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$2.50 The Newspaper for Radio Managers and Engineers September 24, 2004

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Kinstar Antenna Report Is in FCC's Hands

Developers Seek Okay to Sell Short Top-Loaded Cage Monopole AM Design

by Randy J. Stine

WASHINGTON Out to disprove skeptics of short AM antennas, developers of the Kinstar low-profile AM antenna believe they have the technological solution for broadcasters faced with the difficult task of securing real estate for new antenna projects in restricted areas. They have asked the FCC to accept its top-loaded cage design antenna for use in the United States.

STAR-H Corp. and Kintronic Laboratories Inc. are partnering on the Kinstar, which measures only 45 feet high at 1680 kHz. They say data from field tests collected at a test site near Bristol, Va., in late 2002 show the Kinstar antenna is 98 percent as efficient as a standard quarter-wave

See KINSTAR, page 8 ▶

First HD Radio RF Upgrades Hit the Market

by Leslie Stimson

HD Radio technology may only be starting to climb its adoption curve, but transmission companies plan to showcase products at the NAB Radio Show in San Diego that constitute the first IBOC system upgrade.

Ibiquity Digital Corp. says its new digital exciter platform answers an industry desire for a DSP-based exciter option and the ability to encode audio and data at the studio end of the system.

Harris and Broadcast Electronics will show products that work with what Ibiquity calls the Exgine, for Exciter DSP Engine technology. Ibiquity employees will talk about the upgrade during the Broadcast Engineering Conference.

"Manufacturers are providing an upgrade path for HD Radio Advanced Application Services. We're in an industry that's has been accustomed to product platforms lasting 10 years or more. AAS data applications will be a significant transition requiring flexibility to keep pace with developing data services," said Jeff Detweiler, Ibiquity broadcast technical manager.

See IBOC, page 6 ▶

Court Upholds New Market Definition

by Leslie Stimson

PHILADELPHI A three-judge panel of a federal appeals court is allowing the FCC to go ahead with its plan to change its radio market definition to one based on Arbitron Radio Metros.

This is one of several ownership rules passed by the commission more than a year ago and stayed pending appeals.

The new rules would use the Arbitron Radio Metros to define which stations are in a market; they also would include non-commercial stations in markets and attribute Joint Sales Agreements toward determining compliance with ownership limits.

At press time, NAB was reviewing the decision. The FCC had not yet issued guidance for how it would proceed with the transition to the new definition.

An FCC spokesman said the rules could be challenged again if opponents are granted a rehearing. The judges said in their order the full court could not hear the case because too many judges would recuse themselves. Opponents also could appeal to the U.S. Supreme Court.

NAB had opposed the FCC's request to replace the contour overlap method, stating in a June filing. It believes lifting the stay while it was being reviewed would cause "needless chaos" and irreparably harm smaller stations.

The FCC had asked the court to allow the agency to implement its definition, reasoning that the system would give a more realistic picture of how many signals are in a given market. It felt the contour overlap method sometime gave a skewed result by including distant signals.

NAB and Emmis stated to the court, "The commission's failure to justify its switch in methodologies is patently inadequate."

They argued that the agency must show the new definition is better than the contour overlap method and that it has failed to assess the practical impact of the change.

The agency also is developing a way to define markets in unrated markets.

The panel did not explain its decision. The judges state they were partially lifting their stay of the new ownership rules to allow "using Arbitron Metro markets to define local markets, including noncommercial stations in determining the size of a market, attributing stations whose advertising is brokered under a Joint Sales Agreement to a brokering station's permissible ownership totals, and imposing a transfer restriction."

The appeals court also rejected Tribune Co.'s request to lift the FCC's ban on cross-ownership of a TV station and a daily newspaper in the same market.

In June the court sent the numerical ownership limits back to the commission for further justification, and upheld many of the other new ownership changes. The FCC had appealed the stay, saying the review of numerical limits should not prevent it from implementing other ownership changes.

The new market definition may make radio limits more restrictive, the FCC said in its petition. While including noncoms in a market count may have an "indeterminate" effect on consolidation, the JSA attribution rule makes the commission's ownership rules more restrictive, it wrote,

See OWNERSHIP, page 7 ▶

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Coca-Cola Radio Gets 'Real' in Athens

by Mario Hieb

ATHENS, Greece From New England to Southern California and Florida to the Northwest, radio fans around the United States could tune in to the Athens 2004 Olympic Summer Games as Coca-Cola Radio took to the air the air, live from the Faliron Water Plaza overlooking the Aegean Sea.

Top radio personalities from 21 U.S. radio stations were part of the latest edition of Coca-Cola Radio, bringing to their hometown audiences, live interviews and behind-the-scenes accounts of the colorful festivities found only at this global sports event. As in past Games, "athlete hosts" participated in interviews with each radio station and provided commentary on both the competition and sights and sounds of the Olympic Games.

This was the eight consecutive Olympic Games for Coca-Cola Radio, which was launched at Albertville 1992 and also delivered behind-the-scenes accounts of the nonstop stream of activities at Barcelona '92, Lillehammer '94, Atlanta '96, Nagano '98, Sydney 2000 and Salt Lake City 2002. In Athens, top-rated disc jockeys originated their Olympic Summer Games programs from the state-of-the-art Coca-Cola Radio broadcast facility located in the Faliron Water Plaza, site of a host of cultural and entertainment activities.

Shellie Hart and Eric Powers of KUBE(FM), Seattle

Kerry and Bill, KXRK(FM), Salt Lake City

"Coca-Cola Radio was created as a way to bring the Olympics to all the people who are not able to attend the Games," said Kelly Brooks, spokesperson for Coca-Cola Radio.

"DJs do not actually cover the Games, but focus on all the fun and excitement that takes place in the overall Olympic environment. Coca-Cola helps them program their broadcast by providing many celebrities and athletes for interviews and by creating fun, interactive programs that take place outside the booths."

How does a station get to participate?

"Our media department selects each station based on ratings, relationship and opportunity. The program is exclusive to one station per major media market," Brooks said.

Radio personalities come to the Olympics for a schedule that includes live broadcasts to the home station and attendance at Olympic events. Coca-Cola provides airfare and accommodations in exchange for promotional mentions. The talent originates their show mainly from the booth with occasional contribution from outside the booth via wireless mike and IFB system.

Providing technical support to Coca-Cola Radio since day one was GlobeCast, the broadcast services division of France Telecom and a provider of satellite transmission and production services, enterprise multimedia and Internet content delivery. GlobeCast provided transmission facilities from the Coca-Cola Radio site at Faliron Water Plaza, with a capacity of 12 simultaneous 7.5 kHz audio signals.

The Coca-Cola Radio building was constructed for the event. Each broadcast studio consisted of a Shure M267 4-channel mixer, three Shure SM58 microphones with stands, three headphones and one Samson Q5 headphone amplifier. From a transmission center, 12 Telos Zephyr ISDN codecs delivered the signal to the home stations.

Also used were two Sennheiser wireless hand-held microphones and Lectrosonic wireless IFB systems, two Sony portable DAT machines, two portable Sony MiniDisc players and two 360 Systems Short/cut edit systems.

The technical staff for the broadcast, furnished by GlobeCast, included a project manager/lead technician and three support technicians on site in Athens. In addition, GlobeCast coordinated the delivery of the signals to each of up to 45 radio stations, both in advance of the event and during the broadcast dates.

GlobeCast was responsible for the pre-event technical coordination with the radio stations, and documentation of conversations with the radio stations. It also provided written confirmation of transmission paths and broadcast schedules to customer contacts. GlobeCast performed several trips to survey the site and to discuss the final preparations.

Most of the Coca-Cola Radio staff consisted of Coca-Cola employees who have other full-time jobs, usually in public and media relations. They volunteer for the opportunity to work on what is considered a fun and interesting project that also gives them a chance to attend the Olympics.

The staff generally consists of three or four "athlete managers," who help find interview subjects and fun material for the broadcasts, and four or five technicians.

Consulting Engineer Mario Hieb, P.E., was in Athens as a consultant to the EETT, the Greek spectrum regulatory agency. When chief engineer at KXRK(FM) in Salt Lake City, he worked on several Coca-Cola Radio broadcasts.

Coca-Cola Stations

These stations participated in Coca-Cola Radio in Athens. All are FMs:

KCHZ, Kansas City, Mo.
KISS, San Antonio
KKBT, Los Angeles
KPTY, Houston
KKDA, Dallas
KSHE, St. Louis
KTTB, Minneapolis/St. Paul
KUBE, Seattle
KXRK, Salt Lake City
KZZP, Phoenix
WDRQ, Detroit
WEDR, Miami
WERQ, Baltimore
WHTZ, New York
WKYS, Washington
WJMZ, Boston
WKKV, Milwaukee
WNCI, Columbus, Ohio
WPWX, Chicago
WSTR, Atlanta
WSUN, Tampa, Fla.

Hey, Tom, Thanks for the Good Work

Thoughts and ruminations from the world of Radio World...

Congratulations to my friend and colleague Tom McGinley, CPBE, our technical adviser and long-time contributor. His first article appeared in Radio World in the summer of 1984, which prompts me to pause and say, "Happy 20, Tom." (That also means his RW career is now almost old enough to drink.)

I can't say enough good things about McGinley, as we generally refer to him in these parts. Many a day has been graced with the sound of his rumbling voice on the other end of my phone line. His puckish sense of humor, his loyalty and his deep knowledge of the industry are invaluable to me. But he's also one of those people who help us put out a quality publication without getting a great deal of credit.

McGinley has done engineering management work for Communications Investment Corp., First Media Corp. and Cook Inlet Radio; these days, Infinity keeps him occupied as its DOE in Seattle. His contributions to Radio World have been great. Thanks, Tom.

★ ★ ★

Uh, Aaron, don't look now but ...

The above photo appeared on our Web site recently but I wanted to share it in case you'd not seen it.

Yep, that's a funnel in the photo, dropping out of the clouds behind engineer Aaron Winski. His friend Andy Andresen took the picture in Oneida, Ill.

The engineers were atop a 100-foot tower doing work for a cable TV contract client.

Jay Martin, Henry Downs and Sally Rich of Dielectric pause in front of a DCBR cavity-backed radiator during a tour of the plant in Raymond, Maine. Downs is among the presenters at the HD Radio workshops at the NAB Radio Show.

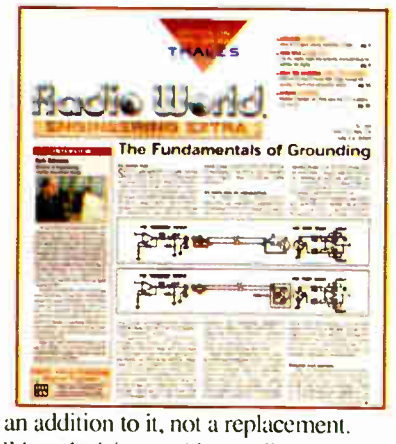
preparing to install some HDTV off-air antennas. Winski told me the funnel "dropped down, and then eventually back up, but came out of nowhere, and fortunately skirted about 4 miles away from us."

He said the weather system was moving in a different direction, so the engineers didn't feel endangered. He said he saw no wind, rain, lightning or noise.

"It popped down, took shape and went back up. A once-in-a-lifetime opportunity," he said, adding, "I hope."

FAQ: Engineering Extra

Next month we'll deliver to readers our first issues of the new Radio World Engineering Extra. I'll be telling you more about this addition to RW over the next few columns.



What is Radio World's Engineering Extra?

It is an extra edition of your familiar Radio World newspaper, published six times a year and targeting strictly broadcast radio engineers with a "deep tech" approach.

There is no change to the familiar Radio World you know and enjoy.

Will this new publication make classic Radio World redundant?

No. Radio World is *the* "must-read" periodical for everyone in radio; our Engineering Extra is an addition to it, not a replacement.

Radio World will continue to offer content for all key decision-making audiences: engineering, management, ownership, production, programming, suppliers, regulators, with our emphasis on technology stories for informed managers and engineers.

More details to come. You can sign up now though at *www.rwonline.com/eng-extra*.

From the Editor

Paul J. McLane

★ ★ ★

All hail to the SBE, which recently reported that its certification program has issued 5,400 current certifications, its high point since the program started 29 years ago. Kudos to Chriss Scherer and his predecessors as Certification Committee Chair for their great work.

SBE grants technical and operator certifications in 11 levels and broadcasting disciplines. All require recertification every five years. More recent additions to the program include Certified Broadcast Networking Technician, Certified Radio Operator and Certified Television Operator. SBE says hundreds of engineers and operators hold certifications in each.

Chapter chairs have received a Power Point presentation that explains the program, so even more folks may be signing up soon. Learn more at *www.sbe.org*.

★ ★ ★

This issue includes a look at the sessions of the NAB Radio Show in San Diego. There are three days of workshops dealing with the implementation of HD Radio. We'll see you there.

GUEST COMMENTARY

Kahn: IBOC System Is Defective

by Leonard Kahn

Leonard Kahn, president of Kahn Communications Inc., responds here to a Guest Commentary in the July 14 issue authored by Tom Ray, corporate director of engineering for Buckley Broadcasting/WOR(AM) in New York, in which Ray wrote that IBOC is not threatening broadcasting. His piece, in turn, was a response to an opinion by Kahn in the June 2 issue.

It has been said that a single sentence can destroy a lifetime's reputation, so it may seem reckless for me to limit this response to the same number of words Mr. Thomas Ray III uses in his "Wrath of Kahn" criticism. But I don't think the matter requires more verbiage.

First, let me thank Mr. Ray for evaluating my intelligence, but let me "give him a break" about my comments re WOR's support of a defective IBOC system "threatening 'free'" AM broadcasting.

WOR at 50 kW 710 kHz is pushing the FCC to let it operate at night, even though when WOR and WLW(AM) in Ohio at 50 kW 700 kHz ran their only test at night, they jammed each other 30 miles from their transmitters. They also interfered with innocent stations three channels above and below their channels.

The price being paid for ... over-specsmanship is interference to someone else's channel property.

I believe that it would only take 30 such 50 kWers, properly geographically positioned, to destroy acceptable nighttime reception all over America. During daylight, 300 IBOC "jammers" would do the job.

This is what I meant, Mr. Ray, about destroying AM radio.

Humans and analog

I also would like to remind you that the developers of your IBOC equipment promised AM stations they would sound as good as FM, an *analog* system. That is their gold standard.

And I am sure you realize that humans listen to *analog* sounds. Given these "old" concepts, let me answer your denigration of the Cam-D System and its goal of 35 dB stereo separation.

The last FCC specifications I was able to find for FM stereo separation, prior to deregulation — since then, I guess, anything passes — was 29.7 dB. Old-timers in the early 1920s (before even I was born) proved you cannot hear 30 dB separation, even with earphones, because the bone structure of your skull cannot provide more isolation.

So if IBOC actually did provide 60 dB of separation, *no one* could hear it. The price being paid for such over-specsmanship is interference to someone else's channel property.

If the goal is to get rid of lightning hits, we can use digital impulse noise processing, which was well developed in the 1989s. The point is, you don't have to "jam" the AM band to do the job.

I would like to thank Mr. Ray for the comic relief he provided us at KCI. The only KCI employees who know about my new Cam-D inventions are Dr. Gordon and VP Salzman. So if your critique made a modicum of sense to us, we would be looking for "bugs" in our offices.

What a relief! I may be wrong, but I sense a bias against older engineers, so maybe you should consider that it isn't age that counts in research, it's the willingness to accept fresh, out-of-the-box concepts. I hope and trust that this 476-word answer to your 514-word Wrath of Kahn criticism is satisfactory.

Now I will address the question of how I will, or will not, respond to any further remarks by supporters of the old IBOC system:

This will be the last time I answer your questions, Mr. Ray. To paraphrase President Reagan: I will not attack Mr. Ray for his youth and relative inexperience. It would make me feel like a bully.

The real question I have for WOR is why didn't the boss, Mr. Richard Buckley, take over this debate? Having debated with him in the past, I can attest to his ability to effectively argue the "big picture." As a member of the elite Buckley family, he understands the importance of protecting property rights; that we are at war; and the importance of AM radio sounding early alarms.

But it is too late now. As far as I'm concerned, the WOR debate is over. WOR's signal speaks far more eloquently than any words can in proving that. According to my analysis, it creates over half a million times the legal interference energy level, 57 dB more than the FCC rules!

To underscore the view that the old IBOC AM system must be outlawed, let me remind some relatively young broadcaster how and who started free broadcasting.

As to who: Mr. Jack Poppole, the engineer with the idea of how to commercialize radio (later the head of Voice of America) and Mr. Louis Bamberger, the owner of Bamberger's in New Jersey (later the owner of Macy's). Coincidently, that was how WOR was born!

Now, how did they do it? They worked out the following plan recognizing the basic tenant of radio broadcasting: it had to be a deal between broadcasters based upon compatibility. The deal was and is that "we the people" will spend our hard-earned money to buy radios, if you, the broadcasters, will broadcast programs we want to hear; the covenant will have no time limit.

On the other hand, broadcasters can expect that if they will build stations that loyally served their listeners, they can keep broadcasting forever. If anyone interferes with them, they will get relief in court — later, the FCC was given the job — because the new station will be trespassing on the older station's programs.

It is as simple as that, and no commercial entity, no matter how powerful it is, can ignore the compatibility covenant. It wouldn't only be illegal, it would be political suicide.

The only entity that has to answer for this problem, in this old man's biased opinion, is the firm that persuaded broadcasters and a handful of AM stations (unlike WLW, which did issue warnings) that stayed on the air with the system without properly disclosing their huge interference problems.

They continue to this day to work towards a monopoly for digitalizing AM radio, clearly violating the compatibility covenant and clearly against the public interest, especially during these critical times.

If Ibiquity and the handful of broadcasters that may be misleading the commission want my opinion: Forget the Wrath of Kahn, but do worry about FCC fury. It really does not like being misled.

RW welcomes other points of view to radioworld@imaspub.com.

I would like to thank Mr. Ray for the comic relief he provided us at KCI.

IBOC

▶ Continued from page 1

"The HD Radio exciter manufacturers have taken their first-generation design and Ibiquity has enabled them to migrate to the new Exporter/Exgine configuration," he said. "This way the manufacturers can continue to build a product today as is and it will continue to work just fine. When the customer decides to move ahead with data services, they can upgrade the appropriate elements."

Ibiquity engineers considered what a typical FM, seeking to convert to IBOC, wants to send to the transmitter site.

"An FM station needs to send its existing analog signal in an AES format for the HD Radio exciter input," Detweiler said. "The least amount you would want to send for the analog FM would be 32 kHz. To transmit this linearly, without bit reduction, would require 1.024 Megabits of throughput. That's what an FM station would send if they wanted to send 15 kHz stereo digital to the transmitter site."

Most 950 MHz STLs originally were granted a 500 kHz bandwidth allocation; the FCC subsequently reduced it to 300 kHz, he said.

"It allowed enough bandwidth for a 32 kHz sampled AES audio stream, for 15 kHz audio response. But when they reduced it to 300 kHz, that's when manufacturers started looking at a need for bit-reduced audio."

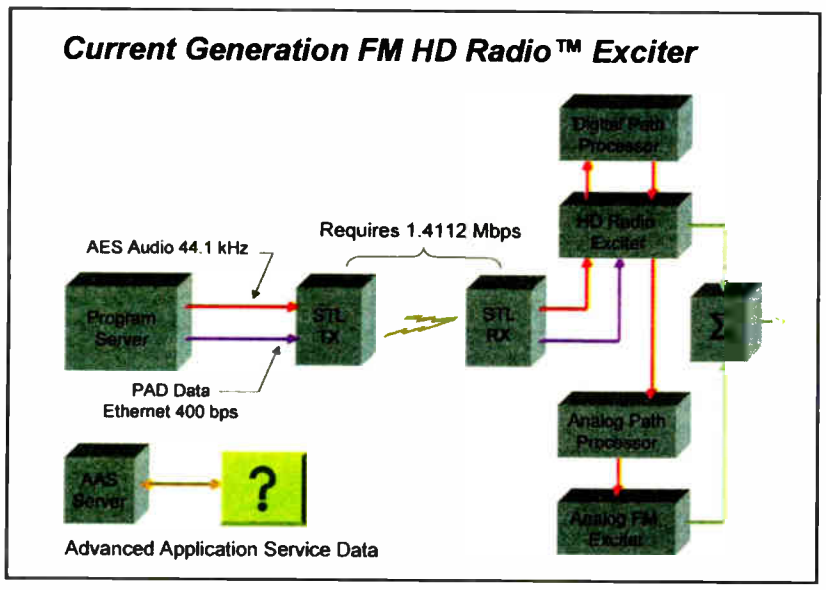
Because the HD Radio exciter provides 20 kHz audio response, a station would opt to transmit the signal at 44.1 kHz. To accomplish this would require 1.4112 Megabits per second.

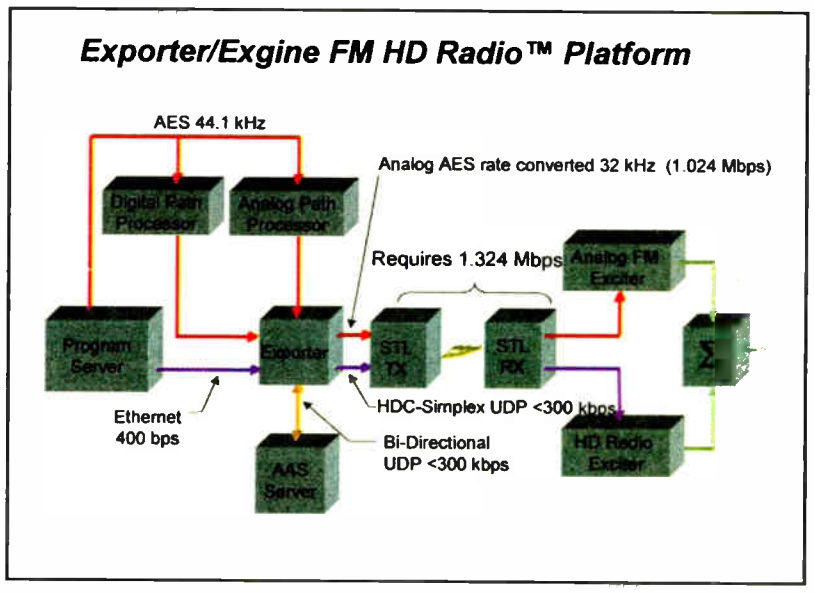
Many stations want to leave their analog air chains intact without changing their infrastructures. They would need separate analog and digital signal paths; thus a station would essentially need the equivalent of two T1 lines, Detweiler said, and still wouldn't have enough capacity to include the non-audio data and supplementary audio channels of HD Radio.

Ibiquity began an effort to combine the HD Radio coded audio and data on a single transport stream. To accomplish the change, it needed to bring the audio coding and data manipulation back to the studio.

This move is desirable, it believes, because those elements are sourced from the studio.

"Why carry (audio and data) out at full bit rate to the transmitter site and have it be bit reduced in the transmission process?" Detweiler asked rhetorically.





This new element in the HD Radio system is called the "exporter," a box that takes the HDC audio coding and Program-Associated Data functions normally associated with the IBOC exciter in the first generation of product, out of the transmitter site and back to studio.

Another element of the Exgine system is an "importer." BE and Harris showed the importer concept at the spring show. The importer software, which runs on a PC, manages all of the data, whether third-party data, PAD or supplemental channels, for example. It multiplexes the data, plus the encoded HDC information from the digital IBOC signal, and feeds that information as one bitstream to an HD Radio exciter.

Better STL path

The exporter accepts the AES audio for the digital signal as well as the analog signal at 44.1 kHz. It then outputs a signal for the HD Radio STL path that contains both the HDC coded audio and all data services with a throughput less than 300 kilobits per second.

The analog signal is delayed in the exporter for diversity delay, and output at 44.1 kHz. It may then be sent on the existing STL or resampled at 32 kHz and sent with the HDC stream on a multiplexed STL that can fit within the 300 kHz STL allocation.

Ibiquity provides a software developer kit, under license, to HD Radio transmission and automation systems manufacturers. The kit enables them to translate song title, artist and commercial information into the PAD format.

Harris, BE and Nautel believe the changes makes sense.

"They're splitting the HD Radio system into two pieces," said Harris Senior FM Applications Engineer Dave Agnew. "They're moving the HDC codec back to the studio in the exporter. The RF modulation portion stays at the transmitter site. It allows for a bandwidth-efficient bitstream," he said.

The importer, he said, needs to communicate with the HDC codec portion of the system, so there needs to be communication between the importer and exporter. That is accomplished with an Ethernet link.

BE's Tim Bealor, vice president of RF Systems, said Exgine is a "new configuration for HD Radio that better accommodates IBOC's ability to use digital STLs." The change, he said, conserves the amount of bandwidth required for transport through an STL.

Nautel's head of development, Tim Hardy, called the upgrade "a big improvement."

Harris and BE showed elements of this technology at the spring NAB convention.

Since that show, Harris Broadcast has restructured and cut some 100 jobs. It did not exhibit in Philadelphia last year.

"Harris has refocused on the radio market" after having been focused previously on television products, according to Tom Jones, director of Radio Transmission Products. "Harris is back and serious about radio."

At this show, Harris debuts the first two sellable products from the Flexstar family, the HDI-100 data importer and HDE-100 program exporter. The HDI-100 importer accepts advanced application services, including supplemental audio program streams. The HDE-100 exporter multiplexes the data leaving the importer with a station main program channel and feeds the data as one bitstream to an HD exciter. Both units are compatible with the Dexstar HD Radio exciter.

A Flexstar modulator exciter and STL are planned for April debut, Jones said.

BE's new high-powered AM transmitter, the 4MX50, to be introduced in San Diego, is designed to work with the Exgine upgrade, said Bealor. The company markets it as an "ultra-efficient" 50 kW unit with a small footprint. He said it's the first BE unit designed to be compatible with IBOC and its new "Exgine" technology, plus

See IBOC, page 7 ▶

IBOC

▶ Continued from page 6

Digital Radio Mondiale, without modification.

With the 4MX50, the exporter function is not in a separate box, but the software is loaded onto a plug-in card that goes into the transmitter. BE will exhibit these cards, as well as the importer. The latter is tied to BE's AudioVault storage and automation system, but will also work with other audio storage systems, Bealor said.

Hardy of Nautel said Exgine improvements can run on the hardware the company has now. But the company is more focused on its digital adaptive pre-correction in its new M50 digital FM exciter.

"We think the issue of station-to-station interference, on both the AM side and the FM side, is big," said Angela Hopper, Nautel's business development analyst. Nautel says the exciter samples the digital or hybrid digital output of the transmitter and dynamically applies pre-correction to help stations stay within their FCC emissions masks without the need to use an extra bandpass filter.

As more stations go IBOC, interference will become a big issue, predicts Nautel President and CEO Scott Campbell. "There are some 100 stations on the air now. As more go on, you'll see people scream about interference."

Transmitters without this specific pre-correction capability, he said, could allow an FM station's signal to interfere with its neighbors through unintended radiation. "This is why we've been focused on it," Campbell said. "If you don't solve these problems, it's over."

Harris and BE say their HD Radio transmitters have the pre-correction capability as well.

Harris will demo its new Split-Level Combining option, its first public demo of this concept since it debuted at the NPR Public Radio Engineering Conference. "We will be monitoring a split system at Quincy — a Z16 HD transmitter and a Z-10 operating into a 6 dB combiner. It's a standard split-level system," Agnew said.

Split-Level Combining uses the existing FM transmitter and a new common-amplification FM/HD Radio transmitter to generate the required FM analog power. With the Split-Level Combining System, Harris says, the analog transmitter is no longer required to operate at higher-than-normal power levels to offset combining losses, which results in greater system efficiency and lower monthly operating costs.

Harris has sold about 12 such systems, Agnew said.

The company will also have products from its new lower-power FM HD Radio transmitter line, the Mini-HD series, on hand.

Digital pre-correction explored

Nautel introduced an exciter and several digital transmitters at the spring show: the Jazz, 1,000 W AM transmitter, Maestro FM exciter and Virtuoso 10 kW FM transmitter.

Mike Pappas, chief engineer of KUVO(FM) in Denver, is beta-testing the V10 and plans to speak about how digital adaptive pre-correction works at Nautel's HD Radio seminar at the Grand Hyatt on Oct. 7, from 6 to 9 p.m.

Hopper said the event is a "no holds barred" kind of experience for attendees, and rather than Nautel giving presentations, executives and attendees participate in a free exchange of ideas.

BE also planned a supplemental digital audio channel demo. The company is sponsoring an HD Radio seminar on Oct. 6, from 1 to 3 p.m. at the Embassy Suites Hotel.

Also at the show, Ibiquity Digital will display an updated station conversion map as well as HD Radio receivers on the market and those upcoming on the automotive and home side.

Clear Channel, Entercom and Cox have committed to convert a substantial number of stations. More groups may announce a stepped up commitment by the show, said an Ibiquity spokesman.

Ownership

▶ Continued from page 2

"because, without JSA attribution, the ownership rules would fail to take into account a broker's economic interest in a radio station."

In June, the court upheld the right of the commission to adopt ownership limitations on broadcast stations but rebuked the agency for not justifying its numerical ownership limits for each of television, media cross-ownership and radio.

The earlier decision criticized the FCC for assuming that each media interest of the same type makes an equal contribution to diversity and competition in a market. The court suggested that the specific market share of various media must be taken into account in fashioning numerical restrictions on ownership.

At the time, FCC Chairman Michael Powell said it was the second time a court has rejected the FCC's efforts to set numerical limits for media ownership.

One communications attorney said if the court is asked to re-hear the case, it might take six months to a year before the case would be resolved.

Kinstar

▶ Continued from page 1

monopole antenna at less than one-third the height.

The firms submitted an engineering report on the antenna to the FCC in late July, prepared by STAR-H and Kintronic.

Ron Rackley, president of duTreil, Lundin and Rackley Consulting Engineers, evaluated the test field strength data and contributed to the report.

The Kinstar test antenna was 45 feet high and 105 feet in diameter over a full 120-radial ground screen and braced with wooden poles. Developers say in addition to being shorter than the standard quarter-wave monopole antenna, the Kinstar antenna can be constructed rapidly and with cost savings.

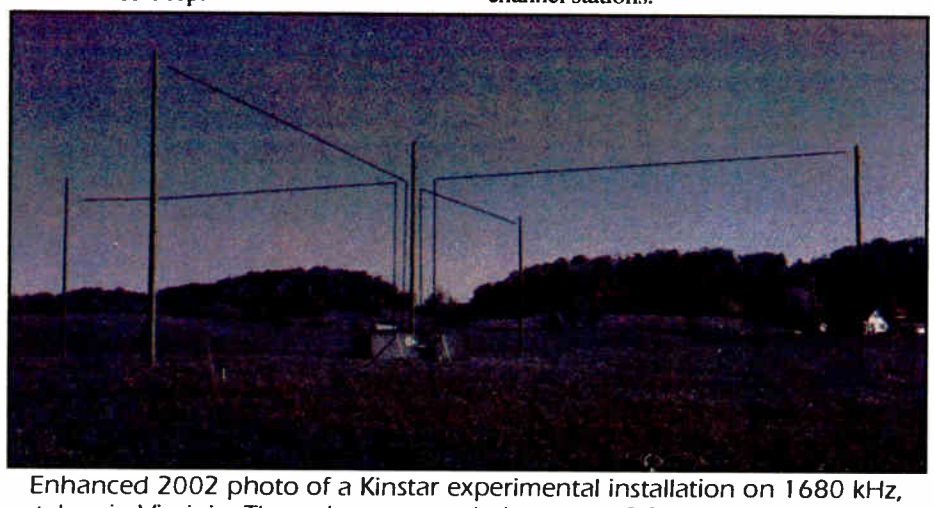
Rackley wrote in his original Kinstar analysis in 2003 that he thought the Kinstar was a viable choice for broadcasters confronted with height restrictions when building new broadcast towers.

