

FM Transmitters

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Decades of Leadership

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Radio World

The Newspaper for Radio Managers and Engineers



October 27, 1999

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▼ Ty Ford on mini Neumanns, Al Peterson on gullibility and Ken R. on the amazing career of Rusty Humphries. In this issue.



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Stations Dig Out From Floyd

by Randy J. Stine

GREENVILLE, N.C. Weeks after it struck, employees at radio stations in the path of Hurricane Floyd were still repairing damage done by one of North Carolina's worst natural disasters.

Floyd drilled the coastline of North Carolina in mid-September. Flooding

both serving the Greenville area. "When you literally have lives hanging in the balance from the information you can provide, the responsibility is staggering."

Hinton said the two stations were off the air for nearly 36 hours at the storm's onset because of power outages. Several million North Carolinians were without power for a time.

used cell phones to feed reports from shelters, Red Cross headquarters and the National Guard.

When WCZI lost its STL and power on the day of the storm, the station's engineering staff showed ingenuity.

Chief Engineer Gene Brown went to the transmitter location, about 25 miles from the studios, and straight-wired a VCR to the transmitter to enable the

See FLOYD, page 12 ▶



WOOW's transmitter building was submerged by floodwaters.

was the major cause of damage to homes and businesses.

"Until you have actually been through an emergency situation like that, you can't imagine what it's like," said Henry Hinton, president of New East Communications Inc., which owns WCZI(FM) in Washington and WGPM(FM) in Farmville,

"Everyone was listening to us on battery-operated radios for updates from the Federal Emergency Management Agency," Hinton said. "Once we were back on the air we went the next five days straight, simulcasting nothing but emergency information on both stations."

Hinton said the station's reporters

Court Rules Against CCA

by Randy J. Stine

FAIRBURN, Ga. A bankruptcy court in Atlanta has dismissed CCA Electronics Inc. from its Chapter 11 bankruptcy claim.

The move means CCA's primary secured creditor, Summit National Bank, could begin foreclosure proceedings against the transmitter maker.

According to court documents, Summit National Bank was owed more than \$326,000 when CCA filed for Chapter 11 protection in October 1998 (RW, Jan. 20).

See CCA, page 8 ▶

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◆ NEWSWATCH ◆

FCC: Political Ads Longer

WASHINGTON In an action that affects the 2000 election season, the FCC has decided that federal candidates must be allowed to buy non-standard-length spots or programs (longer than the standard 30 or 60 seconds) on stations. The decision reverses an earlier ruling. The commission said stations must evaluate each candidate's request and sell federal candidates non-standard blocks of time if the request is "reasonable." The FCC noted that the

Supreme Court decision in 1981 on this topic stated "to justify a negative response, broadcasters must cite a realistic danger of substantial program disruption — perhaps caused by insufficient notice to allow adjustments in the schedule — or of an excessive number of equal time requests."

Klotz to Go Public

MUNICH, Germany Digital audio control systems manufacturer Klotz Digital Audio Communications GmbH

has changed its name to Klotz Digital AG, the first step in its plan to go public next year. The AG designation stands for Aktiengesellschaft and refers to pre-IPO status in Germany. Klotz Digital AG plans to be listed on the public stock exchange the "Neuer Markt," which is Germany's high-tech oriented stock exchange, during the first quarter of 2000.

"Due to the vast success that Klotz Digital AG has experienced over the past two years, this is a logical next step for us," said President Thomas Klotz. "The AG designation will further propel our growth in the United States and abroad."

In the spring of 1998, the company opened its American operation in Atlanta.

More Time for AM Comments

WASHINGTON The deadline to file public comments at the FCC has been extended in the proceeding to reduce the requirements for stations that use AM directional antennas (RW, June 9). One of the main proposals in the proceeding

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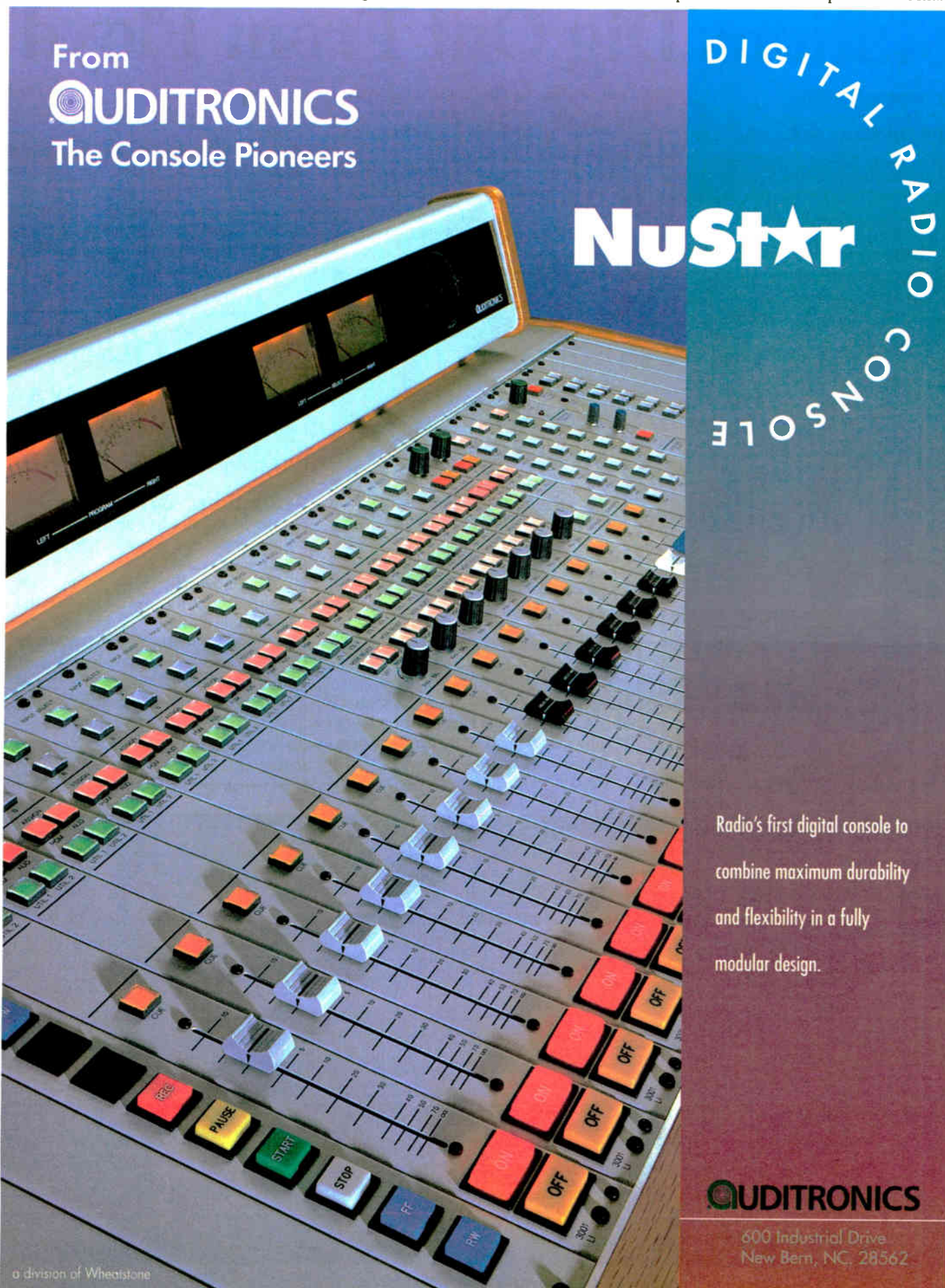
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DIGITAL NEWS

NRSC Struggles With Test Pact

NRSC Tries to Nail Down Data Submission While Talks Ignite Over Next Step

by Leslie Stimson

WASHINGTON The three proponents developing technology for in-band, on-channel digital audio broadcasting were struggling to reach agreement earlier this month on planning further tests geared toward head-to-head system comparisons.

If comparison testing is the next step in the process to select a single IBOC standard in the U.S., and the preliminary decisions are made now, the second phase of testing could occur in the first or second quarter of next year.

In an attempt to clarify the process, the staff of the DAB Subcommittee of the NRSC hoped to get signed agreements from USA Digital Radio, Lucent Digital Radio and Digital Radio Express before the Oct. 7 meeting, stating essentially two things: that each proponent intended to submit test data by Dec. 15, and each would participate in planning a future round of tests.

But in what several participants called a contentious meeting, it became clear that stumbling blocks remain before there can be agreement.

Test data submissions

Adding to the disagreements on these issues that have been debated for months was that LDR issued a press release lauding its agreement with the NRSC before the rest of the committee had declared the issue settled.

What is at issue for the proponents is how to treat the test data gathered in the lab and field trials for the so-called "Phase One," versus the data gathered in common testing later.

USADR does not believe the information gathered in the initial lab and field trials should be discounted. Lucent does.

"We think Phase One data could be helpful in determining what to do with Phase Two ... and could help determine if IBOC is a viable service," said USADR Director of Engineering Glynn Walden.

USADR also believes the NRSC needs to make clear that compliance with the first round of tests and submitting data by the Dec. 15 should be mandated before a company can participate in the next set of tests.



Lucent Digital Radio agreed to submit data by Dec. 15, but said that agreement was "not an unconditional commitment" according to LDR President and Chief Executive Officer Suren Pai. "We will hold to the commitment if other people hold up theirs. We want to make sure that everyone has agreed to Phase Two."

LDR believes the Phase One tests should be considered "preliminary" and not count toward the second round of tests. LDR is not convinced that comparing each system to analog will provide reliable answers to whether IBOC will work. Pai said, "The NRSC has recognized that there have been shortcomings in the currently defined process."

Despite the disagreements, several committee members are cautiously optimistic there will soon be a resolution.

"(Common testing) is the natural next step in the process," said NRSC DAB Subcommittee Chairman Milford Smith.

Part of the reason the NRSC is trying to reach the current agreement with proponents is to make sure each will submit its Phase One lab and field test data for NRSC in December for evaluations.

This spring, the NRSC thought the proponents were in agreement about submitting data in December. But later, Lucent Digital Radio said its participation was conditional on some sort of agreement on common testing (RW, Aug. 4).

DIGITAL NEWS

What DAB Offers Consumers

by Leslie Stimson

NEW YORK Sometimes, amid the promotion of technical developments in digital radio and the debate over how to bring systems to market, broadcasters and researchers forget to ask a fundamental question:

When radio does begin transmitting in digital, what will spur listeners to use the medium and purchase new receivers? Will a better signal alone make a difference?

Consumers and the radio rank-and-file have not lost sight of these larger issues. That was apparent from questions asked during a session during the 107th Audio Engineering Society convention.

The 'same old stuff'?

Attendees asked about the viability of the developing DAB systems, whether in-band, on-channel can compete with satellite, and whether some other, undeveloped technology might

See DIGITAL, page 14 ▶

◆ NEWSWATCH ◆

▶ NEWSWATCH, continued from page 2 would allow AMs to use updated technology to speed time and reduce costs to perform performance verifications of AM directional antenna systems. NAB and other broadcasters sought the comment extension to prepare technical studies. Comments are due Nov. 9 (MMB Docket 93-177).

Print Asks FCC To Drop Ban

WASHINGTON The Newspaper Association of America has asked the FCC to suspend the rule that prohibits ownership of a broadcast station and a daily newspaper in the same locale. In its petition, the association asked the FCC to cease enforcing that regulation or imple-

ment a waiver policy until the rule can be repealed — as the association contends recent relaxation of broadcast rules have put newspaper owners at a disadvantage. Early in August, the FCC relaxed ownership rules on broadcasters owning two TV stations in the same market as well as the cross-ownership rules between television and radio.

Senate Commerce Committee Chairman John McCain (R-Ariz.) has introduced legislation that would eliminate the newspaper/broadcast ownership ban and raises the limit on TV's network audience reach from 35 percent to 50 percent.

"Nobody is less sympathetic than I am to the fact that broadcasters, unlike other users of the public's spectrum, pay nothing for the privilege," McCain said. "But subjecting them to counterproductive rules isn't a substitute for lost spectrum revenues."

WHAT COMES AFTER DIGITAL?

In the beginning, there were stone axes. Then came fire, the wheel, and the steam engine. Then came analog audio and then digital audio. What comes next?

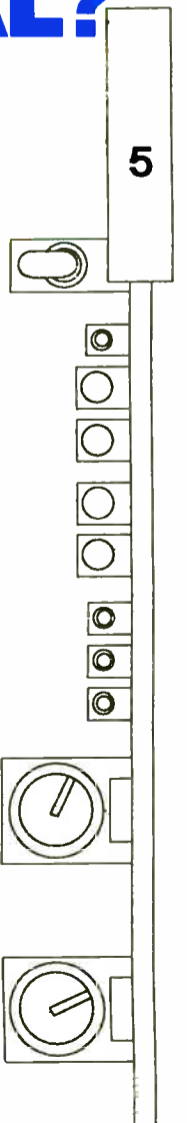
Certainly the stone wheel must have looked to the caveman to be the greatest discovery that ever could be. And to the simple farmer of the 1800's, the steam engine was the most modern contrivance that his mind could imagine. But neither was a terminal technology. Both have been replaced as time marches on.

Digital audio is also not a terminal technology. It is simply where we are now.

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Harris Broadcast HQ Is a Hit

"It looks like this company plans to be around for awhile."

That was the assessment from one broadcaster after touring the new Harris Corp. Broadcast Communications Headquarters in Deerfield Township, Ohio, northeast of Cincinnati.

Company officials cut the ribbon at the 165,000-square-foot facility in late September. Customers got an early look during Harris Expo '99, two days later.

The Expo was an impressive regional show, attracting 70 or so vendors and several hundred attendees.

Dave Burns and the rest of the Harris staff put on a fine show. I also enjoyed seeing 50 engineers from Cumulus Media, who were in the area for their first-ever group engineering conference the next day.

I asked Terry Baun, director of engineering for Cumulus, why he brought the group.

"I felt that the Harris venue provided a great opportunity for our engineers to meet with many of the vendors they work with

traveled to Cincinnati to be present with all the engineers."

But the undoubted star of the Expo was the facility, which includes three broadcast

Harris can learn from its work in digital TV, for example, and apply the lessons to digital radio. Engineers working from a common base can develop standard-



Joe Robertson of the Ohio Dept. of Development, second from left, joins Harris Corp. President/COO Van Cullens, Broadcast Communication Division President Bruce Allan and Harris Chairman/CEO Phil Farmer at ribbon-cutting.

business units that had been spread over four states: radio, television and systems. The facility includes the Harris Advanced Digital Engineering Center.

The administration/engineering center has sophisticated labs for technical development, including demo areas for HDTV and digital radio research. That area includes management, sales and marketing.

The industrial building, connected to the first, has a high-power transmitter test lab, warehouse, shipping and support, and an assembly area for staging broadcast systems projects and news and production trucks. Transmitter manufacturing remains in Quincy, Ill.

I took a tour with Jim Woods, vice president for radio systems, and Geoff Mendenhall, VP of advanced product development and recent winner of the NAB's coveted Radio Engineering Achievement Award.

Several themes became apparent during our visit to the product "war rooms," sales offices and shielded labs (shielded because AM station WLW is nearby).

The benefits of digital technology and research apply across media. This is a fundamental of Mendenhall's strategy. By bringing these units under one roof,

ized architectures, such as IP control, that will be useful in radio as well as TV and other products.

Second, Harris plans to keep growing. There are 200 employees in the headquarters, and I saw a lot of room for



Vendors gather in the new Harris lobby before the Expo.

more. Expect Harris to add to its acquisitions of PR&E, Intraplex, Northeast Broadcast Labs and French DAB/DVB manufacturer ITIS.

Third, Harris plans to be a central, if

From the Editor



Paul J. McLane

quiet, player in the development of digital radio. Woods again called on the proponents to form an alliance to make in-band, on-channel digital radio happen.

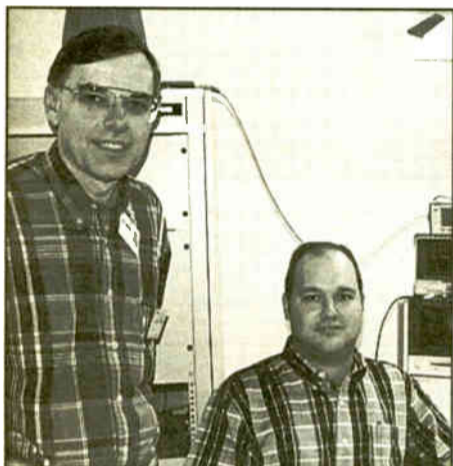
"We have a window of opportunity," he told me. "The competition in radio isn't among the IBOCs, it's with satellite radio. If we let satellite define our service, radio will be playing catch-up."

Last, Harris simply *must* come up with some cool names for the two buildings at their new home. I was surprised to find they did not have names yet.

How about the Marconi and de Forest Buildings? Or the Gates and Ridge

Buildings?

What should Harris name those buildings? Send your suggestions to me at pmclane@imaspub.com and I'll share them with Harris.



Geoff Mendenhall and Paul Mizwicki in the RF Signal Processing Lab

all the time — because of our Harris exclusive purchasing agreement — in a setting that was more relaxed and cost-effective than the fall NAB Radio Show," he said.

"We then held a full day of company meetings on Saturday, topped off with a big dinner hosted by Bill Bungeroth, the president of Cumulus Broadcasting, who

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DIGITAL NEWS

Australia to Test Eureka-147

by Phil Sandberg

SYDNEY, Australia Major commercial and governmental radio broadcasters have joined together to prepare for the planned introduction of digital radio services in 2001.

Dubbed Digital Radio 2000, the group is made up of the government-owned Australian Broadcasting Corp., commercial networks ARN and Austereo, and Sydney-based AM horse-racing station 2KY. Talkback station 2UE is expected to join the group also.

Two transmitters

According to 2KY General Manager and DR2000 Chairman Barrie Unsworth, the group intends to install two L-band transmitters in the Sydney metropolitan area for single-frequency network testing.

"The result we get from two will be the same we get if we use five," said Unsworth.

In the test, all the participants will send signals to 2KY in the western Sydney suburb of Parramatta, where the signals will be encoded and fed to the multiplex for transmission.

"We are very serious about establishing an effective commercial broadcast trial of the Eureka-147 system in Sydney," Unsworth said.

The group will use two Hirschmann transmitters, one at the 2KY studios with the second likely to be positioned in the Sydney central business district. The testing will involve both audio and data services with each consortium member providing one program for the multiplex.

Programming will be sent to the 2KY facilities via ISDN and then fed into the encoders before being combined in the multiplex and sent out via the station's Hirschmann transmitter.

At the same time, a copy of the multiplexed signal will be sent to the second transmitter site via a microwave link. Transmissions will go out in the L-band at 1.4 GHz.

The experiments will last until the end of the year 2000.

"In 2001, we will be seeking, in accordance with the Federation of Australian Radio Broadcasters policy, to enable existing license holders to be allocated access to digital transmission," said Unsworth.

"We would not necessarily seek to establish networks with these current FM music broadcasters. What you will find is that people with similar programming content will be more likely to come together."

Forms of audio

The consortium is also acquiring a variety of receivers from Europe so that it can demonstrate and experiment with different forms of audio.

One aspect of the testing will be mobile reception within the Signal Frequency Network.

Initial reception tests with a single transmitter have yielded surprising results, according to Unsworth. He believes that a terrestrial cellular network of about five transmitters would be enough to cover the Sydney metropolitan area.

According to Unsworth, the group will examine both integrated and PC-based receivers.

"The aim is to educate our programmers on the capability of the technology so we

can work toward developing some compelling content so we can launch a whole lot of new services," said Unsworth.

"We want to carry out demonstrations to major clients, advertising agencies and the general public to make them aware of the technology and what it can offer, as well as get feedback from those groups as to what they would like to see done with the technology. So, it is an exposure process, as well as a learning process."

Also part of the learning process will be

We want to carry out demos to clients, ad agencies and the public to make them aware of the technology and what it can offer.

— Barrie Unsworth

the education of engineering staff about the potential and limitations of DAB.

According to Des DeCean, head of engineering for the Austereo Network, technical staff will need to develop a new approach toward audio, as well as be more aware of the number of data-compression processes used as digital audio signals flow through station equipment.

"It is not impossible for a signal to go through seven stages of compression and decompression in its life cycle from the source to the receiver," said DeCean.

Cleaner environment

"In an FM environment we can only just get away with that, but certainly in a cleaner environment we are going to hear a lot more artifacts in the signal. So we have to be much, much more aware of and cautious about the number data-processing sequences we have," said DeCean.

"In fact, with the algorithms that we use, you can actually get away with more if you mix around the algorithms rather than using, say, (encoding standards) ISO/MPEG or apt-X all the way through."

It is the visual and data aspects of digital radio, however, that consortium members agree will provide the greatest technical and creative challenges to operators.

What broadcasters eventually choose to deliver in this area will depend not only on current and future programming developments, but the limitations, availability and price of receivers.

For specialist horse-racing broadcaster 2KY, the approach to data broadcasting will simply involve translating existing services and information to the DAB format.

"We have already a data application up on our Internet site that relates to pre- and post-race information," said Unsworth. "We also will be experimenting with adding value for our advertisers in terms of their products."

"The visual component side is really a whole new world and we have to have a look at just what we need to do there," said DeCean. "Through some of our work with our Internet services we have some experience already, but we have to look at developing that to the next level where we can provide some interesting,

innovative and, hopefully, exciting visual components to accompany the traditional audio streams.

DeCean said that Austereo aims to use datacasting to be both informative and entertaining.

"Apart from that, we will be doing all the standard set of services, such as artist details and song title. We will have still pictures associated with stories during news services," said DeCean.

"We will be looking to do some work

ing to make some arrangements with one of the TV networks to address that."

According to Colin Knowles, head of technology strategy and development for the ABC, all radio broadcasters, be they public or commercial, will have to face the same issues when making the digital transition — the biggest of which is public acceptance.

"All of us are trying to decide what it is we are going to deliver to our stakeholders and our audience through digital radio," said Knowles. "Setting aside whatever standards you use, you have the same sorts of issues. We all need to know whether just quality is going to be enough to make people buy new receivers."

Knowles said that, because of the initially high costs of DAB receivers, consumers are more likely to embrace the new technology if it is significantly different and more exciting than analog radio.

"Data is a big question mark. It depends on when digital radio takes off as a product, it depends on what is happening on the alternative delivery platforms at the time, and it depends on finding a true business application, one consumers find attractive that can work within the limitations of the data delivery of the vehicle," he said.

■ ■ ■

Phil Sandberg is editor of the Australia/New Zealand Extra edition of TV Technology, a sister publication of Radio World. Contact him via e-mail at philandberg@bigpond.com

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IN APPRECIATION

Vince Wasilewski Remembered

by Shaun Sheehan

WASHINGTON Deregulation, a battle with tobacco advertisers, longer license terms and postcard renewals were some of the issues facing broadcasters when Vincent Wasilewski ran the NAB.

Wasilewski, NAB president from 1965 to 1982, died Sept. 9 from heart failure. He was 76.

was imagined and satellites even launched. There was no cable to speak of and radio was supporting the new infant — television.

Explosive years

His presidency began with the immediate post-World War II economic boom and was completed during the Reagan revolution. The most explosive

to describe his own technique "to succeed in Washington, be like an old shoe." Comfortable, not flashy. That was Vince Wasilewski's style.

He wasn't the Motion Picture Studios' famed lobbyist Jack Valenti in a tailored suit and Hollywood pizzazz. That is Jack's style and it suits his constituency. Vince and Jack were great friends. Vince was middle America and so were most broadcasters of that era. He reflected his constituency.

Vince Wasilewski was a coal miner's son. A plain-spoken Midwesterner, a World War II veteran, the father of six, a meat and potatoes kind of guy. You had to like him and everyone did. Under that plain vanilla exterior, however, was a formidable leader — the right guy for the job.



Vince Wasilewski in 1981

Vince was raised in Athens, Ill., pronounced, by the way, not like the ancient capitol of Greece, but rather as in neighbor or weigh. He was a star athlete at the high-school level as were

See WASILEWSKI, page 10 ▶

Those of us who knew Vince Wasilewski will never forget his passion for broadcasting.

Radio World asked me to describe Vince's life and career, especially as it affected broadcasting. I ran NAB's Public Affairs Department under Vince and we were great friends. Vince directly preceded Eddie Fritts, NAB's very capable leader.

"Those of us who knew Vince Wasilewski will never forget his passion for broadcasting, his love of NAB, and his commitment to public service," said Fritts. "His unparalleled service to free, over-the-air radio and television will never be forgotten."

Prior to the NAB presidency, Vince was a career executive with the association, first as a staff attorney, then general counsel and eventually head of government relations — NAB's core function.

He joined NAB in 1949 and retired in 1982. Thirty-three years in the hot seat. Thirty-three years of dynamic growth and change. Think about it. He started before FM was popular. DARS

years were during the Vietnam era and Vince was at the helm with broadcast reporting being criticized from both the left and right. The entire nation was angry and broadcasting was deemed a culprit.

The situation was so contentious that President Lyndon Johnson, a landslide winner in 1964, surprised the nation in late March, 1968 by announcing that he would not seek re-election. The very next call his administration placed was to Vince. The NAB convention was opening in Chicago and the president, a broadcaster himself, had decided to speak to the delegates. Vince was presiding and he asked the legendary Lowell Thomas to ad lib and stall for time until the president arrived. That is what happened and it happened on Vince's watch. Now *that* is clout.

Lyndon Baines Johnson was arguably the best politician ever elected president. He had an expression that he used

DIGITAL NEWS

Integral Systems for CD's Satellite Control

NEW YORK The company building the satellites for CD Radio's satellite-delivered digital audio service, Loral Skynet, has awarded Integral Systems a contract to provide the ground system to control the CD Radio satellites.

The initial launch is expected this January, with service beginning later in 2000. Loral Skynet and CD Radio will operate the three satellites jointly using the Integral Systems' EPOCH 2000 product line for satellite command and control. The EPOCH 2000 product line provides real-time command and control and off-line orbit analysis and trending functions.

Integral Systems also will provide baseband equipment manufactured by IN-SNEC of France.

— Leslie Stimson

db Europe Begins DAB Field Tests

AMSTERDAM, Netherlands

Dutch DAB multiplex owner db Europe is set to begin field experiments in late autumn aimed at speeding the introduction of digital broadcasting.

The test will include both public and private non-national stations and will use Eureka-147 DAB. Partners in the test include Deutsche Telekom, ITIS, Hirschmann, Teracom, Mindport, Ericsson and Bosch. Organizations representing non-national stations will establish the test parameters.

db Europe began developing its digital broadcasting services two years ago and is now working on a Webcasting project.

For information from db Europe, contact Willem Toerink in the Netherlands at telephone +31-6-5468-6259, fax +31-20-6477-448 or e-mail w.toerink@inter.nl.net

CBS' Masiello Moves to XM

WASHINGTON CBS Radio Networks engineering executive Tony Masiello has joined XM Satellite Radio as vice president of broadcast operations. Masiello will oversee the build-out of XM's studios for 100 channels of satellite-delivered digital audio broadcasting.

"During his 12-year tenure at CBS, Tony was responsible for, among other things, bringing the radio networks' broadcast operations into the digital age," said Jack Wormington, XM's senior vice president of technology.

At CBS, Masiello most recently had overall technical responsibility for network, designed and implemented the conversion of its broadcast center from analog to digital, and designed and implemented CBS' new control center.

XM has also opened a Detroit office, like its competitor CD Radio, to facilitate alliances with automotive manufacturers. General Motors has signed an exclusive agreement with XM to equip its new cars and trucks with AM/FM/XM receivers starting in late 2001.

— Leslie Stimson

Spain to Bid on Digital Licenses

MADRID, Spain The Spanish government has approved an agreement to allocate national digital radio licenses via public bids.

The national licenses would be capable of providing selected provincial coverage, up to 30 percent of daily airtime or 25 percent of weekly airtime.

