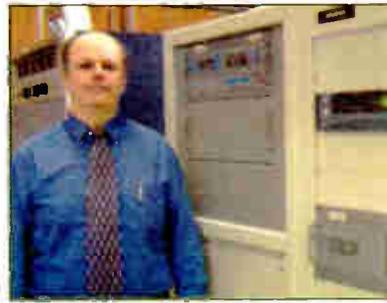


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 Build your own cable reel holder.
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Radio World



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The Newspaper for Radio Managers and Engineers

May 7, 2003

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NEWS ANALYSIS

HD Radio Blitz Seen For Summer

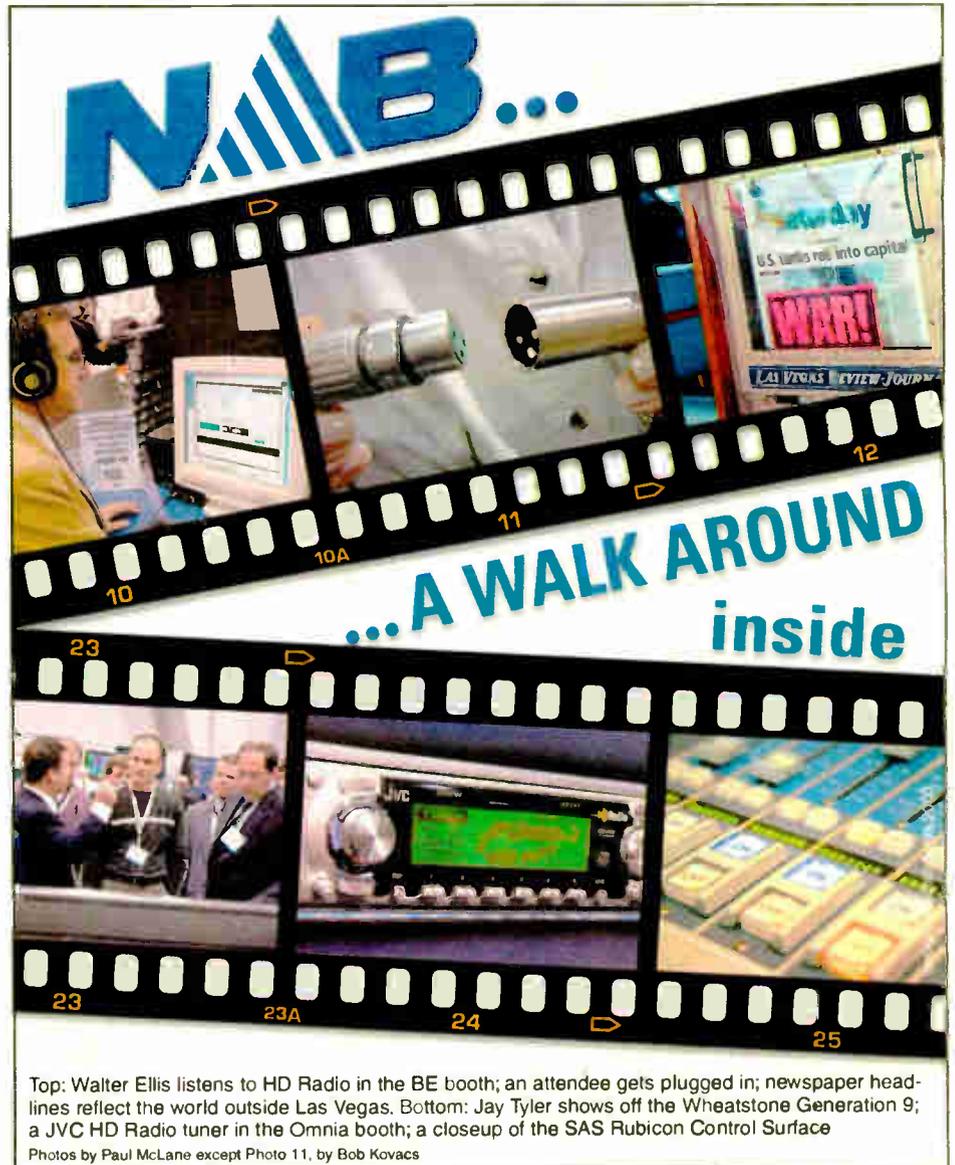
by Leslie Stimson

LAS VEGAS By this summer, HD Radios will be in stores; more stations will be on the air in digital; and consumers in 13 rollout markets will be blitzed with promotions as the result of a concerted effort by technology developer Iqity Digital Corp., receiver makers, stations and the NAB.

