wheatstone D-600 or new Audioarts RD-12 digital consoles.

The NuStar looks and feels like an analog console. It is modular and features both analog and digital inputs and outputs in standard 24- or 30-position mainframes.

Unlike the others, the NuStar digital audio signal processing is accomplished in a rack unit that can be located up to 500 feet from the console interface. This allows stations with a separate rack of digital devices located outside the studio or control room to incorporate the benefits of a digital console into their stations.

The NuStar features 16-bit CD-quality processing and is 24-bit ready. Components include highly accurate SIFAM meters, LED illuminated switches from EAO, long-endurance switches from Microswitch and P&G faders. The console mainframe has a modular design with 22 universal positions, plus a removable meter bridge with four VU meters — two Program and two source-selectable.

The rack-mounted DSP mainframe is modular with 22 universal positions and includes separate input, output and DSP modules; separate PS-3000 power supply, internal user-selectable sample rates of 32, 44.1 and 48 kHz, 16-bit A/D conversion on its analog inputs and 18-bit D/A conversion on the analog outputs.

There are four stereo busses. The analog outputs are balanced floating standard with four stereo busses that are output simultaneously as AES/EBU (with optional sample rate conversion) and balanced analog. The console has a stereo control room monitor as well.

The standard mainframe modules include CPU, control room monitoring and headphone/cue control. Optional modules include line input — with or without Pan/Balance and mode select; telephone interface; Comm/Studio monitoring; meter select and remote control. Accessories include a mic preamp rack-mountable unit with four independent mic preamps.

For more information, contact Wheatstone Corp. at (252) 638-7000, fax (252) 637-1285, visit www.wheatstone.com, *or circle* ***Reader Service 144.***

Coming in the August 18th issue: Our Big NAB Radio Show Preview.

World Radio History

TECH UPDATES

PR&E

Pacific Research & Engineering Corp.'s new AirWave Digital on-air and production console is a companion to the AirWave analog console.

The digital board is available in two mainframe sizes (a choice of 12- or 20-input modules). AirWave Digital comes with a host of standard features including three stereo program buses, onboard sample rate and A/D-D/A converters, a dedicated split-track telco record feed, and control room and studio monitoring.

AirWave Digital also offers optional digital or analog remote line selectors for extra input capacity, up to two telephone I/O modules with mix-minus generation, B-side input logic and additional microphone preamp modules with built-in phantom power.

In addition, AirWave Digital input modules can be reconfigured by the user from analog to digital — or from digital to analog — simply by swapping the "input configurator" card on the module.

AirWave Digital uses all-metal construction. The welded steel mainframe encloses the electronics as well, providing shielding from radio frequency interference.

AirWave Digital comes as a mainframe, with the number of input modules determined by the customer. Its design allows it to be mounted either upon or inset into the countertop, and a number of accessory positions allow users to add custom panels.

Other features include three stereo program buses, an analog monaural output, a preamplifier module containing five microphone preamplifiers with phantom power and monitor facilities for control room, studio, co-host and guest headphone systems.

For more information contact Pacific Research & Engineering at (760) 438-3911, fax (760) 438-9277, visit the Web site at www.pre.com *or circle* ***Reader Service 90.***

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Lana'i High and Elementary School became the first, and only, radio station on the fifth-largest Hawaiian Island.

John Devecka and Jim Quay of LPB Communications worked with teacher Karen Gracia and Principal Pierce Myers to build a radio station package that can be used to help students develop communications skills and learn new levels of responsibility. The school of 700 students is the only one on the island of Lana'i.

The equipment installed at Lana'i High and Elementary School included a Signature III 8-channel console, a production studio, a DJ package and digital recording via 360 Systems Instant Replay and Short/cut units.

The transmission system is an LPB 30-watt carrier current package. Coverage is campus-wide and reaches a short distance into the surrounding community.

LPB technicians pre-wired the package and provided installation of all components, as well as interconnection of the audio lines from the air studio to the transmitter location.

For information, contact LPB Communications Inc. at (610) 644-1123, fax (610) 644-8651, visit www.lpbinc.com, *or circle* ***Reader Service 65.***

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World Radio History

USER REPORT

Options With Studio Furniture

Studio Technology Creates Creature Comforts For Paul Turner Productions

by Paul Turner
Owner
Paul Turner Productions

MALVERN, Pa. Four years ago, when we built our first studio, I spent several weeks searching for the best company to design and build our studio furniture.

To me, this was as important as any other equipment we would put into the studio. The furniture was to be the foundation of our operation; it had to be "functional" as well as attractive.

I spoke with several furniture makers from California to Florida but I just wasn't finding, what I considered, high-quality work at a price that didn't hurt. Our studios were being built in Malvern, Pa., a suburb of Philadelphia, and several people spoke of this amazing studio furniture place in my own backyard, less than five minutes away.

It seemed too good to be true!

On the day I first stopped into **Studio Technology**'s shop, the owner, Vince Fiola, was in Las Vegas for the NAB convention, but within a couple of hours he called me back and started discussing a plan for my studio.

I immediately felt a great sense of personal attention and customer service from Vince and his entire staff. And after viewing pictures of their previous work, I knew this was the company for me.