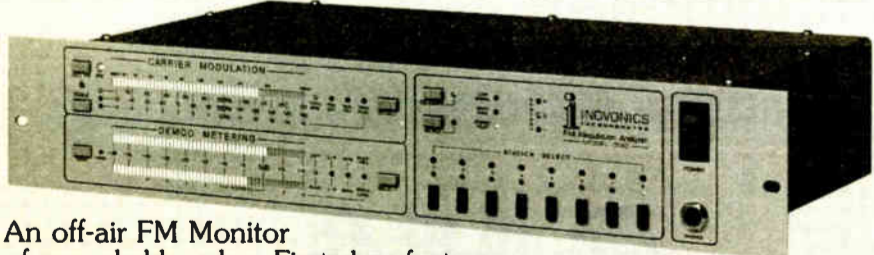
Interested parties must submit bids for frequencies before Oct. 29, and the government plans to make the allocations by Jan. 31, 2000.

The plan will unfold in four phases, the first of which will last 18 months with the goal of achieving a coverage of at least 50 percent of the designated territory.

The other phases will begin by June 30, 2000; June 30, 2001 and June 30, 2006. The frequencies to be allocated are in four blocks: 195 MHz to 216 MHz for provincial and island areas; 216 MHz to 223 MHz for national coverage and autonomous regions; and 1,452 MHz to 1,467.5 MHz and 1,467.5 MHz to 1,492 MHz for local transmission.

— John F. Mason

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New Contacts at the NAB Career Fair

by Paul Kaminski

ORLANDO, Fla. Career fairs are good places to network, either for immediate payoff with a new job or for advancement later in a career.

Visitors to The NAB Radio Show's 5th annual Career Fair had ample opportunity to make new contacts and expand their employment horizons.

The event, sponsored by Media Staffing Network, was designed to connect employers and employees for a day of networking and information gathering.

Dwight Ellis, NAB Human Resource Development Department vice president, said there was a good mix among this year's participants.

"The people we saw have more experience, at least two or more years in the business," Ellis said. "In past years, we've seen more students; the mix this year seems to include persons from Florida radio markets and others

"While the numbers (of fairgoers) might be small, they will get the word out through their contacts," he said. "Radio is a viable industry looking for good people. We hope they'll take that message back with them."

Organizations participating in the career fair, in addition to Media Staffing Networks, included Associated Press Broadcast Services, Harris Corp., National Public Radio, WZZS Heartland Broadcasting, Cox Radio, the Oregon Association of Broadcasters and the AAMI Broadcast School.



NAB's Dwight Ellis (third from left) offers advice to a job seeker.

The people we saw have more experience, at least two or more years in the business.

— Dwight Ellis

around the country. They're interested in management positions as well as talent positions."

He said traditional engineering or DJ skills wouldn't be enough for those who hoped to work in the radio industry in the new millennium, and that job seekers need a new attitude.

Members from NAB's Human Resources Development department were on hand to provide career counseling for the attendees.

One mission for the department is to expand diversity in the radio industry. Ellis said he was encouraged by this year's turnout.

"We've seen a more diverse mix of backgrounds in this year's group of fairgoers," he said. "It's a more multi-cultural group, with increased African-American and Hispanic representation."

Ellis said the effect of the career fair would reach well beyond the Orange County Convention Center.

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DIGITAL NEWS

IBOC DAB — Who's Working With Whom

by Leslie Stimson

The developers of in-band, on-channel digital audio broadcasting technology are working with a variety of manufacturers and investors to develop their systems. In recent months, two of the proponents have made a number of these relationships public.

Here's how the list stacks up so far:

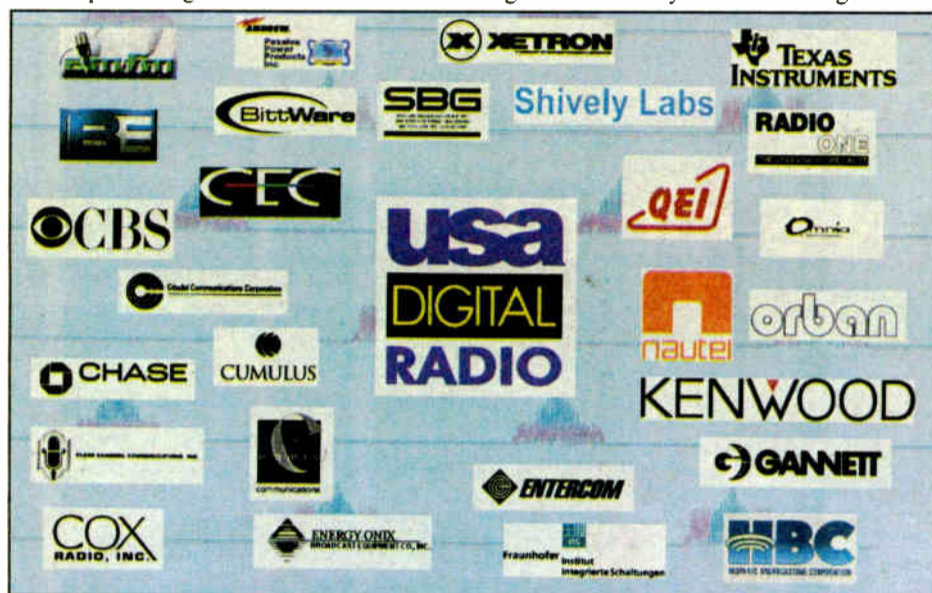
USADR

USA Digital Radio's efforts include development agreements with outside

Among the more recent deals, USADR welcomed Continental Electronics Corp. to its coalition with the announcement at The NAB Radio Show that the companies have an agreement to develop and market transmission equipment.

"CEC already uses the same chip platform and advanced FM modulation techniques in its FM exciter that USADR uses in its IBOC system," said Dan Dickey, CEC vice president, engineering.

USADR and Shively Labs have broadened their previous combiner developer agreement. They will work together to



Promoting Their Partners: USA Digital Radio ...

parties including Andrew Passive Power Products, Fraunhofer Institut, BittWare Research Systems, Broadcast Electronics, Continental Electronics Corp., Energy-Onix, Kenwood Corp., Nautel Limited, Orban, QEI Corp., Shively Labs, Texas Instruments, Telos Systems/Cutting Edge and Xetron Corp.

develop and market advanced filter and RF technologies.

Owners of USA Digital Radio include: ABC; CBS; AMFM, formerly Chancellor Media.; Chase Capital Partners; Citadel Communications; Clear Channel Communications; Cox Radio; Cumulus Media; Emmis Communications;



... and Lucent Digital Radio

Entercom Communications; Gannett; Hispanic Broadcasting; Radio One; and Sinclair Broadcast Group.

Lucent Digital Radio

Lucent Digital Radio's agreements with equipment manufacturers include Armstrong Transmitter, Broadcast Electronics, Electronics Research Inc., Nautel, Orban, QEI, Harman Kardon, Recoton Corp. and Telos Systems.

LDR has used an Armstrong transmitter at test station WJJB-FM, Lincroft, N.J. "Together, we have demonstrated a successful series of over-the-air tests of our IBOC system," said Suren Pai, president and chief executive officer of Lucent Digital Radio.

Sinan Mimaroglu, president of Armstrong Transmitter, said, "Armstrong is firmly committed to IBOC. Our product line is solidly focused on digital transmission."

LDR also announced receiver agreements with Harmon Kardon and Recoton Corp. at The NAB Radio Show.

Pai said digital radio receivers will have larger liquid crystal display panels than today's receivers, and will enable consumers to receive data that is carried over an FM or AM radio station's signal at rates up to 100 kilobits per second, faster than the rates currently available to mobile Internet users.

LDR is a ventured owned by Lucent Technologies and Pequot Capital Management, Inc.

Digital Radio Express

IBOC proponent Digital Radio Express has a development agreement with S.T. Microelectronics to develop an integrated circuit for receivers.

CCA Loses Court Protection

► CCA, continued from page 1

"CCA no longer has the protection of the United States Bankruptcy Code. Summit National will most likely take the necessary steps it needs in state court to repossess or take control of any properties CCA has," said U.S. Department of Justice Attorney Leroy Culton.

As for CCA's 155 unsecured creditors, Culton said it was unlikely any would see the money owed them in this case. Radio World is among the unsecured creditors.

Covering the claims

"It's believed there wouldn't be sufficient funds upon liquidation of CCA to even cover the claims of Summit National Bank," Culton said.

A year ago, CCA officials estimated company assets to be worth \$1.1 million while liabilities totaled nearly \$2.5 million.

Summit National Bank Vice President Ling Chang refused to comment on whether the bank had begun the process of foreclosure.

But according to court papers filed with the bankruptcy court on Sept. 20 by the bank's lawyers, the bank requested that the court "grant relief from the automatic stay so that (Summit) may pursue its rights and remedies of foreclosure and collection pursuant to state law."

Calls to CCA and its legal representatives were not returned.

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World Radio History

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Circle (8) On Reader Service Card
World Radio History

Wasilewski Ran NAB For 17 Years

► WASILEWSKI, continued from page 6 several of Athens' Wasilewski relatives. Very few from his background had the opportunity to attend college. It was the Great Depression.

He started at the University of Illinois but his undergraduate days were interrupted by WWII, the big one. He flew the hump over Burma in a B-29 and earned the Distinguished Flying Cross. He returned to Illinois where he earned his undergraduate and law degrees. He ranked first in his class. His law school dean recommended him to Judge Justin Miller, the then-NAB president. He had a midnight interview at Chicago's Midway airport in 1949 by an NAB executive flying cross-country. There were no direct non-stops in those days. He was hired on the spot. His career was launched.

Early achievements included arguing before a Colorado Supreme Court judge as to why cameras should be allowed in a courtroom. Unbeknownst to the judge, Vince and his esteemed co-counsel Dick Schmidt had secretly had a camera installed and once apprised, the judge had to admit its unobtrusive nature.

Vince headed NAB's government relations when the tobacco industry cut a deal which would have the net effect of discontinuing tobacco advertising on

radio and television. They never told the broadcasters, their core ally. The head of NAB in those days was former Florida governor Leroy Collins, who



Vince Wasilewski (left) With Shaun Sheehan in 1980

many thought saw the NAB job as a stepping stone to higher national office.

Gov. Collins decided to give a speech at an NAB regional meeting in Portland, Ore., siding with the anti-advertising folks. Vince tried to talk him out of it.

Just before the speech, a broadcaster and former bandleader Bert Lown, who had written "Bye Bye Blues," died suddenly at the meeting. Vince tried to cancel the

speech in honor of Bert. The governor went ahead and the rest is history. There were successes — significant successes; here are a few. Radio deregulation. All the deregulatory initiatives achieved by broadcasters over the past 20 years stem from this campaign. Many reading this may not even know about the FCC's ascertainment requirements. Broadcasters had to call on community leaders and elected officials and

United States. Vince responded that if the feds hadn't charged Jane Fonda during Vietnam, he doubted that the government would be coming after him.

The goofy 9 kHz spacing proposal was roundly rejected and has long been buried.

License terms were extended while Vince ran NAB. It used to be three years per term. Under his leadership, it went up to seven years for radio and five years for TV. The momentum for further relief began then.

Postcard renewals were achieved during Vince's tenure. Cross-ownership of AM and FM combos and UHF-TV occurred during Vince's presidency.

Although it is a TV matter, cable had a heck of a time with all kinds of hurdles tossed its way in those days.

Dan Rather had his famous exchange with President Richard Nixon, each trading barbs at an NAB convention in Houston with Vince presiding.

Once, Vince was with CBS' Walter Cronkite, who was preparing for an interview with President Ronald Reagan. Vince asked him to ask the president if he remembered his Uncle John. President Reagan said "of course, the most famous of the basketball-playing Wasilewskis. He was the model for the Illinois State High School trophy, famous for his one-hand shot." Uncle John Wasilewski is still on the Illinois trophy.

Rep. Torbet McDonald (D-Mass.), the late President John Kennedy's roommate at

Vince Wasilewski was a coal miner's son, Washington power broker and family man.

create a documented file to prove to the FCC that they were serving their communities of license. That was "Big Brother" to the nth degree.

You also had to document that you were within the FCC's proscribed commercial time limitations. You had to prove that you aired a ratio of non-entertainment programming — news, public affairs and so to your other programming. You even had to ship your logs to the FCC where they mildewed unread in some warehouse. Vince gave a speech in New Orleans stating that all of this, in this day and age, was ridiculous.

Two weeks later, FCC Commissioner Tyrone Brown, speaking in San Diego, responded that he agreed. Broadcast deregulation was launched. It started with radio and spread to TV. The rest is history.

During President Jimmy Carter's administration, the FCC tried to squeeze the separation between AM stations from 10 kHz to 9 kHz. NAB raised holy hell. Vince lobbied against this social engineering concept at an international radio conference in South America. FCC Chairman Charles Ferris opined that perhaps Vince should be charged with violating the Logan Act, which sent all of us to the legal types to find out what that meant. Evidently, it is against the law for a private concern to lobby abroad against the national policy of the

Harvard, chaired the forerunner to the House Telecommunications Subcommittee. He was an ornery cuss. Vince was among the handful of Washington power brokers that he was willing to talk to. Sen. John Pastore (D-R.I.), chairman of the Senate Commerce Committee, was another close friend. Former FCC Chairman Bob Lee and Commissioner Bob Wells were dear friends of Vince.

A family man, Vince left six grown children, all successful in their own right, and many grandchildren. He once said to me regarding his long tenure at NAB and all the friends he made, "You know, Shaun, I could get in a car today and drive from the East Coast to the West Coast and never be a long-distance call away from a broadcaster who I have worked with and is now a friend."

That was Vince Wasilewski. *Editor's note: Wasilewski's first wife, Patricia, died in 1989. He is survived by his wife Marjorie, his children, two brothers, three sisters and 11 grandchildren.*

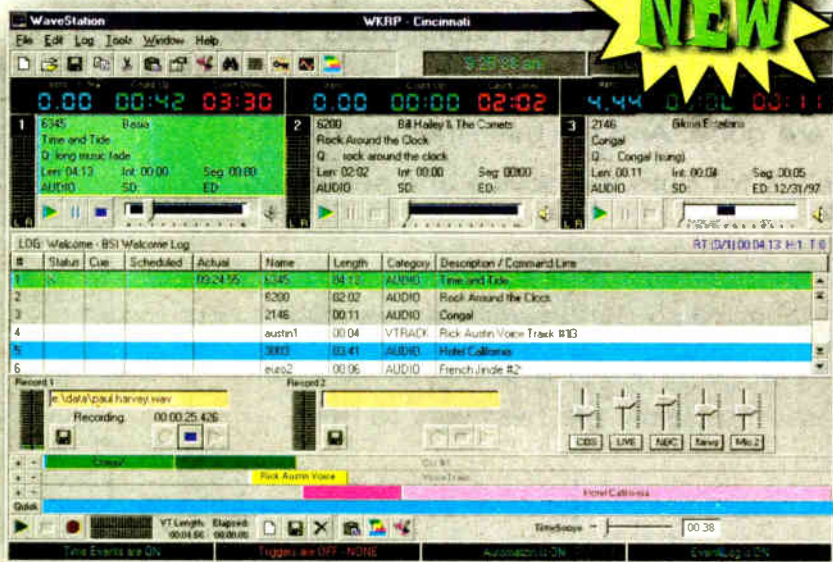
A scholarship in Vince Wasilewski's name is given annually to communications graduate students by the Broadcasters Education Association.

Shaun Sheehan is now vice president, Washington, Tribune Broadcasting Company. He worked at NAB from 1978 to 1986.

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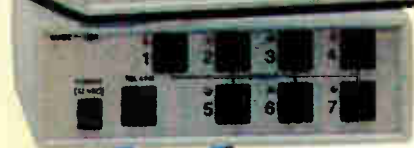
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Floyd Hits Stations

► FLOYD, continued from page 1 station to simulcast WITN-TV.

The radio station had worked out an agreement to simulcast the TV programming ahead of time. The VCR picked up the off-air audio of the TV station.

"I took a pair of rabbit ears and hooked them to the VCR at the transmitter so I could get some good audio out of it, tuned it

format station's transmitter site was underwater for several days.

"We lost everything in the transmitter building," said M'Bulu Rouse, operations manager. The station's Collins 20 V2 transmitter was among the casualties.

Rouse said the site, about a half mile from the studios, is in the flood plain of the Tar River.



Chris Waldrup, Dan Berman and David Perkins float into the RF site at WKTC(FM).

to the channel, then took the line audio feed out of the VCR and connected it right to the Orban 8100 audio processor," Brown said.

The news was not so good for WOOW(AM) in Greenville. The urban

"It was a week before we actually got back into the building to look around."

Eugene Underwood, station engineer, said everything inside the building was black with dirt. Underwood said the sta-

tion also lost a CBS 4000 Volumax limiter and a Burk remote control.

Rouse said the station did not have flood insurance. She hoped to find a used transmitter to resume broadcasting later this fall.

News/talk WPTF(AM) Raleigh began coverage two days before Floyd hit, with weather and evacuation information.

"The emphasis of our coverage was what people should do to stay safe," said Don Curtis, president and owner of Curtis Broadcasting. The broadcast group operates 16 stations in the state.

"The hurricane was not as significant as the flooding that followed. We were still saturated from Hurricane Dennis when Floyd hit," Curtis said.

Curtis said two of his stations suffered damage. The transmitter sites for WFMC(AM) Goldsboro and WKTC(FM) Rocky Mount flooded.

"We lost both transmitters and most of the other equipment there," Curtis said. "It will actually take four to six weeks for everything to adequately dry to determine

"They're calling it the 500-year flood, and after what I've seen, I hope they're right, because I don't want to go through this again," said Paul Matthews, vice president of engineering for Curtis Broadcasting.

When Matthews finally got a look at the flooded buildings, his heart sank.

"It was pretty devastating to look at this expensive equipment ruined. Stuff you've spent hours fine-tuning totally wrecked. Everything covered with dirt and mud. When you open the front of the transmitter and water runs out, man, that's bad," Matthews said.

Matthews said the radio stations have faced additional obstacles from county inspectors. Before any work could be done in the buildings, inspectors needed interior walls torn out to look at the wiring before electrical service could be restored.

Matthews said he had a used Harris FM 20H3 ordered for WKTC and a new Harris AM transmitter for WFMC on its way.

Audio products manufacturer Crown International came to the rescue of WPNC-FM in Plymouth after the



Paul Matthews points to the water line on the Harris FM 20K transmitter. The exciter is visible 12 inches below the water line.

whether anything will be salvageable." The stations had no flood insurance.

Curtis borrowed a 1 kW Harris FM transmitter to put WKTC back on the air within several days. WFMC was still off-air 10 days after the storm hit.

WKTC lost a Harris FM 20K and a McMartin auxiliary transmitter, along with a Burk remote control, Moseley STL receiver and two Harris FM exciters.

WFMC's Harris MW1A transmitter and Gates auxiliary transmitter were destroyed.

station's Crown K2 power amplifier lost its power supply.

"We were having these power surges now and then since Hurricane Dennis hit," said Bill Benjamin, station owner. "Then two days before Floyd we had a surge and we lost the 2 kW power supply for the amp."

With his station knocked off the air, Benjamin called Crown. The company overnighted a power supply to him and talked him through the installation.

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Scheld Blows Through Floyd

Correspondent Tim Scheld covered Hurricane Floyd for ABC Radio News.

His week began in Florida and ended in North Carolina. Here is a look at his itinerary:

Monday, Sept. 13: Leaves home in New Jersey and flies from New York City to Daytona Beach, Fla.

Tuesday: Leaves Daytona Beach and drives 250 miles to Savannah, Ga.

Wednesday: Leaves Savannah and drives 200 miles to Wilmington, N.C., as the hurricane tracks north.

Thursday: Spends day in Wilmington filing reports for ABC Radio News.

Friday: Flies late in the day from Wilmington to New York City.

Saturday: Arrives home in New Jersey. Finds basement of home flooded by heavy rains.

Equipment Check List:

Comrex HotLine POTS codec
Electro-Voice 635A mic
Sennheiser shotgun mic
Audio-Technica AT835B mic
Sony MZ-R3 MiniDisc recorder
Sony TCM 5000 cassette recorder
Sony Pro Headphones
Dell Latitude laptop computer
Extra cables
AA cell batteries



Tim Scheld stands beside a storm-felled tree in Wilmington, N.C.

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Circle (111) On Reader Service Card

World Radio History

Digital Radio: Will Consumers Care?

► DIGITAL, continued from page 3
be more appropriate for radio in the era of multiple consumer choices.

One equipment manufacturer said that, from a marketing perspective, satellite digital radio is "bringing everything to the party. What can IBOC bring the consumer? The same old stuff, but noise-free?"

IBOC supporters argued that their approach will preserve the system of free, local broadcasting, and add capabilities that radio does not offer now.

Lucent Digital Radio Vice President, Business Development, Nick Karter, said that, with IBOC, broadcasters can divide the signal they transmit, to offer programming and data services.



Digital Radio at AES: From Left: Dwight Taylor, DRE; Mark Kalman, CD Radio; Nick Karter, LDR; David Layer, NAB/NRSC; Rick Martinson, USADR; Ralph Justus, CEMA/NRSC; David Bialik, session moderator and DKB Broadcast Associates; and Andrew Butler, PBS and the incoming president of SBE.

Photo by Paul J. McLane

NAB Senior Engineer, DAB, David Layer said localism will differentiate existing radio from the developing satellite-delivered, or SDARS, services. FCC rules governing the satellite licensees, CD Radio and XM Satellite Radio, prohibit them from inserting local material in their services.

Layer also said IBOC would "invigorate the AM band," reversing a long-term general trend toward FM in the past decades.

The participants gave brief updates of their research and, in the case of CD Radio, its program launch plans.

The selling points for paid satellite services are their many channels of CD-quality audio, without commercials.

CD Radio Vice President, National Broadcast Studio, Mark Kalman, said the satellites for CD Radio's service are undergoing "thermal-vac testing" to determine that they will operate properly in the cold temperatures of space. The first of three satellites is planned for launch in January, with service to begin at the end of 2000.

Under the terms of their FCC licenses, the SDARS providers must develop compatible receivers so that consumers can switch services with no inconvenience. Kalman said CD Radio and its competitor, XM Satellite Radio, are working toward that goal, but could not predict when so-called "interoperability" would be achieved.

New headquarters

CD is nearing completion of its 100,000-square-foot facility in Manhattan's Rockefeller Center. Kalman said the service would be attuned to listeners' entertainment preferences on its 100 channels. The company, he said, could easily replace services that are not popular.

While broadcasters try to determine whether listeners would prefer digital AM and FM or SDARS or both, receiver manufacturers are assessing the market.

"From the receiver manufacturers' viewpoint, we're out for any technology that could be marketable," said Ralph Justus, director of engineering of the Consumer Electronics Manufacturers Association.

Justus said it's unclear whether compatibility between IBOC's host analog signal and the digital signal on the channel sidebands has been resolved. He cited problems discovered in testing the previous generations of IBOC technology.

CEMA has proposed a new use of UHF TV channels 60-62 and 65-67 when they are returned to the FCC as TV makes its transition to digital. CEMA's proposed service, called Mobile Multimedia Broadcast Service, envisions multichannel (5.1) audio, with high-capacity data capacity (~64kpbs) and robust mobile reception (RW, Sept. 15).

The service uses a similar modulation scheme to the Eureka-147 DAB system used in other parts of the world. According to CEMA, MMBS offers greater data throughput and higher-quality multichannel sound than Eureka, IBOC and SDARS, for free. CEMA contends that the bandwidth of the service opens to door for digital services, including telematics, car navigation and alignment with Internet formats.

Justus asked attendees to make their interest in MMBS known, as several other services are vying for the same spectrum.



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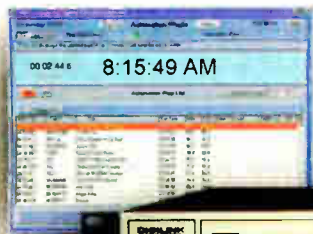
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A Screen Primer for the Tubeless

James G. Withers

I was interviewing a candidate for assistant chief engineer a few years ago and during that process, we toured the station's transmitter site. As I was explaining the layout to my prospective employee, I happened to mention the faulty screen power supply that was apart on the bench, awaiting repairs. In the course of that conversation, he said "So what, exactly, is a screen?"

What is a screen?! At first, I was shocked.

Was it possible that an otherwise very qualified candidate for ACE had never heard of a screen grid? After we finished the interview, I went back and reviewed his résumé. Lots of studio maintenance, even some transmitter time, but — wait a minute — under "Equipment Familiarity" only solid-state gear was listed.

His résumé did not mention his age, but I guessed it was about 35. I got it. He simply had not been around any tube-type gear, and tubes are not the focus of any electronics courses anymore.

Still, with literally hundreds of old but serviceable tube-type transmitters out there, it seems to me that every broadcast engineer who aspires to be a chief should know the fundamentals of tube technology. So, for the under-40, solid-state set, here is a primer.

The Edison Effect

The first tube was a serendipitous fluke that came about during the search for a practical electric light. As we all learned in third grade, Thomas Edison figured out that placing a filament in a vacuum would allow it to burn white hot without self-destructing.

Shortly thereafter, he made another, related discovery. He placed a second, unheated wire inside the evacuated globe, and placed a current sensing meter between that wire and the filament.

When the filament was heated, he saw a small current flow from it to the unheated wire. When he placed a fairly large, positive voltage (from a *big* battery) on this second element, the current flow increased dramatically. From this he correctly deduced that the cathode was throwing off electrons, which are negatively charged, and were being attracted by the positive charge on the second element.

When he checked for current flow in the reverse direction, from positive to negative, there was none. One-way current flow. Interesting to Edison, but he could find no practical application for it, and he was a very practical inventor. So, being humble as well as practical, he called this the "Edison Effect," filed it away, and went off to invent the movie projector and other neat gadgets.

The first diode

What he had actually discovered was the first diode ("di-" coming from Greek for "two"), which later made possible the efficient conversion of AC current into DC current. This process was absolutely necessary to future vacuum tube development, as we shall see next.

Fast forward a few decades. Lee De Forest, another toiling inventor, decided to noodle around with Edison's Effect.

Now, however, he did not need Edison's *big* battery on the positive wire in the tube, which is fortunate,

because the Energizer Bunny wasn't around back then. He has the diode. He takes AC power, runs it through the diode, and presto: DC.

That nuisance solved, he put yet another element into the globe. He placed this third element (which he called a grid) between the first element (the cathode) and the second element (the anode, later simply called the plate, since that is what it was — just a metal plate stuck up into the globe on a wire). Again with the current meter. Again, current only in one direction, cathode to plate.

But, thankfully for us, De Forest did not stop there. Using a small battery, he applied a very small voltage between the

grid and the cathode, and noticed an amazing phenomenon: when he put a negative voltage on the grid (the same polarity as the cathode), the current flow between the cathode and plate decreased dramatically. When he increased that voltage on the grid enough, the current flow stopped completely.

The triode — which De Forest, being another in a long line of humble guys, later christened the De Forest Audion — is invented. There will be other and numerous improvements to vacuum tubes, but this was the brass ring. All the other stuff is window dressing compared to this one breakthrough.

The control grid, as it came to be

known, to differentiate it from the other grids which are crammed into modern vacuum tubes, made possible amplification and oscillation, upon which other major advances were based.

The fact that a very small change in the voltage on the grid causes a very large change in the current between the cathode and plate is simply another way of stating that there is amplification between the grid circuit and plate circuit.

Radio wins

Dozens of improvements in communications were made possible by the invention of the triode, but the big beneficiary was radio.