This was the thrust of the HD Radio message at this spring's NAB convention. Approximately 17 stations were on the air with analog/digital signals, with Iqity Digital Corp. hoping that the number would grow to 30 or so by the end of April.

One station signed a licensing contract with Iqity at the show. Don Danko, chief engineer of noncommercial WGUC(FM) in Cincinnati, hopes to be on with a digital signal in June. It would be the first public station in that market to go digital. The classical station has an ERP of 15 kilowatts and will use low-level combining.

Danko estimated his conversion cost
 See IBOC, page 10 ▶



Top: Walter Ellis listens to HD Radio in the BE booth; an attendee gets plugged in; newspaper headlines reflect the world outside Las Vegas. Bottom: Jay Tyler shows off the Wheatstone Generation 9; a JVC HD Radio tuner in the Omnia booth; a closeup of the SAS Rubicon Control Surface
 Photos by Paul McLane except Photo 11, by Bob Kovacs

DUCK AND NULL

▼ A DOE in Denver takes home a Comrex DH20 Digital Hybrid in our sweepstakes.

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 INTEGRATED DEFENSE

Pubcasters Unhappy With Allocation Rules

WASHINGTON The FCC is trying out new rules to arbitrate between commercial and noncommercial operators who apply for a license for the same spectrum allocation.

Assuming the rules stand, this clears the way for the agency to auction more than 400 FM permits and complete its review of nearly 3,000 other applications for noncom FM licenses plus other commercial broadcast licenses.

At issue has been whether pubcasters should compete in auctions for channel allocations when the disputed frequencies are not in the allocations reserved for non-

coms — in other words, in the commercial spectrum. Pubcasters lost out on this particular portion of the rules and may appeal.

After a federal appeals court struck down the previous rules, the FCC released new procedures in April to allocate and license broadcast spectrum where competing commercial and noncommercial uses are proposed.

Previously, it tried to resolve conflicting applications using auctions; but because pubcasters were exempt from auctions, this created a quandary. The FCC then decided noncoms were exempt from auctions only when applying for a reserved channel; otherwise they had to compete at auction for commercial spectrum if a channel was in dispute.

Twenty FM band channels are reserved, from 88.1 to 91.9 MHz. TV noncom channels are not clustered as

they are in radio.

An appeals court rejected the FCC's auction interpretation in 2001. The commission asked for suggestions in a second proposed rulemaking and now has made several decisions.

The FCC said noncoms are now exempt from auctions if they are AM, FM or full-power TV stations that a non-profit educational organization would use to advance an educational mission, or stations that would be used by a municipality to transmit only noncommercial programs for educational purposes.

Other applicants must compete at auction for licenses. After an application window expires, noncom applications will be tossed out if they conflict with an application for a commercial station.

Public broadcasters were disappointed with this aspect of the decision, which comes

as National Public Radio is trying to grow its member station audience by acquiring 300 new member stations by 2010 through signal expansion and station acquisition.

"It's likely the commission couldn't make a different decision under these circumstances," said Michael Riksen, NPR vice president of national affairs. "We understand the commission didn't have a lot to work with. ... The result we see is that we may be faced with fewer options for signal expansion at a time when public stations have increased demand ... and our audience is growing."

Riksen said the full outcome wouldn't be clear until noncoms are faced with the practical consequences — as they see how their applications are handled at the commission. Under discussion was whether NPR would appeal the rules.

The Association of Public Television Stations was not pleased, either. "Subjecting any public television station to the auction process is always going to be a clear loss for the stations," stated APTS President/CEO John Lawson, who said the previous court decision overturning the old FCC rules was a victory for pubcasters. He said the latest decision would affect public TV's digital conversion efforts.

The FCC reaffirmed that it would continue to reserve additional noncom FM and TV channels if an applicant demonstrates that it cannot use an already-reserved channel, and that it would provide needed noncom service in a given area.

— Leslie Stimson

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Economy, Ownership Dominate Show

by Leslie Stimson

LAS VEGAS Given the war in Iraq and the state of the economy at home, NAB2003 felt somewhat surreal at times.

As it turned out, the war wound down quickly in the days after NAB. But during the convention, real battles were still playing out halfway around the globe, and the conflict made itself felt here.

Especially telling were several booths that contained satellite telephone displays next to piles of associated gear, topped by helmets that read "Press" in the North hall of the Las Vegas Convention Center.