Seeks FCC approval

In the engineering report, Kinstar proponents seek the commission's authorization for full-time use of the low-profile antenna for Class B, C or D AM stations in the United States, said Tom King, president of Kintronic Labs, which holds the worldwide rights to market the Kinstar antenna.

Lacking such FCC approval, stations requesting to use the Kinstar would have to provide the commission with full non-directional proofs of performance to establish the antenna minimum efficiency and non-directional characteristics. Each request would have to be examined on an individual basis, therefore eliminating the practicality of that approach.

The FCC is expected to review the report for an explanation of how the antenna works and whether daytime and nighttime interference falls within current tolerable levels, said Mike Jacobs, vice president of research and development for STAR-H Corp.



Enhanced 2002 photo of a Kinstar experimental installation on 1680 kHz, taken in Virginia. The poles are wood; three are 50 feet high, two are 55 feet. Horizontal loading wires are about 45 feet above the ground. Four vertical radiating wires stand five feet out from center; horizontal wires extend to a radius of 100 feet. These dimensions scale with the station frequency. The wires are insulated from the support poles and fed from the transmitter at the base inside the fence. Kinstar said signal is radiated from the vertical wires; horizontal wires are out of phase so no signal radiates, ensuring that the radiated signal from the antenna is vertically polarized at all times.

Developers had hoped to submit the official engineering report to the FCC sooner, once field tests on the Kinstar were completed in 2002.

"We wanted to provide the FCC with as full of a technical explanation as possible," Jacobs said.

"We are confident now the data for things like the elevation pattern of the antenna, how field strength varies with elevation angle above the horizon, is correct. That's important for calculating nighttime skywave interference with on-channel or adjacent channel stations."

A big task in constructing an AM station is the calculation of interference, including daytime groundwave propagation, Jacobs said. "To accurately do that, you must know how your signal is going to leave the antenna; and that it is entirely predictable," he said.

Jacobs said he expects the FCC will "come back to us and ask for further details on how we arrived at some of our conclusions." He stated that STAR-H and Kintronic have additional file data to back up their claims.

A source in the FCC's audio services division said the commission will proceed with caution.

"AM is having a lot of difficulty finding real estate for new facilities or moves …(the Kinstar) looks like it has the potential to be a solution to the tall tower problem," the source said.

The FCC has not received any requests from broadcasters to use the antenna in this country yet, the source said.

"There is the possibility that nearby terrain could affect performance. I think (the FCC) would be leery of allowing its use in directional arrays. And while the Kinstar is shorter (than a standard quarter-wave monopole), it does take up more horizontal space. Therefore, the amount of land needed would be approximately the same as a quarter-wave monopole," the source said.

The amount of land required depends on frequency. A frequency of 540 kHz requires a land plot circle of about 900 feet across; at 1000 kHz, about 500 feet; and at 1700 kHz, about 300 feet, according to broadcast engineers.

Rackley agreed with the land requirement issue in his original analysis.

"I believe that interest may be somewhat limited because of that. In my consulting practice I find that more people are interested in land requirement and using as little as possible. This new antenna won't satisfy them," he said in an earlier interview with Radio World.

This isn't the first short AM antenna the FCC has evaluated. However, other low-profile antenna developers have failed to gain FCC approval, which has prompted some skeptics to wonder if short antennas can be effective radiators.

The FCC is not actively evaluating other short AM antennas, a source said. However, the commission is accepting non-directional daytime and nighttime applications for Valcom's free-standing AM fiberglass antennas, which measure 75 and 94 feet and are intended for use between 900 kHz and 1700 kHz. Stations must provide full non-directional proof of performance to establish the antenna minimum efficiency and non-directional characteristics.

Kinstar developers claim their design is different from other short AM antennas and described their concept as a "tower with its legs peeled down, trading vertical height for a little horizontal extent to effectively feed current distributed across the antenna" resulting in good radiation.

"In short antennas, the typical sinusoidal wave shape deviates and becomes triangular. That means the feed current magnitude falls off much more rapidly as it proceeds along the antenna. That typically makes it less efficient since you lose the current density along the length of the antenna," Jacobs said.

"In our antenna, we have a very short vertical radiator so we use top-loading to give the current an additional path to approximate that typical sine wave shape you would see along the full length of a monopole. The top-loads spread the current out and tapers it down to zero at the top of the top-load," Jacobs said.

The developers believe the Kinstar fits within the existing licensing structure for AM antenna systems, Jacobs said.

AM broadcasters have become increasingly concerned with the aesthetics and height of towers since local zoning officials have become more active in limiting the height of new broadcast towers.

"This antenna is not necessarily for a broadcaster in the middle of Kansas who wants to put up a big old monopole. However, if you're in Orange County, Calif., or Dade County in Florida, and you have neighbors who object to nearly everything, we can give broadcasters another option to complete their antenna projects," Jacobs said.

Pricing

Cost of the Kinstar will depend on tower level and frequency. The antenna's height is scalable with frequency, Jacobs said. Data indicates the middle of the AM band will require an antenna height of 60 to 70 feet high. In the low end of the band, it would be closer to 120 to 130 feet high.

"We want to keep the cost of the Kinstar comparable to a standard quarter-wave antenna," he said.

The Kinstar will be in-band, on-channel digital broadcasting configurable, too, with enough bandwidth to meet IBOC requirements, Jacobs said.

Developers are asking the FCC to approve two configurations of the Kinstar, one using lumped element matching and a second parallel transmission line-fed configuration.

"The transmission line version was slightly more efficient. However, for practical purposes, the more common version offers easier adjustment for the match," Jacobs said.

Dr. James Breakall, a professor in the Department of Electrical Engineering at Pennsylvania State University, is the inventor of the low-profile antenna, Jacobs said. Breakall holds the patent for the Kinstar but is no longer involved in the antenna's development.

The routing switcher gets a new twist.

(About five twists per inch, actually.)

Everybody needs to share audio. Sometimes just a few signals — sometimes a few hundred. Across the hall, between floors, now and then across campus. Routing switchers are a convenient way to manage and share your audio, but will your GM really let you buy a router that costs more than his dream car? Unlikely.

If you need a routing switcher but aren't made of money, consider Axia, the Ethernet-based audio network. Yes, Ethernet. Axia is a *true network*. Place our audio adapter nodes next to your sources and destinations, then connect using standard Ethernet switches and Cat-6. Imagine the simplicity and power of Ethernet connecting any studio device to any other, any room to any other, any building to any other... you get the idea.

Routers are OK... but a network is so much more modern. With Axia, your ins and outs are next to the audio, where they belong. No frame, no cards, no sweat.

Scalable, flexible, reliable... pick any three.

An expensive proprietary router isn't practical for smaller facilities. In fact, it doesn't scale all that well for larger ones. Here's where an expandable network really shines. Connect eight Axia 8x8 Audio Nodes using Cat-6 cable and an Ethernet switch, and you've got a 64x64 routing switcher. And you can easily add more I/O whenever and wherever you need it. Build a 128x128 system... or 1024x1024... use a Gigabit fiber backbone and the sky's the limit.

Are you still using PC sound cards?

Even the best sound cards are compromised by PC noise, inconvenient output connectors, poor headroom, and other gremlins. Instead, load the Axia IP-Audio Driver for Windows® on your workstations and connect *directly* to the Axia audio network using their Ethernet ports. Not only will your PC productions sound fantastic, you'll eliminate sound cards and the hardware they usually feed (like router or console input modules). Just think of all the cash you'll save.

Livewire

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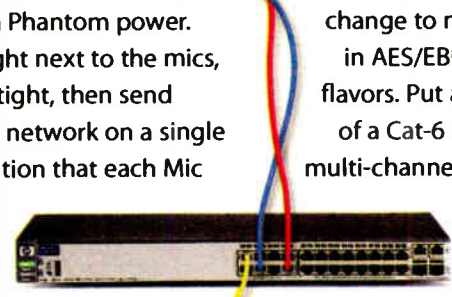
There's a better way to get audio out of your PC. No more consumer grade ⅛" connectors – with Axia your digital audio stays clean and pristine.

Put an Axia Microphone Node next to your mics and send preamplified audio anywhere you need it, over Ethernet — with no line loss or signal degradation.

Put your preamps where your mics are.

Most mainframe routers have no mic inputs, so you need to buy preamps. With Axia you get ultra-low-noise preamps with Phantom power. Put a node in each studio, right next to the mics, to keep mic cables nice and tight, then send multiple mic channels to the network on a single Cat-6 cable. And did we mention that each Mic Node has eight stereo line outputs for headphones? Nice bonus.



Put your snake on a diet.

Nobody loves cable snakes. Besides soldering a jillion connectors, just try finding the pair you want when there's a change to make. Axia Audio Nodes come in AES/EBU and balanced stereo analog flavors. Put a batch of Nodes on each end of a Cat-6 run, and BAM! a bi-directional multi-channel snake. Use media converters and a fiber link for extra-long runs between studios — or between buildings.

An Axia digital audio snake can carry hundreds of channels of digital audio on one skinny CAT-6 cable. We know you're not going to miss soldering all that multi-pair...

ENCO SYSTEMS INC

PSi

radio

Scott Studios

BALSYS

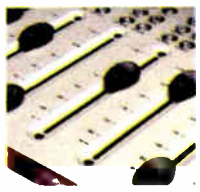
Axia is already working with some great companies. Like Enco Systems, Prophet Systems, Scott Studios, Radio Systems, Balsys Technology Group, and of course Telos and Omnia. Check AxiaAudio.com/partners/ to find out who's next.

With a little help from our friends.

A networked audio system doesn't just replace a traditional router — it *improves* upon it. Already, companies in our industry are realizing the advantages of tightly integrated systems, and are making new products that reap those benefits. Working with our partners, Axia Audio is bringing new thinking and ideas to audio distribution, machine control, Program Associated Data (PAD), and even wiring convenience.

Would you like some control with that?

There are plenty of ways to control your Axia network. For instance, you'll find built-in webservers on all Axia equipment for easy configuration via browser. PathfinderPC® software for Windows gives you central control of every audio path in your plant. Router Selector nodes allow quick local source selection, and intelligent studio control surfaces let talent easily access and mix any source in your networked facility.



Control freaks of the world, rejoice: intelligent Axia mixing surfaces give talent complete control of their working environment. Reconfigure studios instantly and assign often-used sources just where they're most useful.

"This sounds expensive." Just the opposite, really. Axia saves money by eliminating distribution amps, line selectors, sound cards, patch bays, multi-pair cables, and tons of discrete wiring — not to mention the installation and maintenance time you'll recover. And those are just side benefits: our hardware is about half the cost of those big mainframe routers. That's right... *half*. Once you experience the benefits of networked audio, you will never want to go back. AxiaAudio.com for details.

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◆ NEWSWATCH ◆

Can Border Worries Delay Nighttime AM IBOC?

OTTAWA Some Canadian broadcasters are worried about potential interference to their analog AM and FM broadcasts along border areas and beyond as more U.S. stations go digital.

As Radio World reported a year ago, the Canadian Association of Broadcasters was most concerned with potential interference to FM stations in Toronto, Windsor and Vancouver, markets heavily penetrated by U.S. FM signals.

But after reading the Further Notice in the IBOC proceeding, the CAB and the Canadian Broadcasting Corporation felt it necessary to restate their concerns in an Aug. 4 letter to the division of the Canadian government that manages and allocates spectrum, Industry Canada.

"We feel that it is necessary for us to stress again the necessity for Industry Canada to notify the FCC that the authorization of AM IBOC transmissions, especially at night, will very likely result in harmful interference to Canadian signals," they wrote. The CAB and CBC also believe IBOC transmissions have not been factored into frequency coordination agreements between the two countries.

Although Canada is using the Eureka-147 technology for digital radio on FM in six markets, it relies heavily on analog in much of the country.

The FCC states in the Further Notice that such international issues are important, but the two Canadian groups don't believe the U.S. is thinking about them early enough.

"We are aware of the comments made regarding the potential for IBOC to cause interference to Canadian broadcasts," Ibiquity Digital COO Jeff Jury said to Radio World. "Our understanding is that the FCC is working with the Canadian government to answer their questions and resolve their concerns. We are confidant that any concerns in Canada can be addressed and that these issues will not delay the rollout of HD Radio in the U.S."

Radio Ad Growth Slim

NEW YORK Radio advertising was anemic compared to other media for the first half of this year. Competitive Media Reporting states in its latest report that local radio advertising spending increased a slight 3.5 percent to $3.5 billion and network radio grew 4.9 percent to $503 million, while national spot radio fell 0.3 percent to $1.2 billion.

All figures are compared to the first half of 2003. When comparing the figures to other media, radio ad spending ranks second to last, behind outdoor.

Overall, total advertising for the first half of 2004 increased 9.1 percent to $67.6 billion compared to the same period a year ago.

Who's getting most of that money? Newspapers and network TV at $11.9 billion, representing a 7.5 percent rise and $11.2 billion, an increase of 8.3 percent respectively. Political advertising accounts for much of the increase, according to CMR.

Barron's, Forbes Think Radio Is On the Ropes

Many predictions that radio is dead have been made over the years and now Barron's and Forbes are the latest to espouse that view. In back-to-back articles in late summer, stories in both publications essentially call radio a musty old technology not worth investing in.

The Aug. 30 Barron's shows a radio covered in cobwebs on the cover, along with the subhead, "America's old standby for news and music is fast losing young listeners. The outlook for the industry's stocks is bleak."

"It's over," states Larry Haverty, a media stock analyst for State Street Research and Management in Boston to Barron's. "Every retailer is blowing its budget on advertising and radio is not getting any of it. If they don't get it now, they're not going to."

Although the economic recovery has been underway for two years, the prognosis for radio is "grim," states Barron's, quoting media-spending forecaster Robert Coen of Universal McCann as previously expecting 7 percent growth on national radio ad spending this year. But it's running closer to 1 percent. Local ads, he predicted, would increase 6 percent this year over last; so far, it's about 4 percent more.

Advertising has decreased as radio listening among youth has dropped and advertisers have shifted their money into other areas, such as the Internet, according to Haverty.

The stock price for Clear Channel, Citadel and Cumulus was off by 17 percent, 33 percent and 29 percent this year respectively, Barron's noted, yet it also acknowledged that cash flow for the major radio groups is up.

Although Barron's has the sky falling on radio, Radio One COO Catherine Sneed asserts radio is in a recovery mode, but it may take two years to determine exactly what kind of recovery that will be.

Forbes, meanwhile, calls traditional radio "geriatric" in comparison to its satellite counterpart, yet at the same time it castigates traditional radio as "bullies" for having more listeners than XM and Sirius. This article describes NAB as lobbying regulators to hamper the success of the satcasters.

Commander G3

Modular Stereo POTS • ISDN • GSM Codec

Introducing the new Tieline Commander G3

At Tieline, we've taken a fresh approach to audio codec design. Now you can customize your audio codec to suit your exact needs for remote broadcasts and STLs. You only pay for what you need and we're the first to be compatible with most major ISDN and POTS codecs in your rack.

Think of the new Commander G3 as a codec foundation with two expansion slots which accept your choice of POTS, ISDN and GSM modules. You simply buy what you need.

For example, if you need a mono 15kHz POTS codec, simply buy the Commander G3 with a POTS module for one low price. Need 15kHz Stereo or dual mono over POTS? Just add another POTS module.

If you're looking for a mono/stereo ISDN codec without POTS, you can buy a Commander G3 with an ISDN module only. It comes with G.711, G.722, and Mpeg Layer 2. Tieline's "Music" algorithm also delivers an astounding 15kHz stereo over a single ISDN B channel! You can always add a POTS or wireless GSM module later if you need.

Need a stereo ISDN STL with automatic failover to 15kHz mono POTS? Buy the Commander G3 with POTS and ISDN modules plus Tieline's new Freedom Failover software kit.

Plug in the GSM module and deliver up to 7.5 kHz over GSM networks and up to 15 kHz over HSCSD wireless networks.

Control your remote talent's mic input gain from the studio and send simultaneous audio, serial data and relay activation in either direction

We've even created digital matrix router software which enables you to cue audio off air, create a local audio intercom, and talkback to the studio all without interrupting your broadcast.

The new Tieline Commander G3 is simply the world's most powerful, flexible and customizable codec. It's even compatible with your Comrex** Vector, Matrix, Blue and Musicam Liberty POTS codecs.

Every Tieline codec comes with a two year warranty plus the support of an experienced engineering team with more than 25 years in the broadcast industry right here in Indianapolis. That's why hundreds of stations, major radio groups and networks across America use Tieline to deliver audio every single day.

Hurry, free demonstration Commander G3's are limited. Call you favorite broadcast dealer or call us at 800-750-7950 to book your free demo.

Tieline TECHNOLOGY

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Perfect Weather, Uncertain Outlook

In San Diego for the NAB Radio Show, Execs Focus on Programming, Digital Radio

by Craig Johnston

SAN DIEGO Huge indecency settlements. Talk of mandatory airchecks. Clear Channel's promises to cut ad clutter. An updated FCC licensing form. Satellite radio bashing traditional broadcasters on the cover of Forbes and Barron's.

Changes in radio over the past year give The NAB Radio Show much ground to cover. Likely to be among the topics is how the industry can increase its revenue performance; through July, according to the RAB, the commercial radio industry's revenue was up 2 percent compared to the same period a year earlier. That continued the modest performance of 2003, in which sales were up only 1 percent.

This is also the first major broadcast convention since Eddie Fritts announced he is entering his last term as president of the association.

Under the slogan "Charting Radio's Future," the 2004 show meets at the Manchester Grand Hyatt in San Diego Oct. 6-8. According to city convention officials, Holiday Magazine voted San Diego "the only area in the United States with perfect weather."

Jefferson Pilot Communications Radio Division President Clarke Brown will receive the NAB National Radio Award.

Photo by David Hartison

The Manchester Grand Hyatt

Programming emphasis

With the prospects of half-million dollar indecency fines in the offing, Thursday afternoon's session titled "Don't Give the FCC More Money Than You Have To" may be standing room only. It features David Solomon, the commission's chief of enforcement.

License renewal will take the stage earlier Thursday in a panel featuring Peter Doyle of the commission's Audio Division. It's "a hands on session," said Joan Dollarhite, research assistant for the NAB Legal Department, "letting people know what we've seen so far that the FCC is looking at, the kind of scrutiny they're giving the applications."

A broader regulatory view will be offered at the annual FCC Breakfast Thursday morning, featuring Commissioners Jonathan Adelstein and Kevin Martin.

The Thursday afternoon Group Executive Super Session will bring together the heads of big radio groups to give the industry a look at what some of its most powerful influences are thinking. Scheduled to take part are Mark Mays of Clear Channel; Judy Ellis of Citadel; David Field of Entercom; Chesley Maddox-Dorsey of Access.1 Communications; and Peter H. Smyth of Greater Media.

On the sales and marketing front, "there are some issues that remain fairly constant, that are more related to the tactical issues," said George Hyde, executive vice president of training for RAB. "But there are some strategic issues that become more important as circumstances change."

One sales and marketing highlight will be a first look at the details of the recent Wirthlin Study, which the RAB says validates the long-held view of radio's personal, one-on-one selling power and how powerful that can be for an advertiser.

Among the sessions are some that focus on getting salespeople past gatekeepers; meeting objections once they're face-to-face with the decision makers, branding and imaging; and an overview of the state of radio today.

Arbitron's Portable People Meter is the focus of another session, in which a Philadelphia broadcaster will discuss that long-debated technology.

"It's going to be a good smorgasbord of strategic and tactical sessions," Hyde said.

On the technical side, the convention will feature a three-day HD Radio certification workshop designed to familiarize broadcast engineers and managers with Ibiquity Digital Corp.'s HD Radio digital audio broadcast system for the FM and AM bands.

Organizers say they hope to help attendees to learn how to plan, budget and implement the digital service. Attendees will receive a certificate of attendance that counts for SBE recertification credits.

The Group Executive Super Session includes Mark Mays, Judy Ellis, David Field, Chesley Maddox-Dorsey and Peter H. Smyth.

Programming will take the spotlight at a Wednesday afternoon Super Session. "Typically it's been CEOs, and this year we thought it would be nice if we did it with vice presidents of programming," said the convention's programming steering committee chairman, Gabe Hobbs, who is vice president of programming for the News, Talk and Sports Division of Clear Channel Communications.

"We've never had the opportunity to see them in this large setting where it's a general session," he said. "I'm sure they'll address the obvious issues of indecency in content, and I'm sure less-is-more will be a big topic as far as commercial inventories" are concerned.

Breakout programming sessions will also cover the indecency issue along with topics like taking the morning show to the next level, new formats and new twists on old formats, and being prepared for disasters and emergencies.

Station managers will find a slate of breakout sessions. The title "Cluster Management: Still Looking for Answers" says it all about the challenge multiple-station managers have in directing their limited resources to best effect in a station cluster.

Exhibits

The exhibit floor, as in the past, opens with a reception Wednesday evening; booths are also open Thursday and part of Friday. At press time, NAB reported a slight drop in the number of exhibitors from last year — 90 were listed by the NAB on its Web site in early September — but a slight increase in floor space.

The NAB Marconi Radio Awards Reception, Dinner and Show is the highlight of Thursday evening. The awards represent overall excellence in radio, with stations recognized in the "Station of the Year by Market Size" and "Station of the Year by Format" categories.

Outstanding air personalities will be recognized in the "Personality of the Year by Market Size" category. And there will be awards given for "Legendary Station of the Year" and "Network/Syndicated Personality of the Year."

Nominated for Legendary Station of the Year are FM stations KFOG in San Francisco and KPRS in Kansas City, as well

See RADIO SHOW, page 14 ▶

Leading POTS Codecs Compared.

	Comrex Matrix	Tieline Commander	**Zephyr Xport**
Audio Bandwidth @ 24 kbps @ 19 kbps	14 kHz 11.2 kHz	15 kHz 9 kHz	**15 kHz** **15 kHz**
Direct Internet Software Updates	No	No	**Yes, via Ethernet port**
Digital PC Audio Input	No	No	**Yes, via Ethernet port and supplied driver**
Audio Metering (XMIT/RCV)	Transmit only	One-at-a-time	**Simultaneous**
Audio Processing	None	Simple AGC	**Digital multi-band AGC with look-ahead limiter by Omnia**
Remote Control	No	RS-232 and dedicated computer	**Ethernet via Web browser**
Auto Dial Storage	19 Numbers	50 Numbers	**100 Numbers**
Frequently-Used Settings Storage	none	none	**30**
Standards-based POTS Codec	No - Proprietary	No - Proprietary	**Yes - aacPlus (MPEG HEAAC)**
Transmit-Receive Quality Display	No	Yes	**Yes**
Contact Closures	2	2	**3**
Display Resolution	120x32 LCD	120x32 LCD	**128x64 LCD**
Analog Cell Phone Interface	Optional	Standard	**Standard**
Mixer Inputs	1 mic, 1 mic / line	2 mic / line	**1 mic, 1 line**
Phantom Power	No	No	**Yes - 12 volt**
Automatic Voice-Grade Backup	No	No	**Yes**
Power Supply	External	External	**Internal auto-switching**
Local Mix Audio Outputs			
Headphone	Yes	Yes	**Yes**
Line Level	Yes	No	**Yes**
Direct Receive Audio Output	No	Yes	**Yes**
Uses ISDN at the Studio Side for More Reliable Connections	No	No	**Yes - your Zephyr Xstream becomes universal POTS and ISDN codec.**
Available ISDN Option	$850.00 (adds MPEG L3 & G.722)	$850.00 (adds G.722)	**$495.00 (adds G.722 & state-of-the-art AAC-LD for high fidelity and low delay)**
List Price:*	$3,700.00	$3,650.00	**$2,495.00**

The world's most advanced POTS codec
is also the world's lowest priced POTS codec.

Telos
AUDIO | NETWORKS

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90+ Companies Exhibit in San Diego

The following are exhibit booth numbers at the NAB Radio Show in San Diego. The list was provided by show organizers and was current at press time.

Late registrants may not be listed. Check your on-site program for changes.

Company	Booth
615 Music Library	1012
ABC Radio Networks	1206
Advertising Edge	104

AEQ 305

Intro: BC2000 Digital Console Router: A cost-effective digital console router with full broadcasting console operations. The engine is the core of the console with processing and I/O cards hot-swapping. Flexible design for a large installation or for one studio.

On Display: Eagle audio codec with multiple compression choices, compatible with other codecs in the market; Swing portable ISDN codec, portable mixer and phone hybrid, ideal for remotes; Course Multicodec, up to 10 codecs in one chassis; Impact 24 x 24 router with AES EBU I/O; Caddy AD DA converter 24x24 I/O; TH-02 EX Digital Telephone Hybrid 1 or 2 lines.

Gerardo Vargas, Manager
4121 SW 47 Ave.
Ste. 1303
Fort Lauderdale, FL 33314
954-581-7999
Fax: 954-581-7733
Web Site: www.aeqbroadcast.com
E-mail: sales@aeqbroadcast.com

Air Force Recruiting	1107
American Blues Network	1106
Arbitron	1102
Armstrong Transmitter	1701
Army National Guard	1310
Arrakis Systems	606

AUDEMAT-AZTEC INC. 1710

Intro: Navigator 007 affordable FM field strength meter with modulation, pilot, RBDS monitor, ideal for contract engineers and stations in small and medium markets. Includes external GPS receiver for mobile RF survey on single FM station; also, FMB80-RDS, with new features available free via FTP. Song titles and artist info can be automatically wrapped around with text; text can be justified, customized and configured through new HTML Web page; an internal scheduler can display messages at user-specified times. Price: $2,795; also, FM Navigator 1000, rackmountable, 1U, the only frequency agile receiver to monitor in one unique box RF/Modulation/Peaks/Pilot/Audio/RDS level, RDS data; Audio level readings can be displayed on LED or using FM Explorer software.

On Display: FM_MC4 FM Test equipment; AM_FIELDSTAR for AM proof of performance; GOLDENEAGLE AM/FM/TV Off-Air monitoring solution; MANAGER Web software to centralize alarms from Goldeneagles; FMX480 sound processor, digital stereo generator, RDS encoder, DARC encoder and digital composite clipper; FMB10 RDS encoder; IP2 I/O gateway for remote control and monitoring of analog/digital inputs/outputs; IP2 CHOICE for remote management and monitoring; IP2 PORT, which connects to the equipment on a remote site thanks to its eight RS-232 serial ports, eight relay outputs and 16 digital inputs.

Sophie Lion Poulain
Operations & Communication Manager
19501 NE 22nd Rd.
North Miami Beach, FL 33179
305-692-7555
Fax: 305-682-2233
Web Site: www.audemat-aztec.com
E-mail: lion@audemat-aztec.com

Bext Corp.	202
BIA Financial Network Inc.	1405
BMI	1407
Broadcast Electronics Inc	702
Broadcasters General Store	510
Burk Technology	1505
Business TalkRadio Network	205
Coaxial Dynamics	1502
Communication Graphics Inc.	1200
ComQuest Music Testing	306
Comrex	1005
D.A.V.I.D. Systems	1512
Dielectric Communications	905
dMarc Broadcasting	607
DRS Broadcast Technology	1306
ENCO Systems Inc.	1112
Energy-Onix	1704
ERI-Electronics Research	700
Explosive Promotions & Events Inc.	1504
FamilyNet	907
Federal Communications Commission	308
FirstCom Music Inc.	212
Harris Corp.	902
Ibiquity Digital/HD Radio	1209
IMAS Publishing Co.	1506
See Radio World.	
Inovonics Inc.	302
InterTech Media	1400
Jampro Antennas/RF Systems Inc.	200
KD Kanopy Inc.	1401
Larcan USA Inc.	208
LEA International	511
Logitek Electronic Systems	100
LR MoneyMachine	103
Mackay Communications	410
Marketron	909
Mayo Clinic	611
Media Audit, The	403
Media Professional Insurance	1300
MediaTouch	613
Megatrax	1708
Miller, Kaplan, Arase	309
Moseley Associates Inc.	1404
Musicam USA	900
National Hole in One/National Media	411
National Weather Service	300
Nautel Maine Inc.	1410
Omnirax	1707
Open Radio Software	1703
Orban/CRL	413
Pike & Fischer/Rules Service	101
Precision Communications	209
Prophet Systems Innovations	709
Radian Communications Services	304
Radio Advertising Bureau	F7
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Radio Music License Committee	F6
Radio Systems Inc.	1110

RADIO WORLD 1506

Intro: Radio World Engineering Extra, an addition to the familiar newspaper for radio managers and engineers, exploring "deep tech" subjects, and written by engineers for engineers. Charts, graphs, schematics, white papers, detailed technical discussions and in-depth designer interviews. This edition is available to readers both in and outside of the United States.

Simone Fewell, Sales
PO Box 1214
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Wheatstone Corp.	500

Exhibit Hours

Wednesday, Oct. 6	5-8 p.m.
Thursday, Oct. 7	9 a.m.-5 p.m.
Friday, Oct. 8	9 a.m.-1 p.m.

Radio Show

▶ Continued from page 12

as AM stations KSL in Salt Lake City, KSTP in Minneapolis and WOR in New York. The finalists for Network/Syndicated Personality are Bob & Sheri of Jefferson-Pilot Radio Network; Neal Boortz of Jones Radio Networks; Clark Howard, also of Jones; Tom Joyner of Reach Media; and Lex Staley & Terry Jaymes of Cox Radio Syndication.

The event will be hosted by Bob Kevoian and Tom Griswold of the "The Bob & Tom Show," themselves four-time Marconi Radio Award winners. Their program is syndicated by Premiere Radio Networks.

And the convention will host its annual Career Fair, presented by the NAB Educational Foundation. Companies sending a recruiter to the fair will get FCC EEO credit.

Last year's event in Philadelphia — highlighted by Rush Limbaugh's appearance and his prior comments on ESPN about an NFL quarterback — drew around 3,900 people.

A couple of months after that convention, NAB officials indicated that they were investigating alternative ways of presenting this convention starting in 2006, possibly in conjunction with another group's event.

2004 NAB Show Registration

Registration for The NAB Radio Show in San Diego is available online at NAB's Web site, *www.nab.org*. Mail-in and fax registration is available using downloadable forms from the same Web site.

A special two-for-one registration fee — pay for one full-conference registration and receive one free — is available to NAB members. To take advantage of the two-for-one offer, both registration forms must be submitted together, either online, by mail or by fax.

VIP exhibits passes, which are good only for the exhibit floor and exhibit floor events, are available for free. To register for an exhibits pass, submit an exhibits pass code from an official NAB exhibitor with the registration form.

Workshop Digs Deeper Into HD Radio

HD Radio is rolling out, and the show technical program reflects that, with a procession of vendors explaining their approaches and radio engineering executives sharing early field experiences.

A three-day workshop is designed to familiarize engineers and managers with the Ibiquity Digital technology. Attendees will receive a certificate of attendance that counts toward SBE recertification. Lunch breaks are at noon each day.

Wednesday, Oct. 6 — "Signal Performance and Antenna Systems For HD Radio"

9 a.m.: "An Overview of the HD Radio System," by Scott Stull, director of broadcast business development for Ibiquity.

9:30 a.m.: "AM Antenna Systems and HD Radio: What to Expect From Your Antenna and How It Can Be Improved, If Necessary," by Benjamin Dawson, president of Hatfield and Dawson, and Ronald Rackley, partner in du Treil, Lundin and Rackley.

THE NAB RADIO SHOW

11 a.m.: "AM IBOC Installation and Performance Case Study," with senior engineering officials from Clear Channel Tom Cox, Jeff Littlejohn and John Warner.

1:30 p.m.: "The ERI Digital Radio Solution," with Bill Harland, director of marketing for ERI.