Radio had been invented by this time, but huge mechanical alternators were used to generate a relatively low frequency RF

See SCREEN, page 18 ▶

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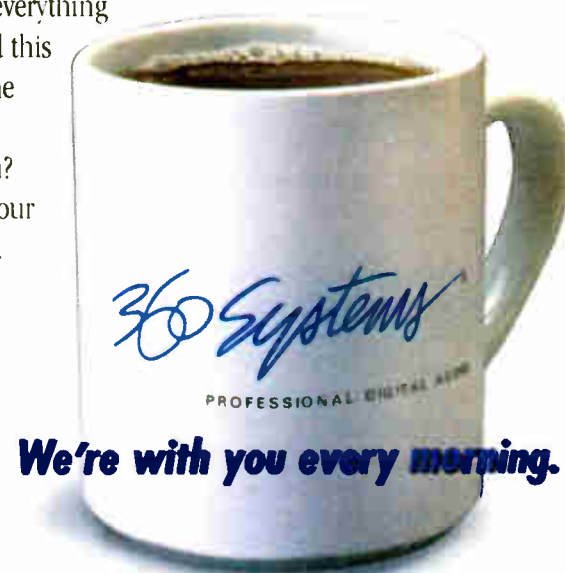
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So What, Exactly, Is a Screen?

► SCREEN, continued from page 17
signal. The practical limit for radio was about 100 kHz, which is much lower than even AM radio is today. Modulation with very poor fidelity was possible, but was iffy at best. The triode changed all of that.

As triodes proliferated, their operating characteristics became apparent quickly.

First, they all had different "operating curves." That is to say, depending on the placement and size of the elements, as well as the circuit to which they were connected, they performed differently.

It was also learned that triodes were non-linear devices, which meant that the output of the tube did not precisely

follow the input. However, some experimentation proved quickly that a tube to the grid of a tube would force the tube to operate in its most linear range.

With hundreds of serviceable tube-type transmitters out there, every broadcast engineer should know the fundamentals.

constant DC voltage, called the bias voltage, of the proper level and applied Therefore, the changes in plate current would track the changes in grid voltage

as accurately as possible.

Triodes also were fairly inefficient. As test instruments became more sophisticated, it was seen that inside the typical triode, electrons were bouncing all over the place. Someone figured out that another grid was needed.

This was called the screen grid. The same screen grid of which my candidate had never heard. The tetrode was born.

The screen grid was hooked up to a fairly high positive voltage. Not as high as the plate voltage (lest the screen inadvertently become the plate, which would not work at all) but fairly high, about 10 to 25 percent of the actual plate voltage, depending on the application.

The screen grid "grabs" electrons coming through the control grid, and gathers them toward the plate. In some tubes, called "Beam Power" tetrodes, the screen also focuses the electron "beam" onto the plate, making the tube even more efficient.

Suppression

A final active element was added to the vacuum tube shortly after the tetrode was invented. This element was the suppressor grid, and it made a five-element, or pentode, tube. There are a few pentode power tubes around, but not many.

The suppressor grid does as the name implies. It suppresses electrons. In the tetrode, the combined positive voltages on the screen and the plate can sometimes accelerate the electron stream to the point that when the electrons hit the plate, they hit so hard that they bounce back off. They may then get attracted to, and absorbed by the screen causing the screen current to go up, or fall back onto the plate, causing non-linear amplification in the tube.

The suppressor grid stops all this nonsense. It is placed between the screen grid and the plate, and is typically tied to ground. With no voltage applied to it, the suppressor doesn't attract very many of the electrons flowing past it, but it does put the brakes on just enough that there is much less tendency for them to impact too forcefully on the plate.

When the occasional particularly energetic electron does bounce back off the plate, the suppressor grid gently collects it and routes it directly to ground.

There are other characteristics of vacuum tubes. Some tubes have inactive elements called "Getters" in them. This is an element that is fired just after the tube is constructed and has a chemical on it that attracts the last few oxygen molecules residing inside the tube, thus improving the vacuum.

There are directly heated and indirectly heated cathodes. There are several different classes of operation, from Class A, used when minimum distortion to the amplified signal is required, to Class C for use when efficiency is the most important factor. Most, if not all, of these characteristics are important only to the designer of the tube, and the circuit in which it will be used.

Of much more importance to the broadcast engineer is information on how these tubes are used in all of those transmitters which are still out there. That will be the subject when we conclude this discussion next time.

Jim Withers is vice president of engineering for Pacific Broadcasting. Send him e-mail to jim@koplal.com

Citadel Selects Scott Studios as "the Best" Digital System



Larry Wilson (at right), CEO of Citadel Communications Corp., shakes hands with Dave Scott as Citadel standardizes on Scott Systems for its 124 stations and future acquisitions.

Citadel Communications Corp., one of America's top 10 radio groups in 1998 revenues, selects Scott Studios Corp. as its sole supplier of on-air digital audio delivery systems for its 124 radio stations and future acquisitions.

"We thoroughly investigated all of the competitive digital air studio systems and decided upon the best one," says Larry Wilson, CEO of Citadel Communications. "Our regional Presidents and Vice Presidents of engineering and programming spent nearly a year analyzing different options. While no system or manufacturer is 100% flawless, it became obvious to us that Scott Studios is the very best. Their long history of excellent service commitment, the quality of their digital studio products and competitive pricing were our primary reasons for selecting Scott Studios."

Dave Scott, CEO of Scott Studios Corp. says, "It's an honor to be Citadel's sole digital audio vendor and take their other brands as trade-ins on our new equipment. Our systems are designed by announcers, for announcers."

"Of Scott's 61 employees, 43 are former jocks and PDs with 700 years collective radio experience. Competitors work more from the engineer's perspective, although we have 20 former chief engineers on staff also. Scott Studios' digital fits DJs like a glove."

After adding five Oklahoma City stations and other pending transactions, Citadel will own or operate 124 radio stations in 23 mid-sized markets such as Providence, Salt Lake City and Albuquerque.

Citadel is well known across the country for attaining topnotch competitive programming success, and the addition of Scott Studios announcer friendly technology will help Citadel announcers deliver superior information, entertainment and service to their 8,000,000+ weekly listeners.

Citadel's stations are not the only ones who choose Scott: More U.S. radio stations use Scott Studios' than any other digital system, with 5,046 Scott digital workstations in 2,202 U.S. stations. Nine of the ten top-billing groups have Scott Systems.

Scott Systems are the easiest to use! They're intuitive, straightforward, simple, yet the most powerful!

Scott Studios is famous for our uncompressed digital systems at a compressed price, (but we work equally well in MPEG and MP3). Scott Studios' audio quality is the very best and plays on laptops or PCs with ordinary sound cards. We pre-dub your startup music library free. Your PD can auto-transfer songs digitally in seconds with a CD-ROM deck in his or her office.

Scott gives you industrial quality 19" rack computers, but nothing is proprietary: functional equivalents are available at computer stores. You also get 24 hour toll-free tech support! Scott also lets you choose your operating system: Linux, Novell, NT, Windows, DOS or any combination. You also choose from three systems: Good, Better, Best. One's right for you!

The Scott System 32 (pictured at the upper right) is radio's most powerful digital system. Your log is on the left side of the LCD touch screen. Instant access Hot Keys or spur-of-the-moment "Cart Walls" are on the right with lightning-quick access to any recording. Phone calls record automatically and can be edited to air quickly. You can also record and edit spots or voice tracks in the air studio or go on the air from production.

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The screenshot shows a digital interface with a grid of song information. Each entry includes a time slot, artist name, song title, and broadcast times. Below the grid are several circular buttons for navigation: On-Air, Start, Stack, Artists, Time, Year, Cat., Auto, Back, Forward, and a large :04 timer. At the bottom, there is an alphabet keyboard (A-Z) for song selection.

The Scott System is radio's most user-friendly. You get instant airplay or audition of any song simply by spelling a few letters of its title or artist. You see when songs played last and when they'll play next. You also get voice tracking while listening to music in context, hot keys, automatic recording of phone calls and graphic waveform editing, all in one computer!

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FIRST PERSON

How One Station Got Through Floyd

Matt Locker

Parts of New Jersey were hit hard by Hurricane Floyd and its flood waters. Matt Locker prepared this first-person account of the impact on operations at WGHT(AM) in Pompton Lakes. Locker is vice president for programming.

As Hurricane Floyd swept up the eastern seaboard, WGHT's North Jersey NewsCenter was getting prepared.

WGHT, known in the community as GHT1500, is a 1 kW station in Pompton Lakes, one of the few stations in the market doing radio the old-fashioned way, with live DJs, a fully staffed local news department and our own in-house engineer. All were needed as Floyd rolled into New Jersey.

On Thursday, we began by adding special reports every half hour, updating the status of Floyd.

At 5:05 p.m., the mayor of Pompton Lakes declared a flood emergency. We decided that the 6 p.m. news would continue until we ran out of fresh info.

I relieved Justin Diminni, our 6 p.m. jock, and sent him to man the phones. News Director Noam Laden and afternoon anchor Deborah Valentine were in the newsroom. I was in master control and the three of us went live at 6, for a newscast that did not end until the floodwaters came up to one of our towers.

As one of us delivered information, the others gathered more and lined up emergency management officials on the phone.

When the electricity to the south end of Pompton Lakes was cut, Chief Engineer

Tom Niven switched us to the auxiliary generator and backup transmitter.

We reported the status of the storm, flood zones, how to evacuate, what to expect when you get to a shelter, why it's a good idea to let your basement flood, the dangers of going into the floodwater,



The Aftermath. Water reached the logo on the sign on the lawn.

dangers of driving, how to shut off your electric and gas — the information emergency managers needed to get out to everyone in our listening area.

About 30 minutes into our broadcast, copywriter Trish Post asked us for our car keys. About an hour later, our parking lot was under three feet of water. The remaining seven of us were stranded in the building, which was now an island.

Our owner/general manager, John Silliman, pulled Trish and Justin off the phones and the three frantically evacuated anything of value from the first-floor sales

office, which was filling with water.

We kept an eye on the rising waters approaching the underbelly of the generator. But the water got to the base of tower No. 3 first, ending our continuous coverage. Note, the tower base is 9 feet off the ground!

Although off the air, we continued working the phones, gathering information to resume broadcasting the moment waters were low enough.

By now our sales office and the steps to the porch were underwater. The stranded seven decided to try to get some sleep.

I fabricated a bed under my desk from a pile of prize-closet T-shirts, and bedded down listening to the sound of a raging river rushing outside my office walls.

Sleep was light and abbreviated. Around 4 a.m., a boat with a neighbor and a National Guardsman docked to our

front door and offered to get us out of there. Five of us stayed.

Sleep was interrupted again when the alarm system shorted and went nuts. A pair of scissors fixed that problem.

When the water had receded from the third tower, we resumed coverage. The angle changed to what-to-do-now in the wake of the storm.

The electric companies had come on the air, asking that each customer report their individual outage.

It was at about the same time that Bell Atlantic's switching center in northern New Jersey had flooded out, making non-local calls impossible. We went on the air stating that if a listener was without power and could not dial out of the local area, they should report the outage to us. Then we reported each outage, as well as downed live wires, fallen poles and other hazards, over the air for the utility companies and trucks to get the information.

To me, this is what radio is all about.

By 7:15 p.m. on Friday, Noam and I were exhausted and finally decided it would be okay to have a boat come and take us home. We signed off until Saturday, when we resumed regular programming with "aftermath" coverage in the scheduled news reports.

In a time when consolidation, automation and syndication has changed the face of broadcasting, I find it important to note that if there were anything other than a 100-percent local and live operation, we would have been unable to provide such emergency information. Our staff was already in place, and our station was already known for local news.

It would have sounded really foolish if our city of license was underwater, and we had a satellite feed playing the hits. Local service is how radio will win against satellite-delivered DAB.

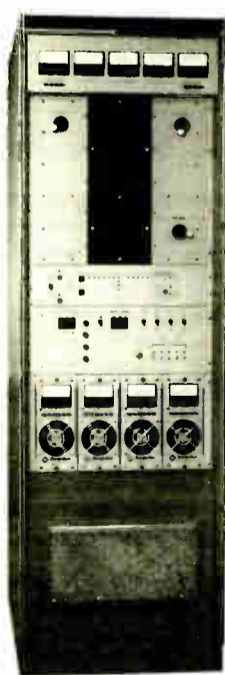
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NEWS MAKERS

CFA Inventors Explain Their Design

Is the Crossed-Field Antenna for real?

As *RW* reported in our March 31 issue, the AM antenna is one-fiftieth of a wavelength long, needs no radial ground system and occupies a small parcel of land. Its inventors say the CFA produces little or no RFI, has superb bandwidth and performs better than a full-sized vertical radiator.

The design is in use in Egypt and will soon be used at other sites in Europe. Here in the United States, engineers are curious, even skeptical. They want to know much more about the CFA and its performance. (For background on some of the issues involved, also see the Guest Commentary by Ronald D. Rackley in our June 23 issue.)

Inventors Dr. Brian G. Stewart of the Department of Engineering at Scotland's Glasgow Caledonian University and his colleague, Fathi Kabbary, presented a paper about the CFA at the spring NAB convention, generating even more interest. Queries about the CFA from the U.S. engineering community continue to arrive at *RW*.

Stewart and Kabbary agreed to answer questions from *RW* Technical Advisor Tom McGinley and to reply via e-mail. Their conversation is printed here.

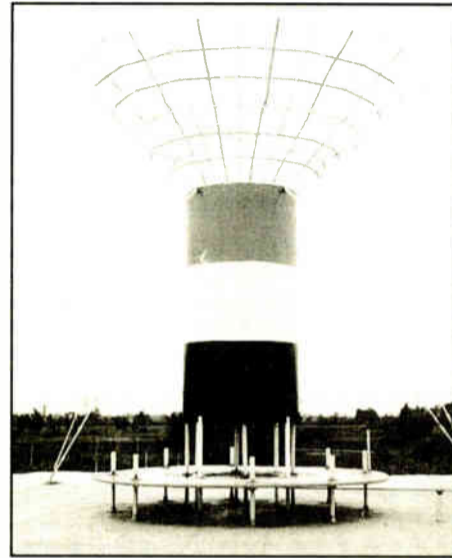
Q: The CFA design work started many years ago. What inspired and prompted the effort to develop it?

A: The origins of CFA work go back to 1985-86 at the now-Robert Gordon University in Aberdeen, when Maurice Hately initiated a project, the aim of which at the outset was to try and synthesise E and H fields from separate or independent sources and engineer their interaction to produce radiated power.

Maurice always believed that a neglected source of H field in antenna theory was displacement current, and thus felt he would like to design an

antenna utilizing displacement current and not charge current as the main source of H field. Fathi Kabbary came to study at the university on this project, and along with Brian Stewart, the three of us formed what has become known as the CFA team.

After a difficult three months at the start when no progress was being made on the project, Kabbary made the big breakthrough by configuring



The Crossed-Field Antenna

the basic geometry of the E and D plates. Within one hour of this arrangement, amateur contacts were being made all around Europe on 7-14 MHz with a balanced CFA of height less than 1.5 m.

Q: Your paper states that the CFA design was derived from manipulating Maxwell's fourth equation. Could you briefly explain how the antenna works so the average radio engineer could understand it better?

A: Simply, the CFA produces E and H fields from separate sources, and these

are then allowed to interact in time-phase to produce radiated power close to the antenna in what is called an "interaction zone."

The E plate is the source of E field due to charge buildup when a source voltage is applied. On its own, the E plate would act as a very short antenna structure.

Now for the H field. Maxwell's fourth equation says that an H field is associated with two source terms. Firstly Ampere's Law, i.e. that current (J) creates an H field, and secondly the Maxwell Law, i.e. displacement current (D') or time varying electric field creates an H field. The CFA utilizes displacement current as the source of H field, and this is produced by the D plates of the CFA, which are, of course, a capacitor with an applied voltage.

This H field is 90 degrees out of phase with the applied voltage, and thus to make E and H in time-phase a phasing unit is required to provide 90 degrees phase shift between the E and D plate voltages.

Evaluation tools

Q: Most antenna designers now use NEC or MiniNEC as a design tool. The CFA apparently does not lend itself to accurate evaluation with this approach. Your comments?

A: NEC is written for antennas which only utilize current (J) on a wire or similar structure as the source of H field. All the H field evaluations are based on geometrical determinations associated with the vector J.

The CFA utilizes the vector displacement current D' as the source of H field. There is very little current on the E and D plates, thus it is not surprising that NEC cannot model the CFA.

We have been challenged many times on this issue. A common challenge is that displacement current is not a source of H field. It is easy to prove experimentally that an H field exists surrounding a capacitor due to displacement current, simply because a time varying electric field is present due to charge oscillation on the plates. When the feed lines are short in respect to the wavelength, the measured H field from the D plates is still significant. Indeed, it can have a stronger intensity around the capacitor than any theoretical H field derived from feed lines alone.

Q: We presume you built scale models of the CFA before building the medium-wave installations in Egypt. What frequencies were used and how did you measure the model's performance?

A: Scale models of the broadcast CFAs have existed for many years. As expected, the reduced size limits the transmission power capabilities primarily because of the reduced interaction volume and the electrical safety limits of the voltages on the E and D plates.

Basically, all the frequencies used were amateur frequencies of 1.8 MHz and above. The performance of the early CFAs was measured using amateur contacts and field strength meters and comparing both received signals and field strength measurements with conventional antennas.

A few CFAs were also independently evaluated by some antenna companies with mixed responses. In the beginning, the field strength measurements of some CFAs were often quite a few dB down in relation to other antennas — though much more than expected from a conventional small antenna of the same height.

As experience grew, so the performance of the CFAs advanced up until present day. With the help and significant input of the Egyptian Radio and Television Union in Cairo, and in particular M. Khattab, Kabbary started building the higher-power broadcast CFAs from around 1990 in Egypt based on experience from the improved amateur CFAs.

This has resulted in groundwave field strengths of all broadcast CFAs always being greater than a $\lambda/4$ and very often a $\lambda/2$ vertical.

Groundwave field strength

Q: Did the CFAs in Egypt replace conventional antennas? If so, was their performance characteristics measured and documented and were effective ground conductivities of the region measured?

A: Yes. Every operational CFA in service in Egypt has replaced a conventional vertical antenna.

The main CFA performance characteristic was groundwave field strength, and this has always been measured in relation to the antenna it was replacing. A CFA was put into broadcast service only when the measured groundwave field strength indicated that the CFA was equivalent or better than the vertical antenna that was currently in service.

So far every intended CFA has outperformed its vertical predecessor. Ground conductivities are well documented in Egypt and this has always been taken into account in comparison evaluations. For example, the ground conductivity in Barnis, where a 100 kW CFA resides, is about 0.72. However, it has not stopped the CFA from radiating more groundwave power than the conventional antenna it replaced.

Q: You claim the CFA can develop radiation efficiency up to 9 dB greater than a "conventional vertical antenna." Is this the standard quarter-wave vertical with the usual buried ground system consisting of 120 radial wires?

A: We think a little confusion has arisen here, probably by our own making.

The efficiency of CFAs appears to be greater than 95 percent, similar to very good vertical antenna systems. The above remarks arose when a CFA was compared to a "fictitious" or non-realistic antenna system in the past.

We're quite happy to say that a CFA appears to be just as efficient as a vertical. The ground systems of the verticals have always been standard ground implementations.

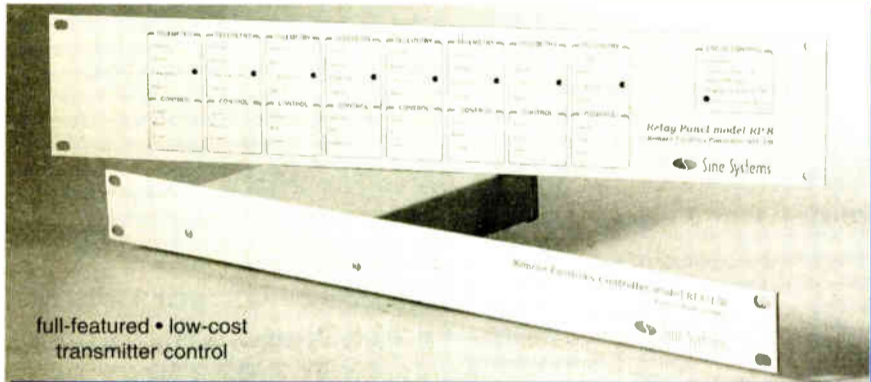
Q: At a presentation during the NAB99 show, Mr. Kabbary stated that the smaller the dimensions of the CFA, the better the bandwidth. That seems contrary to basic antenna physics. How is it possible?

A: The CFA is not based on traditional antenna theory and design criteria. It is a Poynting Vector Synthesis system.

One issue we keep on emphasizing is that at no time does the design contravene current electromagnetic laws.

See CFA, page 21 ►

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Circle (18) On Reader Service Card

► CFA, continued from page 20
An E-field is produced from charge build up, an H field from displacement current in a capacitor. Standard textbook stuff.

The novelty is that these two fields provide synthesised Poynting vectors in time-phase in the near-field. Through this design it has been possible for smaller CFAs to have larger bandwidths, simply because the synthesis allows parameters to be altered which cannot be influenced significantly in conventional antenna systems.

Efficiency

Q: In relation to your efficiency comparisons, how do you define efficiency? Meaningful radiation efficiency comparisons are usually derived from a conventional field strength meter reading unattenuated millivolts per meter in the horizontal plane.

A: We would define efficiency as the value of power determined from an integrated V/m radiation pattern at 1mile divided by an input power of 1kW at the transmitter.

We are in the process of establishing more accurate vertical and horizontal radiation patterns for the CFAs in Egypt. However, rough numerical evaluations from approximate radiation patterns indicate that typically CFAs have an efficiency in excess of 95 percent.

Q: After the CFA antennas were constructed, how did you go about measuring their performance characteristics and what measuring equipment was used? In your presentation, you alluded to the need for "special measuring equipment."

A: An impedance bridge was used to monitor the input impedance. The field strengths were monitored using a standard Potomac Instruments, and measurements taken at 1 mile as well additional radial measurements extending over hundreds of kilometers.

Proper operation of a CFA was evaluated by continuing to monitor the groundwave field strength as the CFA was adjusted. As you can imagine, the vertical radiation patterns are the most awkward to measure, but extensive evaluations should be available in the

near future. There is no "special measuring equipment" — what was meant was probably the above.

Q: In your NAB presentation, you mentioned you would release your CFA measurement data on the Egyptian antennas within two years. Why such a long wait?

A: Hopefully it won't be as long as this!

There were two main issues underlying this response — firstly, we wish to obtain the most complete and accurate measurements for each CFA. We now realize that meticulous care and

'The CFA is not based on traditional antenna theory and design criteria ... (but) at no time does the design contravene current electromagnetic laws.'

attention must be given to this if others would wish to repeat them and confirm them.

Secondly, over the next two years all of Egypt should nearly be complete in replacing every LW and MW antenna by a CFA. Thus the entire country's measurements as an entire reference unit would be available. However, as soon as extensive measurements for one broadcast CFA are in a presentable form, they'll now be published as quickly as possible.

Q: While the CFA is physically small, it appears to be a rather complicated structure to build and tune. What special matching and tuning networks and hardware are used to make it work?

A: It can be complicated in some aspects. As outlined in the NAB paper, one of the critical aspects is the phasing unit, which provides both the matching and phasing to the CFA. These units are specifically designed for each individual CFA application.

The structural design also depends on factors such as power requirement and frequency. At high power it also involves the use of copper as a ground plane and Teflon as an insulating material, simply because of the high power levels of radiation from such a small structure.

Q: Many of us interested in the CFA read about American consultant Ben Dawson visiting Egypt and measuring one of the CFAs. He claimed he was not permitted to see any of the transmitting or phasing equipment and mea-

sured the antenna's efficiency much lower than your claims, based on the operating power being used at the time. Your comments?

A: It was not the best time for Mr. Dawson to visit as he arrived unexpectedly, and the CFA was not in a fully optimised state. There are also many engineers who have been on site who are able to confirm the strong radiation signals. However, during Mr. Dawson's visit the signal strengths were by his account still "impressive."

Q: Several new CFA antennas are reportedly under construction in Britain and other countries. What can you tell us about these?

A: A 26 m tall, 500 kW CFA at 279 kHz is planned for late 1999-early 2000 on the Isle of Man. Plans are well in progress.

Further CFAs are in construction in San Remo, Italy, and in Keil, Germany. A further CFA is being completed and finalized by the Egyptian

Radio and Television Union for Alexandria in Egypt.

There is also the possibility of a CFA in Brazil, hopefully at some point next year.

Q: What contact if any have you had with the FCC regarding the licensability of the CFA for use in this country? How difficult do you think it would be to get a CFA licensed in the United States?

A: Plans are afoot to present accurate and detailed radial, vertical etc. measurements to the FCC as soon as is practically possible. Many engineers are eager for CFAs to get credibility with the FCC. In terms of licensing CFAs, nothing has yet been decided.

Q: If I wanted to construct a CFA antenna, could I hire you as a consultant, or are others available for such engineering services?

A: At present, there is a backlog construction of CFAs planned over the next year or so, and this places a constraint on available time as consultants. For this reason, and various other reasons, it has not yet been possible to start effective marketing and construction of CFAs in the United States.

This situation is currently being addressed, and by next year we would hope CFA "Engineering Services" will be more readily available for the United States.

Q: At the NAB, you invited anyone interested in the CFA to come to Egypt and see it for themselves. How do we contact you and go about setting up such a visit?

A: Contact Kabbary at tham@intouch.com if interested in arranging a visit through the Egyptian Radio and Television Union in Cairo to one of the CFA sites.

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Workbench

Radio World, October 27, 1999

Problem Solvers Are on the Shelf

John Bisset

You're going to love the ideas that Dennis Sloatman, group engineer for AM/FM in Orlando, implemented in his new studio facility.

Shying away from custom boxes, Dennis designed all of his system interfaces around products from Henry, Radio Design Labs and Broadcast Tools.

For example, the microprocessor on his telephone hybrid would occasionally glitch and lock up (see Figure 1). Rather than crawling under the console to unplug the box, Dennis ran the AC through a Henry Superelay, which typically is used to control on-air lights.

In Dennis' application, the control wiring goes to a console switch marked "telephone reset." Should the phones lock up, the jock can quickly reset the microprocessor, and not bother engineering.

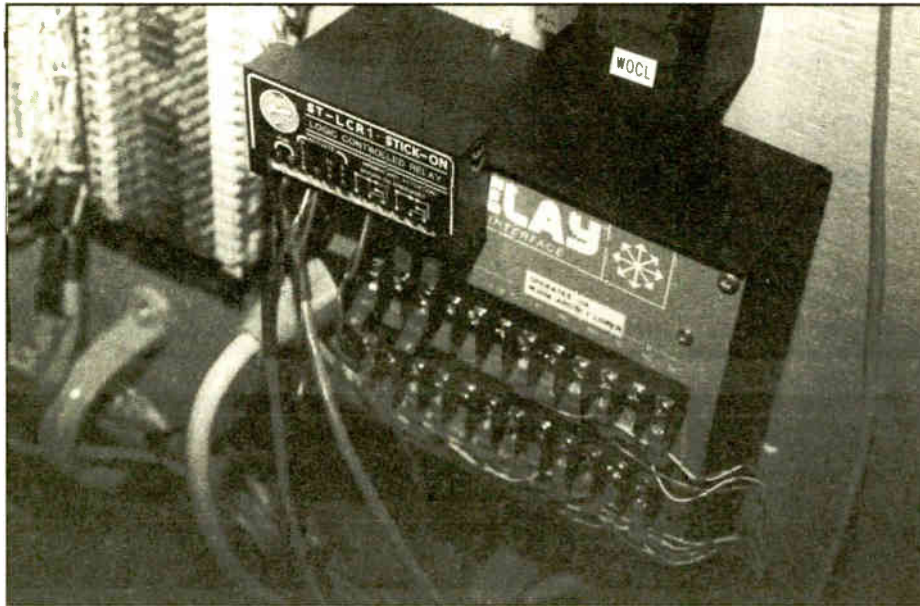


Figure 1: A Henry Superelay is used to reset phone systems.

for maintenance, but the inside of the rack is not heated, avoiding heat-related failures of other equipment.

★ ★ ★

In a multi-station setting, how to group equipment is another concern. Dennis grouped everything by function. All of the STLs are in one rack, all of the telephone hybrid equipment is in one rack, all of the RPU receivers are in one rack.