Learning curve

This was my first experience putting together a studio and my anxiety was high and my patience was low.

Inside Paul Turner Productions

The Studio Technology crew made the process of designing and building the furniture a pleasure by working closely with me, Production Director Corey Dissen and Chief Engineer Lane Massey to "brainstorm" about how we each pictured our new studio.

Vince had so many great ideas about things that we would have never thought of, such as wire paths, proper ventilation, computer monitor placement, keyboard trays and CPU/hard-drive storage. He took our somewhat vague ideas of what we wanted, turned them into CAD drawings and, within a few weeks, the shop turned out a true masterpiece of a studio.

Having a radio background, I decided to create studios that had a "u-shaped" radio station production room design rather than the spread-out look of most studios.

You don't have to spend your day wheeling your chair from one side of the room to the other to grab a script, CD or a pen. Instead, everything you need is wrapped around you to the left and right like the cockpit of an airplane.

Each time that Studio Technology has designed and built a studio for us, we have re-used our original design but added certain "convenient" features to suit the overall form and functionality of the new room.

Happiness is a comfy chair

We now have five studios that are not only great places to work but are also beautiful. Not a day goes by that we don't have a client comment on how attractive the rooms are.

The furniture is extremely durable to withstand the daily "abuse" that a studio goes through. So much so, that our first studio looks as great as our newest studio that was just installed a few months ago.

Studio Technology also has provided us with CD storage racks, DAT racks and mic booths. I know Vince and his crew have designed, constructed and installed broadcast furniture in cities as far away as Atlanta, Seattle and even Hawaii.

We at Paul Turner Productions are fortunate to have them as our neighbors.

■■■

Paul Turner owns and operates Paul Turner Productions, a multifaceted audio/video production facility serving clients worldwide.

For more information contact Studio Technology at (610) 640-1229, fax (610) 296-3402, visit www.studiotechnology.com *or circle* ***Reader Service 110.***

TECH UPDATE

PR&E

The new QuikBilt II line of ready-to-assemble (RTA) modular studio furniture from **Pacific Research & Engineering Corp.** has three key features.

First, QuikBilt II is modular, which also makes it reconfigurable. Users can change the position of rack turrets after installation, or add more rack returns to house more equipment, or add a guest wing later if the need arises. Second, QuikBilt II needs just two tools to build: a #2 Phillips and a flat-blade screwdriver.

Finally, QuikBilt II is built of high-pressure laminate worksurfaces, euro-hinged removable access doors, built-in ventilation grids, large cable routing trays and other materials features.

For more information contact PR&E at (760) 438-3911, fax (760) 438-9277 or circle ***Reader Service 163.***

USER REPORT

Mager Lends Expertise to HBC

by Julian Vega
Chief Engineer
Hispanic Broadcasting Corp.
KLNV(FM)\KLQV(FM)

SAN DIEGO In the '90s, radio has evolved into a high-profile, competitive and profitable business. We've seen tremendous technological advances in radio. This hasn't changed the fact that radio stations come and go but facilities stay intact.

What makes a facility? Personally, I believe it's the furniture and cabinetry. This is what "gets noticed" when peeking through that studio window.

For me there is only one cabinetmaker that has advanced along with technology — Mager Kizziah of **Mager Systems**. Mager, a 20-year veteran to the broadcast industry, creates, constructs and installs the finest furniture on the market.

I met Mager about four years ago when Nationwide Communications Inc. in San Diego hired me. Bert Goldman and Robert Reymont hired Bill Eisenhamer and me to build what would be one of America's most talked about facilities. We wanted only the best for this facility; it was to be a showplace and unique in design.

Mager Systems came highly recommended by several sources. From the first time Mager was contacted, he showed extreme professionalism and knowledge in the market of broadcast furniture and provided an extensive portfolio of his work.

I was impressed by Mager's attention to detail. He spent several days' custom installing his product to our rooms. Mager made certain his furniture fit our rooms perfectly. I had never seen such quality and craftsmanship.

During my visit to Phoenix recently, I had the opportunity of viewing Magers' facility. Mager Systems offers a variety of materials and finishes, including solid-surface technology backed by a ten-year warranty.

Solid surface is durable, strong, easily maintained, and visually stunning. (Our San Diego furniture still looks brand new.) The company's skilled craftsmanship included the use of only the best construction techniques, materials, glues, and engineered lumber.

From the most elaborate to the very basic, Mager can accommodate any project and any budget. There is no design limitations to Mager Systems' furniture. In fact, they won the 1999 **RW** Cool Stuff Award at NAB99 for his latest creation (I call it the Bedrock furniture).

Mager Systems has earned my respect and business.

■■■

Vega is designing and constructing HBC's latest acquisition in Phoenix. He can be reached via e-mail at radiojv@pacbell.net

For more information contact Mager Systems at (602) 780-0045, fax (602) 780-9860 or circle ***Reader Service 126.***

World Radio History

USER REPORT

AFS Makes Station's Move Easy

by Dave Stout
General Manager, Owner
KBRL(AM)/KICX-FM

MCCOOK, Neb. As many engineers are finding out, moving a station two miles down the road or even across the street is a real chore. We recently moved KBRL(AM) and KICX-FM from a well-worn building and studio setting to a new state-of-the-art facility.