Despite some empty exhibit floor space and a drop in attendance, many vendors reported that attendees seemed to be serious potential buyers, not "tire-kickers." Exhibitors hoped that this interest would turn into orders

health. Lawmakers at the Congressional Breakfast said economic and homeland security issues would dominate much of their time during the remainder of their current session.

FCC commissioners are focused on issuing new media ownership rules; they spent much of their time at the show discussing this topic.

In a session of group heads, Emmis Chairman/CEO Jeff Smulyan was bullish about radio's future. After the show, Emmis released figures for the fourth quarter of 2002 that it said exceeded Wall Street predictions. Its net revenue in the quarter was \$126.8 million, compared to \$118.6 million for the same period of the previous year.

Smulyan stated that his company was able to build "its overall net revenue and operating margin in a difficult environment while also reducing our debt level."

argued that, with more than 18,000 comments filed by the public, and several hearings under its belt, there was ample documentation for the FCC to reach a decision by the scheduled June 2 public meeting.



Emmis Chairman/CEO Jeff Smulyan

He said the review is overdue. Given a prior rebuke of the commission by Congress for not completing a previous review in time, Powell said he felt "obligated to complete this proceeding promptly."

"I would highlight that the public interest is being ill-served by a body of rules that have been severely wounded and rendered substantially ineffective by withering judicial fire. Survival demands

action," he wrote to several lawmakers after the show.

As for the issues of concentration and the effect on radio, Powell said during NAB, "People forget radio was on its knees before the '96 Act. I think a lot of radio survived because of these changes."

Questioned by ABC's Sam Donaldson about a recent public split among Republican FCC commissioners, Powell said he decided when he became chairman not to shrink from controversial decisions. He said he was comfortable with a recent telecom vote, which he lost to a coalition formed by fellow Republican Kevin Martin, and said he wouldn't change his approach if he had it to over again.

Powell said that, contrary to a statement by House Commerce Committee Chairman Rep. Billy Tauzin, R-La., no "palace coup" had taken place at the FCC.

It's "not like Saddam's tanks are rolling around the FCC," Powell said.

Forward march

FCC Media Bureau Chairman Ken Ferree backed his chairman on the rule timetable, leaving the FCC no wiggle room to move from the June 2 target date on ownership rules.

Ferree's statement startled attendees in the room, mostly communications attorneys, who let out a collective "Whoa!" Speaking to reporters afterwards, he said, "My general has said 'March!' and I'm marching."

Yet fellow panelists predicted there might be some slippage in the FCC schedule.

See OVERALL, page 5



ABC's Sam Donaldson and FCC Chairman Michael Powell shared laughs during the Chairman's Breakfast — especially when Donaldson didn't understand the NAB-supplied questions.

after the show. Several radio manufacturers told Radio World that their booths were busy.

Overall attendance was down 3 percent from last year and down about 21 percent from the year before.

NAB President/CEO Eddie Fritts said during the show that projected attendance was 89,000. That compares to 92,000 for last year's spring show and 113,000 the year before.

Some attendees and other sources privately expressed skepticism about the number, and bandied about their own guesses. NAB does not publicly release independent auditing of attendance figures.

NAB acknowledged a drop in international attendance, citing travel concerns due to the war. International attendees numbered 23,000 last year and 19,000 this year. Some attendees speculated that travel also was repressed by concern over the SARS health threat.

Many sessions were dominated by talk about the radio industry's financial

Shortly after the show, the Radio Advertising Bureau talked up the industry's increasing revenue overall. Ad revenue increased 7 percent in February, according to RAB, the 12th consecutive month of increases. Local revenue was up 8 percent in the month, while national was up 5 percent.

For the first two months of this year combined, overall radio revenue was up 7 percent.

No 'palace coup'

Group heads and regulators focused on the biennial review of media ownership rules.

Contrary to what some pundits have predicted, Chairman Michael Powell said, the industry should not expect the FCC to relax all ownership rules.

He also told attendees that the two-year review cycle causes him concern. "It's destabilizing to industry and hard on the commission."

Some in Congress and within the agency have urged Powell to take more time before releasing the rules. Powell



At the Congressional Breakfast. From left: Rep. Gene Green, D-Texas; Sen. Norm Coleman, R-Minn.; Sen. Conrad Burns, R-Mont.; Rep. Eliot Engel, D-N.Y., and Rep. Lee Terry, R-Neb.

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Data, Ready for Prime Time?

Musing about events in radio ...