Dennis and his staff made good use of labeling machines, so there is no question what box does what, whether you are standing in the front or the back. The assigned station is included on the label.

This makes things easy for operators to be talked through problems. There's no searching for the rack containing station "A's" RPU equipment. If you are

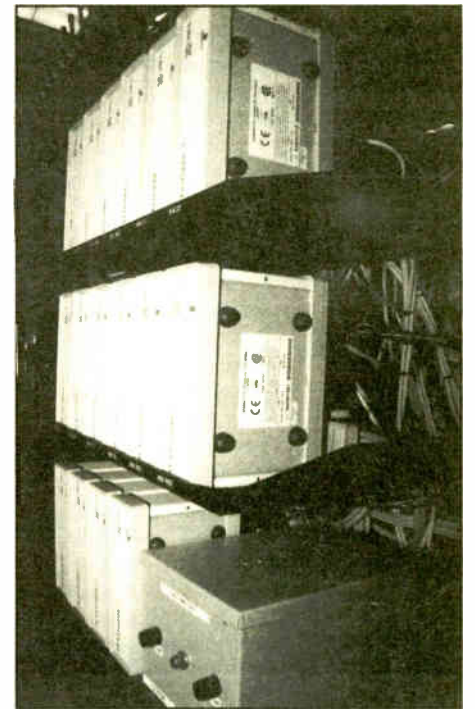
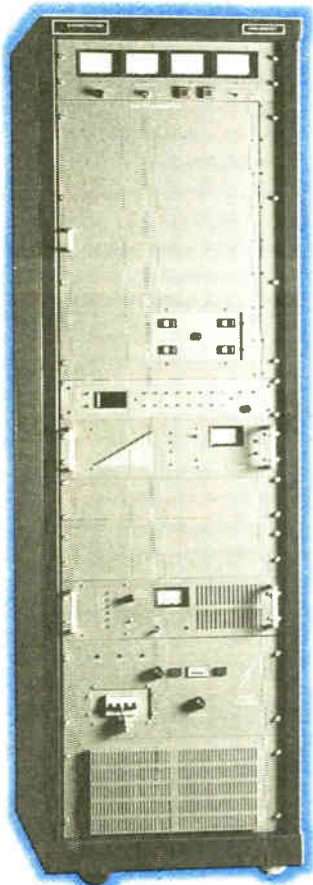


Figure 2: A group of Cybex boxes outside the rack keeps temperatures down.

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An added advantage to using "off-the-shelf" devices is their availability. When you build a custom box, if it goes bad and you aren't around to fix it, you have a major problem. Worse yet, if the documentation is lost — and with the rapid pace of today's consolidation, this can happen easily — time is not spent tracing out the circuit just to figure what it does.

On top of everything else, who has the time to custom-build interface boxes anymore?

Dennis keeps some spare Henry boxes. Should something fail, a replacement is as close as the parts shelf or your equipment vendor.

Dennis showed me another slick idea with his Cybex boxes, used with his Enco automation system. The Cybex boxes generate some heat, so placing them inside a rack is a problem waiting to happen unless you invest in some extensive cooling. Using a Middle Atlantic rack



Figure 3: Dennis Sloatman of AM/FM Orlando groups similar equipment for easier function.

shelf, the Cybex boxes are mounted outside the rack, as seen in Figure 2.

Not only are the boxes easy to get to

having RPU trouble, you just go to the RPU rack and look for the equipment

See WORKBENCH, page 26 ►

More Truth in Advertising



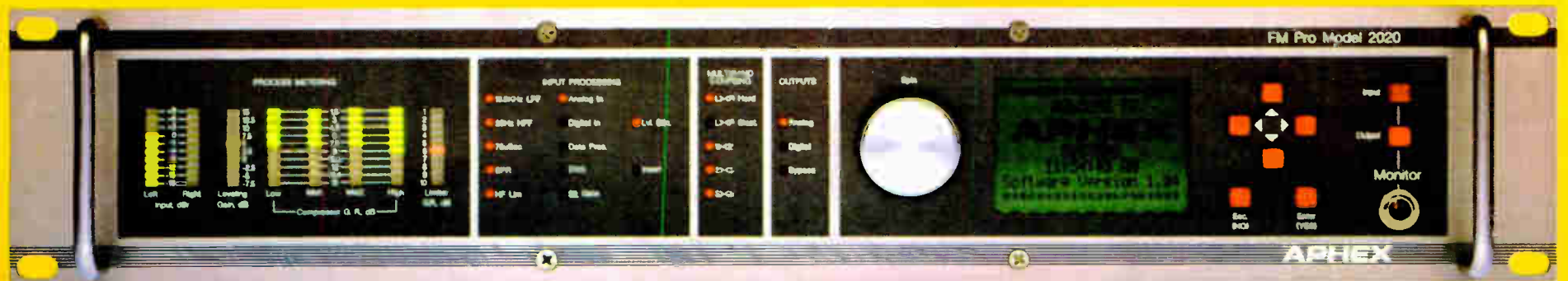
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Circle (21) On Reader Service Card
World Radio History

BeOS: Audio Power, Radio Questions

Tom Vernon

In the Sept. 29 issue, we described BeOS, an operating system that is optimized for today's demanding multimedia applications, yet runs on Intel and Motorola computers where Windows or Mac OS usually rule.

It allows users to open multiple audio, video and multimedia applications simultaneously, while maintaining system stability, media quality and processor performance.

The system was developed by a former Apple executive, who eventually started Be Inc. (Note, this company is not related to manufacturer Broadcast Electronics, another company with the same initials.)

Let's continue with a look at BeOS applications of interest to broadcasters, and speculate about the future of the system in radio.

IK Multimedia's T-Racks is a digital audio mastering system that was originally released for Windows and Mac, and later ported over to Be. It has a nice-looking, retro interface. Stare at it long enough and you'll start to think that you've tripped back to 1956. It's also a reminder that one of the goals of T-Racks is to reproduce that classic tube sound.

There are four basic effects sections in

T-Racks: a six-band equalizer, multiband limiter, tube compressor and output stage. The EQ has four semi-parametric bands

ally switched in or out of the circuit.

The tube compressor has the usual complement of controls: attack time,



Peak is an application by BIAS Inc.

with controllable frequency and gain, and shelving filters on each end where the gain is adjustable. Each band may be individu-

ally switched in or out of the circuit. The tube compressor has the usual complement of controls: attack time, release time, stereo enhancement and input drive. Missing are controls for ratio and threshold. Gain reduction may be monitored on a VU meter. The multiband limiter has just three controls: release time, overload and input gain. Another VU meter is available for gain reduction.

The output section is simplicity in itself, containing a three-segment LED meter, soft/hard saturation, presets, balance and full bypass.

The playback section includes customizable fades, modifiable place markers, VCR-style controls and the usual "open" and "process" buttons. At the bottom of the screen you can order up a -72 dB to 0 dB Full Scale level meter with both temporary and permanent peak hold, a CPU meter and eight system snapshots for saving settings.

Peak and RipChord

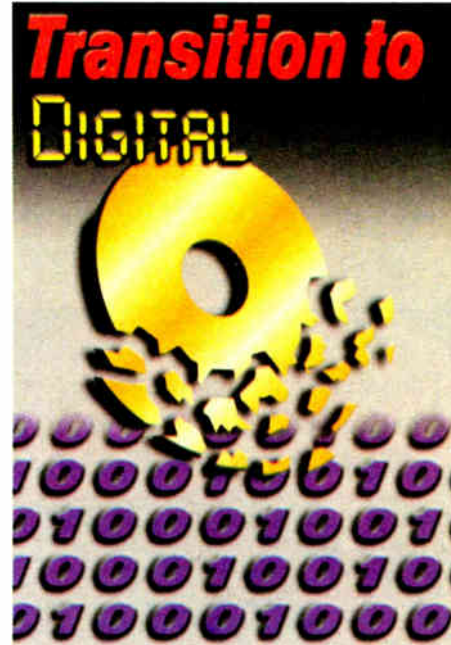
BIAS Inc.'s Peak is a two-track digital audio editor originally developed for the Macintosh, and later ported over to BeOS. While T-Racks has a retro look and sound, BIAS has developed a more contemporary interface for Peak.

The customizable tool bar and floating palette help to provide an ergonomically-correct workspace for users. Peak supports AIFF, SDII, WAV, QuickTime, Pro Tools-style dual-mono files, Real Audio 2.0, 3.0, and 5.0 Internet sound files, multiple compression formats including QDesign, IMA, μ -Law and others. Audio files up to 32-bits are supported in the Peak environment.

In addition to audio editors, CD ripping utilities are an important tool in the production room. They allow users to extract tracks from audio CDs and convert them to directly to digital files without going through the sound card.

RipChord is designed to work with BeOS R4.5, and runs with any ATAPI or SCSI-based CD-ROM. It will rip audio tracks and encode them to Raw, .WAV, and MP3 formats.

Add-on modularity is provided so that you can create your own module for other encoding schemes. This should be a plus for broadcasters who need to load new songs into an automations system.



BeOS on the air?

While some of the powerful digital audio editing tools such as T-Racks and Peak may win allies for BeOS in the production room, total integration of this operating system into a radio station would have to include a BeOS-based on-air automation system.

Most of the leading automation manufacturers are adopting a wait-and-see attitude towards BeOS. For instance, Dave Scott, president of Scott Studios, said his company has no plans to port its software over to Be, and went on to explain the real issue is one of compatibility.

An on-air automation system needs to interface with existing traffic, billing, and music programs, all of which are



DOS- or Windows-based. Making these different applications and operating systems compatible with each other might be difficult. While the need for production rooms and the on-air studio to be compatible is not as pressing at the moment, that too may change.

Staying power, Scott said, is another point for Microsoft. The sheer market share for Windows makes it virtually a certainty that it will be around for another five to seven years. The same cannot necessarily be said for BeOS. This is an issue for station owners, who look at a seven-year depreciation cycle on hardware and software purchases for tax purposes.

On the network

Networking is another thorny issue for Be. While it's possible to connect with other machines, it isn't easy.

The standardized networking protocol for the BeOS is TCP/IP, making connections to the Internet a snap. But it also means that prior to release 4.5, the only way to network computers together was via this same TCP/IP connection using FTP file transfers. A new networking feature, "World O' Networking," was added with R 4.5, but preliminary experience suggests that the implementation and documentation might be less than stellar. Many Be users are calling for something compatible with Client for Microsoft Networks.

For now, networking may not be one of Be's strong points. While all agree that a Be-based on-air automation system

See BEOS, page 26 ►

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Answers and Questions About BeOS

► BEOS, continued from page 24

would need to interface with existing billing, traffic and music programs, not everyone feels that would be an insurmountable problem.

Dane Udenberg of leBuzz noted that translators may be written to accept files from industry-standard programs and convert them into something readable by BeOS. In the case of traffic logs, they must also be converted from Be-readable files back to DOS or Windows so that they may be returned to the traffic program for continuity. For the most part, translators are simply lines of code that simply restructure the contents of an ASCII file.

Other needs

An all-Be radio station would also need to address the need for more generic non-audio applications such as word processing, spreadsheet and database programs. Several office productivity applications are available for Be.

BeatWare was the first company to jump into this niche, and its package, BeBasics, includes a word processing/page layout application, BeatWare Writer and spreadsheet, BeatWare Sum-It. Both programs can import and export to other formats, so you can tap into your collection of existing documents. Or, you can take advantage of the ability of BeOS to read and write to both Windows and MacOS disk volumes

and leave everything in its native format.

Gobe Productive is a productivity suite designed by a team of former Claris Works engineers. It combines word processing, spreadsheet, graphics, illustration, presentation and

multiple undo/redo, and history of document modifications; and multiple views of the same document or frame.

Technical types who have worked with Be feel it has the potential to run a small radio station with one computer, where its stability and speed would enable it to handle automation programming and switching, as well as digital audio production tasks simultaneously.

This may be the niche market in radio where Be will thrive, the small-market or Internet broadcaster who would be willing to forego compatibility with Windows applications in exchange for lower cost and overall simplicity. Should low-power FM come to

pass, this too may be a market for BeOS broadcast software.

Tom Vernon is a multimedia consultant working in Philadelphia.



T-Racks by IK Multimedia

charting environments into a single application with a single file format.

This is in contrast to other productivity suites such as Microsoft Office, which is really a collection of applications which are designed to work together. The advantage of the Gobe philosophy is that presenting different types of information in a single document is much simpler. All environments share common features such as live scaling, rotation, and dragging;

Online Resources

There are several online sources for more information about Be and where it's going in broadcasting. Information about the operating system itself is available at www.be.com. The Bias W3 site is at www.bias-inc.com. Here you can find out more about Peak.

To learn more about T-Racks, visit www.t-racks.com, or IK Multimedia's main site, www.ikmultimedia.com. To view screen shots of RipChord or to get more information, check out www.razors-edge.net/~jwhitney/RipChord/index.html.

Information about office productivity suites can be found at www.beatware.com and www.gobe.com. At www.lebuzz.com, the focus is on all aspects of Be in pro audio, and the site includes related industry news, information about upcoming audio products, and reviews of existing hardware and software.

There's even a weekly Internet radio show devoted to BeOS in audio and video production. Hosted by ex-broadcaster and leBuzz webmaster Dane Scott, the program is available in MP3 and Real Audio formats at www.talkingsites.com/audiobuzz.html.

Generator Startup Tips

► WORKBENCH, continued from page 22 labeled for your station.

This technique makes sharing equipment among stations easier, too. For example, ISDN boxes may be shared among several stations, depending on the remotes that are scheduled. Having them all in one location makes programming and operating the boxes easier, too.

It's always impressive to see facilities where the engineering was thought out. Plants like Dennis' don't come together overnight.

Whether you handle the engineering for one, three or 10 stations, taking the

ator won't run a 5 kW transmitter! After all, 5 kW is 5 kW, right?

A friend of mine told me of the general manager who bought a 5 kW generator because his AM transmitter was licensed for 5 kW. It wouldn't work! Then there's the three-phase issue!

But even when the generator is sized properly, there may be some grunts and groans as you try to turn on your rig. Here are some things to keep in mind, courtesy of Paul Matthews of Curtis Media, Raleigh, N.C., and Harris FM Applications Engineer Dave Agnew.

If you're dealing with an AM rig, start up at the lowest power level. Give the generator some time to stabilize.

Figure some down time every 24 hours to check static fluid levels — you'd never run a car 24 hours straight without refueling and checking oil and coolant levels.

If you're starting up an FM transmitter, rather than turning the screen breaker off, simply lower the screen voltage. To further reduce the power, lower the IPA power adjustment. Don't take the IPA all the way to zero, or you'll generate some impedance mismatches. Halfway down should be adequate for both the screen and IPA power controls — to reduce the inrush surge to the generator, when the transmitter is turned on.

Finally, keep an eye on operating parameters, and don't force something on when it's unhappy!

John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is a district sales manager for Harris Corp. He can be reached 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 to jbisset@harris.com

Whether you handle engineering for one, three or 10 stations, take time to do it right.

time to do it right will always pay off. Don't allow yourself to be cornered into accepting unreasonable schedules. Put up a fight for your department, and document your position.

Your input may not always be considered by your manager, but showing the potential problems — and costs — associated with rushing through a job without adequate planning may help open the manager's eyes.

★★★

If there's one thing that the recent rash of hurricanes and tropical storms have taught folks, it's to be prepared for electrical outages.

A good SBE certification question would be to explain why a 5 kW gener-

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305 Distribution Amplifier (1x4):

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307 Dual Isolation Transformer:

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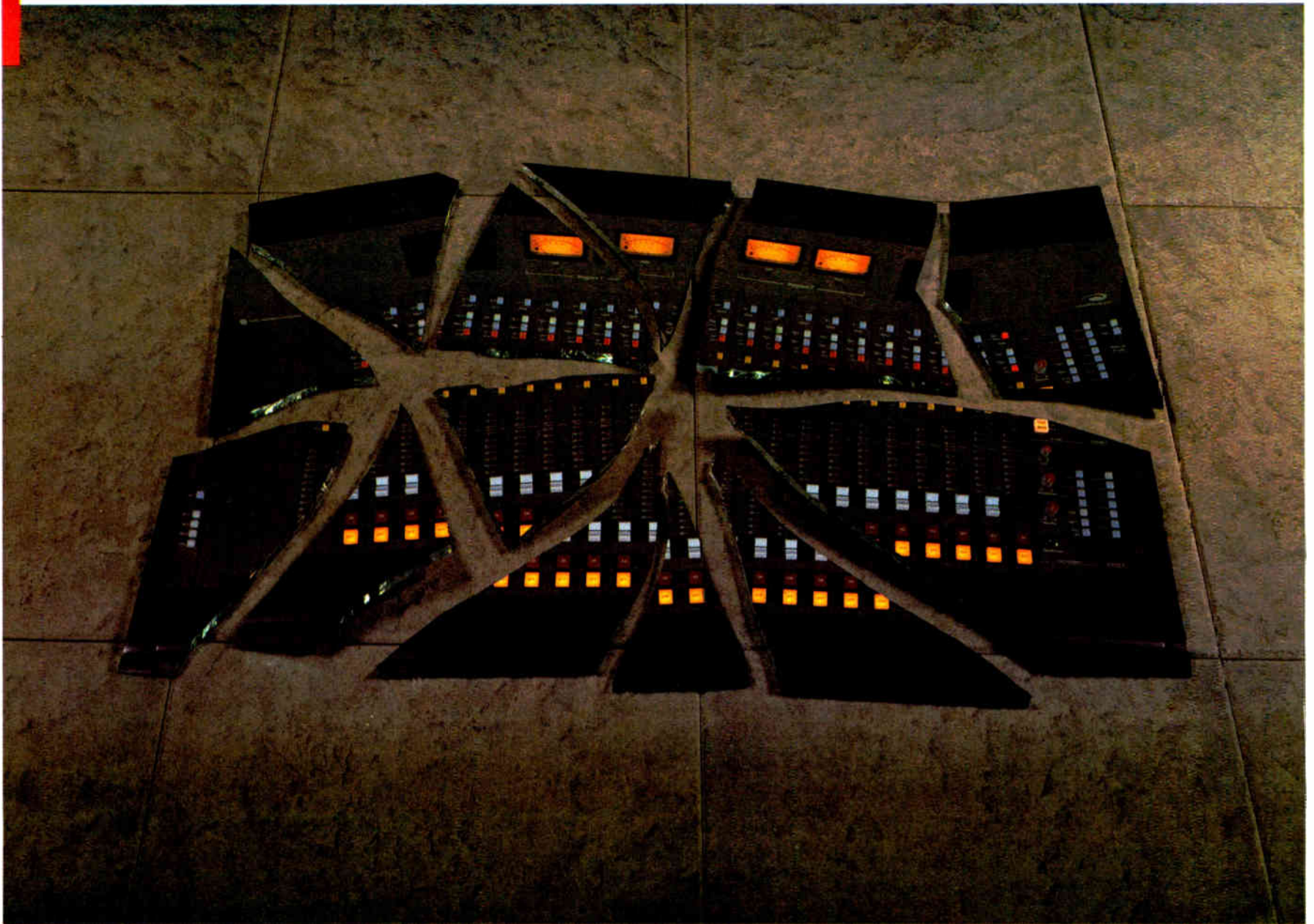
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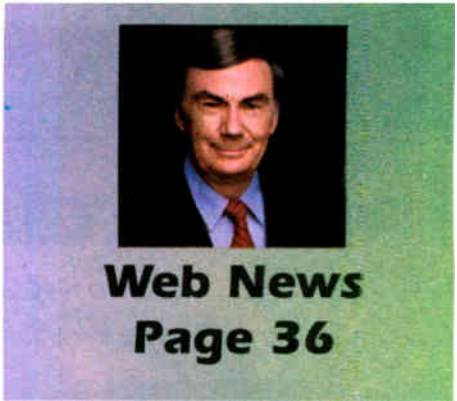
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Radio's Record-Breaking Q3

Lynn Meadows

The third quarter of 1999 may go down as a turning point for the broadcast industry, much like February 1996 when the Telecommunications Act passed.

Big news in corporate radio came just after the quarter ended, in early October. The competitive landscape shifted dramatically yet again, with the announce-

the new entity would be No. 1 in both number of stations and revenue earnings.

BIA estimates that the combined entity's 1998 pro-forma revenues were \$3.1 billion. By comparison, estimated revenues at No. 2 CBS were \$1.7 billion, while the new No. 3, ABC, was estimated to generate \$356.4 million.

But the third quarter itself saw many other important developments.

New ownership rules proposed by the

conglomerate with amazing synergistic opportunities is likely making competitors look around for bigger and more diversified partners.

The significant time required to synthesize and analyze corporate numbers delayed the release of record-setting second-quarter results for several companies until the third quarter. Among those late but winning reporters were CBS Corp. and Emmis Communications, both of which announced record-setting results from Q2.

Radio stocks continued to rise in the third quarter, although an overall market downswing in September hampered that growth a bit. Emmis stock started the year trading at \$43.38 and by mid-September was trading at \$69 per share.

Radio stocks also jumped at the news of the Clear Channel-AMFM deal in the first week of October. Among the winners were groups likely to acquire the 100 to 125 stations that will have to be spun off by the new group. Estimated to be worth \$4 billion, the spin-offs alone will create a shift in group rankings.

Groups expected to pick up some of the AMFM-Clear Channel spin-offs saw aggressive interest from the market the day of the merger's announcement. For example, Hispanic Broadcasting gained 10 points, closing at over \$87; Citadel was up almost \$6; Radio One reached its 52-week high, up \$4.50 to over \$47; Emmis gained \$4; while Cox, Entercom and Cumulus closed out the day with a rise in the range of \$3.

All of these groups are viewed to be potential buyers of the AMFM/Clear Channel spin-offs.

Meanwhile, under new cross-ownership rules, the number of broadcast stations one party may own corresponds directly to the number of "independent voices" in that market.

Independent voices include all
See Q3, page 38 ▶

FreshWAV.com Develops New Voices

Carl Lindemann

It used to be that most everyone in radio shared the experience of time spent at small-market stations. Some would start and stay at local stations. Others would move up from market-to-market as they learned the ropes. With rare exceptions, even the most famous national personalities cut their teeth out in the boonies.



Don Washington

But that is changing. "With consolidation, there are less and less opportunities to get into radio," said Don Washington, CEO of FreshWAV.com, a Web-based broadcast company.

"An incredible number of talented people are being rejected left and right by the traditional media outlets. Where do you go to practice?"

See FRESHWAV, page 41 ▶

Top 10 Radio Groups Ranked by BIA's Estimated 1998 revenues As of September 30, 1999*

Rev Rank	Parent Company	1998 Est. Revenues (in \$000s)	Parent # Stations	7/1/99 Stock Prices	9/30/99 Stock Prices
1	AMFM Inc.	1,838,645	441	55.1	60.8
2	CBS Radio (Infinity Broadcasting)	1,667,550	163	29.6	29.3
3	Clear Channel Communications	1,232,356	505	69.9	79.9
4	ABC Radio Inc. (Disney)	356,400	45	30.8	26
5	Entercom	313,425	88	42.7	36
6	Cox Radio Inc.	288,650	72	54.3	59.5
7	Cumulus Media Inc.	190,210	261	21.9	32.7
8	Hispanic Broadcasting Corp.	187,125	42	75.9	76.1
9	Citadel Communications Corp.	175,910	123	36.2	34.1
10	Susquehanna Radio Corp.	162,600	26	N/A	N/A

*The Clear Channel-AMFM merger was announced after the end of the quarter.

ment that mega-group Clear Channel will buy the AMFM group in a \$56 billion agreement. According to BIA Financial, the merger will result in the largest radio group in the world, with 948 stations.

The group is expected to spin off as many as 125 of those stations to comply with federal ownership rules.

Chancellor Media and Capstar Broadcasting had merged July 13, and became AMFM Inc., making it the largest radio company in the United States. But such rankings are fleeting these days. With the Clear Channel-AMFM merger,

FCC encourage broadcasters to look at market "voices" to determine what they may own. When the final rules are adopted later this year following a public comment period, it will be possible to own multiple radio stations and television stations in the same market.

Radio ad sales continue to boom, and at least one prominent observer predicted that the industry will finally increase its share of the overall media ad pie from 7 to 8 percent this year.

Further, the announcement that CBS and Viacom will merge into one super-

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Infomercials: Right For You?

Infomercials on Your Radio Station May Make Hard-To-Sell Time Work Harder for You

Ken R.

It's Sunday about 6 a.m. and you're driving your car, desperately tuning around the AM dial for anything interesting.

You stumble across a phone-in talk show, but the host never gives the phone number. The announcer is heavily promoting the doctor he's interviewing, and they both keep pumping a toll-free order line every two minutes.

And just what are these "miracle fat-burners," "super prostate formulas" and "breakthrough colon cleansers," anyway?

As all but the most naïve among us know, the doctor on the show may have hired the host, faked the phone calls and purchased the airtime.

I hope I haven't let any cats out of the bag! These little exercises in disbelief suspension have become so popular and so lucrative that there are companies that specialize in their creation and syndication.

Welcome to the world of radio infomercials.

Profitable airtime

Radio stations of all sizes have found a way to generate revenue during non-peak hours when their regular clients aren't buying. Managers offer their programming in half-hour chunks to people who just can't get their message across in 60 seconds.

Clear Channel station WSPD(AM) in Toledo, Ohio, runs several such shows each week. According to Tom Treece, the local sales manager, the demand for airtime is strong.

"If I had anyone cancel, I'd be able to fill the slot within an hour. We negotiate a rate with the syndicator based on the day-part for anywhere from \$75 to \$350 per half hour. Apparently they get results, because they stay with us for a long time."

Treece said, "Sometimes the syndicator will call and say 'We were a little

light on response last week,' so we might choose to bonus them an extra week at their end of the schedule. It's a back-and-forth process."

Where infomercials come from

Many of these shows are brokered by companies such as Coastal Media of Portsmouth, N.H., that serve as intermediaries between those with the products and those with the airtime.



Tom Treece, WSPD(AM)

"We don't get involved with the show content or the products themselves," said Rick Roy, president of Coastal Media. "I might offer input, but we put the sellers in touch with the right stations to maximize their profits."

Because many of these infomercials never provide prices over the air for the commodities they sell, interested listeners are directed to a toll-free 800 number, which actually rings at a professional phone center serving many clients. It is incumbent upon the operator answering the call to "close" the sale, i.e. to answer any questions and get the order.

"A product costing \$29 usually has a

higher close ratio than a product costing \$129 because the callers see a higher perceived value," said Roy.

These nationally syndicated shows usually promote a specific product and often do so using florid claims such as "the secrets the medical community doesn't want you to know."

The sponsors almost always offer a "buy two and get a third bottle free" come-on. And it's a given that one must "call within the next 10 minutes to get this super price!"

Objections non-existent

Some local advertisers work directly with stations to produce half-hour programs without the benefit of a syndicator.

One long-term infomercial client on

WSPD is Joe Bassett, who owns two health food stores in Toledo.

"I am a board member and past president of The National Nutritional Foods Association," said Bassett. "I interview many authors and nutrition experts who provide a lot of good information. I try not to make the shows too obviously commercial."

Bassett is aware of the national programs making those bold and unsubstantiated claims. He said, "Some of these programs are valid, some are not. Sometimes the products they offer may be useful, but they can be priced two or three times more than what you can find in our stores."

Contrary to what many believe, the Food and Drug Administration does regulate food supplements, although the agency no longer has "pre-market approval" authority over supplements as

See INFO, page 45 ▶

The Legal Side of Radio Infomercials

If someone listening to an infomercial on your radio station calls that toll-free number, buys those "miracle fat burner pills," takes them and suddenly collapses from a heart attack, are you liable?

"Maybe," said Michelle Rusk of the Federal Trade Commission. "We have been trying to encourage the media to do a better job of screening advertising. We know they can't research every ad, but there are tried-and-true methods of spotting outrageous claims and weeding out the most obvious frauds. Network television does a very good job with this."