As part of that move we knew we had to add new studio furniture since the old stuff was built-in. It is also an unwritten rule with me that all the studios must be identical so we can move the announcers from one room to the next with a minimum of distraction or reeducation.

Just right

We checked all over the country to find the right manufacturer to fit our needs and were referred to **Advanced Furniture Systems** by folks who had worked with them and thought they understood how to make quality, durable studio furniture at a small-market price.

We selected their AFS-E series (economy) modular furniture because it provided a means of purchasing only the features we currently need while allowing the option to expand later without buying all new furniture.

Their help during the designing process made it a piece of cake for us. Using our blueprints, AFS configured studio furniture for the AM, FM and production rooms that fit exactly. The short "L" configuration in a standup version was just what we needed in our limited studio space.

The cabinets themselves have removable doors on all sides, roomy interiors and great wire access. After adding an interview table extension on the front side and an equipment rack in the side panel of the return cabinet below, we had just exactly what we were looking for without paying for custom furniture.

The furniture looks great, it was delivered on time, it fit our budget and the quality exceeded our expectations.

After a few months of seeing how it feels, we may add another equipment rack below, a tabletop equipment rack and a copy stand to reduce the clutter and cleanup the look of the table surface. With other options that include adding more cabinet sections, shelving, keyboard drawers and matching media storage to name a few, the supplier can configure studio furniture for most any situation.

We were surprised to find we could purchase all three studios for the price some competitors charge for one. The furniture looks great, it was delivered on time, it fit our budget and the quality exceeded our expectations. So, why does their competition charge so much more?

For more information contact Advanced Furniture Systems at (970) 663-4123, fax (970) 663-6338, visit the Web site at www.omn.com/AFS *or circle* ***Reader Service 165.***

Nigel B Furniture

Nigel B Furniture offers a range of modular furniture and equipment enclosures for applications such as broadcasting and project studios. A recent product is a movable desk or stand called the Music Enclosure.

The Music Enclosure features a 10-unit rack space, removable cover, cable management system, security lock, and four accessory ports. It can interface with all Nigel B Furniture.

Accessories include a laptop platform, speaker platforms, additional accessory platform, clip light and Lowboy Module. The Lowboy Module is an enclosure for the stand and features a lockable rear door and additional storage space.

Other new products from Nigel B include the Geometrics 800-D workstation and the Electro Desk. The former is a modular workstation that requires no tools to construct. The Electro Desk is a compact movable desk meant as a personal workstation. The Electro Desk meets the Americans with Disabilities Act requirements for wheelchair docking.

For additional information contact Nigel B Furniture at (818) 769-9824, fax (818) 769-9965, or visit www.nigelb.com, *or circle* ***Reader Service 68.***

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World Radio History

TECH UPDATES

AnthroBench

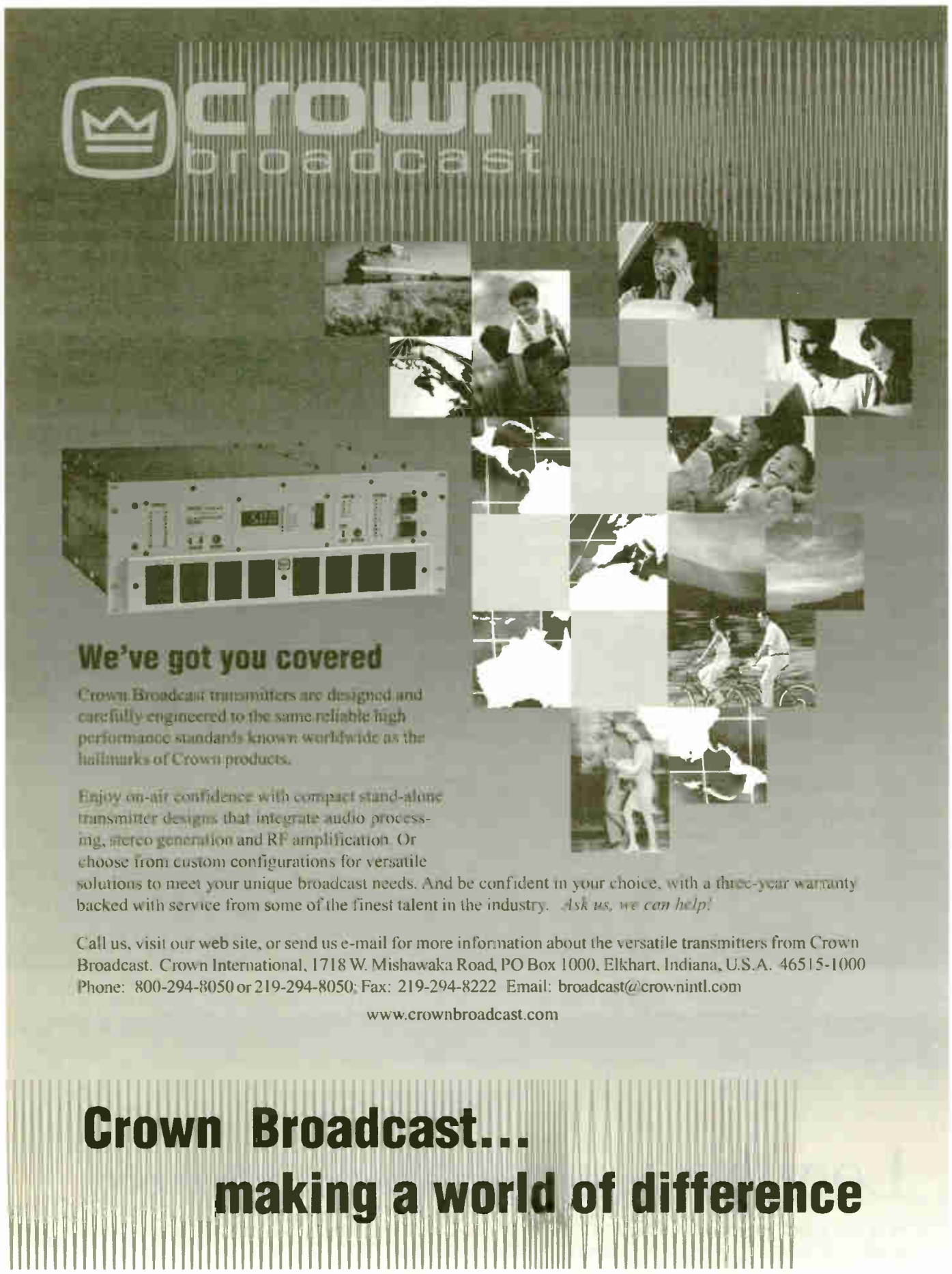
Furniture manufacturer **Anthro Corp.** recently introduced a heavy-duty workstation to its product line.