One of the benefits of my job is working closely with John Casey, our associate publisher, and walking the NAB floor with him. John has deep experience in the broadcast and pro audio business, and one of his favorite conversation topics is RDS. When he worked with Denon, he was active in the industry effort to get RDS going.

Like a lot of folks, I tend to chuckle when an RDS fan gets talking about the technology. We all know the initiative failed to catch on, right?

Well, maybe not. Now a company called The Radio Experience, based in Seattle, is hoping to succeed with a new service that puts RDS and other delivery mechanisms to work. The company, run by Allen Hartle, recently won a contract with Entercom to equip 54 FM stations with what it calls Dynamic Data Initiative technology.

According to the supplier, "The DDI system traces its beginnings back to the 1990s, when company founder and President Allen Hartle first enabled wireless messaging to giant electronic billboard displays via Radio Data System subcarrier using the RDS Encoder FMB10 from Audemat/Aztec Inc.

"Through these early data transmissions and 10 years of evolutionary product development, DDI is now ready for prime time,"

it promised. DDI technology lets a station transmit listener-related data services along with audio to RDS, HD Radio, Internet services and outdoor displays.

Receivers, Hartle says, are out there in the hundreds of thousands. RDS radios have been "quietly arriving by the truckloads as standard equipment on cars that executives purchased, leased or rented. It was only a matter of time before they were given a quality 'demo.' ... We've already begun RadioText data services for now-playing messages and station or sponsor promos."

He points to media such as Internet streaming and satellite radio as competitive factors pushing broadcasters to improve our own services.

Entercom had been testing DDI in two markets. Marty Hadfield, its vice president of engineering, said one processor can multiplex five of Entercom's FM studio data streams over a low-bit-rate STL data channel and restore them as individual data streams at the transmitter site.

Hartle said although the system is "principally an RDS initiative," its engineering also accommodates HD Radio support. And to promote the service, The Radio Experience is offering broadcasters a "no-risk trial program."

Radio's recent history is littered with attempts to generate extra

revenue using our piece of the spectrum. We're happy to watch with both interest and a dash of skepticism, and to wish Hartle and Entercom well.

For info, visit www.theradioexperience.com.

★ ★ ★

Did you happen to read the transcripts of the announcement by the FCC that it would fine Infinity station WRRK(FM) in Detroit \$27,500 for material that aired in 2002 on the "Deminski & Doyle Show"?

Even this particular commission, which has put a light hand on the regulatory tiller, found the material offensive, and it suggested that license revocation would not be out of the question in such cases in the future.

One commissioner felt so strongly that he voted against the penalty, saying it wasn't strong enough. Michael Copps wrote, "I wonder when this commission will finally take a firm stand against broadcast's 'race to the bottom' as the level of discourse on the public's airwaves gets progressively coarser and more violent."

I did read the transcript of the show in question. I would not nix the station's license for that one instance. However, if I were that station's manager, I would have fired my air talent on the spot for putting my business at risk in that way, not to mention the poor judgment they showed in allowing it on the air in the first place. It's another programming black eye for Infinity.

The problem of indecency would take care of itself if managers are willing to put their talent on the street in such instances.

Meantime, all radio licensees should take note. Commissioner Jonathan Adelstein wrote that the FCC "has now given fair notice that it can and will avail itself of a range of enforcement sanctions, including the initiation of revocation proceedings" for indecency.

★ ★ ★

The most hackneyed thing I hear every year from convention exhibitors at trade shows is "attendance is down, but the quality of the visitors is good."

From the Editor



Paul J. McLane

(Some day, I suspect, we'll have only one attendee left ... but he'll be a *really* good sales prospect.)

This year, it seems, the old cliché carries some truth. Yes, NAB2003 floor traffic was off; but numerous companies told me they were satisfied, including Broadcast Electronics, RCS, Audemat-Aztec and Telos Systems, to name a few.

"Although attendance has dropped the last couple of years, the people who are attending are the decision makers," Kim Winking of BE told me.

Another interesting facet to the NAB experience is that the days prior to the show have become almost as important as the show itself for radio technical attendees. This year, events that took place before Sunday included the Public Radio Engineering Conference, the NRSC meeting, the SBE Ennes workshop and several engineering meetings by radio groups.

★ ★ ★

And congratulations to Bill Miller in Olathe, Kan., who has begun his 53rd year as a broadcaster.