2 p.m.: "HD Radio: What Solution Is Best for *My* Station?" with Henry Downs, associate principal electrical engineer, custom RF projects, Dielectric Communications.

2:30 p.m.: "Strategic Planning for HD Radio Implementation," with Bob Surette, manager of RF Engineering, Shively Labs.

3 p.m.: "Avoiding the IBOC Gotchas," Steve Fluker, director of engineering for Cox Radio Orlando.

4 p.m.: "One Site, Seven HD Radio Installations in Seattle," by Clay Freinwald, corporate engineer for Entercom Seattle.

4:30 p.m.: "HD Radio Regulatory and Standards Discussion," with James Bradshaw, associate division chief, Audio Division of the FCC; Charles Morgan, senior vice president at Susquehanna Radio; Valerie Schulte, deputy general counsel of the NAB; and Albert Shuldiner, senior VP and general counsel for Ibiquity.

Thursday, Oct. 7 — "Transmitters, Tests and Measurements for HD Radio"

9 a.m.: "New Methods to Upgrade to HD Radio Transmission," by George Cabrera, principal electrical engineer, Harris Corp.

9:30 a.m.: "FM Broadcast Transmitter Site Conversion for HD Radio Transmission," Tim Hardy, head of development, Nautel Ltd.

10 a.m.: "FM System Implementation for HD Radio," Richard Hinkle, director, RF engineering, Broadcast Electronics Inc.

11 a.m.: "FM IBOC Installations: Real-World Case Study," Paul Shulins, director of technical operations, Greater Media, Boston

11:30 a.m., "Measuring Your Hybrid IBOC Signal," David Maxson, managing partner, Broadcast Signal Lab

1:30 p.m.: "AM Broadcast Transmitter Site Conversion for HD Radio Transmission," Wendell Lonergan, project leader, Nautel Maine

2 p.m.: "AM System Implementation for HD Radio," Richard Hinkle, director of RF engineering for Broadcast Electronics

2:30 p.m.: Linearity Measurements of AM Transmitters for HD Radio Performance," Geoffrey Mendenhall, VP, advanced product development, Harris Corp.

3 p.m.: "Real Life Operation of an AM IBOC Facility," Thomas Ray III, corporate director of engineering, Buckley Broadcasting/WOR Radio, New York

3:45 p.m.: "Developing a Troubleshooting Plan," John Bisset, northeast regional sales manager, Dielectric Communications

Friday, Oct. 8 — "Studios, Audio and Data for HD Radio"

8:45 a.m.: "Studio Equipment and Infrastructure," with Mark Grant, design engineer, Belar Electronics; James Hauptstueck, resale products manager, Harris; Ted Lantz, HD Radio product manager, Broadcast Electronics; and Chad Steelberg, chairman and CEO, dMarc Broadcasting

9:45 a.m.: "Studio Operations," Jay Adrick, VP of strategic business development for Harris; Jeff Detweiler, broadcast technology manager, Ibiquity; and Frank Foti, president, Omnia Audio

10:45 a.m.: "Advanced Applications and Services," with Frank Foti, President, Omnia Audio; Robert Hylkema, TeleAtlas; Mike Starling, VP of engineering, National Public Radio; and Jackson Wang, president and CEO, e-Radio Inc.

1:30 p.m.: "International Update: A Look at DAB Data Services and Opportunities for HD Radio," Patrick Hanchay, vice president of Societe Radio Numerique, Montreal; and Matthew Honey, managing director of Unique Interactive, London

2:10 p.m., "Receiver Update," Mike Bergman, senior manager for digital broadcast, Kenwood USA

2:50 p.m.: "Impulse Radio MAT Protocol," Paul Signorelli, CTO, Impulse Radio Inc.

TECH TIPS

Pushing Air in an 816R-3

The Author Uses an RCA Blower Assembly to Replace a Motor on a Continental Transmitter

by Stephen Rutherford

Pushing molecules of air takes energy. The Continental Electronics 816R-3 series transmitters use a 1 horse-power, three-phase motor coupled to an 800 CFM squirrel cage blower assembly to keep the final amplifier cooled. See Fig. 1.

When the original blower bushings started squealing, it was time to replace the motor. A complete blower assembly from an RCA BTF-20E1 was in the storeroom. This RCA assembly used the Baldor 1.5 Hp, three-phase, Frame 56 motor coupled to a 1,000-CFM squirrel cage blower. This provided everything we needed to restore full cooling to the Continental.

In the flow

There are two differences between the Baldor and General Electric motors. The General Electric 1 Hp three-phase motor has oil-lite bronze bushings. The Baldor 1.5 Hp, three-phase motor has ball bearings at each end of the armature.

The end bell bolt diameter for the GE motor is 5-3/8 inches, using a #8x32 machine bolt. The Baldor motor has an end bell bolt diameter of 6-1/8 inches, using a #10x32 machine bolt.

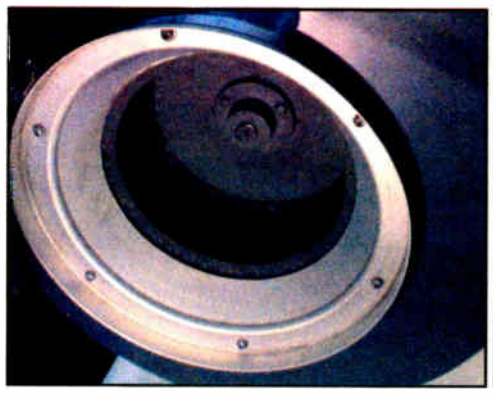


Fig. 1

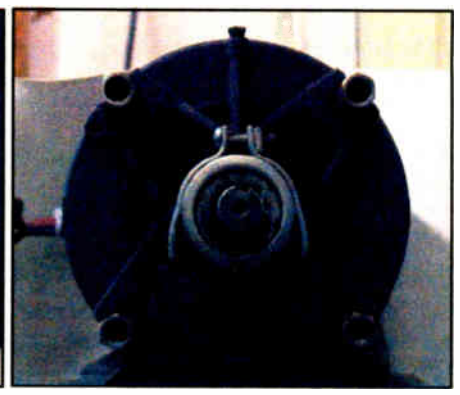


Fig. 2

Fig. 3

Fig. 4

Both motor sizes are a Frame 56. This number defines the basic dimensions of the mounting flanges, shaft diameter, shaft length and other important electrical and mechanical characteristics. See Fig. 2 for the stock motor and Fig. 3 for the replacement motor.

Checking with a local electric motor supplier, a new General Electric 1 Hp replacement motor was about $156. Baldor replacement 1.5 Hp motor with ball bearings is about $175.

The next important difference is the air handling capacity of the RCA vs. the Continental blowers. The RCA blower was designed for a flow rate of about 1,000 CFM, while the Continental was designed for about 800 CFM. See Fig 4.

We used the 1,000-CFM squirrel cage impellor from the RCA blower and installed it into the Continental blower housing. The aluminum "Kort ring," mounted on the inlet side of the blower body, was narrowed by 3/8 inch to allow clearance for the wider impeller. The Kort ring helps to concentrate the airflow into the squirrel cage and minimized cage blow by as it's spinning. See Figs. 5 and 6 to see how the clearances around the original impeller were measured.

When completed, there should be about 5/32-inch clearance between the Kort ring and the outer edge of the squirrel cage ring. See Fig. 7.

Standoff

You will need to use the original tapped standoff posts to adapt the 1.5 Hp motor to the stock blower body. This required retapping the standoff posts to accommodate the new motor bolt sizes, which are #10 vs. #8 for the original 1 Hp motor. See Fig. 8.

Drill out that part of the standoff that attached to the end bell of the motor with a #21 twist drill and retap this hole with a #10x32 tap. A drop of machine oil on the tap will help the process go more smoothly and the result will be cleaner threads.

The mounting diameter for the new motor is 3/4-inch larger than the stock pattern.

To find the motor shaft center of the blower housing, tape a piece of cardboard to the inside of the blower housing. Scribe the shaft opening. Use a straight edge and draw two lines across the opening of the shaft hole as shown in the simple diagram. Refer to Fig. 9 on page 18.

Take out the cardboard. Set a compass to a spread of about 3/4 the length of one of the lines drew through the circle. Place the point at one end of the line and scribe a semi-circle arc. At the other end of the same line, scribe another semi-circle arc. Where the two arcs intersect, use a straight edge to draw a line. Repeat the same steps for the other line. See Fig. 9.

The intersection of the two lines is the center of the shaft opening of the blower housing. Tape the cardboard back to the inside of the blower housing. Use your compass to scribe the new bolt diameter.

To set up the proper motor vs. housing relationship, we placed the housing on a

See BLOWER, page 18 ▶

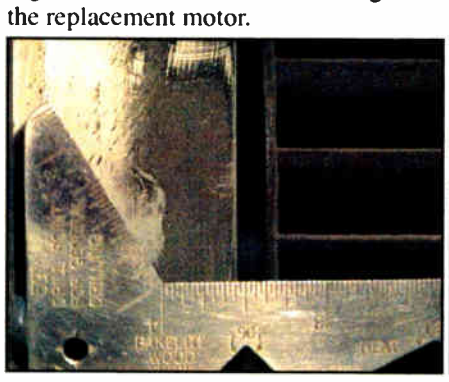


Fig. 5

Fig. 6

Fig. 7

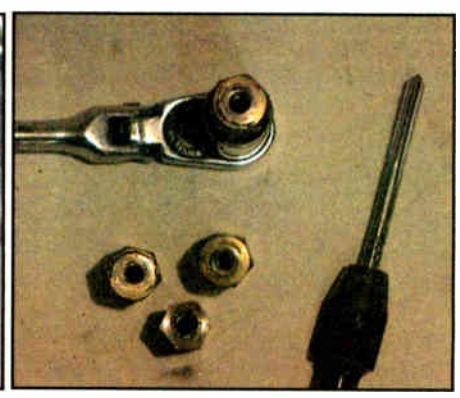


Fig. 8

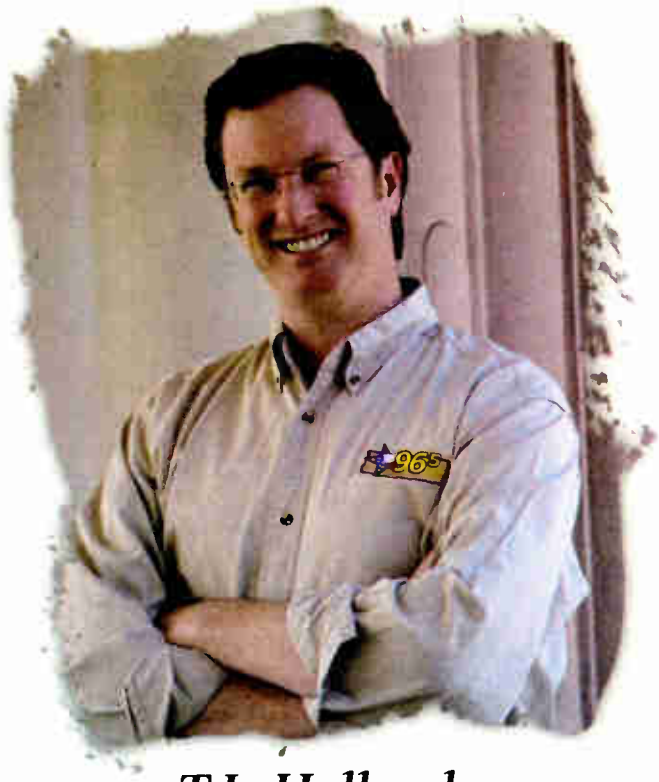
Experience. Stability. Vision. *And T.J. Holland.*

Susquehanna People

T.J. Holland is one of those guys who always wanted to be in radio. He dreamed about it as a kid, then began to live that dream in college radio. Next came jobs as on-air personality, music director, and program director. Name the format, he'd done it — from Rock to Top 40 to Oldies and Hot AC. It was only natural that he would eventually land at Susquehanna Radio Corp.

"Susquehanna provides opportunity for advancement, and I'm a perfect case in point." T.J. was given the chance to prove himself as PD of WRRM, then challenged with more responsibility when a second and third station were acquired.

"Susquehanna is all about being a good broadcaster and doing it the right way. They invest in the company and the employees so their products and their people can grow!"



T.J. Holland
Director of Programming
Susquehanna — Cincinnati

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Blower

▶ Continued from page 16

flat surface. Using a small spirit level, scribe a line parallel to the ground that intersects the new bolt diameter at the two points that are the same as the center-to-center dimension of the upper two bolts to the new motor. See Fig. 9a. After you have this line drawn and have verified that it is placed accurately, you can lay the housing down flat on your work surface and complete the rest of the markings.

Use the compass to measure the center-to-center distance between the upper bolt center to the bolt center directly below. This dimension should be the same for the other side. Place the point of the compass on the upper intersection, See Fig. 9a and scribe a small arc across the lower portion of the new bolt diameter. Repeat the same step on the other top bolt point.

Confirm the diagonal distanced between bolt points to the motor. The dimensions should be the same.

Center punch and drill the bolt points on the blower housing. De-burr and clean out the housing.

While all of the blower housing and impeller parts are separated, inspect them for dirt accumulation. Micro dirt accumulations on the impeller blades will reduce the air handling capacity and cause the impeller to become unbalanced which reduces bearing life in the motor. See Fig. 10.

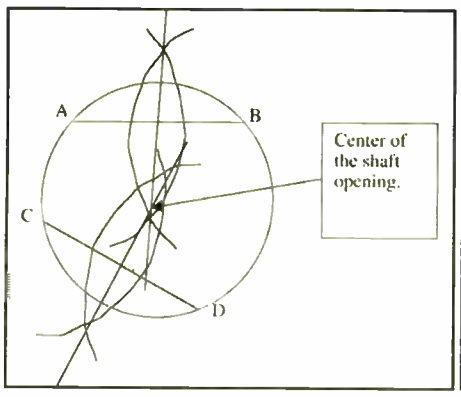


Fig. 9

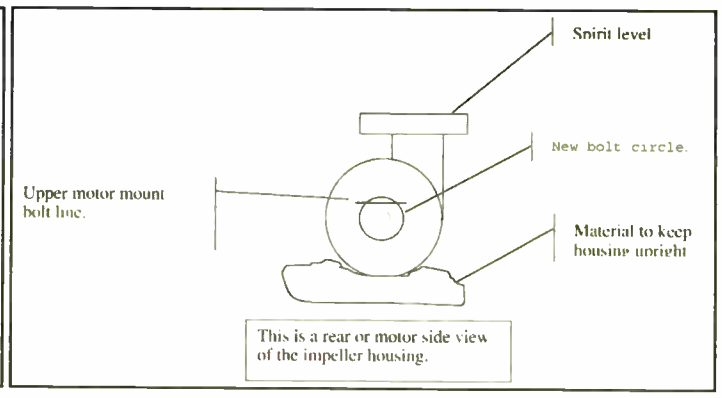


Fig. 9A

Fig. 10

Fig. 11

Reassemble the blower housing onto the shaft end of the motor. Install the larger squirrel cage assembly onto the motor shaft, keeping the Woodruff key slots aligned. Install the Woodruff key into the slot, and then gently tap the squirrel cage assembly the remaining distance on the motor shaft. You can sight through the air outlet opening of the housing to see if the impeller is too close to the housing bolts.

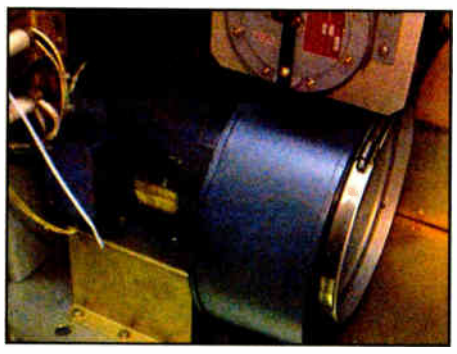


Fig. 12

When the squirrel cage impeller is the correct location, tighten the Allen sets tightly to the motor shaft.

Place the Kort ring into location and spin the impeller to see if it comes into contact with the ring. Test the run out of the motor shaft by pulling out on the impeller; you should only feel the slightest amount of lateral movement if the bearings are properly set.

If the Kort ring clears the impeller, reattach the ring to the blower housing.

After reassembly, the replacement blower assembly should not look much different than the stock unit you have replaced. See Fig. 11.

Reinstall the modified blower assembly into the transmitter by rotating the blower housing toward the front of the transmitter and sliding the assembly into place. Carefully maneuver the flexible collar into position and install the hold down straps and hardware. Turn the screws a few turns into the housing until all hardware is in place. Then tighten the screws snugly.

Install the floor bolts to attach the blower motor mounting stand.

Rotate

Reattach the three-phase electrical leads to the motor. Test for proper rotation as follows. Insulate the three electrical connections, loosen the lower door to the final amplifier-matching network and hold the door with your hand. Energize the AC power to the transmitter and press the filament on button to start the blower motor. If the rotation is correct, the door will press firmly into your hand and filament voltage will be applied to the final amplifier because the air interlock is satisfied.

If the rotation is incorrect, just reverse any pair of the AC wiring to the blower motor and conduct the test again to confirm proper rotation.

Verify that all electrical connections are tight. Wrap two or three layers of electrical tape around each of the connections for security. Carefully dress the wires into the connection space and attach the cover plate.

The Baldor 1.5 Hp blower is fully installed and ready for service. See Fig. 12. When operating, there is a different sound and vibration to the transmitter. Also, the AC current drawn by the Baldor motor was about 3.5 Amps AC per leg compared to the 3.9 Amps AC per leg on the original 1 Hp blower motor. The 1.5 Hp motor didn't have to work as hard as the original motor.

Radio World contacted Richard Garrett, manager of field service for DRS Broadcast Technology, formerly Continental, to inquire about this modification. He replied, "I have seen and heard of several blower modifications to the 816R and some were far from ideal. Stephen's modification seems to be a good alternative to the original system. Duplicating it would likely cause no cooling problems."

The author operates Rutherford Resources Contract Services and Engineering in Portland, Ore. E-mail him at sprutherford.bunny@comcast.net.

MARKET PLACE

CSS Has Documentation Overhauls

Creative Studio Solutions is offering what it calls Documentation Overhauls to broadcasters.

The Colorado-based company said it can send a small team of engineers to a facility and "will trace, re-label and document every wire, connection and piece of equipment."

The info will be entered into studio documentation software; the client gets a hard copy and CD version of their system infrastructure, as it exists, and recommendations regarding the infrastructure.

CEO and Chief Engineer Andrew Rosenberg said much of the industry's documentation is outdated, a problem in any facility and particularly when an engineer joins a station.

"When an engineer first signs on with a station, it takes them forever to figure out how the previous engineer did things. This can be both frustrating and time-consuming."

CSS uses Stardraw Studio Documentation Software. Clients are given software to access the Stardraw schematic as part of the service.

For information contact the company in Colorado at (303) 425-5004 or visit www.creativestudiosolutions.com.

BUSINESS DIGEST

Interep: Radio Can Cash in On Wireless Boom

In 2003, telecom/wireless advertising was the fourth-largest category for national radio, according to Competitive Media Reporting. The category allocated 7 percent of nationally placed media dollars to radio, totaling $247 million.

The largest share of media dollars among wireless advertisers went to newspapers (47 percent) followed by network television (24 percent), despite Mediamark Fall 2003 research that shows 88 percent of wireless users listen to radio in the average week, while only 50 percent read a daily newspaper.

The figures are in a report from Interep Research, in conjunction with Morrison and Abraham, "Radio Works for the Wireless Industry," highlighting radio's ability to target the wireless services customer.

The research indicates that each additional percentage of wireless media spending redirected toward radio would bring an additional $36 million to the medium. For this reason, Interep's new business development sellers are targeting this category as a potential source of incremental dollars for radio.

Also, two of the fast-growing wireless market segments, young adults and Hispanic consumers, are among the heaviest users of the medium.

Other highlights from the wireless report:

In 2003, wireless market penetration in the U.S. reached 50 percent; top metro cities for cell phone usage include Atlanta, Detroit, Austin, Texas, Washington and Miami; from 1993 to 2002, the wireless market experienced double-digit revenue growth.

Also, ad spending by wireless providers increased 71 percent from 2000 to 2003, rising from $2.1 billion to $3.6 billion during that same period; Verizon, Cingular and AT&T accounted for 67 percent of radio spending in 2003; and 31 percent of adults 18+ report one cell phone in household, 28 percent report two cell phones and 12 percent report three-plus cells.

WorldDAB, Korea Demo Digital Multimedia Broadcasting

The WorldDAB Forum, a group that markets the Eurkea-147 technology, planned to present the first European demonstration of Digital Multimedia Broadcasting for television, at the IBC show in Amsterdam.

Co-exhibitor Korean Broadcasting Service planned a demo of terrestrial DMB using DAB over prototype product from Samsung.

DMB uses DAB technology to deliver television, video, audio and data to mobile devices. Recently, the Korean government approved the introduction of terrestrial DMB broadcasts of television programs to mobile devices; later this year, commercial products are expected to be available from manufacturers such as Samsung and LG.

Korea intends to launch 48 free channels using DMB by the end of the year.

For digital radio at IBC, WorldDAB said it would exhibit the latest DAB receivers, including product from manufacturers such as Sony, Panasonic, Sharp and Blaupunkt. A special multiplex was to broadcast a variety of DAB services during the show.

Stations Oppose Mandatory Recording

Commercial and noncommercial stations are uniting against the FCC's proposed rules for mandatory content recording and retention.

The Station Resource Group and National Federation of Community Broadcasters told the FCC the proposed mandatory recording rule "would not substantially enhance the indecency complaint process, and would, in fact, merely multiply the number of complaints filed against the same small number of programs." In comments filed with the agency, the SRG and NFCB state the proposed rule would impose burdens on noncommercial stations.

Seventeen commercial licensees representing 43 stations said the requirement would have "an unconstitutional chilling effect" on speech. The cost of equipment, and overseeing program recording would be burdensome on small stations, and the duplication and distribution of copies would violate the Copyright Act and require stations to breach program agreements with third party suppliers, the licensees state in their filed comments.

"Stations should be able to avoid the program retention rule by certifying they do not air a format likely to include indecent programming, or by certifying that particular program segments are supplied by third parties." It makes no sense to have hundreds of stations recording the same programming, the licensees state.

Nearly 500 comments were filed on the issue by the recent deadline, according to John Garziglia of Womble Carlyle, representing the Small Market Operators Caucus. Of those, about 257 comments were filed through the caucus Web siteand about 90 broadcaster comments were filed through NAB's Web site, he said in a memo to caucus members.

— Leslie Stimson

Digital Radio's Sweet Spot

The Big Picture

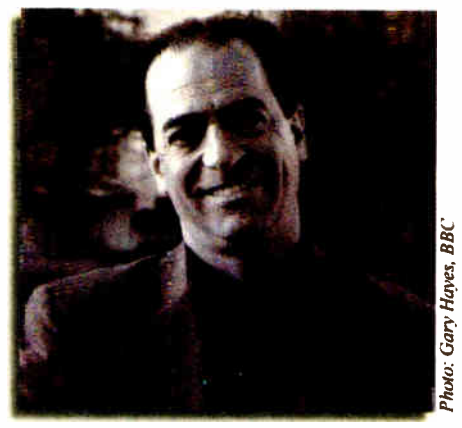


Photo: Gary Hayes, BBC

The Fungibility Limits of the DAB Ensemble's Bitstream Are Being Tested in the U.K.

by Skip Pizzi

This column has long espoused the need for any new radio service to offer quantitative change — that is, the provision of audio services not available elsewhere — in order to attract listeners.

This premise holds that if a new format offers a purely qualitative improvement to programming already broadcast via other established means, it will be insufficiently compelling to generate broad consumer conversion. This is especially true for FM services, largely considered to be of reasonably high audio quality already.

As digital radio services emerged, this seemingly obvious contention managed to elude many broadcasters and spectrum planners. Today, however, it has begun to slowly dawn on various sectors of the domestic and international radio community.

Yet the delayed acknowledgement of such a fundamental fact is not without penalty, as the latest experience in the United Kingdom is showing.

Eureka, I've lost it

The U.K.'s unique success of late with the Eureka-147 DAB format has been widely reported in this space (see our column in the March 28 issue) and elsewhere. The general conclusion of most observers is that the provision of new services by both commercial and public broadcasters on DAB has been a primary (although not exclusive) reason for the format's new found popularity there.

This repeats the experience of FM's emergence in the United States, wherein the format languished for decades as a duplicative but higher-quality offering of AM simulcasts, but took off once the FCC mandated the establishment of separate services on the new band.

Given the momentum of DAB receiver sales in the U.K., it stands to reason that broadcasters will want to offer as many new services as possible to optimize listener satisfaction, and to maximize the potential audience of new adopters. When a bandwagon is rolling, "the-more-the-merrier" usually applies. Leveraging the power of a rolling snowball is the simple marketing principle at work here.

Yet in the digital world, there often is a direct tradeoff between quantity and quality of service. The Eureka DAB format is flexibly designed to allow such fungibility of its bitstream, offering broadcasters diverse opportunities to configure each 1.5 MHz-wide "ensemble" of multiplexed services as they see fit, thereby presenting their preferred (and dynamically adjustable) arrangement of audio and data services.

In the interest of standardization, however, there are some limits applied to this flexibility.

Primary among these is the use of only the MPEG-1 Audio Layer 2 codec (MP2) for all audio services — although the bit rate and error protection level used for each MP2 audio service in an ensemble is selectable over a fairly wide range. In a holistic and retrospective view, however, the MP2 codec is intended for "distribution" (i.e., network/headend-to-station transmission) rather than the "emission" (i.e., broadcast) application that DAB actually represents. For this reason, the MP2 codec's design favors robustness over efficiency.

Nevertheless, for various reasons now relegated to DAB history, the circumstances of timing, and the nuances of standards-setting processes, the MP2 codec was selected and standardized as the sole audio codec for Eureka-147. Subsequent actions by the Eureka consortium (and its successor on the management of this format, the WorldDAB Forum) have strongly reaffirmed this decision.

Therefore, although there are numerous and perhaps more appropriate options for an emission codec available today, Eureka-147 is saddled with the use of a distribution-style codec originally developed almost two decades ago. It was recommended at that time for optimal use in provision of CD-equivalent quality at 224 to 256 kbps. At this rate, and with typical error-protection applied, the 1.5 MHz Eureka ensemble typically could provide five such services, along with program-associated data (PAD) for each. (Capacity would essentially double for monaural services.)

This degree of spectral efficiency approximately equated to that of FM broadcast services (before considering additional, system-wide efficiency provided by the single-frequency network option offered by OFDM transmission). Given the consideration — and many incumbent broadcasters' preference — that DAB would be a *replacement* service for AM and FM broadcasts, spectrum planning proceeded with these calculations in mind.

Complaints about DAB quality in the United Kingdom are becoming rampant in the trade press and among consumers on Internet discussions.

Subsequent learning (courtesy of the George Santayana School of Broadcasting) has shown that such proactive and orderly migration of consumers to new technology does not happen without sufficient motivation — the accommodation of new services being primary among the motivators in this case. Unfortunately, that belated understanding now must be applied to an environment constrained by earlier assumptions.

'Sweet spot'

For example, the BBC correctly calculated that one national DAB ensemble would be adequate to carry replacement DAB channels for all its existing domestic analog radio services. With the more recent realization that new services are required to make the format broadly successful, the BBC has attempted to squeeze more services into each ensemble. At present, the BBC is running no less than 11 services in a single ensemble, generally at 128 kbps or lower data rates. U.K. commercial radio services generally are doing the same.

Performance of the MP2 codec no longer approaches CD quality for stereo at this data rate — some would argue it is far from it — so the BBC has taken to offering some services in mono, even though some of the content included on these channels is originally produced in stereo. (While most DAB channels are new services, some repurposing or time-shifting of content available in analog is included. In a few cases, the same content available in stereo on BBC's FM services is presented in mono on DAB.)

As British broadcasters attempt to find the sweet spot at which a balance of quantity and quality can be reached for DAB, they may already have hit the quantitative wall. Complaints about DAB quality in the U.K. are becoming rampant in the trade press and among consumers on Internet discussions. Such negative consumer reaction could curtail the nascent success of the medium there, so the risk of disrupting a fragile new growth trend is high.

Given the resistance to further expansion of service, and the possible need to back off even from current service densities, the viability of DAB operations may need to be recalculated. Yes, the traditional metric of five stereo services per ensemble may be low, but the current

See DAB, page 21 ▶

DAB

▶ Continued from page 20

U.K. practice of effectively doubling this number is probably too high.

As in many such trials, a pendulum effect may apply, and moderation between these extremes may become the ultimate balance point. Also, consider that improvements in *encoder* design can always improve the subjective performance of any codec, across its lifespan, typically by around 30 percent. The BBC reportedly is continuing to pursue this option actively.

A two-edged sword

There is another ironic downside to DAB's use of the MP2 codec.

Its robustness is so high that when other true emission codecs of the day are added as data services to a DAB ensemble, at roughly equivalent error-protection rates, they fail under signal conditions at which the main MP2 audio service continues to perform well. Therefore if a broadcaster opts to provide some rich PAD service using graphics or video, for example, as a user moves away from the transmitter (or into a high-multipath zone), the PAD service would go away while the audio would remain.

Needless to say, as consumers learn to expect such multimedia services, this dissatisfying "monomedia downshift" experience will lead to user complaints, either to the broadcaster or the receiver manufacturer — or both.

Thankfully there is a solution possible to this problem, and the WorldDAB Forum's Technical Committee is hard at work developing a new optional and backward-compatible error protection layer. For what looks like approximately 8 percent additional overhead, it should be possible to match the error performance of advanced emission codecs with MP2 audio, thereby ensuring that the service areas of MP2 audio and any new services provided by other means will be roughly congruent.

All of this indicates that as the learning curve for DAB continues to twist, broadcasters will need sufficient navigational agility if they expect to ride it to the digital promised land.

Skip Pizzi is contributing editor of Radio World.

There is another ironic downside to DAB's use of the MP2 codec.

MARKET PLACE

Bird Electronics Has IBOC Solutions

Bird Electronics offers site management solutions for IBOC and analog power measurement, for power levels between 250W and 150 kW at frequencies between 50 MHz and 470 MHz.

The Broadcast Power Monitor has a 10 dB peak-to-average power signal handling capability, which makes it suitable for IBOC and multi-carrier systems. Forward and reflected power levels, VSWR, return loss and match efficiency can be displayed on the rack-mounted digital display or to a PC. Alarms and interlocks can provide the transmitter protection from high VSWR conditions.

A popular item is the Wideband Coupler power measurement system; it can measure low- or high-level combined IBOC and analog RF power using a hand-held digital meter with a Terminating Power Sensor and line section/directional coupler. This portable system offers an alternative solution for measuring RF power.

Call the company in Ohio at (866) 695-4569 or visit www.bird-electronic.com.

FIRST PERSON

Stories From 35 Years in Radio

by James G. Withers

I got an e-mail a while back from an old radio buddy. It brought back a flood of memories from my beginning days in the radio business. Here are a few of the ones that can be printed.

In the old days, the FCC was a bit more cantankerous about engineering parameters, particularly at directional AM stations. An engineer — a *real* engineer, one with a "First Phone," as the Radiotelephone First Class License was called — was required to "walk the towers" with each change of the directional pattern.

Because our station went directional at night, an engineer drove to the tower site in the dark and, with a flashlight, worked his way out through the knee-high weeds to the four-tower array, taking readings at each shack in turn.

The site itself was adjacent to a landfill, and Tower 4 was laid in close to it, so the skittering from little creatures in the underbrush was more and more frequent (and not a little spooky) the closer you got to the last shack.