AnthroBench is a durable unit that holds 600 pounds and is suitable for audio mixing, CAD and network applications. The unit is available in 48, 60 or 72 inch widths and is offered in heights of either 29 or 35 inches.

One large shelf is standard on the workstation, and additional shelves and leg extensions are available. Other accessories include a side rack for a CPU, outboard shelf and monitor arms. An optional clamp-on surge protector also is available.

Design features for the workstation include bullnose front edge, steel bracing and cable management. The unit is available in black or silver.

For more information contact Anthro Corp. in Oregon at (503) 691-2556, fax (503) 691-2409 or circle ***Reader Service 205.***



Forecast

Forecast released its newest line of studio furniture called Visual Radio.

The Visual Radio line includes both custom and standard modular components. Custom applications process through a design and engineering study that considers the look and feel of a specific environment.

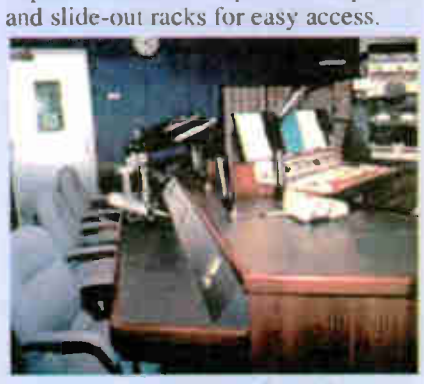
Modular components are pre-engineered, configurable units for various applications such as media storage, EIA equipment racks and monitor bridges.

For more information, contact Forecast Consoles at (800) 735-2070, fax (516) 253-0277, visit www.forecast-consoles.com, *or circle* ***Reader Service 186.***

Audio Broadcast Group

Headquartered in Grand Rapids, Mich., Audio Broadcast Group offers studio furniture and prewired systems.

ABG furniture is built to last, to customer specifications and manufactured with fine grade components. Features include separate routing of electrical and interconnect wiring, modular design with frameless construction, 16th-grade laminate for all exposed surfaces, ample access panels and slide-out racks for easy access.



ABG offers designs for radio, production rooms and TV. For instance, production furniture can be designed to accommodate a computer-based audio or video workstation. The top and equipment rack can be easily raised to stand-up operating position, making the work area not only easy to customize, but wheelchair-friendly as well.

The company encourages clients to contact users for a reference.

For information, contact the company in Michigan at (800) 999-9281, e-mail to support@abg.com, *visit the Web site at* www.abg.com *or circle* ***Reader Service 128.***

World Radio History

Radio World

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AUDIO PRODUCTION

WANT TO SELL

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Sony PCM501-ES 16 bit, 44.1 PCM digital audio processor, analog to digital unit, permits up to 6 hrs digital recording using std VHS cassette recorder, perfect cond w/manual, $500. B Meuse, 650-969-2433.

White 4001 28 band parametric EQ, $180. M Schackow, 605-374-3424.

ADC Propatch 1/4" punchblock patchbays, new, $600 (many, ADC TT 144 point patchbays recond, $149-229, Switchcraft 1/4" 96 point, new, 2 spaces, $249. W Gunn, 760-320-0728.

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Tascam DA-30 DAT w/low hrs. M Schackow, 605-374-3424.

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IGM EC automation system, (3) IGM Go-carts w/software, manuals, $300. 707-829-5999,Sierra-equipment.com.