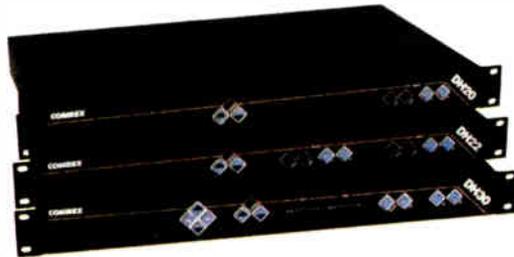
Miller, whom we featured in a story in our *GM Journal* section in 2001, recently sent me some sample hours of his nostalgia radio program. He writes to tell me that "I have no intention of slowing down in what I'm doing. I can't think of anything I'd rather do."

The syndicated show airs on about 100 stations. Visit www.thebillmillershow.com for info.

The friendly folks at Comrex contribute our prize this week, a DH20 Digital Hybrid.

Comrex is celebrating its recent acquisition of Gentner broadcast telephone interface products. The DH20 provides an audio interface between your telephone line and audio equipment, one that is easy to install and operate. High audio quality and a deep, reliable hybrid null are part of the design. Features include selectable caller ducking, selectable auto-answer/auto-disconnect, speaker amplifier, mic- or line-level input and selectable AGC so that every caller is at the same audio level.

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The screenshot displays a comprehensive monitoring interface for a radio transmitter. It includes a 'Motors' section with status indicators for B1 Low Voltage (9.330 Vdc), B1 High Voltage (7.62 KV), Main Power Out (40.000 KW), B2 Filament (0.224 Vdc), B2 Power Out (45.417 KW), Room Temperature (108 Deg), AC Phase 1 (0.388 KV), AC Phase 3 (0.385 KV), and Generator Phase 2 (0.33 KV). A 'Commands' section provides buttons for various operational actions like 'B1 Low Voltage On/Off', 'B1 Monitor On/Off', 'B1 Power On/Off', 'B2 Filament On/Off', 'B2 Power On/Off', 'Antenna to Main', 'Antenna to Standby', 'Power to AC', 'Power to Generator', 'Generator Start/Stop', 'B1 Main Power On/Off', 'B2 Main Power On/Off', 'B2 Power On/Off', 'B2 Power Lower', 'S.T.L. Main', 'S.T.L. Standby', 'Blower On/Off', 'AC Main Breaker On/Off', and 'B2 Main Power On/Off'. The interface also shows an 'Event Types' list and a 'Site List'.

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Transmission Innovations Explored

Papers Delve Into DRM, Low-Profile AM Antennas, Frequency Coordination and More

by Michael LeClair

Radio World asked several of our contributors to attend various sessions at the NAB2003 convention. Here, Michael LeClair summarizes the presentations at the Radio Transmission Forum of the Broadcast Engineering Conference. Other sessions will be summarized in upcoming issues.

A Case Study in Event Coordination: 2002 Olympic Winter Games — Although broadcast engineers have to deal with frequency coordination on a regular basis, the Olympic Winter Games are in a category by themselves.

A huge media event, the games involve participants from 85 countries and 5,000 athletes and officials, with more than 10,000 people involved in broadcasting to the world.

"And in my case, it was a full-time job for two years," said Mario Hieb, radio systems frequency manager for the Winter 2002 Olympic Games.

Hieb presented an overview of how he coordinated both local and temporary users of RF spectrum.

Four basic steps were involved: handling applications for RF spectrum use, acquiring and assigning spectrum, certifying all RF equipment and enforcing the allocations during the event.

To handle the enormous number of users, a Web site was established to allow online applications for spectrum. More than 1,900 frequency applica-

tions were handled electronically, eliminating volumes of paperwork ordinarily associated with this task.

The FCC provided special temporary authorities for use during the games, providing additional spectrum. In order to leverage available frequencies further, Longley-Rice propagation studies were undertaken to measure the blocking effects of terrain, allowing multiple users where the mountain ranges blocked interference. Temporary spectrum was acquired from various government services that were not using reserved spectrum in that area.

After assigning more than 1,400 frequencies, all radio devices were required to be certified and marked with tags indicating allowable venues for operation. RF rehearsals before the games started helped to determine if the allocation plan would work. Finally, the FCC performed frequency spectrum sweeps before the games began to ensure that unlicensed users were off the air.

Hieb, who also contributes to Radio World, noted many lessons learned. He suggested that in the future, "better licensing procedures for large events" should be developed by the FCC. Additionally, he stated that "the radio devices themselves, wireless microphones in particular, are going to have to become more spectrally efficient," as events grow larger and spectrum becomes more crowded.

pushed the FCC to act on ownership rules while others have urged the agency to take more time.