This spookiness led one enterprising engineer to find a use for a leftover promotional cardboard standup of Batman. In a burst of comedic genius one night, he carried the retired superhero to the farthest tower shack and propped it inside, against the door, so it would reach out to "greet" the next engineer who drew the short straw for tower duty.

One enterprising employee put a cardboard standup of Batman inside the dark, distant tower shack, ready to 'greet' the next unfortunate engineer at night.

The following night a cold wind blew in. The unlucky meter reader made his rounds in the darkness with dwindling flashlight batteries.

Shack 1, then 2, then 3, and finally, at the farthest reaches of the site, now in total darkness with little four-legged critters scurrying around underfoot, he unlocks the door to Shack 4 and swings the door open.

Back at the studio, I was beginning to worry. Two hours had passed and the transmitter engineer had not returned with my lunch.

Finally, three hours after he left, he returned, explaining that he had had to go home to change clothes after he slipped in the mud while checking the directional readings.

I never did find out for sure whether it was mud or something more embarrassing. But I still get a great mental picture visualizing the Caped Crusader leaping out to attack my partner.

'Patch' Withers

Major-market radio stations for years used board operators to maintain levels, cue records and tapes, and generally run things for the disc jockey. The jock sat in a studio with a desk and a mic and little else, save for a cough switch and headphones.

In the middle of a live commercial, I interrupted the jock's headphone feed with a particularly noxious bodily sound effect.

Everything in the typical control room was on a patch; like many aspects of early broadcast engineering, this was a concept borrowed from the phone company. Each source could be patched into any pot on the audio board, and every output was likewise patchable.

This even extended to the studio headphone feed. Which one night gave me a very funny idea.

During a long record, the jock had removed his headphones. While they were off, I patched them into the audition output from the board. I then fed program to audition, so the feed was restored but could be interrupted at any time without affecting the program (air) feed.

I then took a "gag" cart that I had made up for the occasion, and which had on it various bodily noises and slanderous comments. In the middle of a live commercial — for a local funeral parlor, if memory serves — I momentarily interrupted the headphone feed with a particularly noxious sound effect, then immediately switched the feed back to air.

Studiously maintaining my composure, I glanced innocently through the window, noting that the jock had become tongue-tied.

Just as he took off again, another bilious noise blasted through the phones. He made it through noise number one and number two (no pun intended); but the third time's a charm, as they say, and he was done, tears rolling down his cheeks with laughter.

I hope Schlotski's Funeral Home got a make-good.

I worked at a small-market TV station in the late 1960s that was just converting to color. Studio cameras were quite expensive, so they bought just one. Really. We had one camera!

This worked out OK most of the time, except when a sponsor wanted to do a live, in-studio commercial. Still not much of a problem — unless we also happened to be in a live show, such as the news.

I was running the camera one night for the 10 p.m. news, when the director came out right before the cast started and informed me that we would be doing a live spot for the local Rexall Drugstore.

Down at the far end of the studio, an assistant was setting up a series of bottles and cans for a live "trucking" shot, which I was to make as the news anchorman read the prices. At the end of the spot, I was supposed to pan up and zoom out to show the announcer, the camera would fade to black and the anchorman and I would hightail it back to the news set. The camera would fade back up on the anchor, and we would continue.

This usually worked, but on the night in question, Murphy was against us.

During a commercial on film, the anchor and I got into position, and I even managed to make the trucking shot. The pan to the anchor was OK. But as soon as the camera faded to black, things went south.

The anchor could not get the lavalier mic unclipped from around his neck. The harder he tried, the more flustered he got. I locked the camera down and pulled the mic over his head, and he took off running for the other end of the studio.

I grabbed the camera dolly, pulled as hard as I could and got that 500-pound beast rolling, forgetting all about Newton's Law of Motion.

The anchorman jumped into his chair, which was on an 18-inch riser, grabbed at his mic and leaned back to tie it around his neck.

Unfortunately, he leaned back just as my runaway camera hit the riser and caused enough of a shift in it to allow the back wheel of his chair to slip over the edge.

The increased lean was itself just enough to cause him to follow the chair all the way down to the studio floor.

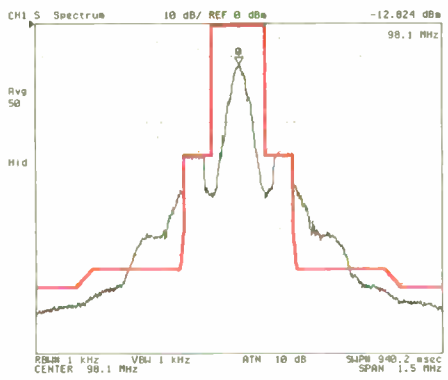
All of this happened so quickly that I was unable to alert the director about our inertial science experiment. He called "Ready Camera One" (redundant, since we had only the one) into my headset and faded up on an empty news desk ...

And then ... and then ... a *hand*! Followed by a head, then a full body.

Fade to black and roll on the floor laughing.

Early radio and television were a little like the Naked City, with its 8 million stories. It all seems quaint by the mega-merger standards of today; but for those of us who were there, the excitement and occasional laughs will be remembered forever.

The author is vice president of engineering for Pacific Broadcasting of Missouri.



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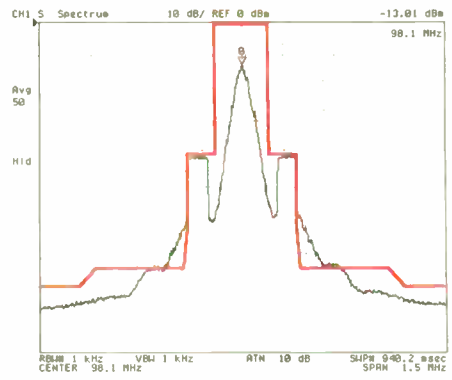

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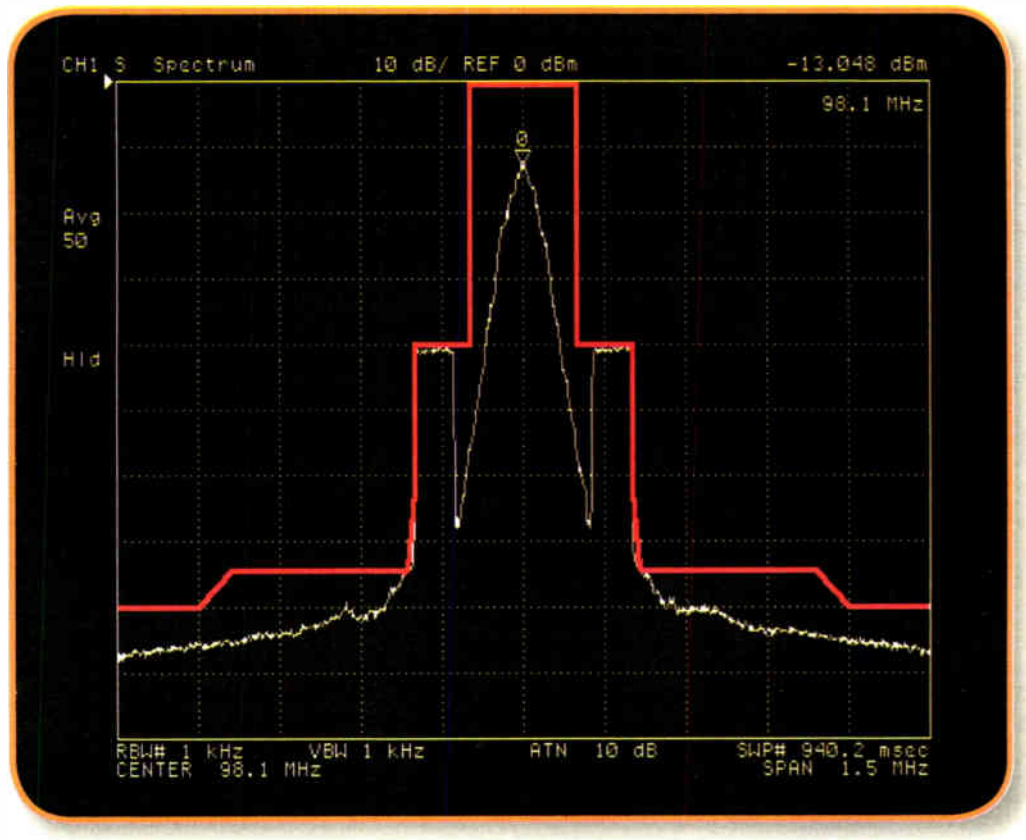

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Entravision Loving Its New L.A. Digs

by Scott Fybush

There's a lot going on in Entravision's new headquarters on the Miracle Mile of Wilshire Boulevard in Los Angeles: 27 studios cranking out programming for five satellite programming services and three local L.A. radio stations.

But with 45,000 square feet of space laid out in a cleverly segmented design, the vibe in the second-floor facility is pure laid-back Southern California, from swoopy red "George Jetson" sofas in the lobby to sleek silver Wheatstone Generation-5 consoles in the air studio.

Photo courtesy Wheatstone

The facility is the largest installation of Wheatstone's Bridge/ Generation System to date, including 27 Gen-5 Control Surfaces.

In fact, project manager John Buckham says the glitz of the Wheatstone's brushed-aluminum surface was a selling point as Entravision began planning its move from its old headquarters up in Campbell, near San Jose, to the heart of L.A.'s media community.

"We wanted something that looked classy, and the Wheatstone looked classy," he said, notwithstanding that the router-based digital audio system had yet to actually go into production. "It turned out to be the best choice, though. It's been stable and the jocks love it."

Custom board

Entravision's three local stations in L.A. — Spanish "cumbia" KLYY(FM); Spanish hits trimulcast KSSC(FM), KSSD(FM) and KSSE(FM); and modern rock KDLD(FM)/KDLE(FM) — had been using another make of console. Switching to the Wheatstones, which centralize more of their operations in the server room and use the console as a control surface, left some empty rack space in each studio for future use.

"The Wheatstone is amazingly compact," Buckham said.

Wheatstone's Phil Owens said the facility is the largest single installation of its Bridge/Generation System to date. The manufacturer supplied 27 Gen-5 Control Surfaces, 14 Bridge Satellite Router Cages and seven Bridge Router Cages. The studios are networked through the Bridge to form a large distributed audio and control system. The G5 surfaces range from 16-fader versions for the main air studios to smaller-footprint eight-fader versions for use in the Edit Rooms.

Photo courtesy Wheatstone

Server room, including Bridge Routers.

Buckham said Wheatstone worked with Entravision to create a custom console. The G5 in use here was created for this project. It's a stripped-down version of the larger G9, which incorporates controls that Entravision didn't want or need in its studios, such as effects and EQ settings.

"In a radio environment, EQ (control in the studio) is not a positive thing. You want to make those decisions at a programming level," Buckham said.

The facility was designed to serve nine program streams (there's room for one more in addition to the five satellite services and three local stations), with each stream in its own dedicated "pod" that includes an air studio, an adjacent "image room" that can be used for call screening, newscasters or production, and a separate production room down the hall.

There's one more studio with a big window overlooking the front lobby. It's equipped with TV lighting and audio connections for TV crews, ready to be used any time there's a star stopping by — not an infrequent occurrence in this neighborhood. (The offices of Variety and Daily Variety are one floor down, and right next door is the Miracle Mile building that will house Infinity Radio's L.A. operations.)

Studio gear includes Shure SM7 mics — "We chose the SM7 for its forgiveness," Buckham said — Presonus mic preamps, a brand Buckham discovered at a music-supply store in Berkeley, Tascam CD players and cassette decks. Omnirax studio furniture, an ESE master clock system, Telos 2101 phone system.

Photo by John Buckham

A pair of these chairs highlights the lobby.

Audion Labs VoxPro digital voice editors and Enco's DADpro32 digital automation.

And don't look for big, thumping studio monitors in this facility; each studio is instead equipped with Bose Free Space subwoofers and satellite speakers. The untraditional choice not only saved space in the studios, Buckham said; it also reduced the need for heavy-duty acoustical insulation between rooms.

"I figured you couldn't make too much noise" with the Boses, Buckham said. Also, "They sound great."

Entravision's previous home in Campbell, which it had occupied for only a few years when it came time to move

See ENTRAVISION, page 26 ▶

Workbench

Radio World, September 24, 2004

Past columns are archived at *www.rwonline.com/reference-room*

Sage Advice: Put on Your Caps

by John Bisset

Mark Ward of WTSN(AM) in Dover, N.H., writes on the subject of Sage Endecs. In a previous column we published a tip that Sage Endec memory batteries were coming up on 10 years of age and should be replaced. Installation of fresh batteries would eliminate the need of reprogramming the unit should the batteries and AC power fail.

Mark offers another important reminder. If the memory batteries are 10 years old, so are the (wall-wart) power supply filter caps. After he replaced the memory battery, Mark's Endec went into an endless loop of "self-tests" after power-up. Sage tech support advised that this was a symptom of excessive power supply ripple.

A new supply is $55 from Sage via Harris. Mark located a Radio Shack supply that should work, but he thought that there must be a less expensive way.

Mark's solution was carefully to cut with a hacksaw, along the seam of the wall-wart and pry the case open. Inside, Mark discovered a transformer, fuse, two diodes and a 2200 uF/25 V radial cap that had been toasted to a golden brown from its original aquamarine blue. Fig. 1 shows both radial and axial electrolytic capacitors.

Replacement of the cap with one from shelf stock restored the Endec to normal operation, and the case was closed with two cable ties.

If your technical budget is tight or non-existent, you might want to consider Mark's solution. Mark Ward can be reached at *mark@am1270wtsn.com.*

★ ★ ★

Electrolytic capacitor replacement should be automatic every seven and 10 years. In audio gear, the annoying hum will signal the bad caps. In audio processors or exciters, capacitor failure is more pronounced, producing whistles and bizarre operating behavior.

I remember a question on the FCC license examination: "Which component has the highest failure rate?" Answer: the electrolytic capacitor.

Mark's experience leads us to an important troubleshooting tip: When a piece of gear isn't working properly or behaves in a strange manner, check the supply voltages first. Measuring the voltage with a scope will show you excessive AC ripple, caused by bad power supply filter caps.

Don't have a scope? With the equipment powered off, clip-lead an electrolytic of similar size across the suspected power supply cap.

Two things to remember here. First, the working voltage of the replacement capacitor must be as much or greater than the one it will be replacing. Also, for this test, the "new" capacitor must be connected in parallel with the old one. This is, "+" to "+" and negative to negative.

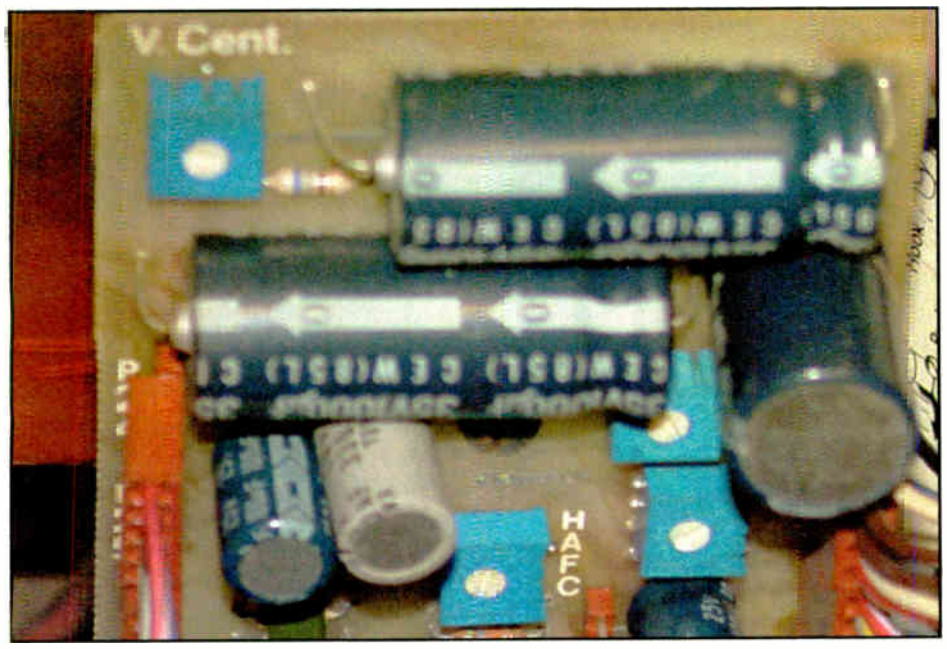

Fig. 1: Replace electrolytic capacitors every five to seven years.

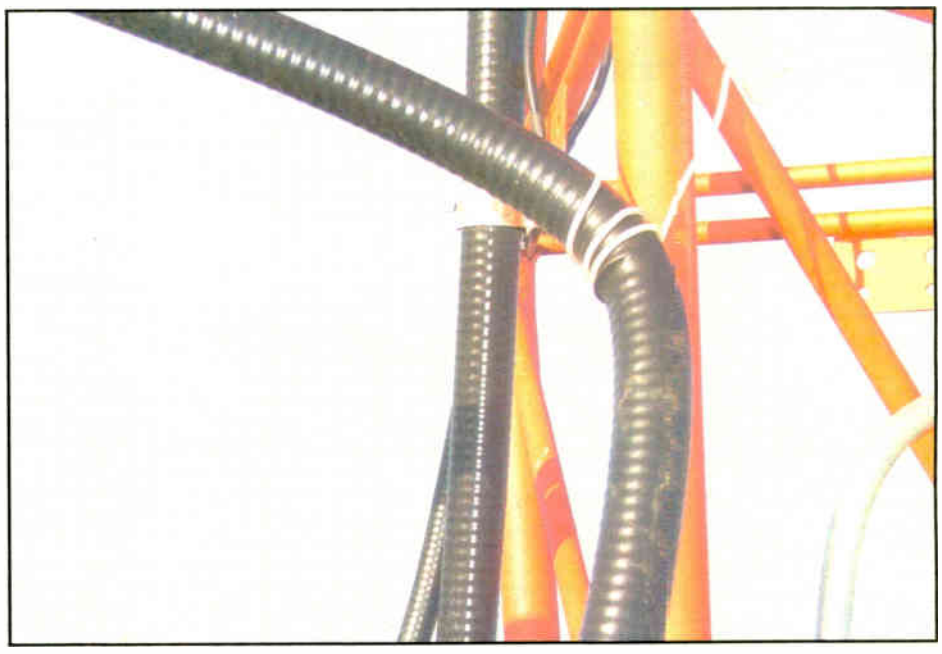

Fig. 2: Supervise tower work to prevent this kind of damage.

Turn the unit back on, making sure the clip leads aren't shorting before applying power, and see if the problem goes away. If it does, your power supply capacitor is bad; replace it, and any others.

When one electrolytic goes bad, the others won't be far behind. Shotgun replacement of all power supply electrolytics is a good practice. Like Mark, make sure you have a good stock of replacement electrolytics. Kits are

See WORKBENCH, page 26 ▶

Entravision

▶ Continued from page 24

south, had Industrial Acoustics pre-fab rooms for each studio.

fab rooms.

Instead, the buildout of the gutted studio space, with design by Mediaway Architecture and construction by Taslimi Construction, began with two layers of sheetrock, a frame atop those, another layer of sheetrock above that, open-back insulation atop that layer, then two more layers of sheetrock on separate frames and an inch of linear glass insulation atop *that*.

Photo courtesy Wheatstone

A view of an Edit room. Equipment includes Shure SM7 mics, Omnirax studio furniture, an ESE master clock system, Telos Systems 2101 phone system, Audion Labs VoxPro digital voice editors and Enco DADpro32 digital automation.

Buckham shied from that approach for the L.A. facility, in part because the requirements of the Americans With Disabilities Act would have required him to raise the hallway floors of the entire studio suite to meet the high doorsills of the pre-

Wiring was by Creative Studio Solutions and the Entravision technical staff. Cat-6 wiring connects Wheatstone frames in each studio to the server room at the core of the facility, which houses the Wheatstone router system as well as the audio processing (Orban Optimod 8400s for the local stations), Harris Intraplex T1 STLs, EAS gear, satellite uplinks for the network services (including the "Radio Tricolor" regional Mexican and "Radio Romantica" Spanish AC networks) and the facility's computer and telephone networking.

Neutrik said 2,500 of its connectors were used; CSS built wiring harnesses with Neutrik's IDC type XLR cable connectors NC3FEZY-B and NC3MEZY-B, and some 100 each of the "P" series type XLR solder cup receptacles, NC3MP and NC3FP-1.

Construction on the facility began in summer of 2003, and staffers began moving in last February. About 30 came down the coast from the old Campbell offices; others had been working at scattered Entravision facilities around southern California. The facility also houses Entravision's Vista Media outdoor advertising business and sales offices for XETV(TV) in San Diego, which Entravision owns.

In all, more than 100 people now work at the Entravision offices, with room for more. "They're not tripping over each other here," Buckham says.

Oh, and the undulating red sofas in the front lobby? Those came courtesy of the Ginsler interior decorating firm, which was also responsible for the color-changing lighting in the hallways and the red door frames. Buckham says they've already become something of a trademark of the space.

Workbench

▶ Continued from page 25

available from Mouser and Digikey with the most popular values.

Also remember these devices pack a charge. Once you've unplugged your equipment, make sure you short the leads before touching. Throwing a charged electrolytic to a college classmate in electronics lab was always a good way to wake someone up. But depending on the size of the capacitor, the charge can be deadly, so beware.

★ ★ ★

Fig. 2 on page 25 shows a good reason to supervise any tower work done on your tower, even if it's the installation of a temporary line. Funny how the word "temporary" is a synonym for "permanent" in the broadcast world.

Not only were hangers missing in this case, but the crimp in the line weakens it — to say nothing about the reflected power issue.

Take the time to walk your tower site before inclement weather sets in. Inspect everything. If you have a digital camera, snap pictures; the visual record could be valuable later on.

And how do you keep riggers from cutting corners like this? Tell them at the onset that you'll be inspecting their work.

I had a friend who was given an old climbing belt. He kept it in his trunk, and pulled it out when the tower riggers began their work. Whether it was a paint job or work on the tower, he intimated that he would be climbing to inspect the work. He never climbed a tower, to my knowledge; but he never had problems with work being done improperly on his towers.

★ ★ ★

Off to the NAB Radio Show in San Diego? If you plan on bringing carry-on luggage, watch what you pack.

Keep the tools at home, as well as "weapons" like cans of Adkins Shakes!

Fig. 3: Keep the tools at home as you travel by air to the convention.

Better yet, with the reduction of lost luggage claims, check your bag and eliminate the hassle.

Don't lock the bag, though. If the TSA inspectors see that wrench or hammer on the X-ray, they'll want to get inside your bag for a further look. They will break your lock to get inside. Also keep in mind that film transported in checked baggage can be fogged. Carry your film with your camera bag, and have it hand-searched.

OK, so you forget that your prized screwdriver or pocketknife are traveling in your shirt pocket, and you get nabbed as you pass through security. Rather than have the tool relegated to the trashcan, ask to check it.

Yes, you'll have to leave the security area, go back to the ticket counter and use one of the airline's small parcel bags or boxes, then pass through security again; but you won't lose your tools. The airlines will "check" these small items as baggage, so there's no charge, just the added time. But then, that's why you arrive two hours before your flight.

As you plan your NAB visit, hang around for the sessions. The NAB is sponsoring a number of digital tutorials this year, and I'll have an hour-long troubleshooting seminar for non-RF engineers on Thursday afternoon. Hope to see you there!

John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is the northeast regional sales manager for Dielectric Communications. Reach him at (571) 217-9386 or john.bisset@dielectric.spx.com. *Submissions for this column are encouraged, and qualify for SBE recertification credit.*

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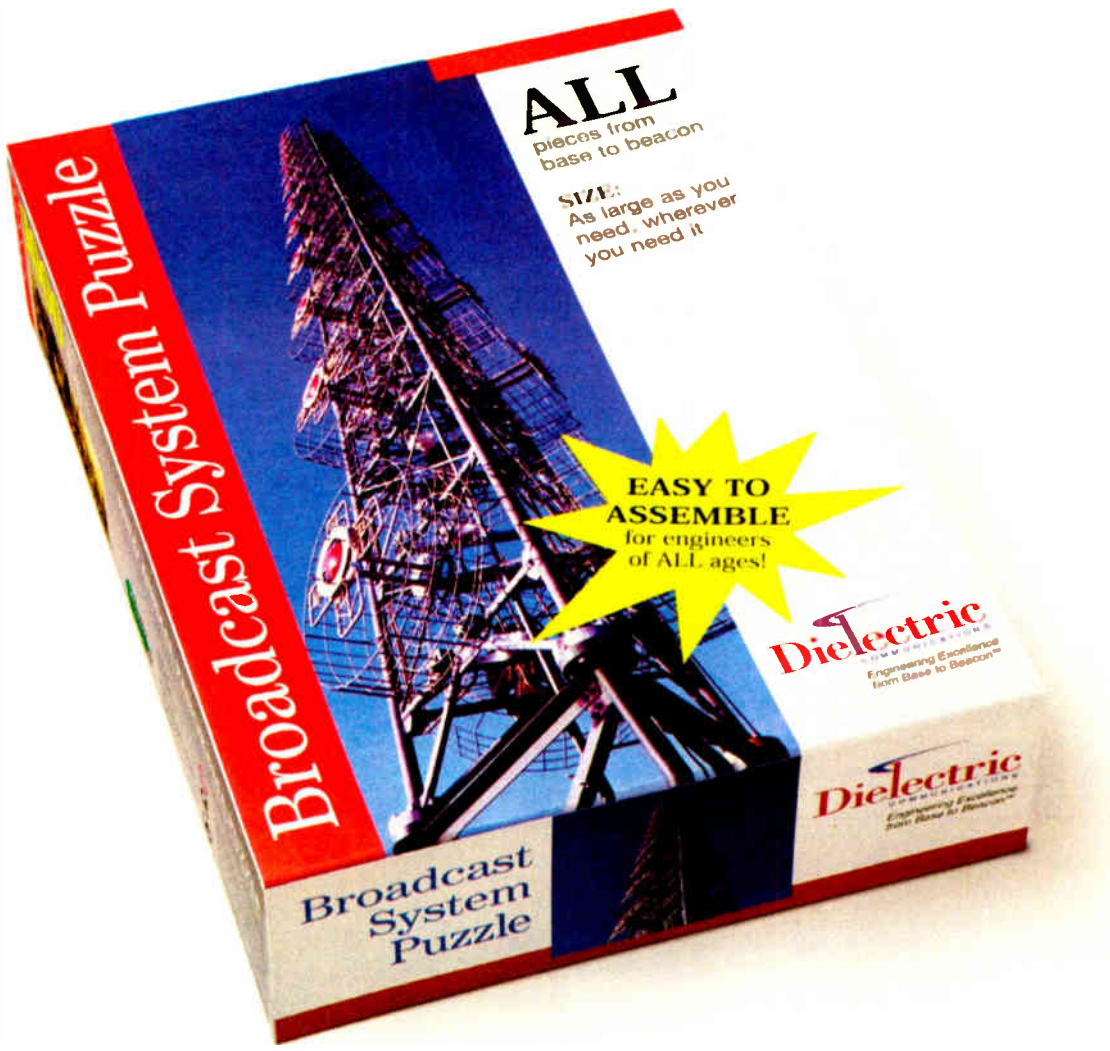

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Clover Productions in Buena Park, Calif., which does sound work including radio commercials, is using **Yamaha** MSP10 Studio monitors. Mike Clover is owner and chief engineer. ...

The **Olympic Committee** in Athens took delivery of 25 **TerraSonde** Digital Audio Toolboxes from Greek distributor **Omikron Control.** The testers were for the use of broadcast engineers and audio technicians at the Games. At retail, the value of the package is about $70,000. ...

Netia said the government of **South Africa** launched a major broadcast project, and will use its Radio-Assist product line, purchased through distributor **Soundfusion**. The project involves setting up production centers where programs, documentaries and educational material will be created and broadcast via a network of community radio stations. ...

RTE Radio, an Irish public service broadcaster, placed orders for two **Studer** OnAir 3000 digital mixing consoles to be installed in Dublin and Galway.

Elsewhere, the **Shanghai Media Group**, which operates radio stations in China, is completing an upgrade of on-air studios, equipping them with Studer OnAir 2000 Series consoles supplied by **ACE Advanced Communication Equipment**.

Eight Studer consoles have been delivered to the **Voice of Vietnam** national radio broadcaster, which earlier installed 11 Studer boards at its facility in Hanoi. And **BBC Radio Resources** ordered a Studer Vista 8 digital production console for a new Mobile Studio. ...

Audio-Technica said its mics were used by the **Athens Olympic Broadcasting** organization, the host broadcaster that produces distributing audio and video coverage.

Product Manager Michael Edwards said a "large number" of shotgun microphones, including stereo shotguns, were in use, as were directional adaptive-array mics, omni condenser boundary mics, wireless systems, miniature omni and cardioid condenser lavs and the new AT899 subminiature omni lavalier. ...

Clover Productions Owner and Chief Engineer Mike Clover with his old and new Yamaha studio monitors.

Emmis Radio managers are getting a new tool to tell them what ran, and when. The company has signed a contract with **Media Monitors** to use the AirCheck spot airplay data service, which analyzes commercials and songs on various stations via online, same-day data. Media Monitors, which offers the AirCheck service and is owned by RCS, also said Greater Media has signed up to use its offerings. ...

New commercial FM services in the Indian cities of Kolkata, Delhi and Chennai went on the air through a broadcast development program in which RF company **Radio Frequency Systems** was involved. RFS designed and developed three broadcast installations to share existing tower structures of All India Radio.

Stations including ENIL, Radio Today, Hitz FM and India FM Radio went on in 2003. RFS was appointed by the project's consultant to provide turnkey RF systems including an RFS 904 series FM panel array atop the existing structure and an RFS CZ series multi-channel balanced combiner to provide a combined signal to the broadband array.

Separately, RFS was involved in a project in Bahrain, which it described as a massive new broadcast station. The project involved the installation of UHF TV and FM broadcast systems for the Saudi-based pan-Arab broadcaster **mbc Saravision**. The company called it the largest broadcast project it had been awarded in the Middle East.

RFS's custom combiner achieves 500 kHz channel spacing for the Kerrang! FM service at Crown Castle's Sutton Coldfield site in the West Midlands.

And **Kerrang! 105.2 FM**, a regional station serving the West Midlands in the United Kingdom, is using a custom FM combiner from RFS at a **Crown Castle UK** transmission site near Birmingham. The combiner enables the broadcast of a new 2-kW FM service from an existing broadband antenna, which also transmits three existing FM radio services, one of which operates at a frequency just 500 kHz distant from that allocated to the new FM service. The company said it was the first channel combiner in the U.K. to achieve 500 kHz spacing.

"The main challenge was to manage the effect of group delay introduced by a combiner of such close frequency spacing. ... The resulting RFS combiner is a modification of its three-pole filter module, where the filter apertures have been reduced in size and carefully tuned to accommodate the 500 kHz channel spacing, as opposed to the design-spacing of 800 kHz. The new combiner was inserted between the existing three-channel combiner system and broadband antenna."

Suppliers and broadcasters are invited to send us news of recent equipment decisions at radioworld@imaspub.com.

SUPPLY SIDE

AudioScience

"Supply Side" is a new series about radio broadcast suppliers you don't know, and facts you don't know about companies you do. This Q&A is with AudioScience co-founder and Vice President Stephen Turner.

Who owns your company, and how many people work there?

Richard Gross and I started AudioScience in 1996; it is owned by Gross, Andrew Elder and me. We have eight employees in Delaware, California, New York and New Zealand.

You recently noted your 20,000th card shipped in eight years. Where is that volume of sales coming from?

Our mission is to supply audio peripherals to OEMs in the broadcast and entertainment markets, and that's where the majority of our products ship.