WANT TO BUY

Broadcast Tools 8x2 switcher. K Riggs, 541-672-4427.

SMC MSP-12 computer, DAS-12 switcher, keyboard & cables, R Keefer, 505-762-6200.

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Harris Medalist 10 chnl stereo, slide pot board, just removed from srvc, $1500/BO. Bob, 304-684-3400.

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D&R Dayner 48 chnl in-line console, light use, $3000. D Gaydos, 212-997-9279.

Logitek 12 stereo mixer. Mike, 800-588-7411.

MCI 618 24 inputs (12 mono, 3 w/super EQ, 12 stereo) great prod board, $6k, MCI 528 27 in recording board $7k, Neve 8108 65 in, mint $59k, D&R Orion Iknu 26 inline, (64 on mixdown) $12k, Trident 70 28x16, $8500, JL Cooper 16 trk automation, $1200. W Gunn, 760-320-0728.

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Ampex MX-10 rack mixer for parts or better. M Schackow, 605-374-3424.

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Urei LA2A (extra meter added) $2500, dbx 900 rack (4 comps/4 gates) $1800, Gates Toplevel $550, CBS Audimax, Volumax comps, Dynamic Presence EQ $400 ea. W Gunn, 760-320-0728.

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EMPLOYMENT

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PRIDE COMMUNICATIONS with a chain of nine stations in suburban Chicago is seeking a Corporate Director of Engineering with extensive experience in studio, computers, & AM/FM transmitter and antenna maintenance. Position requires experience in designing and building new studios. Competitive pay and benefits. Send resume and references to: Dana Jang. Corporate Director of Operations, Pride Communications. 601 N Walnut. Joliet IL 60432 or FAX: 815-726-0357. EOE.

CHIEF ENGINEER

Candidates for this position will need a minimum of a two-year associate degree in electronic technology, and two years experience in a broadcast facility working on FM transmitters, or five years experience as electronics maintenance engineer in a broadcast or comparable facility working with high power transmitters. Background with high power systems is required. Same background in the repair and maintenance of personal computers including hardware and software installation and trouble shooting is required. Previous experience with computer networks is desirable. SBE certification or FCC 1st Class license desirable. EOE/M/F

Contact:
Terry Lieberman, Program Director
WKRK-FM
16550 West Nine Mile Road
Southfield, MI 48075
Phone: 248-423-3398
Fax: 248-423-7725
Email. tlieberman@971.com

CHIEF ENGINEER at jazz-formatted WBGO-FM. Responsible for maintaining studios, transmitter, and computer network, as well as performing equipment repairs. The ideal applicant possesses knowledge of computer networks, Harris transmitters, satellite downlinks, and broadcast equipment. 24-hour availability is a must. Competitive salary. Please mail resume and salary requirements to Steven Brown, Production/Operations Manager, WBGO, 54 Park Place, Newark NJ 07102. No phone calls please. Position open until filled. EOE/AA.

CHIEF ENGINEER/WFAN: CBS RADIO'S 50KW non-DA WFAN in New York City seeks a hands-on CE. Experience must include high power RF, EAS, Y2K, computers, studios, digital workstations, newsroom systems, building systems, network originations, FCC rules & regulations. Responsible for all technical operations & maintenance. Self-starter with good people skills in a union environment. Fax resumes: GM, 718-361-1059. EOE

Radio Station Engineer

CBS RADIO in Pittsburgh has a great opportunity for an assistant or chief with experience. 2-5 years experience in studio maintenance, digital & analog electronics, RF & computer skills necessary. Full benefits, competitive salary, re-location package offered. Send resumes & references to: Chief Engineer, CBS Radio, 651 Holiday Dr, Pittsburgh PA 15220. EOE.

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Listener & sponsor preferred, live, local programming making comeback, experienced, veteran talent avail for salary exceeding poverty level. Alex, 513-777-8423.

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This position is perfect for someone who loves the radio industry, enjoys playing with audio hardware, and has experience in journalism or technical writing. Benefits include a non-smoking environment, 401(k), light travel to major conventions. Position is based in Falls Church, Va., minutes from the National Mall in Washington, D.C. This fast-growing global company offers many growth opportunities at our 18 publications, including TV Technology and Pro Audio Review.

Send resume and salary requirements to P. McLane, Radio World, P.O. Box 1214, Falls Church, VA 22041, or via e-mail to pmclane@imaspub.com

Radio World

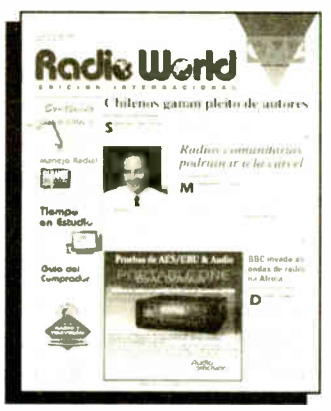
Radio World

is proud to be your source for industry information!

We don't have to tell you that the shape of the broadcast and production industry changes daily, and if you don't have the latest news, you can't do your job. That's what we're here for. All our publications are written by professionals like you, for professionals like you, and they're all filled with the industry information you need to do your job right.