"Rather than suing the station, we suggest consumers alert the Food and Drug Administration through their MedWatch program. They can also contact the FTC Consumer Response Center and file a complaint."

Who's in charge?

According to Brenda Mack of the FTC, "The FDA has jurisdiction over the ingredients and safety of all food and drug products. The FDA also oversees their labeling. We have jurisdiction over how they are advertised."

"The FTC doesn't approve any ads ahead of time, but we certainly monitor ads that we see in print or hear on the radio and TV to make sure any claims being made can be substantiated."

In late 1998, the FTC released a guide for the dietary supplement industry that described what can and cannot be said in those ads.

"We can't look at every ad, but some are brought to our attention. We have an ad monitoring section whose job it is to watch for the worst offenders. We also accept complaint letters," said Mack. "When we see or hear of an ad we seriously question, we send out a letter to that party."

The 1994 Dietary Supplement Health and Education Act changed the way food supplement manufacturers could do business.

No longer did companies have to submit their products to a "pre-approval" process. The FTC standard still requires "competent and reliable

scientific evidence" if an advertising claim is made but the burden of proof is now upon the government to prove a product is unfit.

This change in the law brought the infomercial producers out in mass.

"Advertisers are required to back up what they say, but we only intervene to enforce the law after the commercials air," said Rusk.

Do radio stations ever monitor their infomercials? Very seldom.

"If the meters are moving, the show must be fine," seems to be the rule. But Rusk described some recent laws that might make many infomercials technically illegal.

"An infomercial cannot pretend to be a news or talk program without identifying the sponsor and clearly telling the audience it's a commercial."

Is a simple disclaimer within the first and last ten seconds sufficient?

"No," said Rusk. "This information has to be repeated at certain intervals during the program and again immediately prior to any opportunity to order a product with a phone number."

Obviously, the infomercial producers try to structure their broadcasts so the audience will think their show is a regular program. According to the FTC it is the radio stations' responsibility to make sure the content of these shows is within the law.

Finding information

For the rules on advertising a non-drug food supplement, visit www.ftc.gov then search using the words "dietary supplement guide."

For other product advertising guidelines, visit www.ftc.gov then search using "media screening" or "business guidance."

The consumer hotline to the Federal Trade Commission is (877) FTC-HELP.

Consumers can alert the FDA of questionable ads by calling the MedWatch program at (800) FDA-1088 or by going to www.fda.gov/medwatch on the Web.

— Ken R.

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Nasty or Nice: Two Ways to Go

Ken R.

There are a lot of ways to say it, but the truth is that if you stick around in radio long enough, you're going to hear some variation on these themes:

"I'm sorry, we're going to have to let you go."

"We're consolidating our staffs and there's no room for you."

"That was your last show — I'll take those station keys, please."

The severing of an employee relationship seems to fall into one of two major categories in these times of mega-mergers: firing for cause and firing for reasons having nothing to do with individual per-

formance. There may not be the same stigma associated with being let go as there once was, but it's always "personal" when your name is on the pink slip.

Grievous sins

For managers, the process isn't easy, either. But it's a fact of life in radio.

Dave Kennedy, president/COO of Susquehanna Radio Corp. based in York, Pa., feels that any act by one of his employees reflecting negatively upon the integrity of his stations creates cause for immediate dismissal.

"This might be a salesperson misrepresenting to a client that spots ran when it was known that they did not. If we learn

that this was deliberate, we deal with it swiftly and firmly."

No radio manager can hope to avoid staff problems entirely. While Kennedy takes care with screening and hiring in the hopes of weeding out any problems in advance, he recalls one employee who had sticky fingers and had to be let go.

"We were doing a promotion in one market and it involved the employee collecting cash. The accounting showed there had been theft and the police were brought in."

Paul Sidney of WLNG(FM), Sag Harbor, N.Y., believes that disloyalty is a big sin in his company.

"Most people are here because they



Howard Johnson

want to be and if they want to apply for a job elsewhere, we let them go there."

Some people start off badly before they even have a chance to take the job.

One manager stated that if he discovers someone falsified any statement on his/her job-application, discussions with that party cease. That company verifies every statement on the application, by the way.

Other serious offenses have included secretaries who sent out hundreds of personal wedding invitations on the company's postage meter, jocks who invited "guests" into the studio after hours, and property destruction at the hands of disgruntled staffers.

Substance abuse must be dealt with,

I always tried to treat everyone with honor and dignity so they can keep their self-respect.

— Howard Johnson



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either by enforced treatment or, if that fails, dismissal.

And there's always the old chestnut you read about in trade announcements every week: "differing programming philosophies."

Other causes

An employee can commit many offenses that fall far short of a felony but still result in termination.

"We might determine that an air talent or salesperson is not performing to expectations," Kennedy said. "In those cases, the program director or sales manager will work intensely with that employee for weeks, informing them that they need to improve in certain specific areas.

"In the case of air talent we will play tapes, critique and coach, and if progress is not shown we have to place them elsewhere or let them go. The timetable depends on how much progress is made."

An operations manager in the Midwest had to fire someone at his station to save an advertising account.

"Our continuity person scheduled a very heavy rotation of 'sale' spots for a local department store. The spots ran in morning drive and had a big impact, but the problem was they inadvertently ran one day early. The department store manager needed someone's head to roll, and I guess she was it."

See FIRED, page 34 ►

Community FM Slow in Japan

Thomas Caldwell

With regulators in the United States considering a new class of low-power radio stations, the experience of other countries may be instructive.

Consider Japan.

The country has never been as radio-friendly a place. In fact, in terms of the ease in which one can build a studio and transmission facilities and get on the air, it is probably the most radio-unfriendly nation with a democratic political system.

For most of its modern history, the Japanese government has treated radio and other electronic media as an informal part of statecraft. Information has always been something the authorities here like to regulate.

Because of these regulations, getting a broadcast license is next to impossible for most interested parties.

For example, stations are required to cover specific areas on political, not geographic bases. For example, Tokyo-based radio stations must cover the entire territory of Tokyo, including several sparsely populated islands hundreds of kilometers away in the Pacific Ocean that are, politically, part of the capitol city.

It was the difficulty in getting new stations on the air that led the government to loosen some of its regulations in 1994, bringing into being a "Community FM" class of stations.

The service was designed as a very

localized form of radio. The Ministry of Posts and Telecommunications permitted Community FM stations to broadcast with only 1 W of power. The limit was soon raised to 10 W.

Earlier in 1999, the ministry allowed some stations to operate at 20 W, a significant power level in densely packed Japanese cities, where 1 W can reach more people than most other places.

At the time, some industry experts predicted that thousands of stations would spring up around the country. Many Japanese major electronic equipment manufacturers put together affordable turnkey systems that could be purchased by just about anyone.

But five years after its introduction, the dream of Community FM is still a dream.

Hard times

Although there are now 124 small FM stations operating at 20 W or less, Community FM cannot yet be called a success. The first reason is simple. Japan has been slogging through its worse recession since the end of World War II.

Over the past five years, unemployment has been at its highest levels since the government began keeping records. The available advertising revenue has also dropped.

Without advertisers, the incentive to operate businesses that rely on ad revenue does not exist.

Hironori Tanaka, an analyst for Morgan

Stanley in Tokyo, said that radio has never been a major moneymaker in Japan, and it is unlikely ever to be.

Tanaka's numbers are not encouraging. He said that industry figures show a 5-percent decline in radio advertising during the first half of 1999. In 1998, radio advertising declined by 4.5 percent.

Among the top nine Japanese advertising firms, the numbers are even more dismal. Overall advertising budgets during the first quarter of 1999 were reported 7.1 percent lower than 1999. For radio, it was down 10.9 percent.

"The overall share of advertising revenue for the radio industry stood at 4.2 percent in 1990," said Tanaka. "In 1998, it was 3.6 percent."

Jim Dougherty is a Tokyo-based consultant who has lived in Japan for more than a quarter century. He heads up his own production company, called Media Creations.

Dougherty is not optimistic about the future of Community FM, saying that it was doomed from the start.

"In most cases, it was just laid in the lap of the local government people who were never really interested in it," he said. "The recession, hitting when it did, did not help matters either. When you consider the financial situation and frugal attitude of local government, it is no surprise so many Community FM projects have been put on hold."

Taro Kimura is the former president of the Japan Community Broadcasting

Association, an industry association representing Community FM stations.

Kimura said that, since the inception of the association, the number of Community FM stations has been rising steadily.

He said he believes the future of the medium looks better than that of conventional radio.

Kimura said Community FM got its biggest boost following the massive earthquake that devastated the city of Kobe in January 1995.

"Local and national governments learned how important radio was then," said Kimura. "It really helped us a lot."

Still, many local governments that had planned on helping set up small, Community FM stations are waiting. Not just for money, but for space on the dial.

According to Kimura, the Ministry of Posts and Telecommunications is refusing to approve new applications for FM channels. The major reason is the need for larger commercial stations to broadcast over such wide areas.

"The problem is not interest, it is airwaves," said Kimura. "It is true that Tokyo has fewer stations than any other city of its kind, but if you included all the relay stations, the number is far higher."

According to the National Association of Broadcasters in Japan, as of Sept. 1, a total of 222 radio broadcasters were on the air in Japan, including Community FM stations.

The number of relay stations throughout the country was somewhere close to 1,500, a figure which includes relay stations used by commercial radio broadcasters and the national quasi-governmental broadcaster, Nippon Hoso Kyokai (NHK).

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Being Fired: Not the End of World

► FIRED, continued from page 32

Another program director who wished to remain anonymous said he fired an all-night jock, an act no program director wants to undertake because it's so hard to find such a creature.

"He was normally a pretty stable young man, but he fell in love and chased his girlfriend to Canada one day, didn't get back for his shift and never bothered to call. He later thanked me for firing him, if you can believe that. He came to understand the reasons behind the action."

No-fault — still hurts

Perhaps the most common cause of dismissal in the late 1990s is station

consolidation. When a group owns multiple stations in a market, the staffs may be combined, and some of those people are "downsized" to eliminate duplication of efforts.

Howard Johnson of Albany Radio in Georgia has had occasions where he was forced to let people go for this reason.

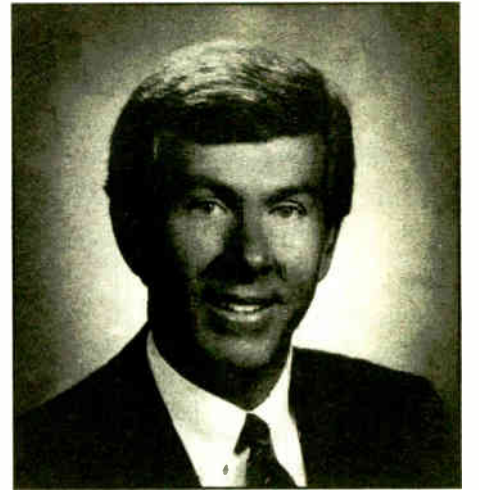
"I always tried to treat everyone with honor and dignity so they can keep their self-respect," he said.

In one case, Johnson spent two days making phone calls on behalf of his endangered employees, and was successful in getting offers for all but one at other stations in the market, most at higher salaries.

"Any situation like that is like a coin, and the flip side could be the best thing that ever happened to that person," said Johnson. "In some cases it helped those people focus on what's important and helped them take the next step."

"When we are moving into a market and know that with the new purchase will come redundancies in staff," Kennedy said, "we try to negotiate ahead of time with the seller so we can have a severance plan in place for people we can't retain. In some cases, we can arrange to extend health benefits or offer assistance in finding other positions. You never know when those people will be available again, and you might really need them at that time so we don't burn any bridges."

"The industry is now going through what banking went through 10 years ago," said Johnson. "We're replacing a lot of jobs with jobs requiring different skills. It's a little like standing in the water with one foot on a piece of ice and the other foot on a different piece of ice."



Dave Kennedy

Everything keeps moving."

But Johnson uses one philosophy in dealings with people: "Where profit and loss is everything, it becomes all the more important to create extra value in who you are."



Ken R. is owner of Ken R. Inc., an ad jingle producer for radio stations.

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Clear Channel, Microsoft Form Strategic Relationship

Clear Channel has chosen Windows Technologies 4 to stream all of Clear Channel's radio stations via the Internet, reaching a potential weekly audience of over 44 million listeners.



David Murray

"Microsoft Windows Media has many advantages looking forward to how interactive entertainment is delivered," said David Murray, director of Advanced Technologies. Clear Channel Communications. "We believe that Windows Media will provide us with the most-efficient operational environment and lowest costs as we move forward. It is obvious that localized content will have a new character coupled with the technologies Microsoft brings to the table," he said.

StreamSearch.com Launches PlanetAudio

StreamSearch.com Inc. has launched PlanetAudio, a new service of its audio and video search engine and directory service.

PlanetAudio allows users to efficiently search, find and listen to audio clips posted on the Internet. StreamSearch.com claims to be the only "unbiased, holistic site that allows users to find categorized

audio and video that is link to stream, takes into account the various speeds of the stream and the software that was used to encode it."

Lycos Adds New Channels, 'Live' Announcers

Lycos Radio Network, a subsidiary of the Lycos Internet Portal, has added 30 channels to its original five-format line-up. The new channels target niche formats like "Saucy Salsa" and "Acid Jazz Trip Hop."

The additional programming comes from Lycos' relationship with DMX, a digital music service. "Live" disc jockeys have also been added to five channels. Some 20 experienced disc jockeys have been assigned to the five channels powered by Westwind Media. They record the shows, select the music and can break in for news or special promotions and even take requests either by phone or e-mail.

BroadcastMusic.com Announces Music Video Channel

BroadcastMusic.com, an Internet broadcasting network based in Portland, Maine, announced plans to launch the first around-the-clock live online music video channel in partnership with radio programming syndicator SuperRadio.

According to John Brier, president of



John Brier

BroadcastMusic.com, "We're fully integrating traditional media and the Internet by creating essentially an online television program." Content on the upcoming music video channel, SuperV, is described as a combination of MTV's "Real World," "WKRP in Cincinnati," and "The Blair Witch Project" and is targeted to capture 18-24 year olds. It is scheduled to premier at the end of the year.

Audible.com Features Net-Based Public Radio Premier

National Public Radio personality Margot Adler will introduce her new, independently produced program for public radio on Audible.com, the spoken-word online audio site.



Margot Adler

"Justice Talking," an examination of "hot button" constitutional issues, will be available to the Internet audience before being broadcast on conventional radio. Digital audio files of "Justice Talking" can be loaded onto portable digital audio devices for listening away from the PC.

New Age Begins for Internet-Only Radio Station

NewAgeCities.com Inc. has launched newagesound.com, an Internet-only radio



station focusing on New Age music and programming.

The site streams music 24 hours a day through the Windows Media Player and adds music reviews, artist bios and discussions. Music included in the playlist span a variety of New Age genres, including Celtic, Compilations & Collections, Historic & Classical, Mind Body & Soul Music, Music with Natural Sounds, Mystical & Spiritual, Native American, Natural Sounds, Relaxation, Seasonal, Self Help, The Zodiac Series, Uplifting, Vocal & Chant, and World.

Listeners can also purchase New Age titles at discounted prices through the site.

Donaldson, Downs Stake Claim In New Media Frontier

ABC's Sam Donaldson has begun hosting the first regularly scheduled news program created specifically for the Web by a major network. The Webcast duties are part of a new multi-year deal with ABC News.

David Westin, president of ABC News, said that Donaldson will "break new ground in the new world of the Internet. Sam's experience and credibility combined with this innovative programming will provide ABCNEWS.com a distinctive forum in which to bring users credible, timely news."

The 15-minute program airs Mondays, Wednesdays and Fridays at 12:30 p.m. Eastern. Though no standards for online

See WEBWATCH, page 37

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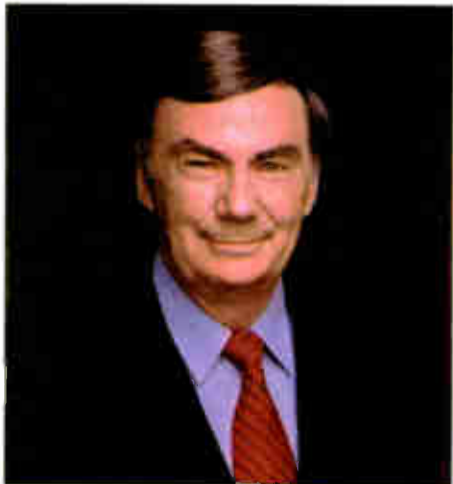
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► WEBWATCH, continued from page 36 audience measurement exist, initial indications show that the premier enjoyed only a small audience. For example, only 373 viewers responded to an online survey during the program.

Meanwhile, Hugh Downs, long-time anchor for the network's "20/20" news



Sam Donaldson

program, is leaving television for the Internet.

"The range of things I've been privileged to do up to now has set a foundation for what I'm planning in the context of new media. This fast-moving cybernetic age holds such challenge and opportunity that I now find it irresistible," Downs said.

Coming to an E-Mail In-Box Near You

On Jan. 1, French journalists Raphaël Krafft and Erwan Barret began a bicycle odyssey that will take them from the tip of South America to Fairbanks, Ala.



To share their ordeal with listeners, they have launched "Mas O Menos" (Spanish for "More of Less") — what they claim "may be the first entirely

'bike-edited' Web-radio program."

The bimonthly, bilingual French/English program is offered as a downloadable MP3 file posted on their Web site rando-america.org

Efforts to publicize the show have already caused an ordeal for some public radio producers. "(They) sent me this unsolicited message *three times*, each one with *huge* photo files attached that took an eternity to download," said veteran producer Jay Allison.

So it would seem that as the daring duo head north, their hopes for public radio coverage have gone south.

— Carl Lindemann writes frequently about new equipment and the Internet for *Radio World*. Send your Internet news items to WebWatch@imaspub.com

MTV Networks Suing Founders of Imagine Radio

Imagine Radio founders Rotem Perlemuter and P. Michael Briseno are named in a suit filed by MTV Networks in September in New York State Supreme Court, according to Reuters News Service.

The suit charges that they were forming a competing business in violation of their employment contracts. MTV bought Imagine Radio in February for \$14.5 million from Perlemuter and Briseno as part of MTV's initiative to create an online music site. Perlemuter received \$6.7 million from the sale of Imagine Radio

and committed to working for MTV for nine months ending Nov. 2, for \$150,000 per year, the suit says.

Briseno agreed to work for MTV for two years for nearly \$500,000, it added.



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► Q3, continued from page 29

independently owned, local full-power commercial and noncommercial television stations, all independently owned commercial and noncommercial radio stations, daily newspapers and wired cable service.

If there will be at least 20 independent voices after the merger, one owner may own one television station and up to seven radio stations or two television stations and up to six radio stations.

In markets where at least 10 media voices will remain, one owner may own one television station and four radio stations. And in the smallest markets, one owner may own one television station and one radio station.

The FCC also adopted a new "equity/debt plus" attribution rule. Under this rule, anyone who is either a major program supplier to a licensee or a same market media entity and holds a financial interest of equity and/or debt in excess of 33 percent of a licensee's total assets is considered to have an attributable interest. The rules must still be published and are likely to face some Petitions for Reconsideration.

Perhaps the most stunning news of the quarter itself was the announcement that CBS will merge with Viacom.

Mel Karmazin, president and chief executive officer, CBS Corp., will become president and chief operating officer of Viacom when that deal is com-

pleted. Sumner Redstone will remain chairman and CEO of the new company, which will also be called Viacom.

CBS shareholders will receive 1.085



Michael O'Shea

shares of Viacom Class B shares for each share of CBS. The transaction is valued at \$80 billion. The deal is not expected to have any effect on the Infinity Broadcasting radio group owned by CBS, except to offer more cross-promotional opportunities for Viacom entertainment holdings.

In September, AMFM completed the sale of its outdoor advertising business to Lamar

Advertising Co. (NASDAQ:LAMR). Lamar paid \$700 million in cash and issued approximately 26.2 million common shares valued at \$1.2 billion to AMFM. AMFM said it would use the cash proceeds from the sale for debt reduction.

That same month, AMFM announced that it would sell eight radio stations in Puerto Rico that it purchased last year to Spanish Broadcasting Systems Inc. for \$90 million.

"This transaction is consistent with AMFM's strategy to divest non-strategic assets and focus on its leading core, domestic radio operations," said de Castro.

Among other notable deals, AMFM and New Northwest Broadcasters Inc. announced that New Northwest would purchase four radio Washington state stations in Richland, Kennewick and Pasco (Tri-Cities area), for \$4 million. The stations, originally part of Triathlon Broadcasting, were bought by Capstar before the merger with Chancellor.

Was this a sign that mega-companies might begin a trend to sell off properties rather than agglomerate them? Unlikely. Michael O'Shea, CEO of New Northwest Broadcasters, said his company had signed a letter of intent with Capstar before the merger and AMFM fulfilled an agreement that his company had with Triathlon and Capstar.

Small is beautiful

New Northwest is just over one year old. This is the first purchase it has made from a consolidated group. O'Shea said the company has fully consolidated all eight of its markets by buying the pieces in 27 separate transactions.

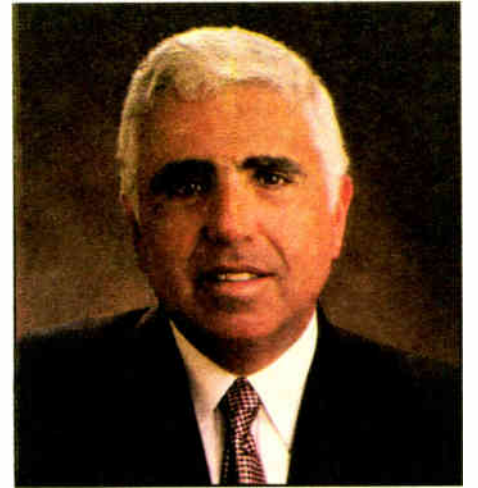
After all transactions are completed, the company will have 43 stations in the Pacific Northwest.

"We're finding that there are plenty of good medium-sized and smaller markets with opportunities to buy stations," said O'Shea.

Another growing group, Entercom Communications Corp., won the battle for the purchase of Sinclair Broadcast Group in the third quarter. The company announced it would buy 46 radio stations in nine markets from Sinclair and 300,000 shares of stock in USA Digital Radio Inc. for \$824.5 million. Entercom will have to spin off three Kansas City stations to meet FCC limits in that market.

AMFM and Cox Radio also conducted a strategic, high-profile swap in the third quarter. Cox will transfer KOST-FM and KFI(AM) in Los Angeles to AMFM in exchange for 13 radio stations in Miami, Atlanta, Stamford/Norwalk, Conn., Jacksonville, Fla. and New Haven, Conn. The aggregate broadcast cash flow generated by the stations being exchanged is approximately the same.

"From our standpoint, the agreement meets our goal of owning and operating the maximum number of stations we can in Los Angeles, the nation's second-largest radio market. The swap also positions AMFM as the leading radio group operator in Los Angeles as ranked by audience share," de Castro stated in a press release. The swap is scheduled to close in the first quarter of 2000, but must be approved by the FCC and go through the Hart-Scott-Rodino



Mel Karmazin

waiting period.

Also in the third quarter, Cox announced it would acquire four stations in Honolulu for approximately \$16 million in cash.

Robert F. Neil, Cox Radio president and CEO, said the stations will give Cox an initial market share of just under 20 percent.

Good news may be coming for broadcasters confused about the roles of the FCC in reviewing mergers and station sales.

Hill action

A bill reported to the Senate from the Judiciary Committee in July would set time limits on FCC consideration of license transfers and acquisitions. Applications for deals in excess of \$15 million would have to be processed within 180 days.

Consideration of applications for smaller deals would have to be processed within 90 days. The proposal states that any applications the FCC does not approve or deny within those timeframes would be considered approved.

If passed, the bill would alleviate what some see as delays caused by the current FCC process of "red-flagging" applications when they would mean one owner would control more than 50 percent of the market revenue.

Advertising numbers continued their upward trend in the third quarter, with the 84th consecutive month of revenue increases for the radio industry. The Radio Advertising Bureau reported that July local sales totals were up 13 percent over July 1998 and national dollars were 18 percent better, while August continued the strong concentration of revenue gains in all five of the U.S. marketing regions.

August local dollar sales were up 14 percent and national sales jumped 21 percent over the same period last year.

Year-to-date, local ad sales were running 13 percent ahead of 1998, while national figures were 12 percent higher.

Gary Fries, president and CEO of the Radio Advertising Bureau, said he believes radio will garner an 8 percent share of all advertising revenue for the first time in 1999.

"Radio has traditionally been stuck at 7 percent of measured media. We have seen growth throughout the past several years, but with this accelerated growth that we're having in 1999, I think we'll cross through the 8-percent barrier this year."