In 2003, radio broadcast had the largest share, with most of that being radio station automation OEMs. We also have an increasing customer base in non-traditional broadcast areas such as advertisement verification and in-store advertising.

What's the biggest change you foresee in the coming year or two affecting how radio uses sound cards?

I don't see any changes imminent. Long term — more than two years out — I see two things affecting sound card design.

First, HD Radio Surround. If this catches on, we may see a lot more six-channel audio in the radio station. This means that sound cards may have to record and play 5.1 channel files in both compressed (Dolby Digital) and uncompressed (multi-channel WAV file) and do things like overlap of surround files during segues.

Second, audio networking. If this catches on, you may start seeing sound cards with Ethernet connectors on them.

What is CobraNet and what does your recent adoption of Cirrus Logic ICs mean?

CobraNet is a protocol for distribution of digital audio and control over standard Ethernet networks. It was developed by a company called PeakAudio in the 1990s. PeakAudio has since been acquired by Cirrus Logic.

CobraNet is viewed by many in the pro audio industry as the de-facto audio networking standard. To date it has seen use mainly in sound reinforcement applications. In the past it was very expensive to add CobraNet to your products, as the required functionality came in "modules" that cost $100 or more, with royalties on top of that.

Cirrus Logic has now developed CobraNet "chips," which are much more affordable than the modules and have no royalties. This has enabled companies like us to start thinking about adding it to our sound cards. So instead of a sound card with analog or AES/EBU I/O you'd just have an Ethernet jack on the back of it.

Of course, a sound card with CobraNet on it is no good unless it can talk to other radio station equipment that is also Cobranet-enabled. So we are encouraging console, codec and other equipment manufacturers to also take a look at adding CobraNet to their products.

Other developments of interest to radio engineers and managers?

Radio World recently highlighted the use of radio content identification and verification. We have been active in this market for many years and are supplying OEM monitoring products to many of the companies mentioned in your article. One such product, the ASI8702 AM/FM eight-channel tuner card, recently won a Radio World "Cool Stuff" award at NAB2004.

Info

Company: AudioScience Inc.

Ownership: Richard Gross, Stephen Turner, Dr. Andrew Elder

Headquartered: New Castle, Del.

Employees: 8

Info: (302) 324-5333 or www.audioscience.com

How to Submit Letters

Radio World welcomes your point of view on any topic related to the U.S. radio broadcast industry.

Send letters via e-mail to *radioworld@imaspub.com*, with "Letter to the Editor" in the subject field; fax to (703) 820-3245; or mail to Reader's Forum, Radio World, P.O. Box 1214, Falls Church, VA 22041.

Alignment at 450/455 MHz Is Puzzling

by David Otey

The author is the SBE frequency coordination director.

There was a puzzle I recall seeing many years ago.

It was a picture of a dozen or so colorful elves printed across four separate cards. When you arranged the cards in a different order, at first glance it looked like the same elves in different positions. Upon closer inspection, though, you discovered there was now one less elf than when you started! Where did the extra elf go?

It turned out to be a clever optical illusion, relying on the viewer's natural tendency to perceive complete figures where the artist had in fact given you only selected pieces.

When I started looking carefully at the new channel plan for the 450/455 MHz RPU band, I thought I was seeing a new version of that old puzzle. Something seemed to be missing, as you can verify from the accompanying figure. The figure shows how channels are allocated in the 1.0 Megahertz of spectrum between 450 and 451 MHz; the same plan is repeated from 455 to 456 MHz.

If you add up the spectrum occupied by a total of 102 channels of 6.25 kHz each, 10 channels of 25 kHz each, and two of 50 kHz each, you get 987.5 kHz, not 1000 kHz.

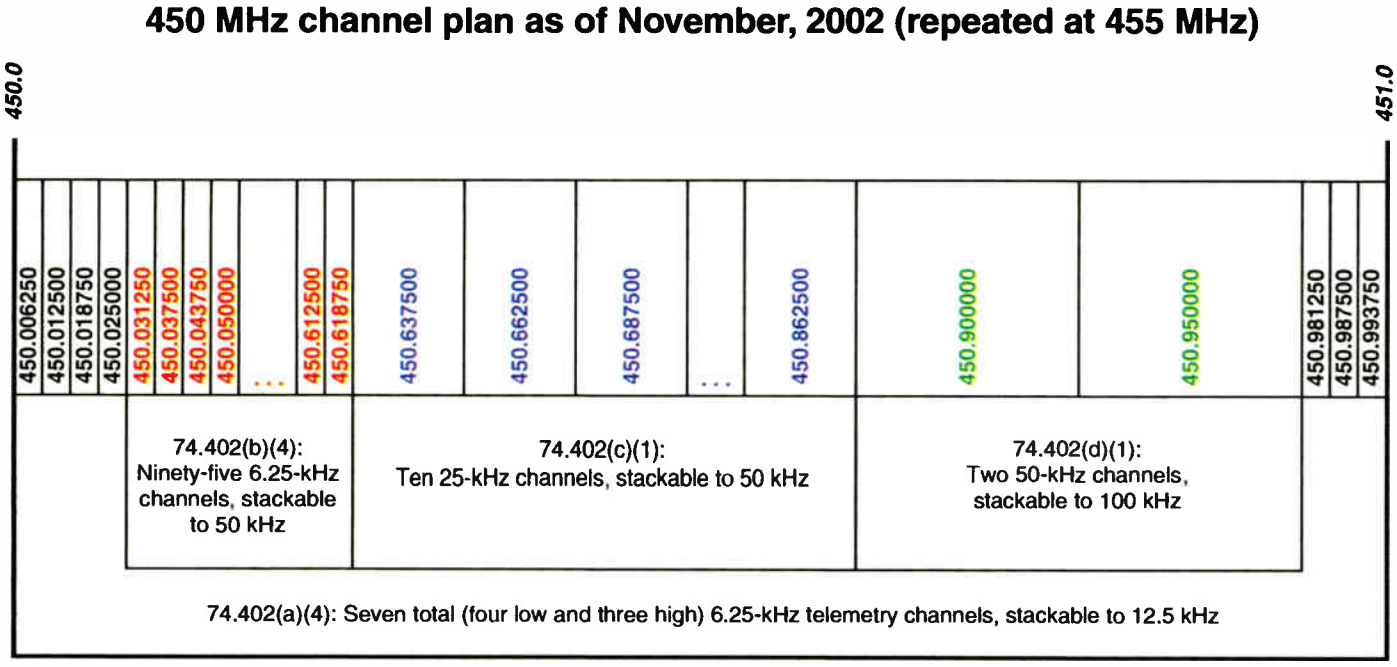
Does the figure omit any channels? No, these are taken straight out of Part 74 the FCC Rules (as modified Nov. 13, 2002, by the Report and Order in ET Docket No. 01-75), as the citations show. Yet, somehow there is 12.5 kHz unaccounted for.

Can you see where the 12.5 kHz elf went?

Lest you think I have too much time on my hands, I should say that I discovered this in the course of helping an SBE member figure out how to solve a somewhat more relevant (if less amusing) problem.

He wished to license a narrow-band telemetry link, using channels at the edge of the band that are reserved for this purpose. Like most such systems, his hardware requires 10 kHz of bandwidth, necessitating the use of two stacked channels. The rules permit this, stating that when "an even number of channels are stacked ... channel assignments may be made for the frequency halfway between those listed."

So, for example, to stack the channels at 450.01875 and 450.0250, one would simply enter a center frequency of 450.021875. No problem, right? Except that when my correspondent tried to enter that frequency into the online Form 601 application, he found that only five decimal places were accepted. Oops!



applications handled in this way should not run afoul of the system.

Read those rules

As for the practice of requesting stacked channels in an application, that process is designed to be automatic, based on the requested center frequency and bandwidth (as defined in the emission designator). That explains why there is no place to indicate channel stacking in Form 601. Given that most channels are now defined in 6.25-kHz increments, and no known equipment actually operates in such a narrow channel, channel stacking will take place more often than not.

Buenzow cautions that applicants unfamiliar with the recent revisions to Part 74 rules would do well to read carefully sections 74.402 and 74.462 before applying for new licenses or major modifications in the 450/455 MHz band. I would add: Be sure to check your emission designator for consistency with both your equipment and the bandwidth of the channel(s) for which you are applying.

Now, what about the missing 12.5 kHz?

There actually are four unassigned slivers of 3.125 kHz each, which an astute reader can find by careful scrutiny of the figure shown.

Can you see where the 12.5 kHz elf went?

A call to the helpful Steve Buenzow at the FCC in Gettysburg, Pa. — where the Wireless Telecommunications Bureau handles BAS license applications, among other things — shed light on the problem.

It should come as no surprise to learn that it is "simply" a computer programming error. The underlying database has no problem tracking those last five Hertz, but whoever created the data-entry interface did not anticipate the need to enter a frequency to that resolution.

If the problem is not fixed by the time you read this, it should be corrected soon. Until it is, Buenzow says applicants who run into this problem should enter as many decimal places as the form allows, then attach an exhibit showing the actual desired center frequency and explain channel-stacking as the reason.

The application processors have been alerted to this situation, and

Start by observing that the first center frequency is 450.00625, or 6.25 kHz away from the edge of the band. Spectral efficiency would seem to require that the center of a 6.25-kHz-wide channel should be only 3.125 kHz from the band edge. This same anomaly occurs at the top edge of the band. Two similar anomalies occur where the narrow channels abut the wider ones. Together, four wasted half-channels add up to 12.5 kHz — more than enough for another signaling channel.

One wonders whether the center frequencies were chosen this way to keep the number of decimal places to a minimum: 450.00625 MHz as opposed to 450.003125 MHz, for example. If so, the plan must have backfired on the FCC as soon as someone (like my correspondent) tried to stack two channels and arrived at a center frequency the Web form would not accept!

Send your comments or questions to David Otey, CSTE, at dotey@sbe.org.

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The Lifecycle of a Public Radio Piece

by Rich Rarey

In the shimmering heat of the desert morning, NPR reporter Ivan Watson prepares his recording equipment for another day. His beat for the next month is Iraq. His mission is to tell the story in sound.

and a little scuffed from rubbing against the boxes and sides of the truck transport that he rides when traveling to more dangerous locations.

The cursory equipment check complete, Watson clicks off the MiniDisc's power and stuffs his two recorders, an Audio-Technica AT835 short shotgun

and the forces of radical Shi'ite cleric Muqtada al Sadr. There was gunfire from the insurgents in a building near the holy Imam Al Ali Shrine. Earlier in the day, the Army dropped him off at the wrong location, so he and other journalists rode to Najaf in an Army ammunition truck sitting on boxes of grenades, ammunition

He turns to the rackmounted Telos Zephyr ISDN codec, quickly sets it for MPEG Layer 2 Mono, and waits for its familiar "Brrrrt-Brrrt" ring. He presses the Yes button to accept the call, and a 12-digit caller ID number appears.

It's Watson connecting from Najaf using a Nera World Communicator 64KB satellite phone and GlenSound GSGC-4 codec. He's dubbed his actualities and ambience into his laptop an hour before, and using CoolEdit2000, edited them into

NPR technician Stu Rushfield at work

Ivan Watson in Najaf, Iraq

Photo by Ali Fadhil

Ivan checks his Sony MZ-B100 MiniDisc recorder, handy because it uses a single AA battery. The recorder comes to life, clicking and whirring, LEDs flashing. His cables are in good shape, only slightly worn from the heat and sand

microphone, ElectroVoice EV-50 microphone, Sony 7706 headphones, MiniDiscs, notepad, pens, extra batteries and water into a canvas tote.

Today he's in Najaf, covering the confrontation between the Iraqi government

and mortar rounds.

In Record Central 1, at NPR's Washington headquarters, technician Stu Rushfield answers Watson's telephone call. "Yep, just a minute," Rushfield says into the phone. "I'll get set up."

a coherent string of cuts ready for feeding through the laptop's analog output and into the GlenSound's line input.

"OK, let's get levels," Rushfield says briskly.

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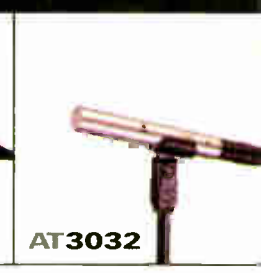

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NPR

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He knows Watson's piece is first in the show, and it's now a little after 1500 ET (3 p.m.), about an hour until air. Watson opens the mic input of the GlenSound and reads a few lines of his voice tracks and inquires, "How's that for level?" Rushfield glances again at the PPM meters on his Pacific Recorders console and sets up a new Dalet recording session with a couple of mouse clicks.

"Good level, and we're recording," Rushfield squawks down the ISDN connection. He starts the Dalet record session as well as an analog 7.5 ips backup recording. Watson slates his piece and

'All Things Considered' host Melissa Block

begins reading his tracks: each is slated with a simple mixing instruction ("...and bring the sound of the mortar attack under and then I come in ... in three, two, one...").

Watson finishes his tracks, then feeds the edited actualities and sound to Record Central 1 before preparing for the following day. It's already 2300 (11 p.m.) in Najaf, and Watson's planning to go on maneuvers with a U.S. Marine force early the next morning. Destination: unannounced.

Filling the gaps

It's 1515 ET, and as Watson feeds the acts and sound bites to the Record Central, "All Things Considered" show director Bob Boilen is sitting in his office at his Dalet workstation, listening to Watson's tracks to get a sense of the piece. Boilen is selecting "tease" cuts for the ATC billboard that will play exactly at 1600 ET.

Across the open ATC work area, Associate Producer Quinn O'Toole is sitting at his Dalet workstation, laying up and editing Watson's tracks and the still-to-be-completed actualities and sound.

"You wanna quote?" He says with a smile, "It's this: Dalet is great for letting me cut while the feed's still in progress."

He turns back to his screen, adjusts his headphones over just his left ear and deftly nudges the nondestructive edit points left, right; then, satisfied, he moves to the next edit. He has separated all of Watson's tracks onto the first editing panel, leaving gaps where the actuals and sound will be laid in the subsequent editing panel below. A couple of mouse clicks adds the actuality file to the second editing panel, and O'Toole dissects its contents, copying and pasting each actuality where it belongs.

He glances at Watson's script, sent by an Internet connection to the NPR corporate scriptwriting server, ENPS, and drags an actuality to later in the timeline. It's about 1530 ET. O'Toole adds the piece's ambience to the fourth editing panel and splays its contents until he find the muffled mortar round explosion. He drags it to align with a gap in the first editing panel and nudges Watson's tracks closer. He's still got a native speaker, and English translation to finesse on panels two and three, and quickly checks the lay up for the correct "feel." The last thing he does is save this Edit Decision List before leaving his desk.

On the screen

It's about 1540 ET, and ATC Technical Director Michael Cullen directs O'Toole to mix with an engineer in Studio 2B, already reserved for this piece. In Studio 2B, technician Johnny Vince Evans has his Pacific Recorders console prepared and his Dalet screen waiting.

O'Toole approaches the Dalet workstation and loads his EDL. The four audio panels blink into life with green audio waveform displays and white edit markers. Evans listens quickly to the top of the first track for technical quality, then surveys the actualities and sound for level match and technical quality. He has elected to use no EQ at this point; it's his judgment that the elements are OK as is. Each of the four audio panels appears in the Pacific Recorders console on separate fader.

"It's the first piece in the show?" Evans murmurs. O'Toole affirms and Evans starts a Dalet record session. He presses the START button under the fader and Watson's recorded tracks begin playing, all the while Evans has sneaked in the mortar attack sound.

The Dalet workstation's white cursor bar remains motionless while the four panels slowly scroll past. O'Toole directs the mix, sitting to Evans' left, using a concert conductor's hand motions to propel a fade or grasp for an incoming sound.

"Oops no, no, we need to go back to the track," O'Toole says quietly when the ambience pops in suddenly. He stops the playback, leaving the record Dalet panel alone, and Evans squints at the screen.

"Ohhh, okay, I thought ... we were going to sound instead."

Evans resets his faders to the previous position, so that O'Toole's cut will be at the same level. They rewind the EDL several seconds — tape terminology is still applicable here — and

See NPR, page 37 ▶

In-House Production: Entercom K.C.

by Stephen Murphy

Entercom, one of the largest radio companies in the United States, owns and operates clusters of stations in many of the top markets. The Entercom Kansas City group is an example, with eight AM and FM stations covering a range of formats, from news to adult contemporary to classical.

Creative Services Director Mark Groves leads the in-house production facility for Entercom Kansas City. Groves' team is responsible for a variety of prerecorded productions for the cluster.

Entercom team members: engineer Jim Moore (l) and Mark Groves (r)

Multi-purpose

"Our in-house creative services facility is certainly multipurpose," Groves said. "The greater degree of what we do is directly for the stations and is commercial matter — direct advertising in :10s, :30s and :60s. In other words, most of the stuff that runs in the commercial stop sets."

Groves' team also is responsible for occasionally recording full shows in one of the facility's eight production rooms.

"Those fall under the commercial heading and are paid-for shows that run on weekend mornings on a few of the stations," Groves said. The production facilities also are used for providing station imaging for the cluster, though a few stations farm some of that work out.

In a cluster-wide department, Groves says his time increasingly is spent on the management side, while his staff handles most of the engineering. "That is why I am grateful that newer recording technology has increased our efficiency and facilitated our ability to create spots in less time."

Groves, who has been with Entercom Kansas City for three years, also established production request and internal trafficking databases that allow him greater management control of station requests and interdepartment production progress.

Groves' department is charged with providing cluster-wide creative services using a variety of methods and production tools. "The facility has several production studios, three of which are in full-time use by our creative services department," he said.

"Actually, one of those — Studio D — is shared with our classical station that broadcasts their morning drive show live out of the studio. Once they switch over to satellite, it reverts to a production studio."

The three production rooms principally used by the creative services department are Studios B, C and D. "As much as possible, they are similarly, if not exactly equipped, though they are laid out differently: one is designed from top-to-bottom as a production facility, while the other two can double as on-air rooms when the need arises."

The three production studios feature Harris BMX analog production consoles, Sony MDSE12 MiniDisc recorders, TASCAM 202MKII dubbing cassette decks, EV RE20 microphones and Symetrix 528E Voice Processors.

The Harris boards run into PC-based computers equipped with CD-RW drives and running Adobe Audition software. "We switched to Adobe when IQS stopped supporting SAW Pro," Groves said. "We also use Sony (formerly Sonic Foundry) Sound Forge, primarily for its excellent time-stretch function.

"Shortly after I arrived here, we added a terabyte RAID system to house all our sound effects and music libraries, and to back up all the sessions we do. That gives us facility-wide access to effects as well as raw session tracks, which can then be quickly updated when a client requests."

Completed spots and other productions are transferred into a large-scale BE AudioVault system for use by the eight stations.

The studios use Hafler and Crown amplifiers to drive the studio monitors. "The speaker model? They're the JBL Juranosaurus, left over from previous studios of long ago..." Groves joked.

New digs

It was just announced that Entercom Kansas City would be moving to a new facility soon. Will there be changes in store for the production facilities of the creative services department?

"Absolutely. This is going to be a great opportunity to modernize and streamline the production facilities," Groves said.

"We're just in the beginning stages of planning, but the core of the new system will be an all-digital audio network — control boards and editing tools, with CAT-5 cable as the only throughput for each studio — that will enable far greater organizational control and easier access to files across the entire cluster of stations."

NPR

▶ Continued from page 34

begin the playback five seconds before the end of an actuality. Evans hits the mark and the mix continues.

After the mix, he carefully saves the file, labels it and places it in the Dalet bin marked "ATC." O'Toole has already left the studio for his desk. It's 1549 ET. O'Toole loads the mixed piece into his edit panel, and immediately removes the silence at the head and tail and removes the pickups. Once satisfied, he saves his changes to a new file that ensures that the evening production staff can recut the original mixed piece, if necessary.

It's 1555 ET, and the piece is verbally passed to the producer, who listens for content and acts as "last pair of ears" before it airs.

In Studio 2A, director Boilen is checking his copy of the show's "roadmap," photocopies of which are distributed to the two ATC hosts, the two drive engineers and the production staff. As the Ivan Watson piece is in the "Ready For Air" Dalet bin, Boilen marks the running time in red on his roadmap.

An intern arrives with the hardcopy intros to the piece for Boilen and the hosts. NPR's program hosts prefer scripts on paper rather than on-screen because computers do crash at the worst times. The intern takes the script to hosts Melissa Block and Michele Norris. Block scans the script and checks the estimated read time with her own pace; satisfied, she places the script in her carefully organized stack.

At exactly 1600 ET, Boilen directs drive engineer Abdullah Rufus to start the Dalet playback of the ATC Billboard ("Hit it!") and the program is underway.

There it goes

After the billboard, a five-minute newscast with actualities is broadcast, with newscaster Korva Coleman in the Studio 2A announce booth.

During the newscast, Abdullah Rufus and fellow drive engineer Bill Deputy check the roadmap for the required pieces for the coming hour, and load the Ivan Watson piece into both the primary and backup Dalet playback machines; the press of the Start button on the Pacific Recorders console triggers both Dalet playbacks, and the drive engineers can switch to a backup at the twist of a knob. After auditioning the piece to confirm it's really there, and it's really an Ivan Watson piece, they return their full concentration to the newscast.

A :29 music bed is played at exactly 1606 ET, at the end of which Boilen directs Abdullah Rufus to open both hosts' mics for the start of the body of the program. Michelle Norris reads first, then Block reads the intro to the Watson piece. The engineer presses the below-fader START button, and the piece begins on both primary and backup Dalet workstations.

The playback is uneventful, and as a live interview by ISDN is scheduled next, the drive engineers concentrate more on getting their live guest settled and backfeeds checked.

The Studio 2A atmosphere remains relaxed; there are no crashing deadlines or live-to-air pieces to mix. But then, there's still one hour and 50 minutes to go in the live broadcast.

Rich Rarey is an engineering supervisor at National Public Radio.

Radio Clings to Mic Traditions

by Frank Beacham

Given that the now-defunct broadcast division of RCA helped finance and supply equipment to many of America's early radio stations, it's not surprising that RCA microphones dominated broadcast studios for much of the last century.

Those venerable RCA 44 and 77-series microphones became radio icons, and the rich sound of their ribbon elements provided gravitas to the human voice. Today, those original microphones are prized collectors items and displayed as proud symbols of the medium's golden age.

In more recent years, radio studios standardized on large, rugged dynamic microphones such as the Electro-Voice RE-20, Shure SM7 and Sennheiser MD 421. Each of these venerable microphones has evolved over the years and continue to be found in radio announce and voiceover studios.

Today, a new generation of microphones is vying for favor with radio broadcasters. Acceptance won't come easily. These newcomers must compete with a handful of products that have performed so well over the years that generations of engineers see no reason to tamper with success.

It is notable that one of the great names in microphones — Neumann — recently decided to enter the radio broadcast market. Not that Neumann's legendary condenser microphones haven't been used in certain high-end broadcast facilities; but, as a whole, American radio stations have found the price too steep for these staples of the recording industry.

Audio-Technica AT3060

Shure KSM27

Neumann BCM 104

AEA R84

The new Neumann BCM 104 microphone was designed to change that, through features and price. Using a large-diaphragm condenser capsule, it has a cardioid pattern with internally switchable proximity effect compensation. A second switch allows the sensitivity to be reduced by 14 dB.

The microphone grille twists off for quick cleaning. Neumann offers optional, color-coded grilles so that, for reasons of hygiene, each announcer working at a studio console can use his or her individual grille.

Directly in front of the capsule, mounted on a frame holder, is a piece of fine gauze that serves as a pop screen. It has an elastic mount against structure-borne noise and is compatible with standard broadcast-style microphone arms. And, a priority to the bean counters of radio, it's affordable. The BCM 104 is discount priced for under $625.

Audio-Technica is active in this market with its AT3060, a cardioid, phantom-powered tube mic for users who would like that brand of warm sound.

A large-diaphragm condenser element is said to provide high sensitivity and smooth sound reproduction. The company picks the tubes by hand. Features on this model include a shock-mounted tube assembly, nickel-plated brass acoustic element baffle, a large coupling transformer and an included shock mount and pouch. The AT3060 carries a price tag of $599 and is seen on the street for about a hundred dollars less.

Another veteran of the radio microphone wars is Shure, a company that has attained great success over the years with its SM7 series — the current model being the SM7B. However, Shure is now recommending one its studio condenser models for broadcasters.

Shure's KSM27 is a side-address condenser microphone featuring a cardioid polar pattern with an externally biased one-inch diaphragm, low self-noise and an extended frequency response tailored for vocal tracking and instrument recording.

There's also an integrated three-stage "pop" protection grille and internal shockmount. Suited for broadcast applications (and used on NBC's "Tonight Show"), the KSM27 is sold widely at a street price of under $300.

Another recent contender is the AKG C4500B-BC "On Air" broadcast microphone. This front-address, large-diaphragm condenser is immune to electrostatic and magnetic fields and provides a wide dynamic range and low self-noise.

Features include switchable 20 dB pad and low-frequency rolloff (6 dB/octave below 120 Hz), internal shockmount, spider suspension and windscreen. Street price is about $400.

More mics

Like a television camera, the Rode NTB broadcast microphone has a switch-controllable indicator tally light that signals when it's on the air. It features a cardioid pickup pattern; ultra-low noise; gold-sputtered pressure gradient transducer; voice-tailored low-cut filter; pop filtering; internally shockmounted capsule; and rugged stainless steel body.

Offering a warm vocal sound, wide dynamic range and exceptional frequency response, Rode's NTB broadcast condenser has a street price of under $330.

In radio, the looks of a microphone matters and that design choice is clearly behind the Heil Classic Pro, an RCA-inspired look-alike of a 1930s-era broadcast microphone.

Rather than a ribbon element, the Classic Pro uses Heil's Proline wide frequency range broadcast element. The manufacturer said it achieves high performance by using a special magnet structure and a large aluminum 1-1/8 inch low mass voice coil assembly.

The Classic Pro, said Heil, produces a linear cardioid pattern and its design reduces proximity effect. The microphone features a sorbothane rubber shockmount with breath blast filter. Retail price is $269.

No overview of broadcast microphones could be complete without a mention of Wes Dooley's Audio Engineering Associates. One of the audio industry's most gifted inventors, Dooley has always had a fascination with the classic radio ribbon microphones.

After creating a series of replica parts for restoration and eventually manufacturing the superb AEA R44C, a replica of the classic RCA 44 ribbon studio microphone, Dooley picked up where RCA left off. That journey took him to the AEA R84, an affordable (under $1,000) large ribbon geometry microphone suitable for broadcasters who want to return to the classic ribbon sound.

At 0.00007 of an inch, the ultrathin, low-tension ribbon element of the R84 offers a performance that is intimate, warm and detailed.

"It's a forgiving tool that makes your recording work easier, as it literally sounds good on everything," said Dooley.

The R84DJV is a variation of the R84 that's optimized for closeup voice reproduction. It is more heavily protected from the moisture and wind blasts that can occur during vocal work. The proximity effect of the R84DJV has been adjusted for an articulate sound at close working distances. The R84DJV is suited for studio broadcast work, voice overs, and "intimate" vocal recordings.

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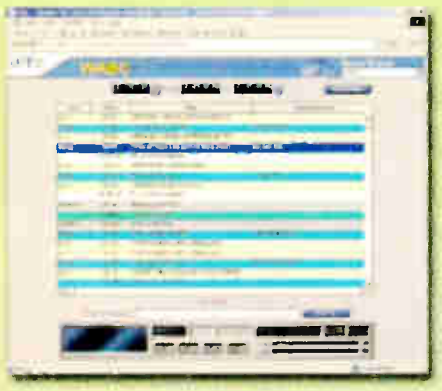

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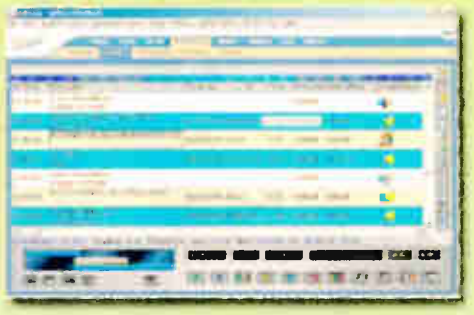

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Radio World | Resource for Business, Programming & Sales | September 24, 2004

Laura Ingraham Takes Charge

by Lyssa Graham

Even those who disagree with her politics agree that talker Laura Ingraham has what it takes to make a splash in the industry. The conservative talker has been edging up the charts in markets across the United States with her irreverent and pointed brand of political talk.

"This is a personality medium and she's got a personality," said Valerie Geller, "and she has passion for what she's talking about."

Geller, president of radio consulting firm Geller Media, said Ingraham's rise is easy to explain.

"The number one thing is that she's interesting, entertaining and smart," Geller said. "She's very passionate and she's a good storyteller."

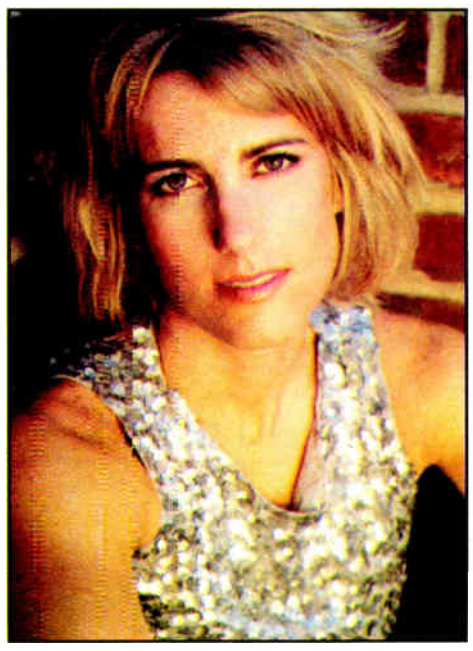
That passion has created affiliates. According to Greg Doyle, director of marketing for the Talk Radio Network, Ingraham's syndicator, the conservative blond is holding forth on 260 stations. Doyle said Ingraham's show is carried in 22 of the top 25 markets and ratings are "phenomenal." She is heard on major-market AM stations WABC in New York, KRLA in Los Angeles and WFLL in Miami-Ft. Lauderdale.

"We've seen big increases in all of our markets," Doyle said, "She's looking really good."

'Real deal'

Talk Radio Network reported listening gains in the Winter 2004 Arbitron book for stations running "The Laura Ingraham Show." It cited statistics from stations like KTFK(FM) in St. Louis, where Ingraham's ratings went from a 1.1 in the fall 2003 book to a 1.9 in the 25-54 demo and from a 1.4 to 1.7 for listeners 35-64. WGTX(AM) in Louisville, Ky., reported a jump for Ingraham's daypart from 1.9 to 3.3 in persons 12+ from the fall to winter books.

"Listeners fall in love with the show and start telling friends," said Talk Radio Network CEO Mark Masters. "The show has almost a viral effect on its listeners. That's why we're seeing such strong ratings spikes across the board. She's the real deal."



Laura Ingraham

According to Doyle, Ingraham, initially with Westwood One, has fared better under the Talk Radio Network banner, which she joined in September 2003. Ingraham's network switch reportedly came about because she was unhappy with her original evening slot on Westwood One. At Talk Radio Network, Ingraham broadcasts from 9 a.m. until noon.

"The truth of the matter is that Westwood One truly did not listen to her," Doyle said. According to Doyle, Talk Radio Network's smaller size and independent status allows hosts more room for growth within the network. "We listen to our hosts," he said, "and we have good products. Those products are in demand."

"We changed her time slot, marketed her very heavily. She's come a long way since Westwood One," he said.

Talk Radio, which also syndicates the controversial Michael Savage, offers Ingraham's show under a barter system, in which local stations give up local advertising time in exchange for national ad time. The Savage connection has indirectly boosted Ingraham, according to Doyle. "People want Savage, they'll try Laura," he said.