The Newspaper for Radio Managers & Engineers

Firmly established as the top publication around the world for radio station owners, GMs and engineers, *Radio World* has been around since 1977. With coverage of new technology, regulatory news, buyers guides and columns focusing on every aspect of radio, everyone in radio needs *Radio World*.



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World Radio History

ACTION-GRAM

EQUIPMENT LISTINGS

Radio World's Broadcast Equipment Exchange provides a FREE listing service for radio stations and recording studios *only*. All other end users will be charged. This FREE service does not apply to Employment Help Wanted ads or Stations For Sale ads. These are published on a paid basis only. Send your listings to us by filling out the form below. Please be aware that it takes one month for listings to appear. The listings run for two consecutive issues and must be resubmitted in order to run agian. Thank you.

Please print and include all information:

Contact Name _____

Title _____

Company/Station _____

Address _____

City/State _____

Zip Code _____ — _____

Telephone _____

Brokers, dealers, manufacturers and other organizations who are not legitimate end users can participate in the Broadcast Equipment Exchange on a **paid** basis. Line ad listings & display advertising are available on a per word or per inch basis.

Are you currently a subscriber to Radio World?
❑ Yes ❑ No

Signature _____ Date _____

Please check only one entry for each category:

I. Type of Firm

- ☐ D. Combination AM/FM station
- ☐ A. Commercial AM station
- ☐ M. Ind. Engineer
- ☐ B. Commercial FM station
- ☐ C. Educational FM station
- ☐ E. Network/group owner
- ☐ L. Consultant
- ☐ F. Recording Studio
- ☐ K. Syndicators/Station Providers
- ☐ G. Audio for Video/TV Station
- ☐ H. Consultant/ind engineer
- ☐ I.Mfg. distributor or dealer
- ☐ J.Other _____
- ☐ N.Delivery Service (Internet/Cable/Satellite)

II. Job Function

- ☐ A. Ownership
- ☐ B. General management
- ☐ C. Engineering
- ☐ J. Promotion
- ☐ H. Programming/production
- ☐ G. Sales
- ☐ E. News operations
- ☐ F. Other (specify)
- ☐ K. Production Mgt or Staff

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WTS ❑ WTB ❑ Category: _____
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*Closing for listings is every other Friday for the next month's issue. All listings are run for 2 issues unless pressed for space or otherwise notified by listee.

Broadcast Equipment Exchange

PO BOX 1214, Falls Church, VA 22041 • Tel: 800-336-3045 • Fax: 703-998-2966

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World Radio History

◆ READERS FORUM ◆

Ashley's EAS editorial

Dear **RW**,

Tim Mauch's response (**RW**, June 9) to Bill Ashley's well-worded editorial (**RW**, April 28) makes some assumptions that indicate that he is completely unaware of the situation described by Ashley.

A quick visit to the Virginia EAS Web site (*www.jmu.edu/wmra/eas/*) would confirm that the stations and regions cited, all within the area of a normal commute for a Northern Virginia commuter, span four operational areas.

Most stations are unwilling to invest in equipment and airtime to participate in additional operational areas, and indeed some EAS units will not allow unlimited expansion of monitoring capabilities.

While we do encourage stations to serve their entire listening area, we cannot expect them to span operational areas (even state lines), or provide EAS service to those outside their contour.

The LP stations cited by Ashley, WINC-FM and WTOP(AM), are providing *exceptional* service to the Virginia EAS, and are certainly *not* stations without "vision."

William Fawcett
Member
Virginia SECC
Harrisonburg, Va.

Helpful hints

Dear **RW**,

I enjoyed reading "Helpful Hints for the Radio Studio" in the June 9 issue.

If Bruce Bartlett had added one additional step in the remix of the MIDI files it would've made the project a little easier.

That step would be to synchronize the MIDI program to the workstation via SMPTE or MTC. Then the need for "sliding the tracks" in the workstation would be eliminated on all the MIDI tracks. The only tracks that would have to be aligned in the "sliding" fashion would've been the vocal tracks.

Eddy Seals
Home-Project Studio Owner
Air Talent/Producer, WWEV-FM
Atlanta

Get ready for change

Dear **RW**,

I believe that within the next three to five years, radio in the United States is going to *have* to make some *big* changes. Recently, General Motors signed an agreement to allow satellite-delivered radio to subscribers in their cars. Then the Ford Motor Co. signed a deal with a competing company to provide a service similar to that of GM.

Ford is hoping to have the receivers as standard equipment in all Ford, Jaguar, Volvo and Ford Trucks by 2001-02. So, for $9.95 per month, you can have CD-quality music without interruption and news. Radio as we see it is going to have to change to keep up with this, hopefully becoming more community-/information-oriented.

You can only take so much "jukebox" radio before you have to get information, and hopefully such things as "schlock-radio" will be gone. Sure, there is the argument of First Amendment and free speech, but I believe that sloppy radio is about to change.

Advertisers are going to be much more attuned to where their advertising dollar is going, and less likely to take a risk if CD Radio is going to take a hunk out of their audience, and radio shows that offend even *some* of the public are likely not going to be tolerated by an advertiser who might see the total listenership start to dwindle more.