Fries said the "unprecedented strength in both local and national sales, in all categories of advertisers, solidifies our position as the fastest, most efficient brand-building and results medium." He said radio is now challenged to

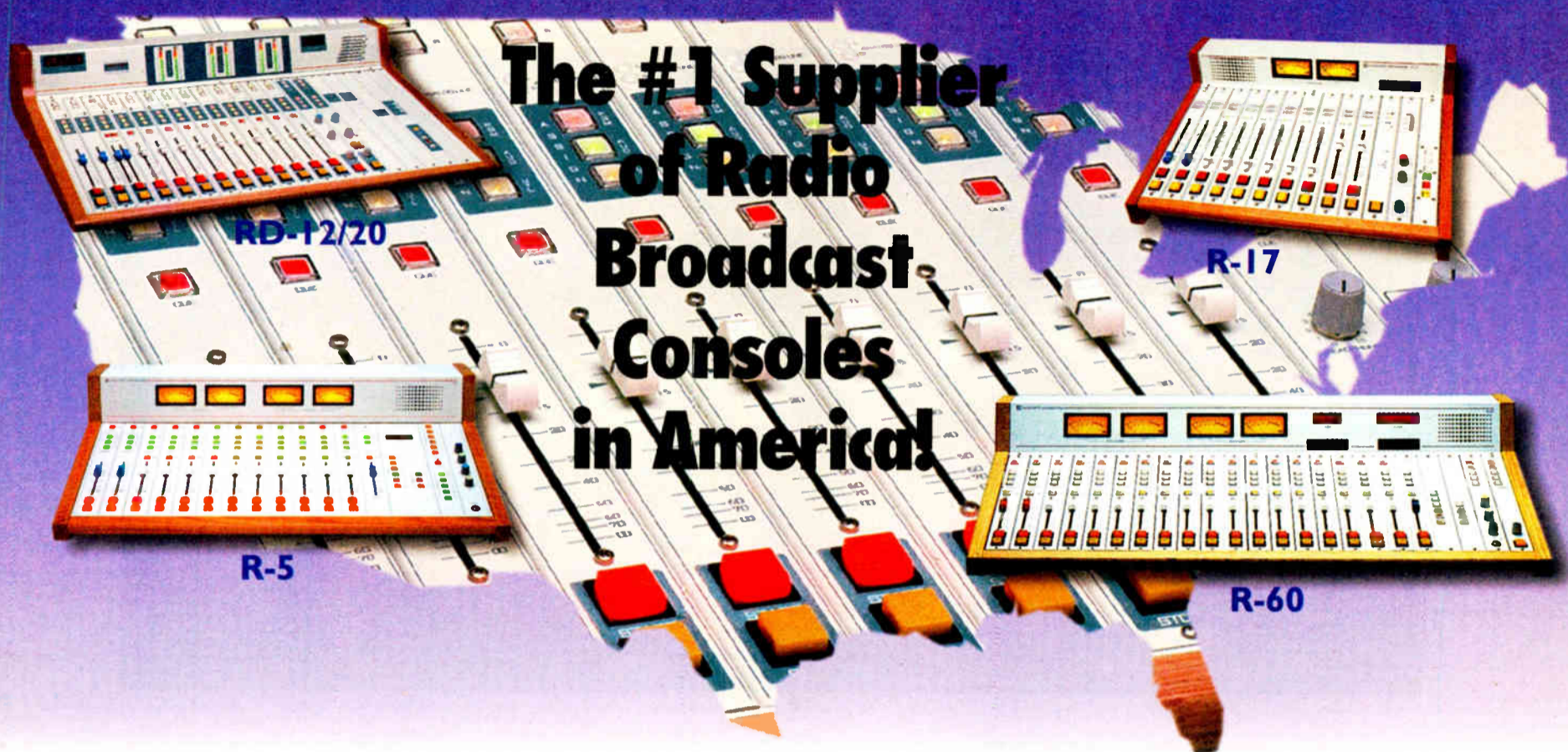
See Q3, page 42 ►

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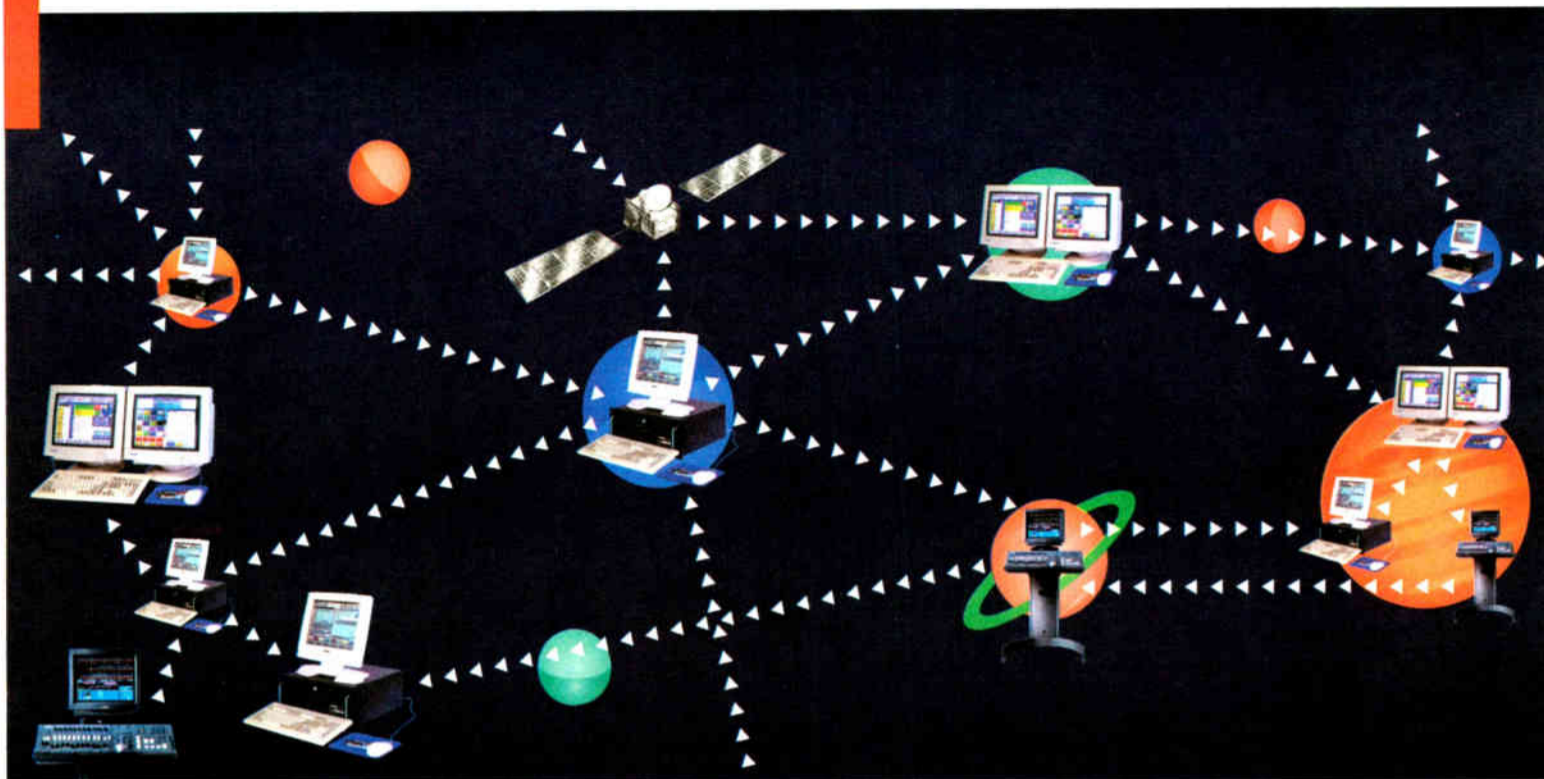
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HARRIS

Flood of Talent to Be Tapped

► FRESHWAV, continued from page 29
Where will the superstars of the future come from?" he said.

FreshWAV.com aims to fill this need by finding, developing and promoting new voices through its Web site.

Like a phoenix

FreshWAV.com is the brainchild of two National Public Radio staffers. Washington is a human resources associate in charge of recruiting and hiring hosts, directors and producers. His partner in the venture, Doug Mitchell, is a supervising producer of "Weekly Edition." Washington got the idea for FreshWAV.com a year ago after working on a failed pilot project for NPR.

"NPR Presents" was an initiative to bring new voices, producers and approaches to finding and showcasing talent on the network.

"They had contacted the member stations about it. I took it upon myself to distribute the request for proposals (for "NPR Presents") to the world. If you want new stuff, you've got to go beyond where you typically go," he said.

"I posted it on the Web, sent it out to non-traditional organizations. We received hundreds of proposals and sample tapes. But the funding for the project didn't come through. When I saw that this wasn't going anywhere, FreshWAV.com was born," said Washington.

Since its launch in July, the site has grown to 11 short-form programs providing over an hour of new audio each week. As executive producer, Mitchell carries out all the production chores. But producing content for FreshWAV.com is not the same as his work at NPR.

"If you look at all the broadcast/Internet radio sites, the difference is that we're starting at the ground level with people. They have an idea, we'll talk it over with them, and then talk about how they can get their idea recorded, shaped and molded into a program. From there, we can put it up on our Web site."

Better than basic

The concept goes beyond training. Because of the Internet, lots of people who aspire to do radio can get their ideas exposed to an audience, he said.

Even so, the quality of the programming is not bush league.

"Let's call it 'Triple A.' The programs need to be interesting, the ideas worth developing. We are discriminating. There are people out there who will step up to the plate to develop their concepts here. And once it's up and available on our Web site, maybe someone will pick it up (on terrestrial radio)," said Mitchell.

FreshWAV.com is both a service to potential talent and to potential distributors. "We offer airchecking, production tips, equipment advice and recording tips. I've had some people I had to send tapes back to. I explained why it didn't sound good, and what they needed to do about it," Mitchell said.

To fulfill their educational mission, they are soliciting corporate partnerships. "We're trying to work a deal with Sony to supply MiniDisc

recorders. It's the most convenient, cost-effective, high-quality format available. With the right tools, there's no reason why the average person can't have a radio program — as long as they're willing to work with us," he said.

Professionals, too, may be enticed by what FreshWAV.com offers.

"We're taking to people who usually just operate as independent producers. We remove all the bureaucracy. As it stands, producers for public radio have to work out their own deal. With us, there's no paperwork. We ask 'Do you own your show? Do you have the copyright?' From there, we can get their material up quickly. There's also a lot

tions, too, will be profit centers.

"We see many alternate revenue streams here. There are lots of advertising dollars here selling books and records featured on programs. But advertising only makes up about 15 percent of the revenues. There is a nominal cost associated with people wanting to post content. Also, shows that we feel will be successful — we'd like to package and syndicate them on the Web and terrestrial radio," said Washington.

Though he has had experience operating small-business development centers, the lessons of building a traditional organization have to be adapted to the Internet.

I wish that there was something like this around when I was starting out, like when I was 25 — it would have been terrific.

— Ira Glass

of material that never makes it to the air," said Mitchell.

Ira Glass, the host/producer of Public Radio International's "This American Life," can sympathize with the struggle that independents contend with when trying to get new material on the air. Even in his former position as an NPR reporter and producer, Glass had to shop the idea for the Peabody Award-winning, much-vaunted "American Life" around to program directors and decision makers all around the public radio world for two years, before ultimately striking a distribution deal with PRI, not NPR.

"FreshWAV is really exciting. The more chances to do radio that exist, the better radio will be," Glass said. "I wish that there was something like this around when I was starting out, like when I was 25 — it would have been terrific."

Mitchell said FreshWAV.com also helps the broadcast industry by helping fill the need for content in the ever-expanding new media.

"We're doing a service for the larger places by developing talent and bringing these new voices to them. Places like NPR may find themselves hard-pressed to fulfill their commitment to providing 24 hours of daily programming to CD Radio," Mitchell said, referring to the satellite-delivered digital service that is to go up next year. Plans for growing the business include regional training.

"I already have several people in mind as staff trainers. As soon as we get funding, I'll hire them. We'll train people in basic sound editing skills. All their investment is in time. We sign contracts with people and get to work with them," he said.

Despite its public broadcast roots, FreshWAV.com is a for-profit business. Revenue will come from Web hosting fees and from marketing successful programming. Advertising and promo-



Doug Mitchell

found is that those models don't work on the Web. The main reason is the low startup costs. Doing a business plan didn't make any impact for people in the Web world — you have to show them what you have. So we created this site, put up content ... and then are developing the business plan after."

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Q3: A Story of Radio Growth

► Q3, continued from page 38

"embrace the new e-commerce marketplace and be 'e-born.'"

Embracing the Internet is one of the reasons CBS did so well in its second quarter. The company has traded its promotional opportunities on radio, outdoor, television and cable for shares in several popular Web sites.

For instance, in the third quarter, CBS acquired a 40 percent stake in Women's Consumer Network in exchange for \$50 million in advertising, promotion and other consideration over the next five years. In a similar third-quarter deal, CBS also announced it will acquire 35 percent of Medscape Inc.

Entrepreneurial broadcasters at The NAB Radio Show in Orlando in September repeatedly noted that public money has made it harder for private companies to get good deals. Overheard was one man with an opportunity to buy a group of stations saying he just could not compete with the 5 percent interest rate the public companies were getting.

Jerome Fowlkes, managing director of the newly launched BIA Ventures Corp., a part of the BIA Financial Network, said many lenders consider financing larger deals because of their own economies of scale. He said the BIA Ventures Corp. is focused on providing fund raising and

advisory services for private companies with capital needs in the \$1 million to \$10 million range.

The danger for borrowers, said Fowlkes, is that in lean times, bankers and others who may not understand the radio industry can "react skittishly."

"Make sure your institution understands your business and is very comfortable with your business," said Fowlkes.

Also, when a private company is in a "growth mode," said Fowlkes, it should keep capital sources prepared and consider a pre-approved credit line. As O'Shea of New Northwest Broadcasting said, the good opportunities are still out there.

Radio Rocks For Fined Caps GM

Outraged that the National Hockey League levied one of the largest fines in its history against Washington Capitals

General Manager John McPhee and suspended him without pay for a month, Washington morning host Elliot Segal kicked off an on-air fundraising effort to help



George McPhee

McPhee pay the \$20,000 fine.

Segal, host of the popular "Elliot in the Morning" weekday morning drive-time show on AMFM station WWDC-FM (DC-101), is an avid hockey fan.



Elliot Segal

Segal said, "We can't pay the entire \$20,000, but we wanted to get enough together so that the GM of the Washington Caps could get his Armani suit repaired."

According to Segal, McPhee's Armani suit was torn in half in the post-game incident that occurred in the Blackhawks' locker room Sept. 25.

McPhee allegedly was upset that Chicago had instructed its team to try to hurt Caps players, a charge that several teams have levied against the Blackhawks. Following several such complaints, the NHL launched a special investigation into the alleged underhanded play by the Blackhawks.

At press time, the show had raised about \$1,000 in one day of fund raising. Also pledged to the effort were a pair of Ferragamo pumps, in tribute to the bruises McPhee sustained in the Sept. 25 incident.

"Allegedly Ferragamo pumps were hurled at McPhee during the attack (on McPhee) in the Blackhawks' locker room," said Craig Henderson, producer of Segal's show.

Henderson said that also pledged was Sammy Davis' glass eye. "Maybe we could get something for it on Ebay, who knows?" Segal said.

In addition to his fund-raising efforts, Segal said he is petitioning the Caps to let him "skate on the ice with the team at their next match with the Chicago Blackhawks." And if he is ever in a fight, Segal said "I just hope that John McPhee will be there for me."

The Washington Capitals had no comment on DC 101's efforts on behalf of their general manager.

— Laura Dely

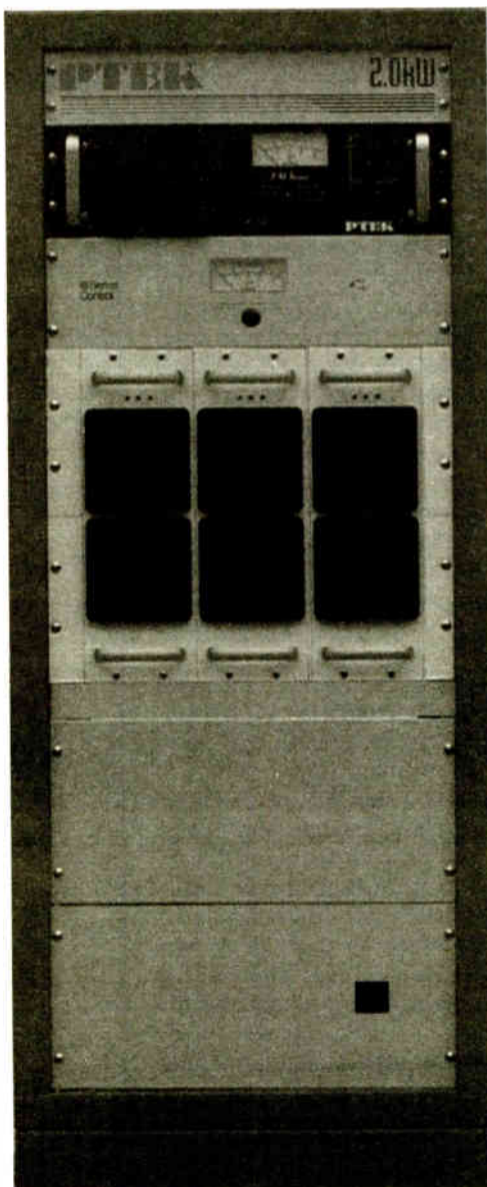
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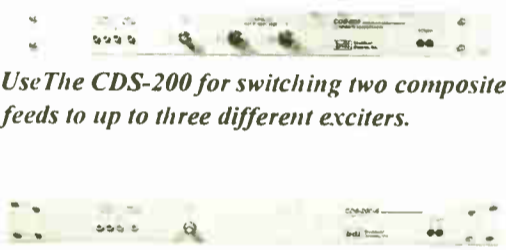
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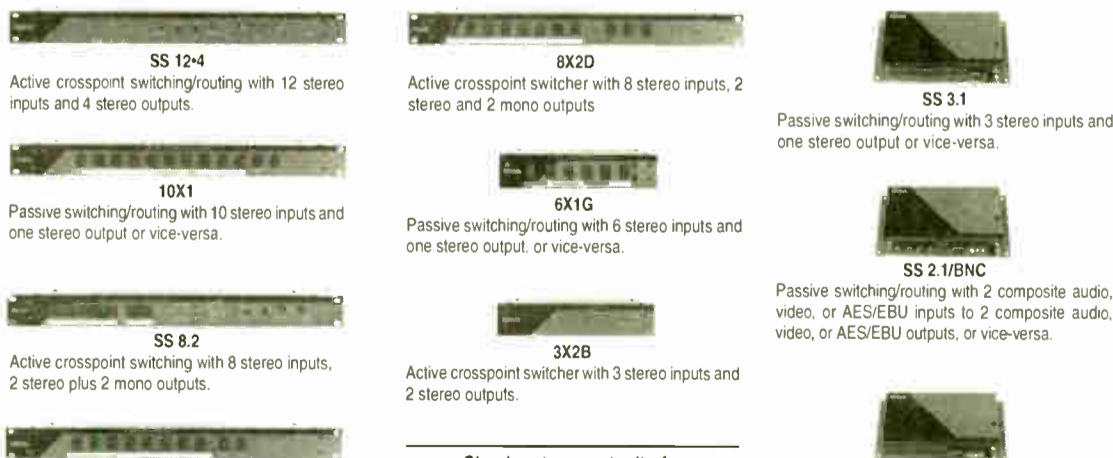


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Products & Services Showcase

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READER SERVICE NO. 214

Infomercials: Take Another Look

► INFO, continued from page 30
it does for pharmaceutical drugs.

"The FDA must now prove a product is harmful, rather than the old way of having the maker prove the product is safe and useful," said Bassett. (See story, page 30.)

While no one has quantified the number of infomercials before or since the change in supplement regulation, a common perception among program directors is that their numbers have exploded since 1994.

Treece said he has never heard a negative comment about the products advertised on his station.

"We often get people calling us saying they heard a show and can't remember the product name or phone number. We try to help them with that."

Infomercials often focus on food supplements or health aids, but can also promote chiropractic care or financial planning services.

"It's no different selling a service

good information out there, and we have a lot of it available in our stores."

Making the customers happy

People today still want what people have wanted forever: the impossible.

They desperately want to believe they can really lose weight "while they sleep." They want a non-prescription pill that will grow hair. They want to believe that a single pill can inhibit cancer, cure insomnia and improve muscle tone. So they listen and they buy.

Some shows may tout legitimate services. Others may be the 1990s version of "medicine shows" that traveled from town to town a century ago. "Doc

Marvello" would beat a drum until a crowd gathered, then climb on a makeshift platform and boast of the magical powers of his latest potion.

Today, the "crowd" is seated in their homes or driving down a lonely stretch of road. The pitch is similar, though. One hears a lot of success stories, wishes fulfilled and lives changed. The shills are the "callers" who have been hired by the doctor. They ask such tough questions as "I'm a senior citizen. Can these pills still help me lose weight, even if I've tried everything else?"

Caveat Emptor.



Ken R. is president of Ken R. Inc., an ID jingle production firm located in



Rick Roy, Coastal Media

Toledo, Ohio. He is a frequent contributor to Radio World.

Radio stations of all sizes have found a way to generate revenue during non-peak hours when their regular clients aren't buying.

than a product," said Roy. "The operators set the free trial appointment and it's up to the financial planner or doctor to get the patient to visit again on a paid basis."

"Federal law says any product sold through an 800 number or via mail order is subject to a 30-day money-back guarantee," said Roy. "All our shows state this, and you have 30 days from the day you receive the product to take advantage of the guarantee."

"I would like to see everyone making one of these infomercials be certified," said Bassett. "On the Internet, half of everything you see is not accurate — it's the same on the radio. But there's a lot of

Infomercial Brokers

The following contacts are good place to start if you are interested in finding out more about infomercial programming. The following are two of the better-known brokers in the business.

Coastal Media
Contact: Rick Roy
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Phone: (603) 433-9112
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— Ken R.

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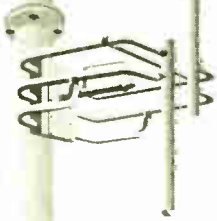
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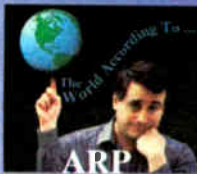
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Studio Sessions

Don't Be a Radio Rube.



See Page 49

Radio World

Resource for Radio Production and Recording

October 27, 1999

PERSONALITY PROFILE

Rusty Humphries, Renaissance Man

Ken R.

He consults morning shows. He produces comedy jingles for TM/Century. He hosts a talk show on Citadel Communications station KKOH(AM) in Reno, Nev.

He heads a charity that helps people with serious illnesses and raises money for it by sales of Nevada Nuclear Waste Radioactive Hot Sauce. He is running for the U.S. Senate. Glen Campbell played guitar at his wedding this summer.

He is all one guy. His name is Rusty Humphries.

His crazy-quilt career began in 1982 at KJR(AM) in Seattle, where young Humphries got his first job — sweeping

the parking lot.

His instructions from management: "Never, ever talk to the disk jockeys."

Directly to ND

Avoiding the control room, he went directly to the news director, who was desperate for someone to go into the locker room after a Sonics basketball game and record audio from the players.

In the post-game press conference, Humphries piped up and asked if the Sonics won the game only because the other team had a lot of injuries. A moment of silence ensued, followed by loud and colorful invectives from the coach.

Back at the station, the news director loved the tape. Humphries was on his way.

After gaining additional experience at KJR, Humphries talked himself into part-time consulting jobs fixing morning shows. His early clients included two men destined for stardom but who were then unknown: Kid Kraddick in Dallas and Mancow Muller in Kansas City.

At that point, Humphries experienced his first fiasco: replacing Rush Limbaugh on WGL-AM-FM in Fort Wayne, Ind.

"That didn't work," he says now.

Finding himself in Kansas City, Humphries was able to use his musical background in his next career step.

"I was a show producer but what I really wanted to do was comedy. I had this idea for recording parody songs, so I flew down to Dallas to talk to the folks at TM/Century. They ended up building a whole comedy service around my ideas."

Eleven years later, the service is run-



Rusty Humphries

ning on hundreds of stations in the United States and other countries, and Humphries still consults.

See HUMPHRIES, page 51 ▶

PRODUCT EVALUATION

Mini-Neumanns Have Radio Uses

Ty Ford

When the Neumann KM 183 omni and KM 185 hypercardioid mics showed up, I was a bit stumped as to where the readers of *Radio World* might use them.

These mics, both of which list for \$795, are not usually found in many radio and TV stations these days, but perhaps they should be.

Brand Manager Karl Winkler and I discussed the differences between the KM 180 Series and the older, more-expensive KM 100 line, such as the 130s, 140s and 150s.

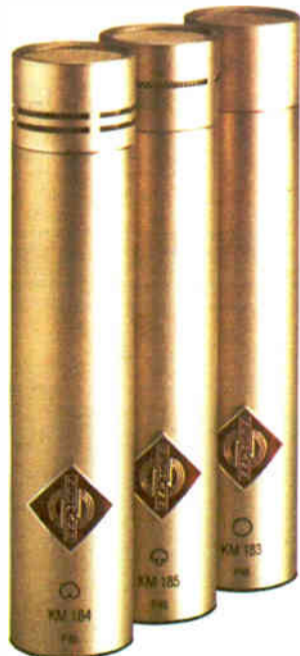
"The KM 180 Series is designed to offer the same sound quality with fewer features, at about 70 percent of the cost," he said. "The market is becoming aware that small-diaphragm mics are useful and cool. The cardioid KM 184 has become extremely popular. In the case of an omni, few people will step up to a KM 130 because of cost, but they will purchase an omni KM 183."

Unobtrusive size

Neumann calls the 180 Series "miniature microphones." At just over 4 inches long and about 7/8-inch in diameter, they are certainly smaller

than a U 87 or M149, but larger than one might expect for the term "miniature."

Each mic comes in a cardboard box with a foam windscreen and two mic clips.



The Neumann KM 180 Series

Winkler said the KM 183 is a good mic for an audience or in situations where people are performing in the studio and the acoustics are designed to create a nice-sounding space.

Radio has always been a bastion of big mics: RCA 77DX, RE20, SM7, SM5. Given this preference, I asked Winkler to make a case for the miniature 180 series.

"They use the hypercardioid KM 185 on the Howard Stern Show. Due to the RE20's wider pattern and lower sensitivity, the guests had to eat the mic to be clear.

"People are often intimidated by a big mic," he said. "The other very good reason is that the TV guys wanted something smaller. They said, 'You've got pretty girls coming into the studio. You can't see their faces behind a big mic.'"

A typical application for the KM 183 omni is the recording of instruments at a distance of two feet or

See NEUMANN, page 50 ▶

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- Bob Hamilton, New Radio Star

"It's difficult to go anywhere in Cool Edit Pro and not hear yourself whispering to yourself 'this is cool.'"

- Dave Oliwa, Radio And Production, May 1997

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◆ PRODUCT GUIDE ◆

Products for Radio Production

Mail info and photos to: RW Product Guide, P.O. Box 1214, Falls Church, VA 22041

Tascam MD Recorder/Player

The MD-801RmkII is a MiniDisc recorder, player and editor from Tascam, with attractive features for radio users.

The new rapid-access transport provides very fast disc access time. The

company says this makes the unit suitable as a cart replacement technology.

Tracks can be programmed in any order without rewriting data on the disc, making it appropriate for airing spots.

The deck is an updated model with 20-bit A/D and D/A converters, an input

sample rate converter, Sound Sync recording and Incremental Play function. Separate Monitor and Online outputs allow you to check the next selection before sending it over the air.

It also offers a Relative Time display and Replace Record function.

The rackable deck occupies 3 RU, and has a suggested price of \$2,699. A remote controller and RAM buffer are available as options.

For information, contact Tascam at (323) 726-0303, visit the Web site at www.tascam.com or circle Reader Service 56.

Pro Audio 8X CD-Recording Package

Microboards Technology offers a

second-generation audio CD-recording package for PC users, based on the original Professional CD Factory from Sonic Foundry.

Called Professional CD Factory 2000, the new package incorporates Sonic Foundry's CD Architect and Sound Forge XP, track editing and audio pre-mastering software. It also adds two pieces of software for the same \$749 suggested retail price.

The previous package, marketed by Sonic Foundry, included Microboards' PlayWrite 4080 4X CD-recorder, plus an earlier version of CD Architect and SoundForge XP. The new package uses an 8X recorder and is the result of a strategic partnership between Sonic

See PRODUCT GUIDE, page 51 ▶



Products & Services Showcase

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2. Your own air staffs usually know when they're being recorded and react accordingly.
3. By the time you get an air-check in the mail, it may be too late to respond to the competition.

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The TeleRadio even has a DTMF selectable external audio connection so it can be used as a standard telephone coupler too. An optional call progress decoder is available for using the TeleRadio on PBX analog lines and in areas that don't support CPC.

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READER SERVICE NO. 270

Watch Your Wallet, Your Station

Alan R. Peterson

I'm giving some thought to changing my name to either "Mark" or "Rube." It seems, after my third encounter with the same type of scam, I should just get used to it.

Carnies, or carnival workers, use both terms interchangeably to label a player as an easy target to part with his or her money. If they tag you as a mark or a rube, you may as well just hand your wallet over now and get it over with.

In my own instance, I stood through the same old sob story for the third time, completely refusing to fall for it. Maybe I just have a face that screams, "Hey, I'm from out of town. Rip me off!"

The latest episode happened recently in Dewitt, N.Y., where I was attending a friend's wedding.

Hey Rube

Some unsavory character saw my out-of-state license plates, sidled up to me outside of a restaurant and began with, "Don't worry, I'm not going to hurt you."

That is supposed to put me at ease? Anyway, he continued.

"You know where Cortland, N.Y., is?" he asked. I answered that I did. He went on with the setup. "My family is waiting for me down there — I've got two daughters — and I'm stuck here in town freezing and with a blown radiator ... got a hole *this* big."

This sting culminates with a request for money to be able to travel back to the town in question. At this point, one of two things could happen: I could give him a five-spot and never see him again, or his accomplice snakes out of nowhere and does a fast grab (or worse) when I flash the cash.

My third alternative: I told him that the same feeble act was tried on me at conventions in San Francisco and Las Vegas, and that he should get out of my face *now*.

These guys can be good, too. The one in Frisco was dressed in a snappy suit and tried to sell me on his car being towed. The Vegas scammer needed to get his car out of impound, but his icky clothing gave away the act.

The story always sounds legitimate. More than that, it amazes me that in one year, I was fed the same bag of fertilizer no less than three times in three different cities.

Isn't it nice to know things like that only happen on the outside and not in radio?

Yeah, sure

Let's all count the number of times in our careers that our boss hired a new jock whose resume claimed all sorts of amazing jobs and positions, yet never did a single one. You would need surveying equipment to ascertain the huge mountain of wool pulled over the boss's eyes.