But ultimately, Ingraham holds her own in the talk radio industry because she's "funny, witty and opinionated," Doyle said.

Law training

Ingraham, who initially agreed to answer questions for this article via e-mail but then failed to respond to repeated messages, worked as a speechwriter at the tail end of the Reagan administration, serving at the White House and the Departments of Transportation and Education.

She is also a trained litigator, with a degree from the University of Virginia

See INGRAHAM, page 42 ▶

Spending Outlook

Spending on broadcast radio ads will increase at a compound annual rate of 6.4 percent over the next several years. That's the projection from Veronis Suhler Stevenson in its most recent Communications Industry Forecast & Report.

The analysts say the 6.4 percent compares to an annual growth rate of 4.9 percent in spending in the past five years.

Although noting hopes for a significantly better second half in radio this year, the company stated, "We believe increased local competition and the absence of a major event like the dot-com boom will translate into future growth more in line with that of nominal GDP and the advertising industry."

They say radio spending overall totaled $19.7 billion in 2003 (including satellite's advertising and subscription revenue), and expect that the industry will grow by 7.9 percent a year overall, to bring in $28.8 billion by 2008 — of which satellite will account for about $2 billion.

Other numbers:

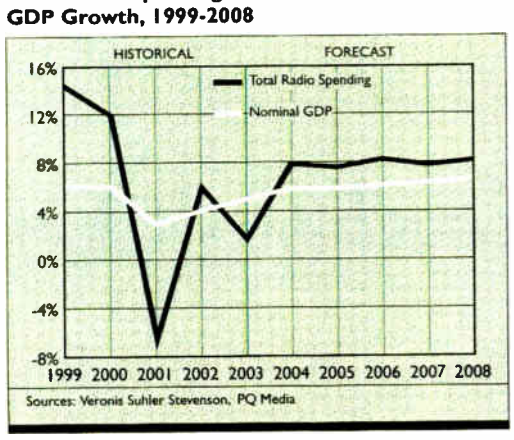
Radio listenership grew for the fifth consecutive year, as the total number of people listening to radio in the average quarter hour increased 2.3 percent to 27.8 million.

Stations formatting Spanish-language content have increased a "robust" 79 percent over five years while country "continued to wane in popularity" but remained the leading format in 2003 with almost 20 percent of the market.

Total satellite radio spending, on subscriptions and ads, is expected to increase more than 250 percent to $335.6 million in 2004, and grow at a compound annual rate of 85 percent for five years.

Broadcast & Satellite Radio

Total Radio Spending and Nominal GDP Growth, 1999-2008



Sources: Veronis Suhler Stevenson, PQ Media

Growth of U.S. Broadcast & Satellite Radio Spending

	Local Advertising	*National Advertising*	*Satellite Radio*	*Total*
2003 Expenditures ($ Millions)	$15,105	$4,483	$95	$19,683
1998-2003 Compound Annual Growth (%)	4.8%	5.0%	—	5.0%
2003-2008 Projected Compound Annual Growth (%)	6.3%	6.5%	85.0%	7.9%
2008 Projected Expenditures ($ Millions)	$20,540	$6,150	$2,063	$28,753

Sources: Veronis Suhler Stevenson, PQ Media, Radio Advertising Bureau, Merrill Lynch, XM Satellite Radio, Sirius Satellite Radio

Emmis Launches Nine-City Be One

by Marc Maes

BRUSSELS, Belgium A new network has boosted the presence of Emmis International in Europe.

In June, after two years of preparation, Emmis Belgium Broadcasting NV launched Be One in nine cities in the Flanders region.

Last winter Emmis agreed to sell its controlling interest in an Argentine broadcasting company that operates two stations in Buenos Aires; it was bought out by its local minority partners for $7 million. At the same time, Emmis announced that the Belgian government had awarded it licenses to operate nine FM stations serving more than half of the population in Flanders. Emmis said it would use approximately $3 million from the sale of the Argentine operation to fund those stations.

"Belgium, with a population of more than 10 million, is one of the most densely populated countries in Europe and enjoys one of the highest GDP per capita in the world," Emmis officials stated at the time.

Managing Director Jan D'Haese

Emmis said the Argentine stations had "enjoyed significant commercial and ratings success despite political and economic instability" in that country. The company said it sought a suitable exit point from Argentina since the devaluation of the peso there.

Emmis, which owns U.S. radio and TV stations and publishing entities, also has a majority interest in Sláger Rádió, a national radio network in Hungary.

Extensive research

According to Paul Fiddick, president of Emmis International, Emmis is an operating company that cares about community.

"We respect the individuality of local communities and design an air product tailored to the listener desires," said Fiddick, "and we take good 'corporate citizenship' seriously."

be one

pop rock hits

Managing Director Jan D'Haese said Emmis conducted research into what people want to hear.

"We invited some 600 listeners in Kortrijk and Antwerpen (to a focus group) and asked them to vote for their favorite playlist," he said. This testing served as the basis for the Be One format, which targets 20- to 50-year-olds.

Although the main studios are in Ternat, Belgium, with a satellite link to outlets in Oostende, Brugge, Kortrijk, Ghent, Aalst, Brussels, Leuven and Hasselt, D'Haese said the local aspects of the network are important.

"Each station will have tailored programs adapted to its specific location," he said.

To achieve this, the stations use Zenon Media All-in-One Audio automation systems, which allow the main studio to integrate centralized programs with the local signal.

"Our network stations all have their own reporters routing news and feedback to the central studio for content checks and eventual re-editing. The news item or interview is then routed back to the local studio," said Be One Music Director Wim Meeus.

The main Be One studio has a 16-fader DHD RM2200D digital mixer, while the local outlets use Dateq BCS50 consoles. Orban Optimod-FM 8400 processing is used on the outlets.

Be One employs some 35 staffers and has a business plan based on a nine-year license. With the parent company providing the necessary resources, D'Haese said Be One is determined to break even within four years.

Ingraham

▶ Continued from page 41

School of Law. She has served as a law clerk on the U.S. Court of Appeals for the Second Circuit as well as clerking for Supreme Court Justice Clarence Thomas and worked as a white-collar criminal defense attorney for New York legal firm Skadden, Arps, Slate, Meagher & Flom.

Ingraham's experience has helped propel her career in the talk radio industry.

"She stands out as not an old angry white man," Doyle said. "This woman is a trained lawyer with a quick wit."

Ingraham has also authored two books, "The Hillary Trap" and "Shut Up & Sing: How Elites in Hollywood, Politics and the U.N. are Subverting America." Both books have spent time on the best-seller lists.

Geller said radio audiences identify with Ingraham and that is helping to push her to the top of the pack. "Research is showing that the audience is feeling, 'I feel like I know her even though I haven't met her," she said.

Geller said she looks for hosts who generate those feelings in listeners when she looks for hosts who are going to "break through." And although Ingraham's reach is growing, Geller said the key to attracting and keeping listeners is not so much a factor of political bent but of personal growth.

"If she continues to grow as an artist, if she stays interested, she will stay interesting," Geller said. "Bored is boring, interested is interesting."

Despite what many see as a conservative bent in talk radio, Geller said Ingraham's politics aren't as much a factor in her popularity. "It's not so much right or left wing," she said, "as 'is it interesting or is it boring?'"

Geller, herself the author of two books, "Creating Powerful Radio" and "The Powerful Radio Workbook," said that growth is key for Ingraham to maintain her success. "A one trick pony is never going to work," she said.

That advice holds true for Ingraham's could-be competitors at the Air America network. Geller said the new liberal-leaning network will have to follow the same rules.

"Talk radio always works best when it's entertaining, riveting radio with personalities that listeners can care about and connect to with humor, new information and 'talkable' topics," said Geller. "If Air America can do this, based on the sheer power of the personalities and content, it will work. In order to achieve long-range success, it's got to be great radio, not just radio with an agenda."

Arbitron Regains Infinity Stations

by Ken R.

Are Arbitron officials sleeping better, now that Infinity is back in its camp? Or did they hear a wakeup call and choose only to hit the snooze button?

As reported in the Sept. 1 issue of Radio World, Infinity Broadcasting this summer said it was dropping Arbitron's local market rating services in favor those offered by International Demographics, whose product is called The Media Audit. Failure to renew the Infinity/Arbitron contract was blamed on inability to come to a financial agreement. The news was seen by some industry observers as a possible landmark change in Arbitron's grip on the radio research business.

But then Infinity and Arbitron in August released a joint statement trumpeting their newly signed multi-year pact. The agreement, they said, gives Infinity Broadcasting access to quarterly radio ratings in 42 markets including the Spring 2004 survey.

Arbitron President/CEO Steve Morris stated in the announcement, "Our goal all along was to reach a mutually beneficial agreement with Infinity and to maintain our long-term relationship with the company and with its people. We look forward to providing Infinity with our Media Rating Council-accredited ratings services and the other widely accepted information services, which Infinity can now use to get the most revenue for the audience that they deliver to advertisers."

But Phillip Beswick, president of International Demographics, said the Arbitron press release didn't give the whole story.

"We still play a major role with the Infinity stations," he said. "We supply multimedia ratings including newspaper, TV, outdoor, Internet and cable. Arbitron supplies only one thing: radio ratings. Infinity will be working with our company as well as Arbitron. We have a five-year agreement to help them earn revenue beyond what they would be able to get with just radio ratings."

Beswick said Infinity Broadcasting wants to compete for the total advertising pie, not just the radio slice.

"But we are continuing discussions about an alternative to Arbitron radio ratings with Joel Hollander, president/COO of Infinity, as well as other radio CEOs."

Walter Sabo, president of Sabo Media in New York, deals with agencies and broadcast clients. Speaking of the on-and-off-and on relationship between Infinity and Arbitron, Sabo said that it was a case of brinkmanship.

View from a consultant

"It was just negotiations. Agencies still buy those ratings to determine which stations to buy (advertising on), so nothing really would have changed," he said.

"But agencies pay much less for Arbitron's rating service than do radio stations. So it's amazing to me that the same product is sold to two different customers in the same trading area for dramatically different prices and the federal government hasn't stepped in. Try that in retail."

But if agencies are buying Arbitron data, why do stations need the service?

"Radio stations need to study the results and determine a price at which to sell ads, and the agencies pay a tiny price so they can negotiate back," he said.

And will Arbitron continue to dominate the market for this service? Or will it be fragmented by competitors like The Media Audit? According to Sabo, Arbitron is in an excellent position.

"The infrastructure is so great, I don't think anyone else could build something like that and hold out for 10 years," he said. "And besides, Arbitron has credibility in the industry, which they earned through service to their clients.

"Arbitron is not Satan."

BUSINESS DIGEST

Arbitron Reorganizes Marketing, Sales of U.S. Media Services

Citing the accountability environment, Arbitron Inc. is realigning its U.S. Media Services organization, saying the move will strengthen its marketing and customer support.

The change integrates U.S. Media Services marketing resources under one executive, and sales organizations under another, both reporting to Owen Charlebois, president of U.S. Media Services.

Charlebois said Arbitron's clients "are demanding greater accountability throughout the buy-sell process," and many are focused on more than one medium.

"As our customers build integrated organizations that include many media and as the industry discusses the possibility of embracing a single-source, multimedia measurement system, Arbitron needs to be organized to support that transition."

Scott Musgrave becomes senior vice president of marketing. Carol Hanley assumes the role of senior vice president of sales. They will continue to be based in New York and Chicago, respectively.

Musgrave was senior vice president and general manager of Arbitron Radio. Hanley was senior vice president of advertiser, agency and cable services with Arbitron.

NEWS MAKER

10 Quick Steps to 10 Quick Steps

by Ken R.

Many people in radio wonder what they can do to build on their careers. Veteran broadcaster David Lawrence, heard nationally as host of "The David Lawrence Show," "Online Tonight" and "The Net Music Countdown," built a supplementary business model based on e-publishing and audio publishing.

Using his radio gig as a base, he created a Web site, *http://10QuickSteps.com*. Through this site, all manner of self-help and career guides are available for $10 each. There are tech topics like backing up computer data and making a Wi-Fi connection. But there are also personal guides for Catholics seeking an annulment, and tips on managing panic attacks.

Each guide is downloadable as a PDF file or as an MP3, voiced by Lawrence.

David Lawrence

'E' is for easy

Lawrence lists a lot of reasons why electronic publishing beats traditional printing all to heck.

"No inventory, no lead time to market and no such thing as obsolescence," he said. "Publishers usually have to order books which sit there on the shelf. I published a book in 1997 that was outdated by the time it got to market. Now that's not a factor, and if there is an error in any of our products I can have the correction made to the PDF and MP3 versions within an hour."

Lawrence discovered that he was answering the same questions repeatedly from his radio audience. He had several prewritten paragraphs he would send in response to e-mails, and then discovered that people would pay for this service.

"Whenever there is a 'pain point,' that becomes the basis for a guide," he said. "You get a sale when you can alleviate someone's problem, such as pop-up ads, computer upgrades and spam. Particularly when people don't need to spend much money to create the remedy."

It is a sad fact that many important life lessons are not taught in school. Where does one go to learn basics skills like negotiating a car loan, resolving merchant disputes and applying for credit? Now the answers can be found online.

"When preparing my guides, I think about my mother who is not tech-savvy," he said. "Would she be able to understand this?"

The author, publisher and radio host contrasts the purchase of his electronic opuses with going into a drugstore to buy condoms.

"People can get information from us online which might be embarrassing to ask for in a store," he said. "And because our costs to publish are so low, we split revenues with our authors on a 50/50 basis. We also use our radio shows to promote the various '10 Quick Steps To...' guides."

Lawrence even wrote one called, "10 Quick Steps to Writing 10 Quick Step Guides," which would-be author/partners are advised to purchase and heed before making submissions.

Making it pay

Surprisingly, Lawrence didn't face many stumbling blocks when he began his e-publishing empire.

"The e-book model is fairly straightforward," he said. "It's easy to get (Adobe) Acrobat to encode a word file. I've been in radio so I knew how to create an MP3. I also knew how to use PayPal."

But he did face some challenges as his business grew.

"I didn't have a merchant account so I had to start making decisions about whether to really be in this business," Lawrence said. "I finally found someone to create a 'shopping cart' concept for my Web site so I could cross-promote products. I now take credit cards, too."

But if books can be downloaded, aren't they subject to the same sort of piracy as popular music? Lawrence encourages people not to steal. Loudly and frequently.

"We've raised a generation of children that don't understand the difference between price and value," he said. "They think that downloading music is fine and artists are too wealthy. You know, all that garbage."

Lawrence has not yet resorted to Draconian measures to protect his work because he tries to educate his audience to the realities of "intellectual property."

"I make it clear that these downloads are for personal use," he said. "This is someone's hard work and if you like it tell your friends, but don't copy the book for them."

The author believes that with the advent of the Internet, society's expectations have changed.

"We've come through an era in which people expected things for nothing," he said. "Information on the Web should *not* be free. I have been trying to right that rudder and in fact, the Internet bubble burst because people did not have profit models."

Lawrence uses Burli software to record and edit his audio tracks. The Canadian package was originally designed for news editing, but he found it was well-suited to his purposes.

"Making edits is easy, getting things up online is quick," he said. "I have a great time with it on the air and in preparing my guides."

Lawrence recorded 2,700 prompts for AOL in one week using that product.

"The David Lawrence Show" and "Online Tonight" are heard on XM, Sirius and 56 terrestrial stations via Salem Radio Network. "The Net Music Countdown" airs on 70 stations in the United States. His shows are also streamed at *www.online-tonight.net*.

Ken R. is author of three books including "The Second Jingle Book." Reach him via www.kenr.com.

GUEST COMMENTARY

Oh, You Work in Radio Traffic? Do You Ride in a Helicopter?

by Maria Antonucci

The author is traffic manager for WSB(AM) in Atlanta.

"Oh, so you get to go up in the station helicopter?"

After 15 years in radio traffic, that is the one phrase I hear most often when I tell people what it is that I do for a living. Now don't get me wrong, I am proud of what I do, and it is not the most common job in the world. It is just the explaining part that gets to me.

What is radio "traffic"? I guess they call it traffic because we are essentially monitoring the flow of the commercials that a radio station plays on a day-to-day basis so that they all run smoothly.

The bigger picture here is those commercials cost money. Money is what keeps the radio station doing what it does: playing the hit songs and giving away those big money prizes. It's also what gives you so much enjoyment when you actually are stuck in highway traffic and your favorite song is being played, or you can't call to disagree with that talk show host who's missing a key point.

The big time

I was, am and always will be a music fanatic. Period. I probably know more about music than that Marc McGrath guy of Sugar Ray; and after seeing him on "Rock & Roll Jeopardy," that is saying a lot.

So I always wanted to be in the music industry. Couldn't play an instrument, don't write my own songs and I don't really have a voice that I personally think is any good. Now remember, this was 15 years ago, not today where if you sneeze the right way you can become a star.

So music made me want to be in radio — show business! After deciding on broadcasting school, actually a 16-week course at Connecticut School of Broadcasting, I was ready. Just one small problem: I hated being on the air. It totally freaked me out.

So what do I do? I end up in the traffic department at a television station. A Fox affiliate before Fox was actually competition for the three big networks. From there I went to radio. Yeah, Team! I was actually in the business of radio.

Well, I was in the "business," all right. Hmmm, a typical day in a traffic office: Orders, orders, orders, try to work your commercial log, more orders, then in comes the commercial copy for the next day's spots, continue to work your commercial log, more copy, more orders, what is a deadline?

Oh wait; a problem with a broadcast remote that was not scheduled on the log. Run to the studio, write the remote on the log, input the spots into the automation system. Go back to working your log, manage to cram the 300 spots that are on that day into the 200 avails you have.

Try to bribe your production guy to voice a full-produce spot at 4 p.m. for a 6 a.m. start the next day and through it all make the programming changes that your program director just handed to you, effective the next day.

And traffic people are just data entry (this would be sarcasm).

If you don't know how to think outside of the box, than you can forget about doing this job.

You not only have to be *very* detailed, you have to be able to do about 10 things at once. Be able to drop all of that for an emergency, answer 20 questions at one time and then go back to those 10 things you were doing and remember exactly where you were. While you are doing all of these tasks you have to be able to deal with these creatures called "salespeople."

I had a co-worker once who summed it up best: When a human being becomes a salesperson in this industry there is a little room that they go to where their brain is sucked out. The problem is we just can't seem to find the room. This is a proven fact.

How can we prove this? Simple, I have worked with people in my traffic department that decided to make the transition to become salespeople. Now these people were fairly capable at traffic. The day they became a salesperson they forgot everything they knew about writing up an order or getting in their sales copy. See, brain sucked right out.

From what I have written would it be fair to say that you would rather take on the job of cleaning up after the circus elephants before becoming a traffic director? I figured as much. But the real question is, why do we do this?

I am quite confident most traffic people are in it for different reasons — besides the glamour of "show business," that is. But I think we can all agree that there is a challenge to doing this job; and when all the pieces have fit in place and the "traffic" is running smoothly, it can be rewarding.

We play an extremely important role in this industry. The biggest challenge has been trying to convince the industry of how important it is. They usually get it when they lose the one thing that keeps it all going. Their traffic director, that is! Yep, that'll do it.

So, if you are ever in a station somewhere out there and happen to see a person running around crazy-like and talking in a language that sounds like code, you can think to yourself, "Ah, must be the traffic director."

This article appeared on the Web site of the Traffic Directors Guild of America and is reprinted with permission. The Web site of the guild is www.tdga.org.

Chapter Two

One balmy Cleveland evening, the Telos and Omnia gang were relaxing when someone asked a blue-sky question: "What do you think the radio station of the future will be like?"

The ideas flew. "Computers will send digital audio right to the mixing bus," said one engineer. "Information, too." "No more sound cards, distribution amps or cable bundles," said another. "No more expensive routing switchers, either. Everything will be simply networked," said a third, "and all the audio devices will talk to each other using low-cost stuff from the computer world." "They'll probably be broadcasting in surround sound by then," piped one. "Consoles will be fully integrated with phone and codec gear, and will be much more flexible!" offered another.

Waitjustaminutehere!" came a voice from the corner. "We could do all of that today! We could use Ethernet, and it would be quick to set up and easy to use. You could network dozens of studios, or whole buildings with it. And it would cost a lot less than any other all-digital system. I'll bet broadcasters would love it!"

The engineers got very excited and decided to turn their ideas into reality. Tirelessly, they toiled. Immense quantities of pizza, Chee-tos and magical elixirs were consumed. Finally, they were ready... but how would the world react?

Good news! The system they brought to NAB was a success! Broadcasters swooned. The press were impressed. Early adopters adopted it.

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How to Make the Right Impression

Product Endorsements Can Be an Effective Tool — Or They Might Hurt More Than Help

by Mark Lapidus

Occasionally I like to hang out at DJ appearances and broadcast remotes just to hear the questions and comments from listeners. I stand or sit close enough so that I can hear listeners talking to the DJ, but not so close that they notice me eavesdropping.

There's no question that the phrase "Got any free t-shirts?" is the most common, almost regardless of format. You probably can guess the second as well. If you picked "You guys play the same songs over and over," give yourself a gold star.

What people say after these two statements, however, you may find useful in tracking trends.

If you hear dozens of people making the same statement or asking the same question, especially at different appearance locations, you may be able to latch onto something actionable.

Dollars for pounds

Not long ago, I heard a comment repeated enough to cause me concern about a specific DJ. They were asking other DJs about this person's weight problem. It seemed odd at first because I had never really thought of this DJ as having a serious weight issue. The third time I heard the inquiry, it hit me. These listeners were picking up this image from his product endorsement spot!

This DJ had decided he'd like to drop 10 or 15 pounds. This happened just about the same time that the sales department received a request from an advertiser for a DJ to endorse a weight-loss program. It sounded great to him; the client gave him free diet food and a small cash stipend for the spot. The sales manager loved it because he got high rates. The program director did not object because that DJ didn't have any other endorsements at the time. It appeared to be a marriage made in heaven.

But it had consequences on the way the audience perceived this DJ. It replaced whatever image they held of him in their minds.

One never knows what the intangible is that makes an on-air personality popular. We are after all in a popularity contest that ends every three months with ratings. Let's take a time-out to examine product endorsements.

Any station that doesn't have a product endorsement policy needs to develop one in writing for everyone — the DJs, the traffic director, the sales manager and the program director — to live by.

Begin the process by having the PD do the first draft. Step two is a meeting with the sales manager to see if she can live with the specifics. If they arrive at point of total disagreement, the general manager or market manager must play Solomon.

Here are some specifics that should go into a station's product endorsement policy:

• What types of products the PD doesn't want the DJs to do at all. This may include weight-loss programs, hair replacement, old age medicines, or anything else that would give the impression that the DJ endorsing the product isn't very cool, or young, or good looking.

• How many endorsements each DJ may have on the air at one time. It's best to stick to one if possible. Even two can make it confusing for a listener and can make a DJ sound like nothing more than a huckster.

• How much the DJs earns for the endorsement.

• Whether or not a DJ can reject an endorsement, if he is uncomfortable with it.

• How many different endorsements can air on the station in one week's time.

• How many endorsements may air in any given hour.

• How much it costs to have the DJ record updated copy.

• Whether or not the DJs likeness may be used in other media like Web sites, billboards or newspapers and if the station's logo is involved. If the answer is "yes," what does it cost?

• If the announcement may be aired on other radio stations (in the cluster) and if this requires further compensation.

Once you head down this path of questioning, you may come up with a few more which will be unique to your station, format or city.

Why am I making such a big deal out of something radio's been doing since the early days?

Listeners are more sophisticated and more cynical than ever. We not only compete with each other, station by station, but now we are competing for attention from TV, Web, video games, cell phones and MP3 players.

We must make every impression count. Are you ready to make the right impression?

The author is president of Lapidus Media. Contact him at marklapidus@yahoo.com.

Promo Power

by Mark Lapidus

RAB Study: Make Ads More Personal

by Ken R.

Radio listening is a one-on-one and emotion-driven experience; and listeners believe that both the radio and its advertising are more relevant to them, compared to television and newspapers.

These are among the conclusions of a recent study by the Radio Ad Effectiveness Lab, an organization established in 2001 under the auspices of the Radio Advertising Bureau.

Industry heavyweights including ABC Radio Networks, Arbitron, Clear Channel Communications and Westwood One Radio Networks made commitments to fund studies like this one.

From left: Jerry Lee, president of WBEB Radio, Philadelphia, who is also a member of the RAEL board of directors and chair of the RAEL Research Committee; Jim Peacock, president of Peacock Research and a consultant to RAEL; Natalie Swed Stone, director of National Radio Services for OMD and a member of the RAEL Research Committee; and Gary Fries, president and CEO of RAB and co-chair of the RAEL board.

RAEL research committee member Natalie Swed Stone was involved in this research.

"The study verifies that more attention needs to be paid to the attributes of radio and its strength in delivering the strong personal connection with consumers that advertisers crave," she stated.

Other findings of the study, called "Personal Relevance; Personal Connections: How Radio Ads Affect Consumers," include:

✓ Consumers see television and newspapers as being designed to satisfy the masses, but radio is more personal.

✓ Consumers believe that radio programs carry ads that are appropriate to them as individuals.

News you can use

How does this information translate into something that stations can put to use?

"For broadcasters it means programming and advertising are part of the same experience for listeners," Swed Stone stated. "The process of selling, of seeking new advertisers, needs to consider environmental compatibility. Broadcasters who create ads for their clients need to be careful about context."

What can advertisers, or potential advertisers, take from this study?

For one, format-specific advertising matters. A country hoedown spot will not work on a station that reaches teenagers. Also according to the study, elaborate production may be less important than presenting the right message.

The conclusions of the study might be considered obvious to some. Why was it undertaken if the results might be considered common knowledge to those in the industry?

"The advertisers asked for documentation of how radio works," RAB President/CEO Gary Fries said. "In this era of media you can no longer say, 'We know how it works.' Now (broadcasters and agencies) say, 'Prove it.'"

Fries said the study cost "several thousand dollars" but did not provide a specific amount.

Another view

One broadcaster, asked by Radio World to comment on the study, said it was fine as far as it went. But Paul Sidney, president and general manager of WLNG(FM), Sag Harbor, N.Y., said there are other more important factors in ad effectiveness.

"I think putting a bunch of commercials in giant clusters is bad — especially when you have competing advertisers within one break. We're handing our business to the satellite providers, or causing more people to just listen to CDs in their car."

Sidney believes each commercial is important.

"If you have fewer commercials you can charge a better rate," he said. "But you're not providing a service to the last guy in the long commercial cluster."

Sidney said that, if faced with 15 commercials to put into a three-hour period, some stations would put them all together to get them out of the way.

"They'd say, 'Hey, we're playing 120 minutes of music.' But why invest creativity in commercials if you're going to throw them away?

"I kid around with our advertisers and tell them, 'Thanks for buying us our mobile unit.' Our station was built on successful advertising so we make them entertaining and we believe people will listen to them."

This study can be downloaded at *www.radioadlab.org/reports.htm.*

Ken R.'s radio show in the 1970s occasionally featured dead air, which Ken said was "brought to you by the public library."

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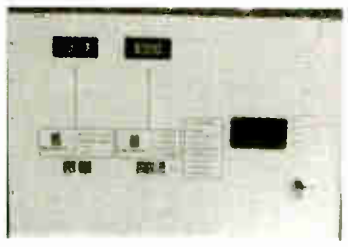

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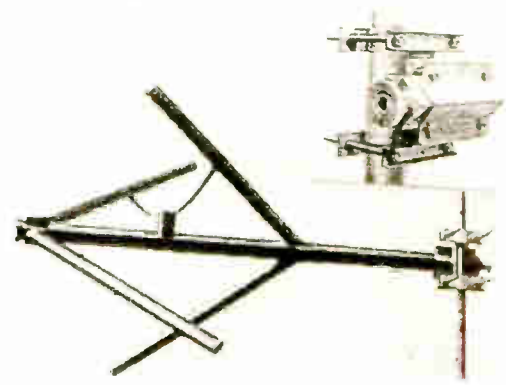

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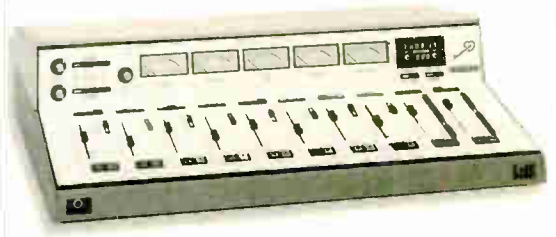

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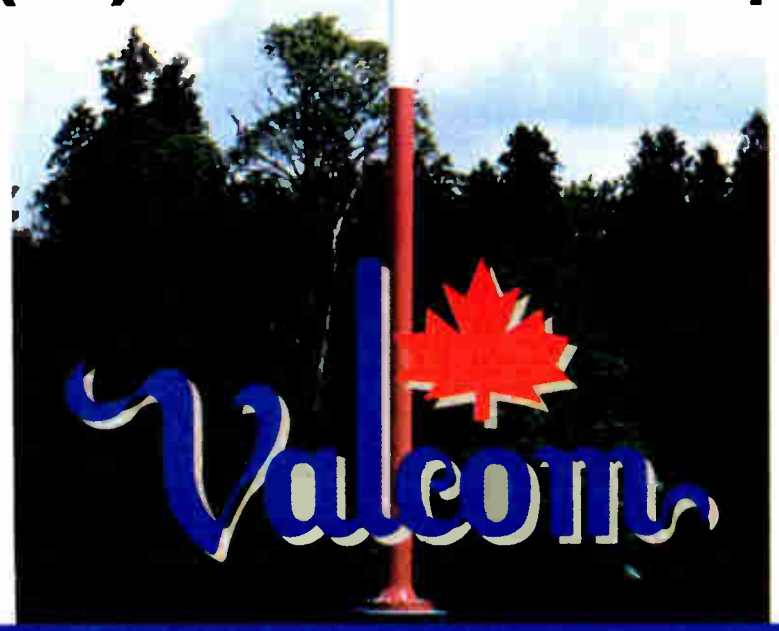

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- ☐ C. Non-commercial AM/FM station
- ☐ K. Syndicators/Service Providers
- ☐ N. Delivery Service Int./Cable/Sat
- ☐ Q. IT/IS

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USER REPORT

KCMS Edits, Archives With VoxProPC

The Station's Christian Music Countdown Says Latest Version Is Best-Suited for Organizing Live Bits

by Larry Lomax
Host/Producer
Spirit Music Countdown
KCMS(FM)

SEATTLE My experience with the Audion Labs VoxPro dates to 14 years ago at KLSY(FM) in Seattle, when I got my first taste of digital editing for phone bits. At the time, the program ran on a Mac OS. We had a power PC with 16 MB of RAM, and believe or not, it was pretty fast.

A few years ago, when PC speeds started to speed up, the company introduced a PC version that offered numerous improvements over its earlier predecessors. The latest release, VoxProPC 3.3, performs well and has more features for organizing bits.

I have to say VoxPro essentially changed the way I did radio, as it enabled me to execute more entertaining and clever phone bits. Though I've test driven only a few contenders, I have yet to find another audio phone editor that surpasses VoxPro in speed and ease of use.