The ability to receive CD-quality music, even by subscription, is very appealing to me.

We are a mobile society, and music instead of mindless chatter appeals to a large segment of the population, to a point. I never would have thought this possible 10 years ago, but I have to tell you in all honesty, the ability to receive CD-quality music, even by subscription, is very appealing to me.

"OK radio, if you get eaten, it's your own fault!" How are you going to respond? Positively respond?

I don't want to see the normal namby-pamby response that we have gotten in the past proclaiming that "Radio is OK and we don't see this service as a threat." That's the same approach that AM took before being eaten alive by FM. You'd better see it as a threat and start doing some research to see how you are going to be competitive in the future, or die at your own hand.

John Lackness
Arlington, Texas

Low-power support

Dear **RW**,

I am disheartened by the negative press that the LPFM proposals have been getting lately in your publication.

I am a supporter of the LPFM proposal in that I once was involved in pirate radio also, due to the lack of opportunities to enter into the radio profession. I was profoundly impressed with your editorials on the issue and would like to thank you for your support. It's just that lately, it seems that the opposition has been getting more print space.

LPFM is an issue that will have profound future impact on the FM band, and I see it being represented as more of a nuisance than a legitimate proposal. I recognize that in all these instances your paper may not be at fault, because you have to allow certain people who are big in the industry to express their views.

All I ask is that you be fair about the issue. Cheap shots like the open letter to FCC Chair Kennard (**RW**, June 23) are unwarranted, and if they are to be allowed, then the LPFM proponents should have their opportunity to make their case with open letters also.

John Crutti
Engineer in Training
Owner, Crutti Recording Co.
Harvey, La.

When You Click Through

Do streaming media work for advertisers? You bet.

According to a study of Webcast audiences by Arbitron NewMedia/Northstar Interactive, almost 70 percent of online tuners click for content information, and almost 60 percent click through for ad information, while tuned to streaming media programming — i.e., Web radio and video.

"Television and radio stations streaming live programming have created a perfect environment for high-impact media advertising — and a new, growing e-commerce platform for Internet retailers," said an executive at Arbitron NewMedia.

The Net revolution continues to change how radio does business. Big players are paying attention to anything having to do with streaming, digital audio downloads and partnering with traditional media.

Recently, America Online announced an alliance with National Public Radio, under which NPR programming will be integrated into AOL's News Channel, a top destination for online news.

Meanwhile, Microsoft announced Expedia Radio, a syndicated travel program; it is a traditional radio complement to its online Web travel service. Other examples of such synergy abound.

In October of 1996, we wrote here that many broadcasters were ignoring the Internet and the opportunities it presented. We urged managers to consider that the Web was more than just a home page you update every few days, but another medium that competes for your listeners, or complements your business.

Now, business people who understood that message three years ago are profiting. Are you?

One interesting finding in the Webcasting study is that three-quarters of users said they would increase their tuning to streaming media if a portable device were available. When Web listeners can click through while driving in their car or sitting under a beach umbrella, their habits of listening to traditional radio will change.

It's not too late. The crystal radio days on the Net may be passing, but plenty of opportunity remains.

— **RW**

Write to Us

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READERS FORUM

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Radio World
Vol. 23, No. 16 August 4, 1999

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NEXT ISSUE OF RADIO WORLD AUGUST 18, 1999

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Radio World (ISSN 0274-8541) is published bi-weekly by IMAS Publishing (USA), Inc., P.O. Box 1214, Falls Church, VA 22041. Phone (703) 998-7600, Fax (703) 998-2966. Periodicals postage rates are paid at Falls Church VA 22046 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 1214, Falls Church VA 22041. REPRINTS: Reprints of all articles in this issue are available. Call or write Michael Crossett, P.O. Box 1214, Falls Church, VA 22041; (703) 998-7600, Fax (703) 998-2966.