In 1995, at one of the college radio conventions I speak at, one young man — I'll call him "Mike" — asked me to critique his tape. It wasn't bad, but there was no spark, no life. He may as well have been cold-reading a scripted performance. I let him know this, and tried to suggest ways to bring his own persona out and into the mix. We worked on four or five successive airchecks.

A few months later, I got a phone call

from a station up around the New York/Pennsylvania border that hired this fellow: "Al, what's the problem with your protégé?"

My what?

Evidently, this clown built up his resume around being "personally coached" by me, and invented a few highfalutin' quotes attributed to me as to his abilities. The station owner never called me for a reference and hired him based solely on his tape. Once there, "Mike" turned on the attitude, ticked off everybody he worked with, and kept the job for about three months tops.

I have no idea where he is today, but he doesn't seem to be listing me as a reference anymore.

'Skew toward younger demos ...'

It is a popular fable that jocks who cannot get work anymore as jocks, end up opening an ad agency or a radio consultancy.

This is no slam against the vast numbers of legitimate consultants out there. After all, several of you tried your darndest to shape me, against my stubborn

**Maybe I just have
a face that screams,
'Hey, I'm from out of
town. Rip me off!'**

wishes. It is more of the newer broadcasters that do two years in commercial radio, hate it, think they can do better and hang out a shingle proclaiming as much. Talk about a sweet scam; the end result is Radio Titanic.

Until last year, I saved a pile of memos that originated from one such instant "expert" that tried to give a smaller station I spent time at a more refined direction. The memos are gone, but their memories persist. To paraphrase a couple that I still recall:

"When delivering the temperature, give an exact number instead of a range. People relate better to '84 degrees' than they do to '80 to 85.'"

"Our target audience is the 30-year-old female. When doing breaks, talk a lot about makeup tips, fashion and daycare. These are issues she is concerned with."

"Carted music is too pristine. Try to play a mix of vinyl and cart. Surface noise is a comfort factor that reminds listeners of favorite records of their youth."

"Never talk after a double-red-dot record. This interrupts the momentum already established in the first few minutes of the hour and half-hour. Talking after a double-red-dot totally stops down the flow of the radio station."

If I remember, this was followed a few weeks later with something like: *"The 'Q' across town just went automated and is stealing listeners. To keep our listeners loyal to us, all air talent will give the call letters and say something relatable after every double-red-dot record."*

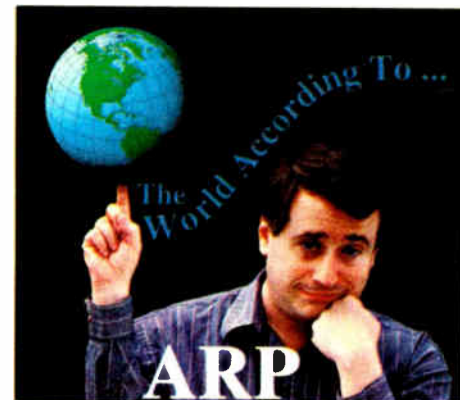
Did he really believe someone would stay faithful to his station only because they were told, "Heyyy, good lookin' Monday to

you?" I did not stay there long enough to watch this station rocket from No. 6 all the way to No. 15 in one book from this "expert's" misinformed decisions.

Never ends


There are plenty other scam stories you well know: the account executive who gets stiffed by a client who closes up shop moments before the bill is due. The box of tape you didn't order with a packing slip declaring it is the "other half of the shipment." The fake charity event that takes the whole town by surprise — I'll be sure to relate that one sometime soon — and more.

As long as there is a way to profit from someone else's gullibility, whether in a




parking lot or behind the PD's door, scams will persist. But only if you let them.


Don't be a boob, don't be a rube, and tell the guy you'll happily call a tow truck or the cops for assistance. The only "mark" then will be the ones left by his sneakers as he hightails it out of there.




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KM 180s: Affordable Neumanns

► NEUMANN, continued from page 47
more in a properly controlled acoustic environments.

For example, the mic will be used in an A/B stereo pair for stereo recording with a baffle plate or as a spot mic for piano, wind instruments, choir or organ.

It is also important to remember that even omni mics are directional at high frequencies. Stick a pair of omnis up together in coincident array and you will get a very nice stereo signal.

Special uses

The tighter pattern of the KM 185 hypercardioid makes it useful for recording in acoustically compromised environments, sessions with multiple sources to control the bleeding, and for location recording of dialog in enclosed areas.

They often are used for indoor work because shotgun mics can exhibit off-axis coloration and become more omnidirectional at low frequencies.

When compared to the Sennheiser 416, the KM 185 lacks the presence peak and, as expected, the reach. It has noticeably less off-axis coloration. Further comparisons of frequency response and sensitivity are problematic due to the variance in distance from the capsules to the front grilles.

The element in the 416 is at the base of the tube and the KM elements are just behind the grille. Tip to tip, however, the 416 required about 4 dB less preamp gain to match the sensitivity of the KM 185. At that matched level, the 416 exhibited more self-noise.

When I put the KM 185 hypercardioid up against the Neumann TLM 103, the TLM 103 was about 5 dB louder, was more sensitive and had less self-noise. With close sources of relatively normal volume, the self-noise will not be an issue. More distant and quieter sources may make the self-noise more apparent.

Given their obvious differences, I was

surprised at how similar the two mics sounded. They had differing proximity effects and the TLM 103 had a slightly bigger bottom once the proximity effect occurred. However, at a distance of one foot, the bottoms were about even, and the reach of the KM 185 was more apparent.

Both of these mics are prone to popping when worked closely. The simple foam pop filter that comes with the KM 185 does a remarkably good job of damping pops. At 10 inches back, the TLM 103 started picking up a lot of room. At 14 inches, I could hear the room in the KM 185.

At Flite Three recording studio with engineers Louis Mills and Mark Patey, we assembled a quartet of Neumanns, including a KM 183, KM 184, KM 185 and an older U 87i. The U 87 had more self-noise than the KM series and the preamp had to be raised about 6 dB to bring it in line with the KM series mics. The newer U 87ai has better

16 inches, the KM 185 heard less of the room.

The KM 183 and KM 185 both exhibited considerable handling noise, the KM 185 more than the KM 183 — not that you would be handling them in regular use. In fact, the KM 185 is so sensitive that if you hold it in your hand while connected to a cable and preamp, you can hear your hands, muscle and blood flow noises, which was a little spooky.

Standard practices of looping the mic cord to damp vibrations and using a good suspension mount can eliminate potential problems.

Watch the highs

Unlike some omni mics I have used, the KM 183 has a pronounced 7 dB rise at about 10 kHz. I like using a single omni or coincident omni mics positioned very close to acoustic guitars.

The market is becoming aware that small-diaphragm mics are useful and cool.

— Karl Winkler

noise figures and higher output.

Of the three KMs, the KM 184 was most pop-sensitive, followed by the KM 185 and KM 183. Without the foam pop filters, close miking of vocals is all but impossible.

The studio was preparing to do an ADR session with the KM 184 positioned above and pointing down at the talent. We compared the KM 184 cardioid to the KM 185 hypercardioid and found that, at a distance of 14 to

Product Capsule:

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and KM 185



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- ✓ Economically priced Neumanns



Thumbs Down

- ✓ No bass roll-off
- ✓ No pad

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monic characteristics.

If isolating one source from another is required or if the environment needs to be suppressed, the hypercardioid KM 185 is the best selection. In more tolerant environments and without competing sources, the KM 183 becomes the choice.

In the back of every radio station mic locker, you will probably find an assortment of ElectroVoice and Sennheiser dynamic mics. In the old AM days, the frequency response did not demand much in the highs. The sweet high end is an attractive feature of condenser mics over dynamics.

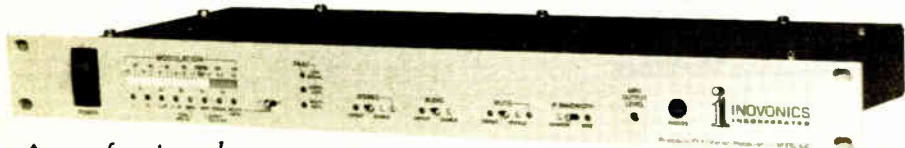
Additionally, dynamics also are more prone to interference from computer monitors. If you have the budget for a few good mics, and you already have a closet full of cardioids, think about your own applications and you will probably find a use for these mics.

■ ■ ■

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This Host Is Everywhere

► HUMPHRIES, continued from page 47
 "I just clicked in the studio but there was no formal training involved," said Humphries.

'House curse'

A pink slip and a friendly push out the door can uncover an opportunity, which is what happened at KKXK(FM) in Bakersfield, Calif.

"I finally bought a house, which meant that, according to the fabled 'house curse,' I was going to get fired. That is exactly what happened. It never fails."

Apparently the wife of the new station owner did not like Humphries' show. This was the impetus that Rusty Humphries needed to get into consulting in a big way.

"As someone who really didn't know much about programming I had a lot to learn, but I made it my life work. My first calls were to all the people I knew from the comedy network. I would just find out everything about a particular station, then contact the manager and tell him I could make the morning show more successful."

Humphries had a unique way of knowing what to charge his first client.

"I found out what the others guys were charging, then undercut them. Why should clients pay me top dollar when I didn't know what I was doing?"

At that stage, he would work for no

fee at all to prove he could do the job. "But when I figured out what I was doing, I raised the rates."

Enscenced at 50 kW station KKOH(AM) in Reno, weekdays from 3 to 6 p.m., he uses his show as a base for his other operations.

"I'm very excited about the Rusty Humphries Community Fund. The board and I wait until we see an opportunity, then we write a check and every dime goes directly to the right people," said Humphries.

One recipient was a young girl with cancer who was given a trip to Disneyland. Humphries described another as a young man going blind with a brain tumor, for whom the charity bought the family a car to go to a specialist 200 miles away.

Humphries found a unique way to fund his charity that involved another interest of his.

NOW you're cookin'

"A year ago I cooked up some chili, which everyone really liked. A guy I met said he could put it in stores. We sold 50,000 cans in the first two weeks and now we can't keep up with the demand. I guess I'm a little like Paul Newman, but better looking."

Sales of Rusty's All-American Chili, Roasted Garlic Pasta Sauce, Salsa and Nevada Nuclear Waste-Radio-Active Hot Sauce now help fund Humphries' charity.

He is also involved with a store called "Nevada Stuff," open only during the holiday season in Reno, featuring items created in the state.

Humphries began his radio show on April 1, 1998, with a joke on his listeners pretending to be a "bleeding heart liberal," which is risky for a conservative to keep up for a couple of hours during his first show.

While Humphries continues with his radio show and is working on plans for syndication, another interest captured his attention.

'Good old boy'

"I always thought politics was a 'good old boy' type of thing, and I wanted to stand up to these people," said Humphries. "I'm now a candidate for the U. S. Senate from the great state of Nevada. Current polls put me in a pretty good position, too." Humphries is running for the seat vacated by Richard Bryan.

In Nevada, one can maintain a radio show until four weeks before the primary.

"I haven't raised any money yet, but a lot of people are offering it to me," he said.

The next primary is in August 2000, but printers have already made him free yard signs, and T-shirt stores have donated product.

Humphries is thinking about his campaign seriously.

"I speak at every tea room and old folks' home. Anytime anyone calls, I'll be there. I think it's good for the station, good for Nevada and good for me."

The Careers of Rusty Humphries:

- Radio Talk Host
- Jingle Producer
- Film Producer
- Charity Head
- Celebrity Impersonator
- Song Writer
- Cook and Recipe Writer
- Singer
- Store Owner
- Politician
- Consultant

But wait, there's even more on the career résumé of this radio pro.

Humphries is one of the lead singers in a Coca-Cola commercial. He also has produced a film documentary called "Radio In America — The Jockumentary." And he is heard occasionally doing his Mike Tyson impersonation on Rush Limbaugh's show.

The Rusty Humphries official Web site is www.therustyshow.com

PRODUCT GUIDE

Products for Radio Production

Mail info and photos to: RW Product Guide, P.O. Box 1214, Falls Church, VA 22041

► PRODUCT GUIDE, continued from page 48
 Foundry and Microboards. It will be marketed by the latter.

The software additions are PlayWrite MP3 software for MP3 to Audio CD conversion on the fly and Microboards' HotBurn data pre-mastering software for Windows. The system includes a high-performance 16-bit SCSI host adapter, two pieces of Microboards CD-R media and an external SCSI cable.

Paul Sorensen, Pro Audio Division channel manager for Microboards Technology, said, "The 8X recording speed makes the Professional CD Factory 2000 one of the fastest CD-R systems on the market." After using the Sonic Foundry software for track editing and premastering, he said, users can burn a Disc-at-Once, full-length audio CD in less than 10 minutes.

Minimum system requirements are a 200 MHz PC with 32 MB RAM.

For information, contact the company in Minnesota at (800) 646-8881, visit the Web site at www.microboards.com or circle Reader Service 63.

Auralex Adds Metro Products

The Auralex Metro panel absorber now has two sisters — the Metro Diffusor and the Metro LENRD Bass Trap.

These additions to the Auralex Architects' Choice Series were designed with a more professional,

architectural look for use in studios, office buildings, churches and other applications.

The three Metro products work together to provide sound absorption, diffusion and bass trapping, while their "cityscape" cut provides visual continuity.

The Metro LENRD Bass Trap is triangular Studiofoam that fits into room corners and wall or ceiling junctures, and provides broadband absorption, especially at low frequencies.



The Metro panel absorber and the Metro LENRD Bass Trap are available in 12 colors.

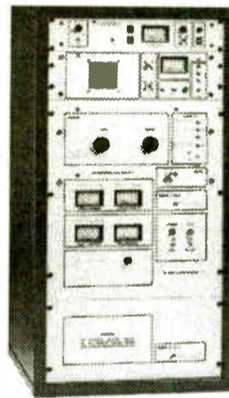
The Metro Diffusor is an affordable sound diffusor, extremely effective at broadband diffusion. It is available only in white, but can be spray-painted.

For information, call the company in Indiana at (800) 95-WEDGE, fax to (317) 842-2760 or circle Reader Service 104.

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Buyer's Guide

Tech Updates
Inside

Radio World

FM Transmitters

October 27, 1999

USER REPORT

Harris Platinum Z: Plug and Play

by **Wayne Blackwelder**
President
Broadcast Works Inc.

TYLER, Texas A few years ago, the computer industry introduced "plug and play" with great fanfare. Around the same time, Harris introduced the first Platinum Z CD series FM transmitters. I don't know if "plug and play" is what they had in mind, but after installing one, that would be the best way to describe a Z transmitter.

We installed our first Z in the spring of '97. We were building a new multi-station site. One of the stations was getting the new 5 kW Z5CD.

Smooth installation

The Z was selected primarily for its built-in redundancy and low-maintenance. It also turned out to be one of the smoothest installations we have done. After connecting the power, antenna, audio, and remote control, we turned it on. The transmitter came up to 100 percent and sat there quietly humming.

As we stood there, staring at the front panel, we were wondering what it was that we were forgetting. Surely, there was more to do. But that was it. The transmitter just came on and worked. Nothing to tune or adjust. It was like installing a lamp. Just plug it

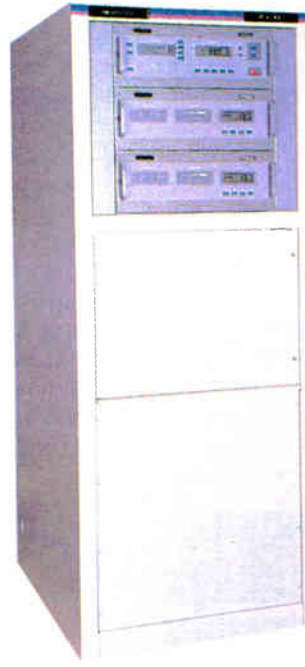
in and turn it on.

From a team of guys that have installed many transmitters from most every manufacturer you can think of — and perhaps even some you can't — this truly was a surprise. We have installed several Z Series transmitters since then and all of them have gone just as smoothly.

What we like best about the Z Series is its reliability. Harris did a good job designing the transmitters to stay on the air. Built-in redundancy has eliminated the common single point failures. They have redundant, auto-switching IPA modules and multiple DC power supplies.

Z transmitters even come pre-wired for an optional backup exciter. So if any module, power supply or even the exciter fails, they will stay on the air without user intervention. The modules can be hot-swapped, so there is no need to take the station off the air when changing modules. Also, the IPA and PA modules are interchangeable.

The Z transmitters are completely broadband. There are no tuning or loading controls. A frequency change requires about five minutes and setting a few DIP switches. In fact, Harris offers an external controller that allows you to remotely change frequency. This is ideal for a multiple station transmitter site where the same back-up transmitter can be shared by more than one radio station.



The Harris Z CD

The front-panel controls are simple to use and offer extensive diagnostics. Over 100 transmitter functions are monitored. The controller keeps a log of the last 32 faults with the date and time they occurred. You can review them via the LCD display. The remote control connections are extensive, allowing you to monitor and control every transmitter function. You can connect a traditional remote control or

See HARRIS, page 56 ▶

USER REPORT

BE Transmitter Breaks Ice in Duluth, Minn.

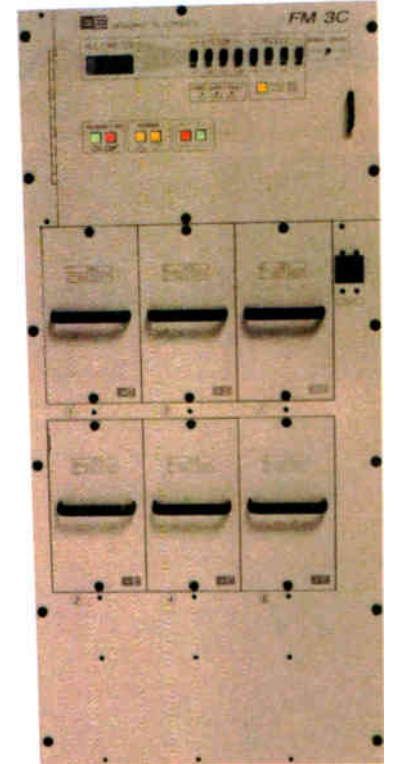
by **Paul Harkness**
Station Engineer
KDNW(FM)/KDNI(FM)

DULUTH, Minn. "It was the best of times and the worst of times" as we approached Easter Sunday, 1999.

This is the story of how we came to choose a new Broadcast Electronics FM-3C transmitter this year.

I had been working with one of the other engineers of the Northwestern Radio Network. We had just completed installing the new Gentner remote control unit at our KDNI(FM) 90.5 site in Duluth.

The installation went well and the system worked wonderfully. As we



BE's FM-3C

tightened down the last cable tie and stood back admiring the new installation, engineer Gary Ellingson from Fargo, N.D., said, "It sure would be great if we could replace that old transmitter someday."

The old Gates-Harris FM3H had certainly served well all those years, but its replacement would have to wait for another fiscal year.

The weather was starting to turn ugly Thursday night and as I headed to bed at 11 p.m.

Ice storms had been predicted and the wind was picking up and the slush was

See BE, page 54 ▶

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World Radio History

USER REPORT

KGDN Gets the Juice From Bext

by Bill Glenn
Station Manager, Engineer
KGDN(FM)

MARION, Wash. In 1993, KGDN(FM) was in the process of preparing for a power increase to a C-3 allocation.

Our owner had been to the NAB show and had been impressed with the appearance and specs of the Bext L series transmitters. Our requirements dictated 4 kW of transmitter power or a bigger antenna. We chose the Bext L4 to do the job.

A couple of years ago I helped install and maintain a Bext L10. I later had the opportunity to consult on the installation of an L7.

ably is on wheels and can be rolled in and out of the back of the cabinet. It is connected to the transmitter via three plugs and a ground lead. The blower assembly is mounted on slide rails and is also removable from the rear of the cabinet.

The PA amplifier cabinet is attached in the front of the cabinet and can be removed completely in a few minutes by disconnecting the high-voltage and filament leads, removing the RF output connections and cooling chimney, then undoing two bolts.

Shelves are provided in front for mounting exciter and driver assemblies.

Metering of forward and reflected power is provided at the upper front of the cabinet, and meters for plate voltage, plate and grid current are mounted on the control panel at mid-front level in the cabinet.

A maintenance dream

This transmitter is a maintenance dream, due to the accessibility throughout.

Because of its European origin, the electronic safety system is different from the domestic style.

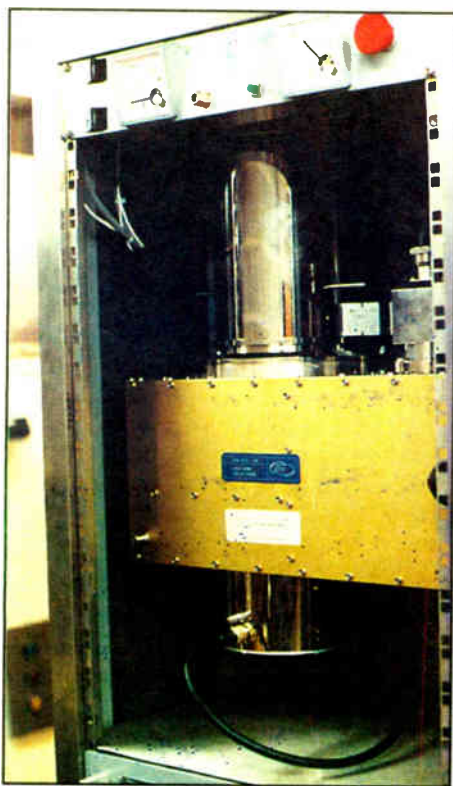
Instead of protective interlock switches throughout the cabinet, there is a key

lock system. A key lock switch allows the main AC switch to be turned on (which also starts the filaments). When the AC is on, the key cannot be removed.

When the main switch is off and the high-voltage shorting lever is in the grounded position — all on the lower front panel — the key can be turned off and removed. The key can then be used to unlock and open the back door. Again, when the back door is open, the key is retained in the door, not allowing the transmitter to be turned on.

The key has a third use. The cooling chimney for the PA tube is locked in place. To remove the tube or get access, the key unlocks the chimney and is retained in the chimney until it is back in its normal position.

The RF connections are completed
See BEXT, page 54 ▶



Bext L4 Transmitter. The front access cover is removed, showing PA assembly.

These transmitters are physically identical to the L4. They have the same cabinet and tube (3CX-5000), but with a bigger power supply, bigger blower and a bigger driver amp.

The modular construction of the L series makes it easy to change the configuration for various needs, and these transmitters are available up to 30 kW in the same rack-width cabinet.

Our new L4 is rated at 4 kW output, but we were in for a surprise when we turned up the heat.

Unique and accessible

The L4 is not built in the same fashion as the transmitters many of us are used to.

The Bext people have long been known for finding the best equipment designs available in Europe and bringing them here to the U.S. The L4 is one of those designs.

As it is of European design, it is built into an open-framed, standard rack-width cabinet. With both side panels and the rear panel removed, there is ready access to the entire insides. Its modular construction further enhances maintenance access.

The complete power supply assem-

Nautel FM The Sound of Cool.



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



Power Module

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

www.nautel.com

Nautel Ltd., Hackett's Cove, RR #1, Tantallon, Nova Scotia, Canada B0J 3J0
Phone: (902) 823-2233 Fax: (902) 823-3183 E-mail: info@nautel.com
Nautel Maine, Inc., 201 Target Industrial Circle, Bangor, Maine USA 04401
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Simply the best engineered transmitters

BE 'Rock-Solid' in Minnesota

► BE, continued from page 52

accumulating. I tried to tune in our main station KDNW(FM) but the signal was gone.

I called Gary to ask how to command the Gentner to turn the station back on — a minor detail we had not covered yet. The command codes would not bring it up, so through the fog we went to the site.

Ice was forming on the tower and reflected power was already way too high. We learned the power control in the transmitter could not be lowered because the setscrews on the motorized control were loose, so the transmitter shut down.

We lowered power and stayed on the air at 40 percent power until Friday after-

noon when the ice came off the tower.

Friday night we went off the air again because we lost one leg of the three-phase power, so I spent a couple of hours at the transmitter site cleaning while waiting for Minnesota Power to return power to the building.

I noticed one of the main power legs in the high-voltage power supply for the transmitter had burned up so that got replaced as well.

Things were running well at reduced power on both stations until Saturday night when I got a call from the tower owner that the service to their transmitter caught fire and burned up, so power to the entire building had to be shut down.

Sunday afternoon power was returned, but we could not get signal from studio to transmitter, so again, a visit to the transmitter site revealed an STL dish in a crumpled mass on the ground. We were off the air until the ice was off the tower and a new dish could be mounted.

At least we were on the air with our smaller station, I surmised.

The sky is falling

Easter Sunday afternoon I received word that the TV 6 building that houses our KDNW transmitter was being abandoned because falling ice had broken through the ice shield and roof, and water was pouring into the building. Power was pulled from the building shutting down KDNW as well.

The ice finished falling Tuesday night. The following morning revealed water pouring into the transmitter room in several locations.

A dent in the roof in the vicinity of our transmitter soaked our equipment and several inches of water had filled the trenches and covered the floor.

The ice bridge covering the horizontal run of feed line from the building was destroyed and our line was dented and chinked.

It looked like a battle zone, with huge divots in the earth — generators, antennas, most everything was destroyed within a 200-foot radius of the 850-foot tower, which, we later learned, had twisted in the wind and was near collapse.

Insurance covered the replacement of our old transmitter and after consideration of several options, the Broadcast Electronics FM-3C was selected.

I had not worked with BE transmitters but had heard several good comments.

When the new unit arrived, I was impressed with the quick service and compact design of the FM-3C. It truly proved to be a plug-and-play unit for us.

I lifted the mainframe into the equipment rack by myself, plugged in the six power modules as well as the Predator digital exciter, power and feed line, turned on the main breaker and pushed the On button.

The transmitter came up immediately with no tuning or adjusting. I set the transmitter to licensed power and we were up and running. Though the unit is feature-laden, in fact the only controls on the front are "off/on" and "power up/power down."

But those features are numerous. The BE FM-3C contains the FX-50 Exciter, full RF redundancy with multiple front-panel plug-in power amplifiers and redundant P.A.

Other highlights include proportional (VSWR) foldback to keep the transmitter on air even in the worst conditions, sophisticated control capabilities and metering of individual modules. The unit is N+1 compatible so you can have an automatic back-up for any signal in the band.

After several months of checking, the transmitter sounds great and the settings are rock-solid on initial settings.

The BE people have been great to work with and I love their box.

■ ■ ■

For more information contact Broadcast Electronics in Illinois, at (217) 224-9600, fax (217) 224-9607, visit www.bdcast.com or circle Reader Service 96.

Bext Does The Job at KGDN(FM)

► BEXT, continued from page 53

with nickel-plated 1-5/8-inch coax sections. The matching stub and band-pass filter are contained completely within the cabinet.

PA tuning and loading controls are readily accessible on the PA cabinet. A screwdriver grid match adjustment is also on the front of the PA cabinet.

Discovering headroom

I completed the installation of the L4 at the KGDN site and was in the final stages of tuneup when I made a pleasant discovery.

I had set this unit up at its rated 4 kW, when my curiosity made me wonder what the top limit was. I turned the exciter up.

With the 20 W exciter at full output, the 200 W driver was outputting about 190 W. The L4 was putting out 6.2 kW.

I conferred with ownership and with Bext. Bext conferred with the factory and we concluded that the unit could probably run at the higher power levels continuously, if needed. So we re-engineered the installation and licensed the site to run with the L4 putting out 5.5 kW.

I was cautioned by the factory to watch closely for signs of power supply overload or overheating. Although the power supply was robust enough to handle that power level, it just never had been done before.

It ran cool and gave no appearance of being under any excessive load.

Upgrades and satisfaction

In July, the KGDN Bext L4 passed the 50,000-hour mark operating at 5.5 kW. We replaced the tube at 40,000 hours, and it was still producing 5.0 kW.