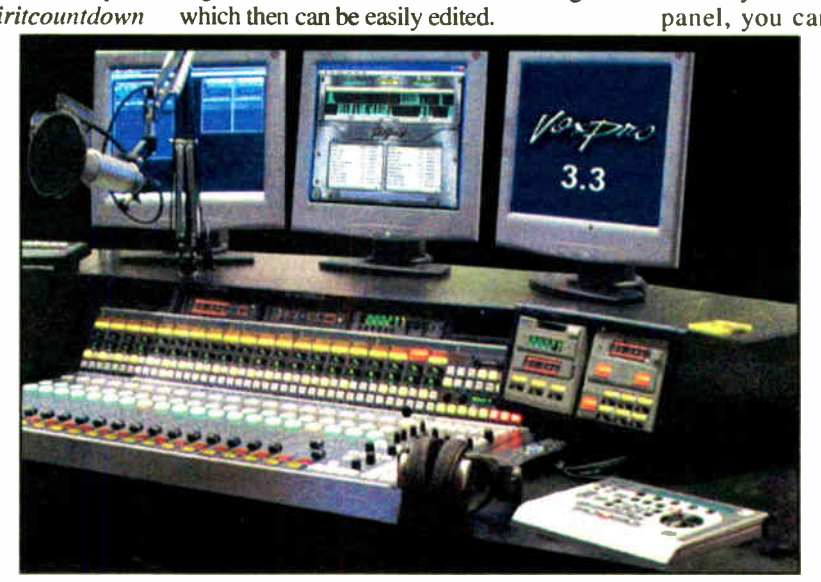
New features, familiar feel

VoxPro was designed for editing phone bits, and was the brainchild of Seattle morning radio veteran (KJR, KUBE) Charlie Brown, chairman and CEO of Audion Labs. It runs simple and fast, and is suitable for music-intensive stations. I like that I can instantly start recording a new bit while I am in the midst of editing another — and not lose my place when I return to it.

I serve as host and producer of the Spirit Music Countdown (*www.spiritcountdown.com*) on KCMS(FM), where we feature the top 20 songs in contemporary Christian music on Saturday morning at 10 and Sunday at noon. We are ranked number one among women 25-54 by Arbitron this year, and number two over a four-book average.

I primarily use Adobe Audition 1.0, formerly Cool Edit Pro 2.0. I like this product for its multi-track application, but it falls short when attempting to edit calls on a live show, which I have done in mornings and afternoons for many years. Audition was not designed for such live application, and thus lacks editing speed and file accessibility. Conversely, VoxProPC works best in live application and archiving bits for future use or for the Web. When you are doing a live show with recorded phone bits, speed is what you need.

VoxProPC uses two separate tracks, one for voice or any other designated source, and one for a phone feed. There is an option to record the calls to mono, which saves some hard drive space. But because drive space is dirt cheap, use both tracks. The editing functions with separate voice and caller tracks can rescue a previously unusable bit, such as one featuring a voice stepping on another, with the time-slip feature. It separates the selected audio region by placing the caller region before or after the talent region, which then can be easily edited.



The author says version 3.3 of VoxProPC 'enabled me to execute more entertaining and clever phone bits.'

You also can mute the caller or talent to cover up unwanted background noise. I have rescued a great number of calls over the years with this feature.

The control panel has a smaller footprint (8.25 x 10.25 inches) than its Mac predecessor, offering a jog wheel and access to multiple hot key banks. You can assign five cuts to more than two dozen banks, which work great for drops and beds. With the exception of the hot keys, all functions have a keyboard equivalent. The keyboard remains essential for labeling cuts. Without one, each track is given a generic untitled name, which can easily be renamed at a later date.

If you have used the old Mac control panel in the past, you'll be pleased to know that the PC control panel will feel familiar to you. You can still scrub the audio in search of edit points by rocking the arrow keys. Should you still have your old Mac control panel, you can use it with a hardware adapter for the VoxProPC version, although you won't have the same hot key functions.

A user can set up his or her own file structure for archiving bits, such as folders by day of the week, type of bit or archiving for a rainy day. Each user can have a log-in, so someone else's bit of a lifetime will not be accidentally erased. A user can share a bit by transferring it to another user's "in box." The administrator has access to user files, and can track drive space usage and suggest housekeeping when necessary. VoxProPC workstations can be networked, offering multi-studio file access.

I worked with an air talent who couldn't bear to delete her phone bits, or "her babies," as she referred to them. Not surprisingly, she would have a sizable option of the hard drive real estate.

The solution was the export feature, which allows you to mix down an edited bit to a mono file or keep it split for future re-importing, and archive it as a MP3, WMA AU or WAV file. If you

See VOXPRO, page 50 ▶

USER REPORT

Print Factory Offers Speedy Output

by Johnny Rohrbeck
Owner
Green Light Productions

MACON, Ga. A little less than a year ago, Green Light Productions wanted to begin offering local radio stations and broadcast studios CD duplication with on-disc printing at affordable short-run pricing (10-300 copies). Our desire was to offer quick turnaround with professional results, and our biggest concern was printing, as most of the available "pro-sumer" CD printers at that time offered much less than blazing speeds and low resolution.

As you can imagine, higher output speed means less time standing at a printer waiting for discs to print and for most of us time equals money. Also, we needed to be able to offer photo-quality resolution in order to meet the demands of the professionals to whom we offered our services. After researching the latest equipment, we were pleased to find the **Microboards** Print Factory.

The Print Factory boasted output speeds of up to 200 discs per hour and 4,800 x 1,200 dpi resolution with photo ret technology. Another huge advantage that the Print Factory offers is the ability to load 50 discs at a time for printing, which keeps a technician from having to stand and load discs one by one. Additionally, the Print Factory has the ability to print on DVDs, a feature that is becoming more popular. So, with confidence in the Microboards track record, we decided to purchase a Print Factory.

Microboards Print Factory

The Print Factory came to us with its own design software, which was set up for use with the printer. It also uses standard HP ink cartridges, which makes it easy to go to the local office supply store and purchase more ink — another timesaver.

The printer enables us to maximize our time by offering two quality settings with three speeds each. This way, if we are printing a text-only order, we can set the printer to a higher output speed and it will automatically adjust itself for the amount of ink and number of passes it makes per disc. We have actually produced well over the advertised 200 discs per hour in text mode. Last month, we output 300 discs per hour during a large quantity print job.

In photo mode, the quality of the print is remarkable. While the photo print is not produced as quickly as a text print, the ability to load 50 discs at a time allows us to work on other projects while the printer does its work. The efficiency of the Print Factory is outstanding, as well. Our ink costs average only a few cents per disc.

Even though our initial intention was to offer short-run quantities to our local market, the Print Factory enabled us to begin offering much higher quantities with a short turn-around time.

Whether you need to print a short-run of CDs for local distribution or a high volume of discs at an affordable price, the Microboards Print Factory is a great piece of gear to have in your production room.

For more information, including pricing, contact Microboards Technology in Minnesota at (952) 556-1600 or visit www.microboards.com.

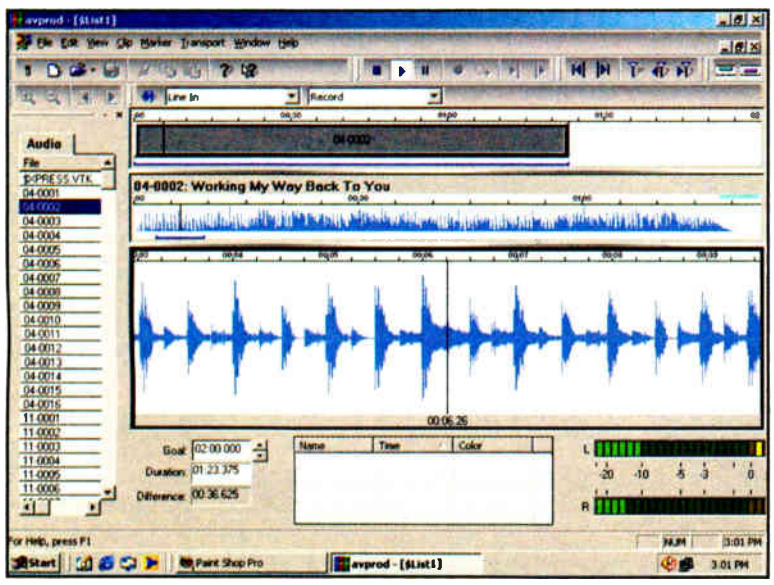
TECH UPDATES

AVProd From BE Is for Quick Edits

Broadcast Electronics says on-air talent no longer has to sprint to the production suite every time they need to edit out the expletives of an excitable caller.

The company offers its AVProd single-track stereo editor module for quick editing of content during on-air sessions and trimming bulk-recorded news feeds, as part of its AudioVault automation and content management system. AVProd provides a record and edit screen featuring graphical interface with waveform editing.

The company touts its three-pane approach to editing. The top pane represents the entire project and shows individual audio clips. The second pane, or the clip pane, illustrates the audio waveform of the selected clip. This waveform can be increased or decreased in size for easier viewing, or made single- or double-sided. Last, the bottom pane is the tape view of the audio, where the waveform moves across the fixed-position play head.



AVProd enables the user to work between multiple projects simultaneously. Projects can be edited quickly, and audio can be dragged from one to the other. The peak meter, which is continuously shown on-screen, is suitable for recording audio into the AudioVault without digital clipping.

For light editing, on-air talent can load the AVProd menu in the on-air studio, cut and paste audio waveforms, edit begin and end points and splice segments into one continuous feed for playback. Multiple audio cuts can then be edited in the same screen, and liners and song bits can be added, in addition to voiceovers. Operators set markers at the beginning and end of the audio they want to exclude from the cut, and add audio from other segments.

Features offered for improved operation and organization include inventory tabs that contain categories of audio cuts already loaded into the AV system. Cuts can be dragged and dropped from the list into a project without affecting the original files. Changing from the stereo to mono or AES/EBU digital input is facilitated because the recording source is selectable from the tool bar.

The AVProd screen is user-configurable, allowing for adjustments in color and waveform signs.

For more information, including pricing, contact Broadcast Electronics at (217) 224-9600 or visit www.bdcast.com.

Fostex Expands Location Gear

Fostex offers two additional pieces of equipment that it says will compliment the PD-6 DVD-RAM location recorder it debuted last year.

Model 9056 is a 40 GB 1.8-inch hard drive that mounts internally into the PD-6. The company says it provides the equivalent of 26 "mini" DVD-RAMs-worth of audio file/take storage, as the 40 GB are partitioned into 1.46 GB areas. It is suitable for extended recording periods away from the studio, and for having a redundant copy available within the PD-6 itself. When recording direct to the hard drive, the PD-6 can be set to automatically "mirror" in the background to its DVD-RAM disc, for quick handover to the edit suite of audio files.

The EX12 is a docking station that mates with the PD-6 through its dedicated expansion connector, providing an additional two media choices in the form of a "full-size" DVD-RAM drive and a 2.5-inch 40 GB hard drive. It features 4.7 GB partitions to match the format of a single-sided DVD-RAM disc, and it can be selected as the primary recording medium, with file/exchange and disc duplication functions available, as well as the choice of automatic background mirror from hard drive to DVD-RAM.

With the larger capacity partitions providing longer recording times, the EX12 is suited to use in sound mixer carts, on a sound stage or in the edit suite. It also features removable 2 RU ears, and AC and DC power options with the ability to provide power to the docked PD-6. IEEE-1394 and USB2.0/1.1 ports are provided to allow extemal computer access to the DVD-RAM drive. Like the 9056, files on the respective hard drives are exported by way of the DVD-RAM drives.

For more information, including pricing, contact Fostex in California at (562) 921-1112 or visit www.fostex.com.

VoxPro

▶ Continued from page 49

want to post bits on your station Web site, you can set a lower bit rate for exporting. When an air talent does a lengthy interview with an artist or author does not work well in a music-intensive format, I suggest selecting a few short clips for airplay, and then alerting listeners that they can hear more on the website, where the entire piece is archived.

The Insert Record function serves two main purposes, the first being to insert a clever retort or set up within the previously recorded call. It's amazing how witty we can sound with this function. Second, it is easy to string several calls into one file, such as listeners guessing the answer to a question, or making a short comment on a topic.

If you have a selectable router to feed one channel of VoxPro, in addition to the jock mic, you could also send a mono mix, traffic feed, news feed, etc. It is also handy for recording airchecks for clients or remote breaks.

VoxProPC is a good investment for music intensive stations to help talent produce great stuff. For this latest version, the waveform graphic is corrected if there is any offset bias voltage present on the workstation. Prior to the fix, the waveform view gave the appearance of background noise. Additionally, Direct X was dropped in favor of using a waveform driver that makes it more compatible with the various sound cards available.

One feature I would like to see is a trim function, to delete quickly any portions before or after a selection. Also, a "crop" feature would be nice in deleting superfluous audio outside of a selected region, making it similar to cropping a photo. This would save half a dozen keystrokes.

For more information, including pricing, contact Audion Labs in Washington State at (206) 842-5202 or visit www.audionlabs.com.

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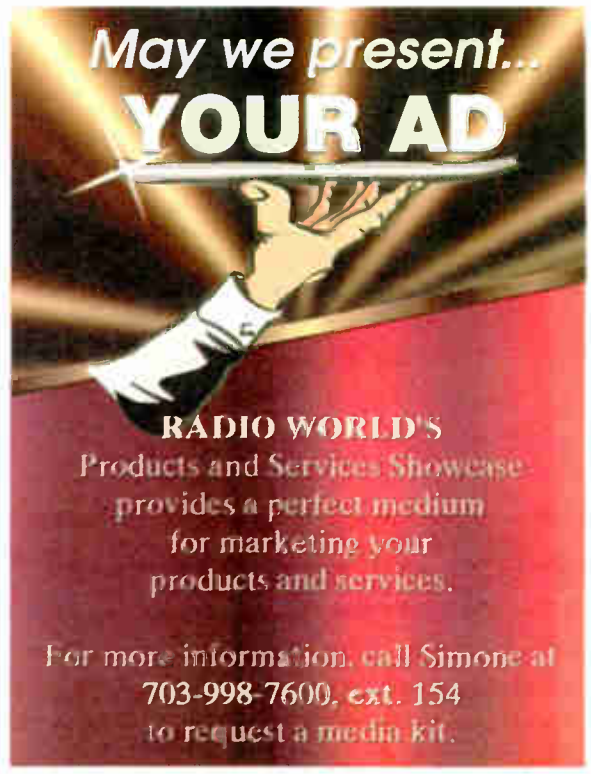

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TECH UPDATES

PMD570 Is Marantz Solid-State Recorder

Marantz says the PMD570 pro-installation solid-state recorder replaces traditional cassette tape with Compact Flash cards and enables the user to record audio correctly on the first try, avoiding transfers and conversions associated with cassette, MiniDisc or DAT recordings to a PC server.

The unit features a computer I/O connection that allows it to linked for rapid file transfer to a PC or Mac computer. Users can drag and drop recorded audio files to a computer hard drive without the real-time delay disadvantages.

As with the PMD670, the user can make an EDL mark or create a new file, or track, by way of the front panel or contact closure signal. Additionally, the PMD570 also can mark a file or create a new file via a two-way RS-232 control or by using a wired remote, which the company says it plans to release soon. PMD570's files and EDL marks are recognized by optional PMDEdit software for file management, archiving and editing.

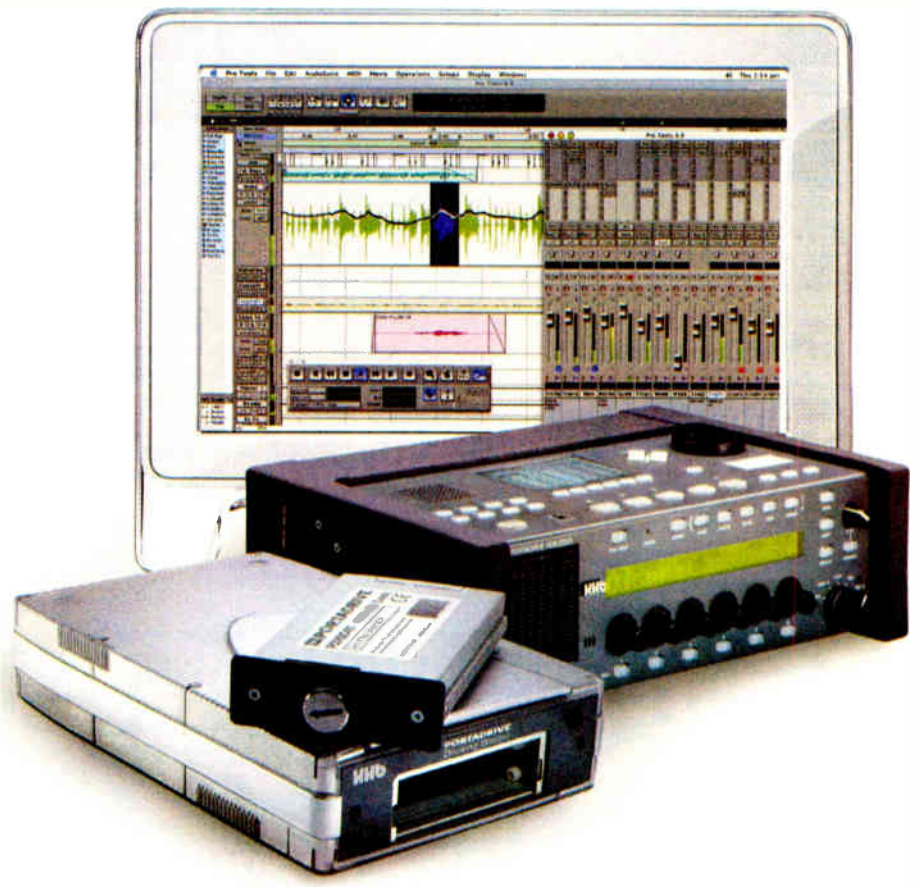
The company says the PMD570 is the first installation solid-state recorder to feature two-way RS-232 control. Users can set up, change and replace preset settings via RS-232 and a PC, which is suitable for installation with multiple units. The user can "flash" the units with the desired settings, parameters and recording algorithms.

The PMD570 features "minute track recording," the ability to create new files while recording in user-definable increments. A new track increment can be created by the PMD570 at 1, 5, 10, 15 and 30 minutes, as well as 1-, 2-, 5-, 8-, 12- and 24-hour intervals for long-term unattended audio recording.

For more information, including pricing, contact D&M Professional in Illinois at (630) 741-0330 or visit www.d-mpro.com.

HHB Touts Portadrive Multi-Channel Recorder

The Portadrive from **HHB** is a portable multi-channel recorder that records more than four hours of uncompressed eight-channel 24-bit/96 kHz audio, or more than 20 hours of four-channel 24-bit/48 kHz audio onto a removable 40 GB hard disk, which the company says is the only storage device type with a proven track record in reliable mobile acquisition.



With a range of input and output connectivity, non-standard signal cables are not required. The unit features eight line inputs, four line outputs, eight channels of digital I/O and six high-gain, low-noise XLR mic inputs. Mic inputs feature individual phantom powering, gangable limiters, input pads, a high-pass filter and adjustable delay, which HHB says is important when working with radio mics. Phase reverse also is included, enabling Portadrive production mixers to capture sound from multiple mic sources while on remotes.

For more information, including pricing, contact Sennheiser Electronic Corp. in Connecticut at (860) 434-1759 or visit www.sennheiserusa.com.

DigiStor-MP Offers More Memory

DigiStor-MP is suitable for station ID playback, and stores up to 99 monaural tracks.

Henry Engineering says its DigiStor-MP solid-state digital audio recorder/player features additional memory, and now allows up to 40 minutes of audio to be stored in non-volatile RAM memory. Common applications for DigiStor-MP are playback of station IDs, spot playback on a translator and SAP channel "identifier" messages on TV stations.

The unit can store 99 monaural tracks, with random-access instant playback of each. It can record from an analog input, and files can be downloaded from a PC via the RS-232 port. MPEG Layer I, II and III files are supported.

Playback control is by way of GPI interface, or computer-controlled by way of the RS-232 port. Tracks can be played once, repeated or "stacked" for automatic rotation play. In Rotation mode, DigiStor-MP will play the next track in the rotation each time a Play command is received.

Also featured are relay outputs to signal the end of a track (emulating the second tone on a cart) for control of external equipment, such as starting another audio source or controlling an audio switcher. The company says DigiStor-MP offers 15 kHz audio bandwidth and low noise and distortion.

For more information, including pricing, contact Henry Engineering in California at (626) 355-3656 or visit www.henryeng.com.

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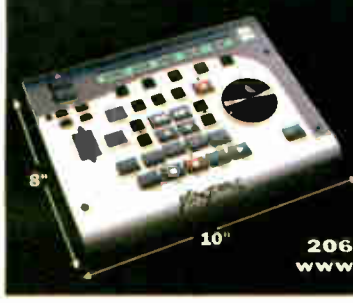

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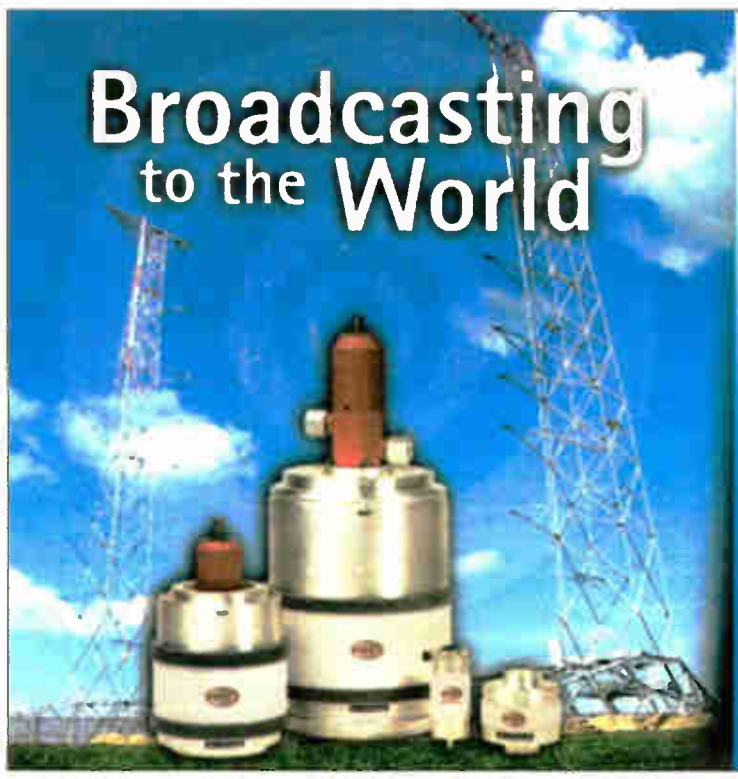

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USER REPORT

WRFL Updates Studio Gear, Storage

University of Kentucky's Student-Run Station Selects Argosy Furniture to House New Equipment

by Michael Powell
General Manager
WRFL(FM)

This user report was to appear in the Buyer's Guide issue on Studio Design and Furnishings, Sept. 1.

LEXINGTON, Ky. A quaint community nestled in the rolling hills of middle America doesn't seem like the type of environment that would spawn an edgy, innovative college radio station. But for the past 16 years, WRFL(FM) in Lexington, Ky. has broadcast groundbreaking music and interview programs across the pastoral city.

WRFL is the student-run radio station broadcasting from the University of Kentucky at 250 watts. Specializing in alternative genres of music and progressive news programming, the station has been a beacon of expression in Lexington since 1988.

Bargain basement

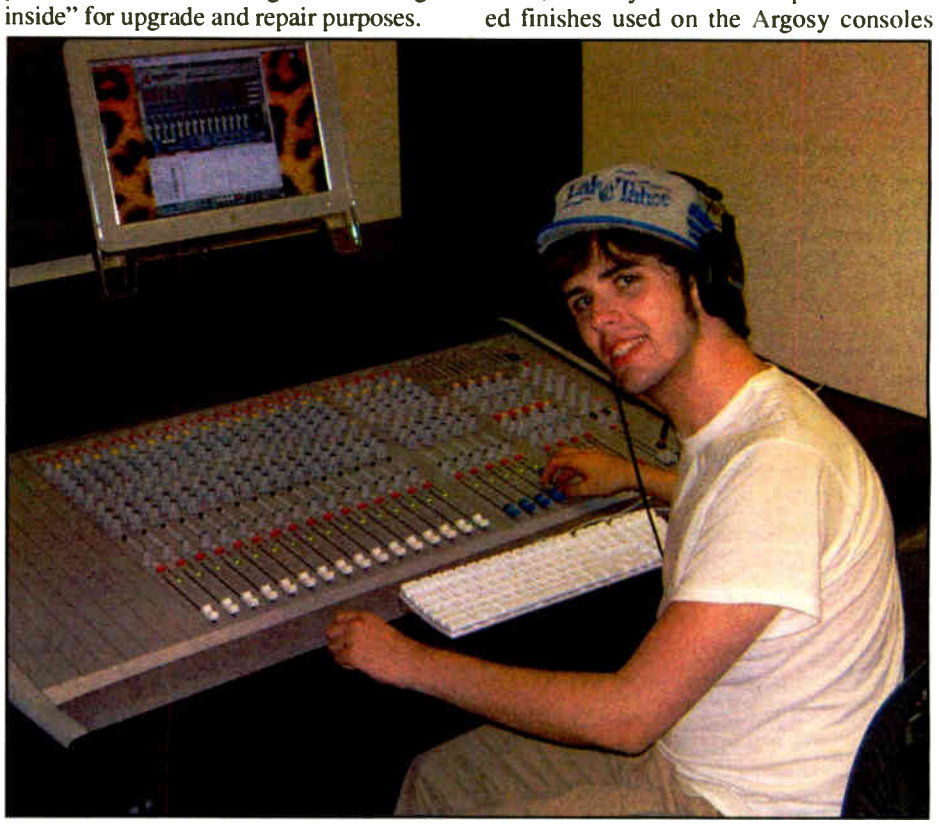
Until recently, the student production directors and engineers were utilizing outdated mixers and monitors in the basement of UK's student center. And to boot, no real casing existed for the equipment. The delicate electronics of WRFL's production room were stacked on makeshift consoles made of plywood, from a stage once used by Pink Floyd. However, a gracious budget allotment recently provided by the University of Kentucky enabled the station to upgrade the equipment in the production room and the furniture.

WRFL's new production gear includes a custom-fitted DNR Vision modular console, a ProTools Digi002, a G5 Mac computer, Marantz CD players, Tascam MiniDisc recorder/players and Mackie HR24 monitors. To house this valuable technology, student engineer Eli Crane needed reliable and attractive furniture that would make the redesigned studio comfortable and efficient, providing the students with a professional environment.

"We looked at quite a few consoles, mostly in catalogues and such," Crane said. "Most were really expensive or simply junk. **Argosy Console** was instrumental in the decision about our studio upgrade. They were able to design a custom fit for our DNR console," Crane added. "We wanted a desk that really suited our mixing console."

Argosy features racks and housings that accommodate gear from manufacturers like ProTools, Digidesign, Mackie, Sony, Yamaha and Nevis. Its producer desks and rack modules offer removable back access panels that enable engineers to "get inside" for upgrade and repair purposes.

Even after several beatings from construction workers and frustrated engineers, the vinyl veneers and powder-coated finishes used on the Argosy consoles surface for students who come to the studio for experiential lessons in audio production. The functionality assists students in producing news programs, station IDs, grant spots for local businesses and a variety of other bumpers and carts in a state-of-the-art studio at an innovative college radio station.



'We chose an Argosy 70 DM2K console, which was customized to accommodate a D&R Vision 38-channel mixer.'

We chose an Argosy 70 DM2K console, which was customized to accommodate a D&R Vision 38-channel mixer. The 70 DM2K is 68.2 inches wide, 50 inches deep (front-to-back) and 40.5 inches high. WRFL also purchased an Argosy Spire 7142 standalone rack enclosure and an Argosy "Rack-n-Roll" roll-around rack for additional outboard gear.

The consoles were custom designed, down to the creation of comfortable armrests and solid inserts that serve as a writing surface for students who come to the studio for experiential lessons in audio production. The functionality assists students in producing news programs, station IDs, grant spots for local businesses and a variety of other bumpers and carts in a state-of-the-art studio at an innovative college radio station.

Even after several beatings from construction workers and frustrated engineers, the vinyl veneers and powder-coated finishes used on the Argosy consoles have protected the furniture and kept the consoles in good condition.

But in the final analysis, the beauty in Eli Crane's reasoning behind purchasing the Argosy was its simplicity. "We got it because it's cool stuff," he said. "It's much cooler than the production shelving made from the Pink Floyd stage."

For more information, including pricing, contact Argosy Console in Missouri at (800) 315-0878 or visit www.argosy-console.com.

TECH UPDATE

Tascam Has mkII Version Of CD/Cassette Deck

The CC-222mkII is the latest edition of **Tascam**'s combination CD and cassette recorder and player. The company says the CC-222 was the first unit to combine CD and cassette recording in a rack-mountable package, and it is suitable for any installation where multi-media recording is required.

The new model reintroduces the unit with enhancements, such as a digital attenuation control that can now be added to the analog inputs. The CD's digital converters have been upgraded to 24-bit resolution for better dynamic range performance. CC-222mkII retains features of the earlier model such as compatibility with professional and consumer CD-R and CD-RW discs, and a bi-directional cassette mechanism, phono input and 3RU design.

Tascam debuted its 2 RU rackmounted CD-RW750 CD recorder at NAB2004, including upgrades to its predecessor, CD-RW700, such as CD Text support, A-B repeat and single playback. The unit retains features of the original model, like 24-bit digital converters, CD-R and CD-RW support and S/PDIF digital I/O.

The functions enable the user to record CDs in the format of choice, record to standard CD-R and CD-RW media and offer low-noise digital conversion. Because of the input monitor function, the CD-RW750 can be used as an A/D or D/A converter or to monitor the source before recording. CD Text support enables each track to be read, and the programming of a title for the disc. The RC-RW750 wireless remote is included.

The company touts applications such as professional recording, where a mix can be recorded to CD for distribution, mix checking or backup; installed systems; church market; and post-production, where finished projects can be recorded to CD for output, as well as voiceovers.

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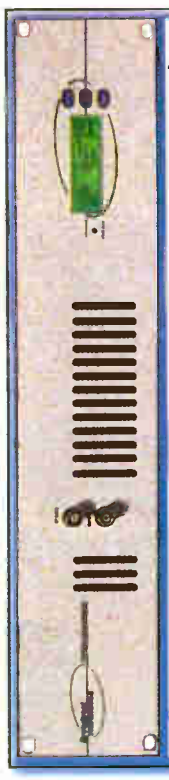

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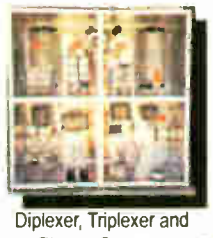

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ACOUSTICS

Want to Sell

ANTENNAS/TOWERS /CABLES

Want to Sell

ERI FMH-10-AC, 10-bay roto-tiller on 104.9 mHz. Removed from service for upgrade, $7500/BO. Bruce Campbell, Dove Media, 598 Westwood Dr, Ste 208, Abilene TX 79603. 325-677-3900.

Andrews Coax HCC-300. 900' already on the spool waiting to be picked up by buyer. This line was installed in 1982 and removed from service back in November. Just like the antenna I listed it is located in Alert, NC awaiting it's new owner. Asking $2500. Email Mraley@bbnradio.org for pictures.

Shively Labs 6810-6R-DA antenna. This antenna is tuned to 92.5FM with a gain of 6.09 and db of 7.85. This was originally installed in 1986 and removed from service back in November. System also included raydomes for ice protection and is 20 dbk max. Pictures are available so e-mail Mraley@bbnradio.org for the full scoop. Asking $20,000. buyer responsible for pick-up and delivery. This system is located in Alert, NC.

Cablewave CP-1000-2, 2 bay FM transmit antenna with Radomes. 2000W power capacity, brand new, still in factory sealed cartons, complete antenna, tuned to 92.3 MHz, $1250/BO. Ray Knudson, KNXR, 1229 Park Ave, La Crosse WI 54601. Voice pager: 608-789-1894 (16 sec to record message).

AUTOMATION EQUIPMENT

Want to Sell

AudioVault computer automation system. Complete system used to operate 3 stations, includes 2 production stations, 3 On-Air stations, 2 mirrored servers. With 6 AV100 audio cards with daughter boards, 1 stereo record, 3 stereo play on each card. Working system coming out of service, will sell all or in pieces. John Andrist, KNCW, 320 Emergy St, Omak WA 98841. 509-826-0300.