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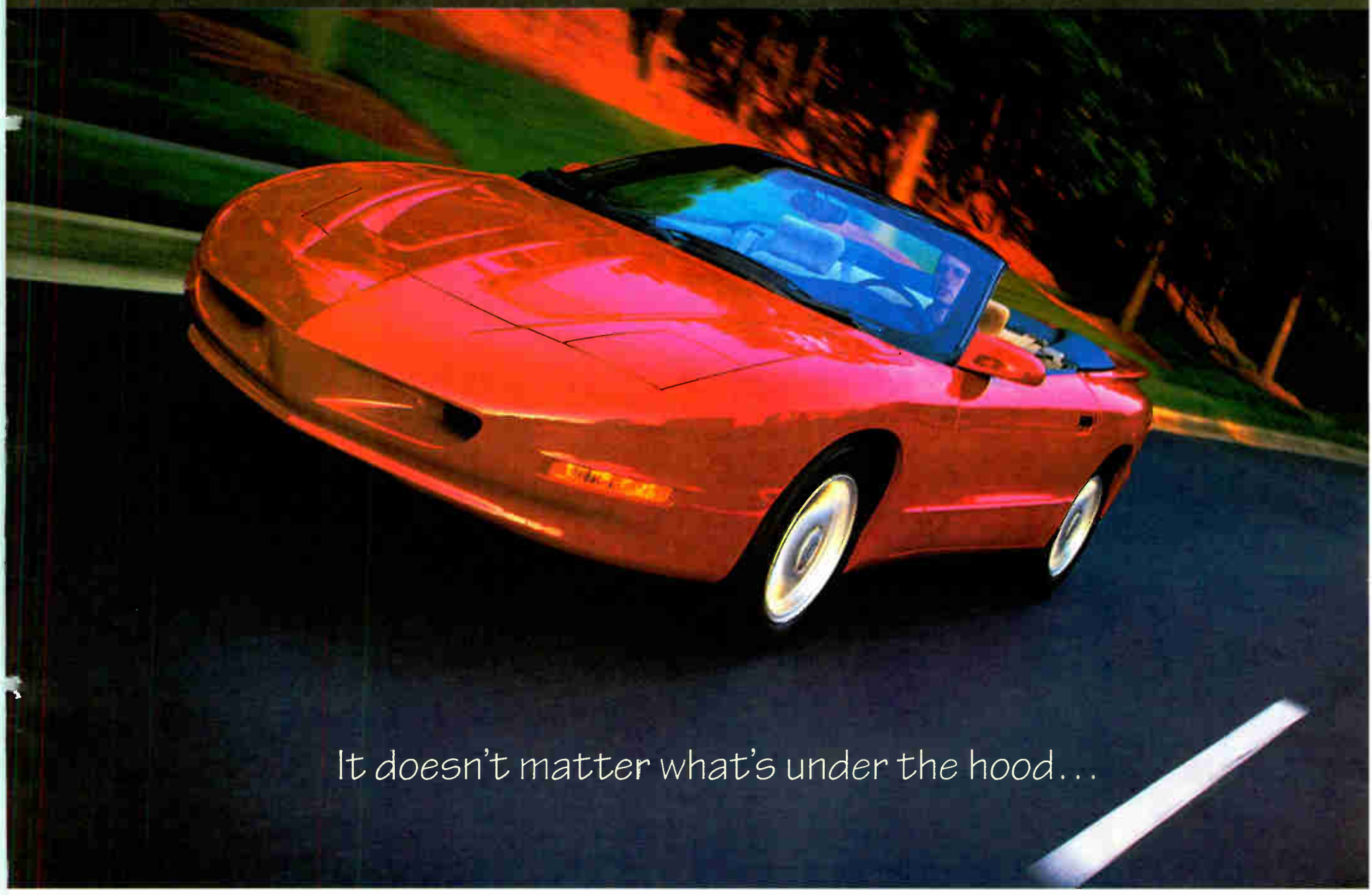
World Radio History

Everyone Wants to Own a Convertible!



So...How About a Convertible Radio Console?

Our New WHEATSTONE A-5000 gives you the **best** of both worlds. Order it from the factory now as a topnotch ANALOG on-air console. Then later, when you're ready, switch it out to DIGITAL! That's right, this new design accepts modules from our top-of-the-line D-500 and D-600 consoles, allowing it to be converted from analog to digital in the field!

Think of it: no new studio furniture, *no rewiring*—all your existing studio connections simply replug. And while we're at it, no re-training your staff either. A painless switchover on your own timetable, right in your own facility! If you need a new radio console *now* but aren't quite ready for the Big Switch, then check out our new A-5000—you'll like what's under the hood!

Wheatstone Corporation

600 Industrial Drive, New Bern, North Carolina 28562 (tel 252-638-7000/fax 252-637-1285/email: sales@wheatstone.com)

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World Radio History

DIGITAL INTEGRATOR

DON'T LET THE TRADITIONAL LOOK FOOL YOU! This new audio console from Wheatstone has the most advanced DIGITAL FEATURES available on the market today! How about **serial control** of all switch, fader and eight-character source display settings—for **TRUE INTEGRATION** with routers and automation systems? Four stereo mix busses with simultaneous digital and analog outputs? Multiple mainframe sizes? Dedicated phone modules with DSP generated mix-minus for easy control of two to four callers?

BUT DON'T STOP HERE: optional DSP equipped modules allow programmable ducking with gain reduction and master/slave selection, digital input attenuation, pan/balance, 4-band sweep EQ (plus sweep high pass), and compressor/limiter with threshold, ratio, attack, release and makeup gain—all on *each* input!

A meterbridge **router controller panel** can run our new Wheatstone rackmount switcher for hundreds of additional inputs. The totally modular hot-swap design accepts both analog *and* digital inputs. Dual metering is simultaneous VU and full scale digital peak. Add a PC based **setup program** for quick configuration of all displays, mutes, tallies, machine starts and mix-minus assigns (once set the PC is removed for console stand-alone operation) and you begin to see the *power* that lies behind this intuitively simple control surface.

SOUND LIKE SOMETHING YOU'RE LOOKING FOR? Give us a call here at **Wheatstone** and ask about the brand new **D-600 DIGITAL AUDIO CONSOLE**—our sales engineers would love to tell you more!

Wheatstone Corporation

600 Industrial Drive, New Bern, North Carolina 28562 (tel 252-638-7000/fax 252-637-1285/email: sales@wheatstone.com)

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World Radio History