Recently, we completed the final power upgrade for KGDN by taking it down into its modular components, loading it onto a truck and moving it to a mountaintop location. It now resides in a new building and continues to operate without failure at 2.1 kW.

The people at Bext are top-drawer in their assistance and support. They remain as interested in the status of their products today as they were when the units were new.

Mark me down as a fan of the Bext L series transmitters. They are easy to install, easy to maintain, their tube life is excellent and they are very reliable.

Bill Glenn can be reached via e-mail at kgdn@owt.com

For more information contact Bext in California at (619) 239-8462, fax (619) 239-8474, visit www.bext.com or circle Reader Service 60.

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TECH UPDATES

Itelco

New **Itelco** compact FM transmitters use the latest FM Digicast exciter and self-contained 500 W amplifier modules.

The exciter combines IF-to-RF conversion, signal pre-amplification and control logic for the entire transmitter. All control and monitoring functions are implemented with just seven buttons and an LCD display.

The hot-pluggable amplifier modules can be used to configure transmitters with output power of 500 W, 1 kW, 2 kW and 4 kW. The 500 to 2 kW transmitters are 19 inches wide and occupy 8 rack units, while the 4kW transmitter requires 14 rack units (24.5 inches).

For more information, contact **Itelco USA in Colorado** at (303) 464-8000, fax (303) 464-8778, or visit www.itelco-usa.com or circle **Reader Service 70**.

LPB

LPB provided FM translation systems for Dr. Rodney Howard Brown's Good News Crusade at Madison Square Garden in New York City.

Throughout the six-week event, volunteers used the LPB transmission system to provide simultaneous language translation into Spanish, Portuguese, French-Creole, Arabic, Russian, Korean, Japanese and Mandarin Chinese. Other languages were substituted throughout the event, based on the needs of the crowd.



After discussions with members of the technical staff of the Billy Graham Evangelistic Association and LPB, the technical manager for Good News selected LPB as the system designer and provider for the venue.

LPB designed, built and installed the on-site FM language translation system, offered on-site tech support, and provided custom radio receivers, 10,000 radios and 1,000 spare ear buds for the event.

The low-power broadcast to the arena was allowable under FCC Part 15 unlicensed rules. Selected channels in the standard 88-108 MHz FM broadcast band carried the individual languages to listeners throughout the seating areas.

For more information contact **LPB in Pennsylvania** at (610) 644-1123, fax (610) 644-8651, visit www.lpbinc.com or circle **Reader Service 71**.

Nautel

The **Nautel FM10** is a new, solid-state 10 kW FM broadcast transmitter. It is available with the NE50 Direct Digital Synthesis (DDS) FM Exciter. Several 20 kW-combined configurations of the FM10 are also available.

The transmitter has typical overall efficiency of 65 percent for lower energy consumption. The company says it features a high power factor, 0.98, for lower AC line current ratings, and a single-cabinet design, with a 32-inch x 42-inch footprint. Modular construction allows on-air service.

Users can change the frequency of the FM10 in the field.

Nautel's digital FM exciter, the NE50, features Direct Digital Synthesis. The output signal is adjustable from 1 to 55 W, and the NE50 features front-panel frequency selection. The NE50 accepts analog composite or AES/EBU digital inputs.

The FM10 is available in several 20 kW-combined configurations. One features a switchless combiner for a 20 kW system. Another configuration features an automatically switched combiner system and the option of main and standby exciters with automatic changeover.



Nautel also offers solid-state FM transmitters at 3.5 kW, 5 kW, 8 kW and a 16 kW-combined configuration.

For more information contact the company in Nova Scotia at (902) 823-2233, fax (902) 823-3183, visit www.nautel.com or circle **Reader Service 62**.

JT Communications

JT Communications, known for low-power broadcast products, has introduced the FMP-20 portable FM exciter. The FMP-20 operates as a back-up exciter or portable transmitter, and can be used in an emergency "plug-and-play" application.

The FMP-20 operates from a 12VDC battery or an external DC power supply, and provides up to 15 watts output.

The FMP-20 contains the JT Communications PLFM-100 frequency-agile exciter and a tunable RF amplifier. The unit also features a lightning-protected, low-pass filtered 50-ohm output connection, and a surge/spike/reverse-

voltage/noise suppressed DC power input connection, eliminating noise during operation in an automobile.

The FMP-20 RF and output parameters can be locally or remotely monitored/switched with a factory-supplied portable multimeter, accessible through a conventional DIN plug. The FMP-20 contains lock-up protection circuitry, and both composite and pre-emphasized audio inputs. The FMP-20 is manufactured in the United States and contains a one-year limited factory warranty.

For more information, contact **JT Communications in Florida** at (352) 236-0744, fax (352) 236-5130, visit www.atlantic.net/~jtcomm or circle **Reader Service 53**.

QEI

QEI expanded the popular FMQ series line of transmitters with the introduction of a new 8 kW transmitter.

The FMQ-8000B FM transmitter uses a single 3CX600N7 (YU-148) grounded grid triode driven by a 600 W solid-state FET IPA that has been adapted from QEI's Quantum series solid-state transmitters.

The company says the IPA pro-



vides sufficient drive to ensure that the transmitter's final RF output power remains at its preset level over the life of the PA tube.

Also, QEI is working with USA Digital Radio and Lucent Digital Radio to ensure that QEI's solid-state and tube-type transmitters can be adapted for use in hybrid in-band, on-channel digital radio, as well as full digital transmission.

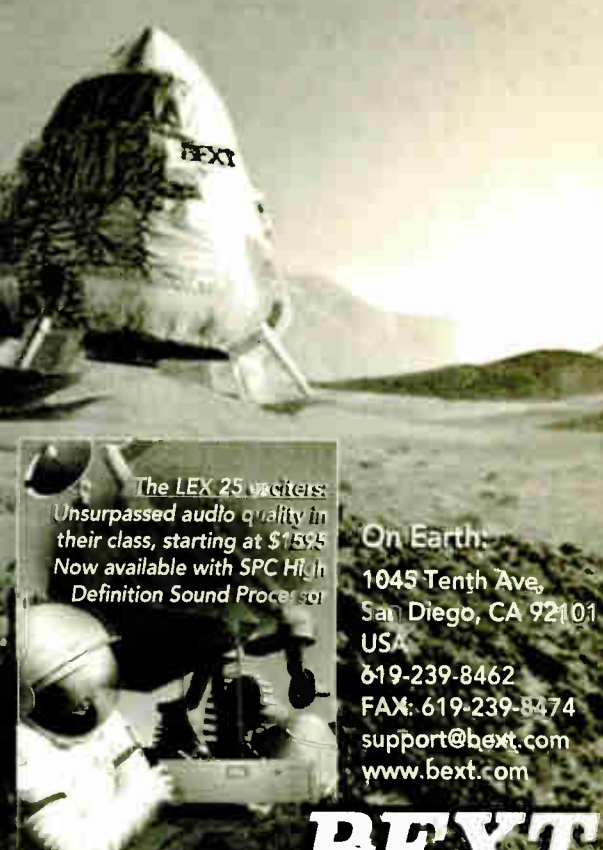
QEI supplied a Quantum solid-state transmitter to USADR for testing in Orlando, Fla., during The NAB Radio Show. This transmitter is being used for IBOC testing in Orlando.

For more information, contact **QEI in New Jersey** at (800) 334-9154, fax (609) 629-1751, visit www.qei-broadcast.com or circle **Reader Service 54**.

FM engineers on Mars will face special problems*

When the FCC grants new licenses on Mars, BEXT will be there. Since 1985, BEXT has pioneered developments in affordable, dependable FM transmitters with front-panel frequency programmability and high quality audio performance. We'll be there into the next millenia, always with more user-friendly features and always competitively priced. From exciters to amplifiers, from STLs to transmitters, look to the Low Power Leader™ for the finest in RF broadcast equipment.

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BEXT

Z Series On the Make

► HARRIS, continued from page 52
use the RS232 interface for more advanced systems.

What we don't like about the Z is the floor space it requires. The large fan and air filters in the back door add about a foot to the depth of the transmitter. If your building is cramped, this can be an issue. The large fan Harris is using runs much slower than traditional blowers.

The days of roaring motors ...

The good thing about this design is that it yields an incredibly quiet transmitter. The days of roaring blowers are gone. Harris also offers as an optional provision for external air-handling equipment.

The Z comes standard with the Harris DIGIT CD exciter. If you have a DIGIT exciter, you already know what it can do. If you don't have one, you should get one.

We have found this exciter to be one of the best we have ever used. It provides more "results per dollar" than just about anything else you can add. It is available with either analog or digital input modules. If you choose the digital input module, it provides an emergency analog input. This is valuable if you lose a digital encoder or decoder on an STL. The integrated digital stereo generator and limiter are extremely powerful. We have had great success using the Orban 8200 Optimod linked to the DIGIT exciter

through the Harris CD-LINK digital STL.

Using these units together provides a complete AES/EBU digital transmission path.

I asked a few of our employees what they thought about the Z Series transmitters that they have installed. Here's what they said:

MARK: "Easy to install, very reliable."

STEVE C: "I feel like the Maytag Repair Man."

STEVE H: "None of the Zs that I've installed have ever had a failure."

DAVE: "They are boring. Plug it in and turn it on."

JACK: "A great box."

KATHRYNE: "What's a Z?"

Hank has not had the opportunity to install a Z, but does service many of our clients that use them. I think you'll appreciate his response:

HANK: "I've never had to work on one."

We install and maintain equipment from many different manufacturers. It is our policy to recommend products based on customer needs, not what we consider our favorites. If a Platinum Z CD Series transmitter meets your needs, we highly recommend it.

To find out more about Broadcast Works, visit the Web site at www.broadcastworks.com

For more information contact Harris Corp. in Ohio at (800) 622-0022, visit the Web site at www.harris.com or circle Reader Service 81.

USER REPORT

Armstrong Transmitter Performs at 9,000 Feet

by Vic Michaels
Owner
Mountain States Radio Inc.

CHEYENNE, Wyo. More than two years ago, I received a construction permit for KRKI(FM) in Estes Park, Colo. I was determined to find the best, most-reliable transmitter because my new site is at a remote location at 9,000 feet AMSL.

During my research to purchase a 10 kW FM transmitter, a colleague advised me to check out **Armstrong Transmitter**.

I was surprised to find Armstrong included features like thermostatic protection in the PA, which will take the transmitter off the air if the PA overheats to avoid PA damage. I was also impressed that Armstrong uses FCC-type accepted solid-state IPAs and how quickly you can patch around either the PA or IPA to stay on the air if a failure occurs.

Also, Armstrong's PA tuning and loading are motorized using precision stepper motors making the operation both smooth and accurate. The plate

transformer and choke are conservatively rated allowing comfortable headroom.

What amazed me the most was the price, about 20 to 25 percent below other brands.

Installation was a breeze. Access to AC connections, remote-control hookup and the RF output were easy. I was at full power in less than an hour.

Since sign on, the transmitter has performed flawlessly with one exception. About six months ago it developed a blower motor problem. I called the 24-hour support line on a Saturday morning. Armstrong sent out a new motor that arrived by Saturday evening.

Armstrong's 24/7 tech support worked as promised. This event was proof.

My experience with Armstrong transmitters, antennas and RF equipment continues to be very enjoyable.

For more information contact **Armstrong Transmitter Corp.** in New York at (315) 673-1269, fax (315) 673-9972, e-mail to sales@armstrongtx.com or circle Reader Service 69.

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.



Here at Radio World, we strive to deliver the information that helps you, our readers, deliver the goods that make you the most wanted people in the industry. We salute you, and thank you for reading Radio World.

Tell us why YOU read Radio World!

Send your answers to the above questions and anything else you'd like to share to: hharris@imaspub.com, or fax us at 703-998-2966 attn: H. Harris. Include your contact information, and we'll get back to you.

TECH UPDATE

Crown Broadcast

Following a rigorous and competitive procurement process, **Crown Broadcast** was awarded a contract to supply the National Weather Service with weather radio systems.

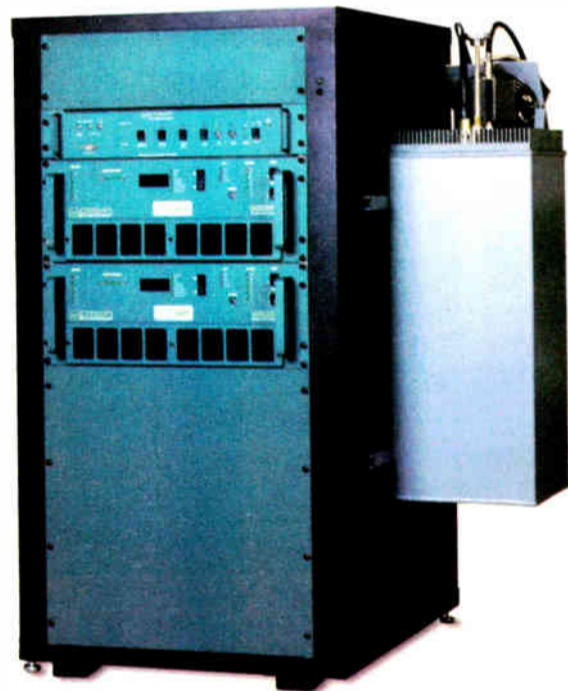
This initiative follows Vice President Al Gore's mandate for 95-percent weather radio coverage across the U.S. with improved performance of the existing network.

In low-power applications, Crown offers a 2 kW amplifier with separate DC power supply. The broadband amplifier requires no field or factory tuning and is 75- to 80- percent efficient across the band. It features hot-pluggable, 500 W power modules and a responsive protection mode. The DC supply is power-factor corrected.

Crown features include comprehensive metering and control circuits, DC protection and RF isolation, hot-pluggable operation for RF amplifiers, and dual redundancy for fail-safe operation

in Weather Radio systems.

Crown designs and manufactures FM transmitters and RF amplifiers for radio broadcast and is the sole supplier of weather radio systems for the



National Weather Service.

For more information contact **Crown Broadcast** in Indiana at (800) 294-8050, fax (219) 294-8222, visit www.crown-intl.com or circle Reader Service 61.

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Andrew L44-N (8) 1/2" connectors, new in boxes, \$20 ea; Andrew 87-R 1-5/8" connectors (24), \$125 ea. C Bryson, 724-776-5204.

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Jampro JSCP-1 CP at 102.3 w/heaters, \$500; 4-Bay hor pol FM 102.3 w/heaters; approx 100' Andrew 7/8 foam coax w/female N conn. D Ashbaucher, 419-865-5551.

SWR FME Series 1 bay FM bdcnt antenna, still at manufacturer waiting for freq selection, \$700 includes shpg. M Olson, 507-437-1480.

ON-SITE REQUIREMENTS

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- RF-EMF compliance signs.
- Custom CAUTION signs.
- FCC ASR gate entrance signs.

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Coax patch panel 3-1/8"-7 pole. Mike, 800-588-7411.

Dielectric 3-1/8" coaxial relay, Mike, 800-588-7411.

WANT TO BUY

ME Kay Dyer DA3, 5, 6, 9 directional radio receiver antenna. J Hartt, 206-282-0720.

AUDIO PRODUCTION

WANT TO SELL

Orban 8100A FM processor/stereo gen, avail 10/99, \$2500; Gentner Prism II FM 4 band processor, pair w/stereo coupling cable, avail 10/99, \$1500/pair. M Pappas, 303-988-0976.

ADC Propatch 1/4" punch-block patchbays, new, \$600 (many, ADC TT 144 point patchbays recon, \$149-229, Switchcraft 1/4" 96 point, new, 2 spaces, \$249. W Gunn, 760-320-0728.

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Good News automation system including AT converter, software, replay board and more, all in gd working cond, call for details, \$1850/BO. C Pettigrew, 580-536-8886.

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Arrakis Digilink DL2 or DL3, must have Y2K upgrade software & would prefer latest software upgrades. A Clepper, 580-237-1390.

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BE 900-5301-001 triple deck cart machine, \$200. J Androlonis, 910-494-1230.

Harris 3 deck, gd cond, \$100. C Harper, 606-484-9393.

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Gentner Audio Prism's 1 or 2. R Keefer, 505-762-6200.

Urei (Universal Audio), Altec, Gates Sta-Level, Volumax, Level Devil, RCA. Will pay top dollar. Ken Gold, On Air Digital Audio, 403-543-3333.

Soundcraft 600/800, Tascam 2600, Audiotronics 110A, Mackie 1604, Neotek Elite. W Gunn, 760-320-0728.

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RADIO ENGINEER: 7 Station Cluster in Paradise East is in need of a Chief Engineer on the beautiful outer banks of North Carolina. The home of fishing, hunting and fun in the sun. Our CE will maintain and repair all types of equipment including AM & FM transmitters, computer skills necessary, FCC rules and regulations, position requires experience in designing and building new studios. Must be a good trouble shooter, self starter, with good people skills. 24 hour availability a must. Competitive salary/benefits. Send resume to: TCHARITY @DIXIE1057.COM OR FAX TO 252-441-2109.

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Hey Ohio! Let me take care of your Middays or Nights. 9 yr pro wants to work at your station. Drew 330-633-5323.

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CE position wanted: exper w/computers, xmtrs, automations, DCS, UDS, digital studios, 22 yrs exper. R King, 541-269-9109.

Hard working, friendly CE seeks employment, FT/PT/Contract work, NE. Looking for Radio/TV/AM/Cable or similar. FCC/CET licensed. Avail immed. M Rakoff, 718-969-5224.

Hardworking, friendly broadcast school grad, dependable & avail, will relocate, Urban & multicultural interest, but will work any format/shift. seeking FT/PT, voicework. Chaka, 405-329-8897.

Have training & exper that I would like to put to work for you. Production, promotions, sales, advertising. Graduate of Broadcasting School. Jeff, 405-340-4778.

Young, hot talent works cheap, sounds cheap too. Better choice: Veteran news anchor, production & air talent. Affordable pipes. Alex, 513-777-8423.

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	1x	3x	6x	13x
1-9 col inch (per inch)	\$79	77	75	72
10-19 col inch (per inch)	\$74	72	70	67
Distributor Directory	\$121	118	115	110
Professional Card	\$84	82	80	76
Classified Line Ad		\$2.00 per word		
Blind Box Ad		\$15 additional		
Station/Studio Services		\$175		

To compute ad costs: Multiply the number of ad inches (columns x inches) by the desired rate schedule for your per unit cost. Example: a 3" ad at the 1x rate is \$237, at the 3x rate \$231, at the 6x rate \$225, at the 13x rate \$216, etc.

ACTION-GRAM

EQUIPMENT LISTINGS

Radio World's Broadcast Equipment Exchange provides a FREE listing service for radio stations and recording studios only. All other end users will be charged. This FREE service does not apply to Employment Help Wanted ads or Stations For Sale ads. These are published on a paid basis only. Send your listings to us by filling out the form below. Please be aware that it takes one month for listings to appear. The listings run for two consecutive issues and must be resubmitted in order to run again. Thank you.

Please print and include all information:

Contact Name _____
 Title _____
 Company/Station _____
 Address _____
 City/State _____
 Zip Code _____
 Telephone _____

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 F. Recording Studio
 A. Commercial AM station K. Syndicators Service Providers
 M. Ind. Engineer
 B. Commercial FM station G. Audio for Video/TV Station
 C. Educational FM station H. Consultant/ind engineer
 E. Network/group owner I. Mfg. distributor or dealer
 L. Consultant J. Other
 N. Delivery Service (Internet/Cable/Satellite)

II. Job Function

A. Ownership G. Sales
 B. General management E. News operations
 C. Engineering F. Other (specify)
 J. Promotion K. Production Mgt or Staff
 H. Programming/production

WTS WTB Category: _____
 Make: _____ Model: _____
 Brief Description: _____
 Price: _____

WTS WTB Category: _____
 Make: _____ Model: _____
 Brief Description: _____
 Price: _____

WTS WTB Category: _____
 Make: _____ Model: _____
 Brief Description: _____
 Price: _____

*Closing for listings is every other Friday for the next month's issue. All listings are run for 2 issues unless pressed for space or otherwise notified by listee.
Broadcast Equipment Exchange
 PO BOX 1214, Falls Church, VA 22041 • Tel: 800-336-3045 • Fax: 703-998-2966

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This listing is provided for the convenience of our readers. Radio World assumes no liability for inaccuracy.

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For advertising information, contact
 Richard Farrell at 703-998-7600 x115 or
 rfarrell@imaspub.com

◆ READERS FORUM ◆

Never underestimate radio

Dear RW,

Re: Editor Paul McLane's citation (RW, Sept. 1) of a study projecting the growth of Internet advertising to 8 percent of total marketing by 2004...

A recent ad agency change by Amazon.com revealed that the biggest brand name on the Web spends \$2.5 million on Web advertising while spending \$130 million on traditional venues...

The cited Forrester Research estimate may include the cost of setting up and maintaining Web sites to reach its 8 percent, but as regards advertising itself, the Internet has a very long way to go for reality to match hype.

(The word is out — banner ads are a bust, and numbers of site hits are meaningless in measuring effectiveness.)

Your readers may also be interested in an earlier experience that gave me an enduring respect for radio advertising.

About a decade ago, I worked in political campaigns, usually on the underdog's side. We faced well-heeled opponents who blanketed the TV airwaves with ads while we had to "resort" to radio ads.

Surprise, surprise, we found time and again that well-done and -targeted radio ads, especially during drive-time, were at least as effective as TV ads. In fact, the couple of times we also did TV ads, and even won awards for those ads, our polling and focus groups told us the radio ads were more effective at getting into people's heads.

Never underestimate the power of radio advertising.

Robert Anbian
Senior Associate

Keith Hatschek & Associates
San Francisco

More thoughts on LPFM

Dear RW,

The issue of LPFM has indeed been a hot topic for all of us in the broadcast business. I am no exception. Many have voiced their concerns one way or the other about the LPFM consideration.

One of these individuals is Edward C.

Dulaney (RW, Readers Forum, Sept. 1). While he is certainly entitled to his opinion, it needs to be noted that it's just an opinion, not necessarily factual.

Mr. Dulaney had stated that I had not "done my homework" with regard to LPFM. He has also made the statement that we should not "let the fringe 'pirate' broadcasters push their chaos on legal broadcasters."

How inconsiderate! If we believe that, anybody interested in having an LPFM radio station would be viewed as advocating radio piracy, which is simply not true. Anyone who would have an LPFM station would be legal and be subject to FCC guidelines the same as any other station.

Those against LPFM claim it is an interference issue. If it wasn't, could we then conclude that folks like Mr. Dulaney and the NAB's John David would give their smile of approval on LPFM? It's highly doubtful. So this issue appears to be a smoke screen.

The concept of LPFM is really a good idea. Instead of bucking it all together (like those who just don't want it), perhaps it would be a good idea to give constructive feedback to the FCC on how this service could be better implemented.

Bob Henry
SBE Broadcast Engineer
Albuquerque, N.M.

Promises, promises

Carl Lindemann notes in "Promise, Problems of 24/96" (RW, Aug. 18), that most PC motherboards can only house a maximum of 384 MB of RAM. He also notes that the Intel BX chipset can handle up to 1 GB but is not widely available.

But Carl forgot about Macintosh computers.

Top-of-the-line Macintosh computers have been capable of handling 768 to 1GB of RAM since 1995 or so (8500/9500 series). These older machines can easily be upgraded with G3 (PPC 740) processor cards and faster SCSI drives.

The recent Blue and White G3 PowerMacs use PC100 memory and can handle 1GB.

The Blue and White G3 PowerMacs can be delivered with Ultra2 SCSI drives.

Radio and the Ballgame

Radio and the national pastime have the perfect marriage. Autumn demonstrated this once again.

The major leagues created exciting playoffs this year, with teams from great baseball towns playing deep into October — New York, Boston, Cleveland, Atlanta and a Southwest Sampler of three cities in Arizona and Texas.

The wild-card format, which was not well-received by traditionalists at first, provides an extra layer of games, creating more opportunity for exciting match-ups like the one in which the Red Sox upset the Cleveland Indians and earned a trip to the Stadium to play their long-time rivals, the Yankees.

Those games make for great broadcasts. If you were lucky enough to "watch" the final game in the Mets-Diamondbacks division series on the radio, you know what we mean. If you're tempted to turn down the TV sound on a regular basis, you understand.

Smart radio managers know: baseball has great appeal, even when no local teams are involved.

We don't have a major-league team to call our own in Washington. Our "local" team, the beloved but highly paid Orioles and their erratic, difficult owner, occupy a stadium an hour's drive up the interstate. The O's barely earned fourth place this year.

But Washington is full of baseball fans. Your town probably is, too. And on a Friday evening in October, when you are in the car or raking leaves in the yard and your Mets or Indians or Braves are playing a critical game, nothing is better than tuning in to ESPN Radio or, even more romantic, to the distant signal of your hometown AM station and those familiar voices from the catbird seats.

We're sorry that, in some cities, baseball fans had no strong local signal airing playoff games.

We don't want to hear syndicated talk at this time of year. Not just now. We want baseball.

Radio and baseball form a wonderful marriage. Here's to many more years of bliss.

— RW

The new PowerMac G4 machines can house up to 1.5 GB RAM and the top-of-the line units have twice the memory bandwidth as their predecessors.

Macintosh computers never used the ISA bus so there is no need to worry about retiring old audio cards. (To be fair, no one bothering to work with 24/96 audio would use the built-in Mac audio or older PCI or Nubus cards.)

Carl's advice, "It's easier to start from scratch and buy a new system" seems to apply far more to PC owners. Recent Mac purchasers need not worry. But if you are going to have to buy a new system anyway (and most likely software too) consider a Macintosh. This is especially true with the new G4 machines. See Apple's Web site (www.apple.com) for details.

Stephen Ickes
Vice President
The Business Link Inc.
Baltimore

Carl Lindemann replies:

Yes, yes ... and we should all be typing on Divorak keyboards, driving Tucker automobiles, and paying a flat income tax. I'd quickly trade yards for meters if

everyone else were so sensible.

Sorry if I do not give Apple equal time for radio production. The problem is that Apple did not exploit the opportunity they had in the radio market. Without on-air automation as well as traffic and billing software for the Mac, its utility for radio is limited.

For audio production, it is a standalone affair more geared to the pro audio market. If the new Macs are easy to upgrade to 24/96 audio — wonderful. That just underscores my point. As I wanted to make clear, the 24/96 standard is of questionable value to radio producers. Like the Mac, it is intended for pro audio.

Write to Us

RADIO WORLD
READERS FORUM

P.O. Box 1214

Falls Church, VA 22041

radioworld@imaspub.com

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Table with 2 columns: Name and Title. Includes Editorial Staff and Editorial Contributors.

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NEXT ISSUE OF RADIO WORLD NOVEMBER 10, 1999
For address changes, send current and new address to RW a month in advance at P.O. Box 1214, Falls Church, VA 22041. Unsolicited manuscripts are welcomed for review: send to the attention of the appropriate editor.

Everyone Wants to Own a Convertible!



It doesn't matter what's under the hood...

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

A Word to the Competition

 *Wheatstone
Direct*

SPEED
LIMIT
OdB

MOVE OVER.

AND A WORD TO THEIR CUSTOMERS

WE KNOW loyalty is a good thing, but the broadcast industry has changed dramatically in recent years, with some winners and some losers.

If you haven't looked at Wheatstone lately, it's time you checked out our new product line. Wheatstone has grown with the industry; in the last 3 years alone we've developed 5 digital and 9 analog consoles, plus a digital AES router that can integrate smoothly with our consoles and your automation system. We've constructed a brand new high-tech manufacturing facility

in New Bern, North Carolina, taking full advantage of the latest robotics and laser fabricating machinery.

All this self-funded—25 years of continual growth, profitable every single year; a responsibly managed company with a long term view.

Isn't it time to re-assess your suppliers?

SO... While our competition has been busy cashing in their chips, Wheatstone's been getting bigger and better, developing the **products** you need today, and the **support** you can count on tomorrow.

CALL WHEATSTONE—DIRECT.

 *Wheatstone*

600 Industrial Drive, New Bern, North Carolina 28562
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