BE AudioVault. 1 station, 2 studios, music on hard drive & satellite automation. 156 hours of stereo audio storage, Urban Contemporary, 5 yrs old, $2000. Scott Beigle, Faith Radio network, POB 18100, Tallahassee FL 32318. 850-201-1070.

Want to Buy

Arrakis Digilink digital audio workstation, prefer Digilink 3 but will consider older units. Stan Smith, Cumulus Broadcasting, 601 Second Ave N., Columbus MS 39701. 662-327-1183.

SCSI audio drives for Arrakis Digilink automation system. Stan Smith, Cumulus Broadcasting, 601 Second Ave N., Columbus MS 39701. 662-327-1183.

CART MACHINES

Want to Sell

ITC stereo R/P cart machine, $425. Donald De Rosa, WAMF, 315-593-1300.

Spotmaster 5 deck PB cart machine, $375. Donald De Rosa, WAMF, 315-593-1300.

Spotmaster R/P cart machine, $375. Donald De Rosa, WAMF, 315-593-1300.

ITC 99-B stereo R/P cart machine in excellent condition, $500. Tom Toenjes, KJTY, 6120 Riley Creek, St Marys KS 66536. 785-640-6047.

COMPLETE FACILITIES

CONSOLES

Want to Sell

Arrakis 1500 SCT 8 channel console with power supply, currently on-air, $750. Patrick Lopeman, WMOM, 907 E Ludington Ave, Ludington MI 49431. 231-845-9666.

Arrakis 2000SC 12 channel console with power supply, $750. Patrick Lopeman, WMOM, 907 E Ludington Ave, Ludington MI 49431. 231-845-9666.

Harris Medalist, 10 channel, stereo in excellent condition, $950. Tom Toenjes, KJTY, 6120 Riley Creek, St Marys KS 66536. 785-640-6047.

Want to Buy

PR&E ABX parts. Line input modules. Blank panels (6" and full length) spare parts. Refurbing console for charity. All parts welcome. Dan, 323-254-9619.

LIMITERS/AUDIO PROCESSING

Want to Sell

Orban 8100 A/1, like new, taken out of service 6/1/04. Manual included, $2000 +shpg. Jerry Evans, KGVM, 1504 Highway 395, Gardnerville NV 89411. 775-782-2211.

Orban 9000 AM audio processor w/manual, good condition, currently in service, $2000. Jerry Evans, KGVM, 1504 Highway 395, Gardnerville NV 89411. 775-782-2211.

Want to Buy

Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST, 972-271-7625.

MICROPHONES

Want to Buy

RCA 77-DX's & 44-BX's, any other RCA ribbon mics, on-air lights, call after 3PM CST, 972-271-7625.

MISCELLANEOUS

Want to Sell

Various synchronous AM GPS reference equipment, all or part. David Bischoff, Pamplin Broadcasting, 888 SW 5th Ave, #790, Portland OR 97204. 503-552-3291.

Audiomax, Volumax, Microwave transmitter & receiver w/antenna. Not type accepted. Lots more, will trade too. Ron Moore, WLMA, 207 Wingert Rd, Greenwood SC 29649. 864-943-1350.

Cleaning out our storage rooms! 100's of carts, Gates President board, Schafer automation, etc. Call Ron for inventory and pricing. Ron Moore, WLMA, 207 Wingert Rd, Greenwood SC 29649. 864-943-1350.

Proteck 20 MHZ Spec. analyzer (A-3502). Make a decent offer. Call Michael Raley (704) 523-5555 or e-mail Mraley@rrb.org.

MONITORS

Want to Sell

RCA AMN-1 frequency & modulation monitor with instruction book, $350. Donald De Rosa, WAMF, 315-593-1300.

Want to Buy

Schematic or manual of McMartin TBM-220A & TBM-3500B FM stereo monitors. Tony Wortmann, Radio Comm, 84036-564 Ave, Stanton NE 68779. 402-640-4027 or 402-439-2303.

RECEIVERS/ TRANSCEIVERS

Want to Sell

Inovonics 630 professional FM bdct receiver, frequency agile, brand new, 750/BO. Ray Knudson, KNXR, 1229 Park Ave, La Crosse WI 54601. Voice pager: 608-789-1894 (16 sec to record message).

RECORDERS

Want to Sell

(2) Revox stereo r-r tape recorders, $1200 or $650 each. Donald De Rosa, WAMF, 315-593-1300.

Tascam 42B r-r, 2 track tape recorder/player. Good condition, comes with rolling rack/stand & some paperwork. Serial #90009-863. $550/BO, buyer pays shipping. Bob Rivkin, KPLM, 441 S Calle Encilia #8, Palm Springs CA 92262. 760-320-4550.

REMOTE & MICROWAVE

Want to Buy

Conex Celljacks. Kent Smith, WMJZ, POB 1766, Gaylord MI 49734. 989-732-2341.

SATELLITE EQUIPMENT

Want to Sell

MPEG-2 Satellite Receivers, LNBs, C & Ku Band Equipment. www.daveswebshop.com, 479-997-2230.

Scientific Atlanta 7300 & 7325 satellite receiver, $500/BO. Bruce Campbell, Dove Media, 598 Westwood Dr, Ste 208, Abilene TX 79603. 325-677-3900.

Wegner DN 86 Digital Audio Reciever 3944.1 MHZ - $100.00 "as is" plus shipping and handling - Call Michael Raley @ (704) 523-5555 for more information or e-mail Mraley@rrb.org for a picture.

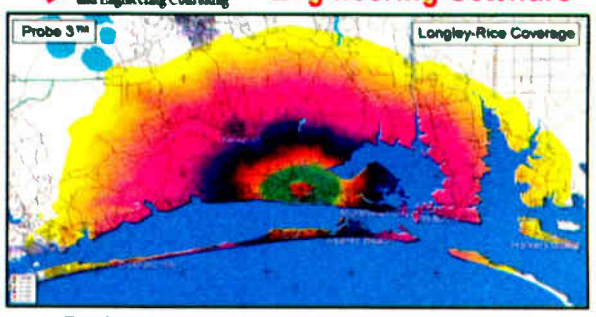
STATIONS

Want to Buy

AM/FM/CP Radio. Areas: RI, CT, MA or FL. Call after 6PM EST. 401-942-8341.

AM/FM/CPs or translators. Will consider partnership. Call after 6PM EST. 401-942-8341.

FM Radio Station or FM CP. Must be in RI area. Would consider LPFM and would consider partnership. Money waiting, call after 6PM EST. 401-942-8341.



STEREO GENERATORS

Want to Sell

Inovonics 716/David II FM stereo generator/processor, brand new, $1250/BO. Ray Knudson, KNXR, 1229 Park Ave, La Crosse WI 54601. Voice pager: 608-789-1894 (16 sec to record message).

STUDIO EQUIPMENT

Want to Sell

ATI Audio Distribution Amplifier 2016-1. We have several of these as a result of studio renovations. They cost over $1,100.00 new but will let these go for $160.00 each plus S&H. Contact Michael Raley at (704) 523-5555 for more information or e-mail Mraley@rrb.org for a picture.

Audio Cord Cart machines. We have about Several "E" series playbacks at $20.00 each, 10 "DL" series playbacks and two "A" series playbacks at $20.00 each. Most of them have been refurbished. We also have one "A" series P/R mono, two "E" series p/r mono and two "DL" series p/r mono. Call Michael Raley @ (704) 523-5555 or e-mail Mraley@bbnradio.org for more information & pictures. No connectors are available. Will sell "as is". Shipping and handling charges apply.

Enberg BA - 6 Announciator. Have several of them in great condition with no more than eight years of use in them. Original cost was $359.00 each but we will sell them for $150 .00 each "as is" plus s/h. Call Mike R at (704) 523-5555 or e-mail Mraley@rrb.org for more information.

Ten Nidec motors for Audio-cord "E" series. 117v 6H 3.1w 0.2amp 12p and 600rpms. Will sell "as is" for $5.00 each. Working condition just somewhat noisy. Call Michael Raley (704) 523-5555 or e-mail Mraley@rrb.org.org for pictures.

TFT 713 AM Frequency and Modulation Monitor. Cost $3,400.00 new but will sell for $1000.00 plus S&H. Needs re-calibration. Call Michael Raley at (704) 523-5555 or e-mail Mraley@rrb.org for a picture.

Two RTS 416 Distribution Amplifiers. Has slight problem pushing +4. Cost $1,173.00 new but will take $300.00 for each unit plus S&H. Call Michael Raley at (704) 523-5555 or e-mail Mraley@rrb.org for a picture.

TAPES/CARTS/REELS /CD's

Want to Sell

172 cards in lazy susan, $300. Donald De Rosa, WAMF, 315-593-1300.

TEST EQUIPMENT

Want to Sell

Potomac Instruments 1975 AM-19, 2 tower, 1550 kHz in good condition. David Bischoff, Pamplin Broadcasting, 888 SW 5th Ave, #790, Portland OR 97204. 503-552-3291.

TRANSMITTERS

Want to Sell

McMartin BF-5K, 5kW FM. Factory rebuilt in perfect, like new condition, includes new tubes, tested & tuned on your frequency. Guaranteed, fully adjustable from 0 to 5.5 kW. Goodrich Enterprises Inc, 402-493-1886.

Harris 10K FM xmtr. Was working on 88.9 Mhz. Needs some work & new tubes. (2) Belar FM monitors, model FMM-2, with stereo monitor model FMS-2. (2) Tascam BR-20 units. Call 305-662-8889 or email: Maggie@wdna.org.

RCA BTA1S 1000/500 watt bdcst transmitter with new matched pair of 400-C power tubes in transmitter with manuals, $3000. Donald De Rosa, WAMF, 315-593-1300.

CSI T-25-FA FM Transmitter. Recently remoed from service in Savannah, GA after 18 yrs of solid operation. Includes Relay interface for remote control and Low Pass filter but not the exciter. This is a three-phase box tuned to 89.5 FM. TPO is 25k with an efficiency of .73. This also includes a CSI T-3 which drives the final. We have the manuals for both. Asking $13,000 plus buyer arranges shipping. Give me a call at 704-523-5555 or e-mail Mraley@bbnradio.org.

Harris BC-10H, 10KW AM in excellent condition, $7500. Tom Toenjes, KJTY, 6120 Riley Creek, St Marys KS 66536. 785-640-6047.

QEI FMQ series 6.0 to 9.6FM. This xmitter did a tour of duty in Argentina but some goofy laws in this country made it impossible to permit the station to operate at this power. To make a long story short it was only in operation no more than four months. Will let this go for $18 ,000.00. Call Mike Raley at (704) 523-5555 or E-mail Mraley@rrb.org for pictures.

Consultants

DISTRIBUTOR DIRECTORY

The following distributors serving the broadcast industry would be glad to help you with any of your requirements.

TUBES & COMPONENTS

Want to Sell

New 4CX250BC tube, $120. A. Martin, Seque Services, 27518 County Road 3, Merrifield MN 56465-4321. 218-765-4321.

Used 4CX250BC in good condition. Made 100% power when last used, was kept as standby, $85. A. Martin, Seque Services, 27518 County Road 3, Merrifield MN 56465-4321. 218-765-4321.

EMPLOYMENT

HELP WANTED

GENESIS COMMUNICATIONS

Has an immediate opening for a Chief Engineer in Orlando, FL. 5 years engineering experience required, SBE certification helpful. Must have extensive experience with AM directional radio stations, computer automation, networking and studio maintenance. Please send resume to; Sandra Culver Genesis Communications, Inc. 2110 Powers Ferry Rd., Suite 198, Atlanta GA 30339. Fax 678-324-0174 or email to: sandraculver@radiogenesis.com. Genesis Communications, Inc. is an EOE.

Staff Engineer, Susquehanna Radio Corp.

Susquehanna Radio Corp. has an immediate opening for a staff engineer in our York, PA market. The successful candidate will perform maintenance on all types of equipment ranging from high power transmitters to professional audio equipment. Additional responsibilities will include working on installations and special projects. If you have 2 years of broadcast electronics experience, strong computer and networking skills and an Associates Degree in electronics this opportunity may be for you. FCC general class license or SBE certification and construction trade experience desirable. Valid drivers' license required. On-call 24-7 rotation schedule one week per month. We offer a flexible benefits program that includes a 401(k) plan with a match; medical/dental insurance; vacation, holiday, and personal days; adoption assistance, and a fitness center. We are an ESOP Company. Send resume including salary history to: Max Turner, Regional Engineering Manager, Mturner@indyradio.com, Fax: 317-558-7153. **Susquehanna Radio Corp. is an Equal Opportunity Employer.**

Renda Broadcasting

Seeks a full time Radio Broadcast Assistant Engineer reporting to the Chief Engineer at its 4-station cluster located in S.W. Florida. Duties will include repair and maintenance of electronic broadcasting equipment including high power transmitters, computerized automation systems, satellite delivery systems and RPU's. The successful applicant will also be responsible to assist the C.E. in the build out of a new studio complex. Applicant must be willing to travel to remote transmitter sites, be willing to wear a pager, be on call, and have own vehicle. Great benefits included with salary package. Applicant should send resume with experience and salary requirements to: Jerry L. Heckerman, C.E., c/o Renda Broadcasting, 4210 Metro Parkway, Ste 210, Fort Myers, FL 33916. or Email to: Jheckerman@rendabroadcasting.com. No phone calls please. Renda Broadcasting is an E.O.E. Minorities are encouraged to apply.

Engineer/Radio

Chief Engineer needed in Ocean County, NJ. Incumbent to handle operation, repair & maintenance of radio station broadcast equipment, tech support, maintaining/repairing studio equipment, phone system, T-1, ISDN, STL, digital automation, NT LAN & RF Transmission plant. Must have thorough understanding of Microwave, Satellite, FM & AM transmission systems & similar tech, & knowledge of FCC Rules & Regs relating to commercial broadcasting. Degree or comparable work exp. Pref., SBE cert. A plus. .Must have Valid Driver's License! Send resume & salary requirements to: Radio World, POB 1214, Falls Church VA 22041. Attn: Simone Fewell/Box # 9-24-04-1.

ACTION-GRAM

EQUIPMENT LISTINGS

Radio World's Broadcast Equipment Exchange provides a FREE listing service for radio stations *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.

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◆ READER'S FORUM ◆

Radio World, September 24, 2004

Skywave Listening

The publication of your op-ed piece about IBOC AM (*Reader's Forum*, July 1) is a watershed moment for Radio World, which I have read and enjoyed for years as an independent AM owner and operator. I suggest RW decide once and for all whether it is a reasonably objective periodical devoted to informing radio station management, or a thinly-disguised promotional piece touting "new technology at all costs" on behalf of its advertisers.

The suggestion that any form of listening to any commercially viable radio service is "archaic" — be it AM, FM or satellite — is nothing short of outrageous for, a periodical like RW which declares its commitment to the radio industry. The distinction between groundwave listening and skywave listening to AM is irrelevant. If people are listening, the service is valuable, regardless of the method of propagation. Those who listen regularly to a skywave AM signal are not necessarily fringe-hobbyist DX'ers or walking antiques. Any loss of listenership from the status quo is unacceptable, and certainly not "progress."

It is time to talk about the elephant that Ibiquity's flawed IBOC system has placed squarely in AM's room. As noted by the FCC, the system will cause objectionable adjacent-channel interference at night, and no amount of hype from rapturous experimental users or Bob Struble will negate this. It is up to us as an industry to stand up and demand a digital AM system that will improve the band, as opposed to one that will benefit large-market high-powered AMs at the expense of local signals on adjacent channels.

The statement that "skywave listening is not as important...as it was when far fewer stations existed" is a tacit admission of the obvious: *more* stations require *more* interference protection — not less. Let's stop torturing common sense in the rush to implement something that could be hugely destructive to AM service as we know it.

AM broadcasters will rue the day we permitted a single manufacturer — not an objective industry consortium — to (with nods from the hapless Commission and the big group-captive NAB) impose an IBOC standard on the band that only benefits certain AM broadcasters, and to the detriment of others.

Robert C. Savage
President
WYSL(AM) News 1040
Avon, N.Y.

'Glory Days'

I read with a great deal of interest the article by J.R. Russ about the history of WFIL and WNTP ("A Walk Through WFIL/WNTP," April 7). Actually, both stations have a history that goes back to the 1920s, according to "Radio Station Treasury," by Tom Kneitel.

WNTP went on the air in 1924 with the call letters WIBG, licensed to the St. Paul's P.E. Church of Elkins Park with a power of 50 watts on 1350 kHz. The call letters WIBG stood for "We Believe in God," as many of the early church-owned radio stations used to bring the church services to the sick and shut-ins.

The WFIL station goes back to 1922, when radio stations were owned by department stores with the idea of bolstering radio sales in the store. Actually, two different department stores shared the 560 kHz frequency with 500 watts. WFI was owned by Strawbridge and Clothiers and WLIT was owned by Lit Brothers Department Store. Wannamakers and Gimbels also owned radio stations in the 1920s. By 1936, the department stores got out of the radio business, and the WFIL Broadcasting Company operated WFIL on 560 kHz with 1,000 watts.

Some interesting tidbits: Dick Clark of American Bandstand fame was actually on WFIL 560 as an afternoon disk jockey before his debut on "American Bandstand." WFIL was referred to as "Wif-ful 56" during the '50s. Their competitor WIBG — "Wibbage" — introduced the Philadelphia area to a whole host of disk jockeys, including Rockin Joe Nigara, Hi Lit and Tom Donahue.

WIBG also simulcast their programming on WIBG(FM) 94.1 MHz in the 1950s. When owned by the Philadelphia Inquire/Triangle Publications, WFIL(AM/FM/TV) did an early tri-aural broadcast in the late '50s, where all three stations participated in a unique broadcast that featured Perry Como, as I recall.

I grew up 50 miles from these great Philadelphia AM stations during the glory days of the 1950s. Later, when I went off to college, I had the wife of one of the Salem Broadcasting executives as my speech teacher. I also remember when she and her husband got married on the college campus.

As they say, it is a small world out there.

Tom Nornhold
T.N. Communications, Inc.
Kettering, Ohio

Radio World, September 24, 2004

GUEST COMMENTARY

Concerning Broadcast Localism ...

A Small-Market Broadcaster Favors Comparative Hearings and Real Localism

by Maynard R. Meyer

To: Dennis Wharton, National Association of Broadcasters:

I read your comments on "leading-edge local programming" in Radio World (Newswatch, Aug. 1). I have been in broadcasting for 30 years and have seen a tremendous degradation in local service.

I recently appeared as a panelist at the FCC hearing on localism in Rapid City, S.D. I thought you might find my comments interesting.

Localism may still live in small markets, but the larger markets have a long way to go. Fundraising aside, many stations do very little. I have a son in the Minneapolis-St. Paul area who can recount two instances of tornados in the area without a single FM station airing any information.

I found it interesting that when the 9/11 tragedy struck, many New York stations stopped their music programming and began serving the public with news and information. They should be doing that all the time, not just when there's a major disaster.

It's time for broadcasters to start providing public service throughout each and every day — not just on a token occasion to look good in the public file.

Here are my comments from the hearing:

It's time for broadcasters to start providing public service throughout each and every day — not just on a token occasion to look good in the public file.

Genuine article

Localism in radio is not dead, but it is in dire need of resuscitation in many areas. Before I talk about what I believe went wrong and what can be done to restore some semblance of localism in the radio marketplace, let me tell you about my experiences in local radio.

I have been involved in the radio business in announcing, sales, engineering and management for about 36 years, with experience in communities of 5,000 people or less. I am president, general manager and co-owner of KLQP(FM), a 25,000-watt commercial station located in Madison, Minn. (population 1,767). A boyhood friend and I put the station on the air in 1983. We reach a potential audience of 30,000 people in a five-county area.

Incidentally, we are on the air 24 hours a day, with a staff of three full-time people, including my partner and myself. We have about six part-time people who do some weekend announcing and sports play-by-play reporting.

If you listen to KLQP you'll hear six local newscasts daily, all of which include local obituaries. If you lose your dog, your cat or your car keys, give us a call and we'll put it on the air for you in hopes of helping to find what you've lost. If you're having a bake sale, a bridal shower or a meeting of your organization, we'll put it on the air for you.

As soon as a hometown studio is closed and relocated, the local service also is relocated.

Once or twice a week you'll hear a broadcast of a local high school sporting event. If you've found something in your attic you'd like to buy or sell, you can put it on our "Rummage Report" program, which airs three times daily on weekdays. If you're the local police chief or public health nurse and you have something important to say, just come on in and we'll get you on the air in short order.

During the winter, we air school closings and many other weather related announcements. If you listen on Sunday mornings you'll hear the live or prerecorded broadcast of a worship service from three churches each week.

Every year we help the local Strengthening the Family organization raise funds by donating free air time for an on-the-air auction of merchandise and services donated by local merchants. Additionally, the local Kiwanis Club airs its own radio show for an entire afternoon, during which they read the commercials they have sold, read the news and weather and pick the music for that day.

Last year we helped the local veteran's organizations raise several thousand dollars during an on-the-air "phone-a-thon," where many of the vets appeared live on the radio and told stories of their experiences in various wars and conflicts.

This is just a small sampling of our efforts to help the people in our listening area.

And that, ladies and gentlemen, is local radio as I believe local radio was meant to be, when we were given the assignment years ago to serve the public interest. We run a completely accessible radio station, which has become the "heart and soul" of the area to many when it comes to daily local radio service. We personally live in the communities we serve, so we know the "issues" and work to address them in our programming, and have been doing so for the past 21 years.

Point of origin

A few years ago, many stations operated in the aforementioned manner, but much of that has changed for a variety of reasons.

I think the beginning of the end for local broadcast service started in the 1980s when the Federal Communications Commission approved Docket 80-90, which reduced minimum mileage separation between stations and allowed for the creation of hundreds of new FM stations across the country. The intent of this action was to open up several new local radio markets, which was, in turn, supposed to increase the local service in many communities.

In theory, this was not a bad idea. However, the commission also relaxed the rules regarding operation from within a station's actual city of license. As a result, many small communities were assigned frequencies and licenses were granted, but the residents of those communities are not aware of the fact that they have radio stations.

On paper, Paynesville, Minn. has a station, but programming originates in St. Cloud, 30 miles away. Clear Lake, S.D., supposedly has a station, but all programming originates in Brookings, 34 miles away.

I helped some local residents put a station on the air in Pelican Rapids, Minn., a few years ago, starting with a studio in that community, which has since been sold. All programming now originates from Detroit Lakes, 20 miles away. According to FCC records, Sunburg, Minn., has a radio station, but everything originates from Willmar, 20 miles away.

I don't think this is the best way to promote local radio service. From what I have seen through personal experience, as soon as a hometown studio is closed and relocated, the local service also is relocated. Some of my counterparts will argue that centralization of studio facilities allows for increased efficiency and the ability to provide better local service. I haven't seen it happen. I see centralization for the purpose of saving a buck or two, with little of the savings being reinvested in improved local service.

I would like to see changes in the main studio rule, and require at least some minimal program origination from the city of license. I think there should be a requirement for a physical presence in the form of an actual studio or office in the city of license, and at least a minimal staff with predictable office hours.

The commission believes that formalized procedures to ascertain community needs are unduly burdensome and unnecessary. I disagree.

When we worked on the license application for KLQP, we were required to conduct an ascertainment of community needs by personally interviewing representatives of city government, service organizations, youth groups, religious organizations and others. This was a rewarding experience and allowed us to get a real understanding of the needs of those we would be serving.

I'd like to see this type of ascertainment reinstated. It could, perhaps, replace the "Issues and Programs List" requirement, and could be done at least every couple of years and placed in a station's file. This way we could be sure that the licensee has actually set foot in the city of license. I'm not so sure that some licensees these days can even find the city of license, let alone know what its needs are.

And finally, the system of auctioning off frequencies to the highest bidder must come to an end. Since when did the applicant with the deepest pockets become the most suitable applicant for serving the public interest?

If this system had been in place 21 years ago, KLQP would not exist today. We would never have been able to compete monetarily.

However, I have no doubt we were — and still are — the applicants best able to serve the public. Some form of comparative hearings should be restored.

Maynard R. Meyer is the president, general manager and co-owner of KLQP(FM) in Madison, Minn.

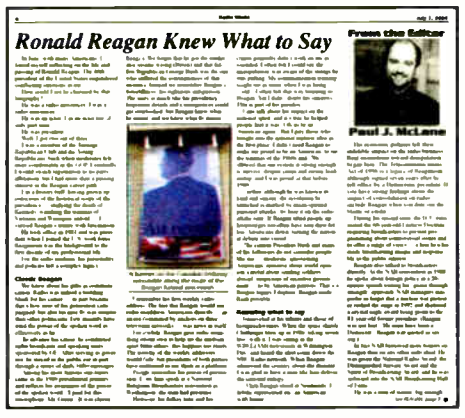
Write to Us

RADIO WORLD READER'S FORUM
P.O. Box 1214 Falls Church, VA 22041
radioworld@imaspub.com

◆READER'S FORUM◆

Regarding the Gipper

I just read Paul McLane's editorial, "Ronald Reagan Knew What To Say" (July 1). Paul, too, knew what to say.


Ronald Reagan Knew What to Say

From the Editor

Paul J. McLane

I had forgotten about the incident at the NAB convention. One of the wonderful aspects about Reagan was his ability to defuse a difficult situation with a one-liner. His admonition to a heckler with the point about who owned the microphone is a classic.

Thanks for taking the time and effort to produce a well-balanced piece of fine, heart-felt admiration.

Ed Williams
Senior Engineer
Public Broadcasting Service
Alexandria, Va.

President Reagan started his career as a radio announcer and came to prominence as a radio commentator. I first noticed him as a force to be reckoned with when I came upon one of his syndicated pieces on an outback radio station in the Midwest. He was a former governor on his way to being president. I was impressed with his "read," using all the skills of a great announcer to organize and elucidate the meat of the message. His daily commentary was sponsored — that says an awful lot about the guy and his future.

I've always felt that there are only two kinds of voices that should be on radio: textbook voices that are poetic perfection, like Victor Booger; and interesting voices that have an intrinsic uniqueness all their own, like Paul Harvey. Reagan had an interesting, unique voice with a special cadence.

He came out of school in Iowa and did baseball play-by-play, recreating the away games, which his friends say gave him a sense of drama and how to solve problems on the fly. The teletype with the game data would break often.

Eventually he came with his team one spring to training in California. The Wrigley Gum family owned the Chicago Cubs, and they also owned Catalina Island off the California coast near Los Angeles where the team trained. While in L.A. doing the pre-season games, he was enticed to do a screen test and the rest is history.

Charles S. Fitch
Avon, Ct.

The author is a contributor to Radio World. The opinions are his own.

Finding Signal Finder

I enjoy reading Radio World immensely and was quite interested in an article ("Company Hunts Pirates," June 16) regarding tracking down "pirate signals." I happen to live in the West Palm Beach, Fla. area and have attempted to contact Signal Finder, the company featured in the story, but no directory listing appears for them and I cannot find them on the Web. I have tried a search, which resulted in nothing.

Can you possibly furnish me with an address, telephone number or e-mail address, so that I might contact them?

Neil Leibowitz
Jupiter, Fla.

RW responds: The company name is Signal Finder Inc. in West Palm Beach, Fla. Its phone number is (954) 531-040, and its e-mail is info@signalfinder.com.

Correction

Bob Richardson of Richmond, Va., points out that the fifth paragraph of "The Next Breed of Engineers" (July 1) states that all engineers needed to acquire the FCC First Class Radiotelephone License with a Broadcast Endorsement.

He says, "The Broadcast Endorsement (Element 9) was only available for holders of the Third Class Radiotelephone Permit. It allowed holders to operate non-directional AM transmitters of 10 kW or less and FM transmitters. The only endorsement available for the 'First Phone' license was Element 8, the Ship Radar endorsement."

For Whom the 'Pipe' Tolls

Seminars are a way of life for some of us. Workshops at NAB. Sessions at the national SBE meeting. Ennes events. Regional broadcast and non-industry conferences about towers, electrical contracting or IT.

Sometimes, during coffee breaks or when a speaker is putting us to sleep, we get down to the really interesting content: gossip, catching up with folks we haven't seen in a year or more.

Much of the recent gossip has a common theme. Employees are asked to do more with less money, time and training. This situation can lead to catastrophe.

This is true across industries, of course. But while disaster in the laundry business can leave you swimming in soapsuds, disaster in an industry built around electricity can leave you dead.

In anecdotes of radio disaster, common themes include overreaching and cornercutting. How often have you come across situations in which temporary, patently unsafe "repairs" have become permanent?

In performing due diligence, one Radio World contributor has seen bleeder resistors on high-voltage supplies that have been blown and never replaced; open spliced coax with substantial RF running through it, located within reach on the ceiling (and the new coax is in the *2006* capital budget); and "temporary" replacement input power conductors — four runs of #1 copper THHN — running across the floor into the *open* back of a 20 kW FM transmitter with cheated interlocks.

The same writer reports encountering a double-feed rack AC supply. Evidently the rack circuit breaker was tripping from overcurrent. The fix had been to run a second, equal-current supply from a second breaker on the same phase. Our correspondent turned off the first breaker; while unwiring the plugmold strip, he realized it was also fed from the other end.

"You'll know what station I'm talking about," he adds, "when you see the impact of my muscular form traced out in a depression in the equipment room wall."

It's apparent that some radio people have been coaxed into tasks for which they lack full understanding or pressured into accepting unsafe conditions — to keep their jobs or because they felt it was necessary to cut some important corner to stay on the air.

Radio engineers do not like to think they can't solve a particular problem. They take pride in their ability to find a fix. But pride is one thing; recklessness is another.

Do not let yourself be pressured into dangerous work you do not feel qualified to do at this point in your training or when you are given insufficient time or resources. The quest for a better bottom line should not mean the end of the line for you.

Electrical conduit and hardline coax are often referred to as "pipe." So to paraphrase John Donne: "Never send to know for whom the pipes toll, they toll for thee."

— RW

Homelessness Marathon

Thank you for your excellent article on the Homelessness Marathon ("Radio Boosts Homeless Awareness," June 2). We have been laboring in such obscurity that we've practically been wishing the FCC would fine us for indecency. But the real indecency, of course, is that our government cares less about people sleeping on the street than it does about people saying expletives on the air.

We still believe in this country, though, and we still believe in the power of radio to reach it. So now that we're famous, I hope more stations will come on board.

Jessica Lockhart, the Marathon's director of affiliate relations, can be reached at *jlockhal@maine.rr.com*. Better contact her now, before we're too big to return calls.

I'd also like to mention that I am currently a Democratic candidate for Congress in the 29th Congressional District of New York State.

Thanks again, Radio World.

Jeremy Weir Alderson
Director
Homelessness Marathon
Hector, N.Y.

Radio World
Vol. 28, No. 20 September 24, 2004

Telephone: (703) 998-7600 • Business Fax: (703) 998-2966 • Editorial Fax: (703) 820-3245
E-mail: radioworld@imaspub.com • Web site: www.rwonline.com

NEXT ISSUE OF RADIO WORLD OCTOBER 6, 2004

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.

Radio World (ISSN: 0274-8541) is published bi-weekly by IMAS Publishing (USA), Inc., P.O. Box 1214, Falls Church, VA 22041. Phone: (703) 998-7600, Fax: (703) 998-2966. Periodicals postage rates are paid at Falls Church VA 22046 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 1214, Falls Church VA 22041. REPRINTS: Reprints of all articles in this issue are available. Call or write Emmily Wilson, P.O. Box 1214, Falls Church, VA 22041; (703) 998-7600 ext.148; Fax: (703) 998-2966.

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