Legislators at the show said improving the economy and securing funding for the war and to combat terrorism would dominate the rest of this session of Congress.

Legislation

Some attendees asked about the status of copyright protection legislation. Many radio stations stopped streaming content due to the issue of dual copyright payments. The issue is of particular concern to radio, some said, in part because stations would like servicemen and women overseas to be able to hear their hometown stations.

Sen. Norm Coleman, R-Minn., said lawmakers don't yet have an answer to the copyright protection issue.

"We don't know how to get there. We need you to give us a consensus," Coleman said to broadcasters.

One important issue that had been in the news already developed a twist during the show. Clear Channel executives said the company had decided to cut station ties with independent record promoters.

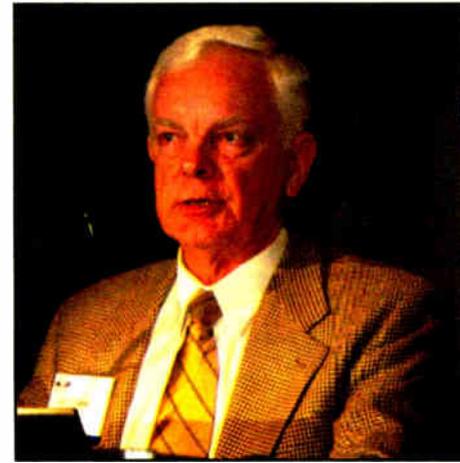
"We now recognize that these relationships may appear to be something they're not. We have zero tolerance for 'pay-for-play,' but want to avoid even the suggestion that such a practice takes place within our company," President/COO Mark Mays stated. Sen. Russ Feingold, D-Wis., has a bill to ban payola-like practices before Congress. Several lawmakers at NAB, however, said they didn't expect the bill to get out of committee. 

Seattle's KKOL Goes Maritime Mobile — When station KKOL(AM) was forced to leave its transmitter site of 65 years, it ended up in a unique situation. Although it had received permission to build a new 50 kW facility south of Seattle, it needed a temporary site to broadcast until the site was ready. So it moved out to sea — on a boat.

"I believe this is the only legally operating station in the United States that's operating shipboard," said James A. Dalke, CPBE, a contractor for Salem Communications on the project.

KKOL had to move because the Port of Seattle needed to expand container facilities on Harbor Island, a man-made island just south of Seattle. By the time an agreement to move the station was finalized, only six months remained, not enough time to build a high-power directional AM. KKOL would have to find a temporary location or go dark for an indeterminate period of time.

Several alternative sites were explored in the harbor area, including a skirted smokestack, but all fell through due to considerations of potential interference to nearby industrial users. Dalke came up with the idea of mounting an antenna on a boat that could be parked in the harbor, providing coverage to downtown Seattle. He explored the idea with Valcom, a manufacturer of physically short medium-wave antennas.



Consulting engineer James Dalke explains the 'maritime mobile' application of KKOL.

Dalke located an old fishing boat, the Coastal Ranger, with two large generators (250 kW each), and found a 300-foot pier for transient boats that had 480 V power panels. Already on board were step-down transformers to convert to 120/240V service.

"To house the transmitter, I thought about putting it inside the boat somewhere, but ... I actually bought a 20-foot cargo container, modified it slightly ... and there was a place to mount that on the stern of the boat," Dalke said.

The performance of the new transmitter site turned out better than expected. Although a complete proof was not done, measurements in the harbor area showed excellent coverage

See FORUM, page B 

Overall

► Continued from page 3

Former FCC staffer Blair Levin, now of Legg Mason, believed the item could be delayed by a month or two. Greg Schmidt of LIN Television noted that seven years had passed since the Telecom Act and that this was only the second two-year review in that time.

For radio, panelists agreed that the largest issue is re-defining a "market." The current method of using contour overlaps can create situations in which distant signals coming into a market are counted, panelists said. This can skew the number of stations a group can own there.

In its Notice of Proposed Rule Making on ownership, the commission asked for comment on whether using Arbitron Radio Metros would be suitable. Brian Madden, Leventhal Senter & Lerman PLLC, said, "Arbitron may be the way to go, but as a regulatory tool it's not the ideal measurement."

Arbitron does not measure all markets. Also, participants can manipulate it, Madden said; further, stations not counted above the line may still be in the market.

Any definition that uses Arbitron Metros would also need to include an alternative, he said, for situations where the Arbitron approach would not be suitable.

Sen. Conrad Burns, R-Mont., said lawmakers would pay particular attention to cross-ownership.

Some members of Congress have

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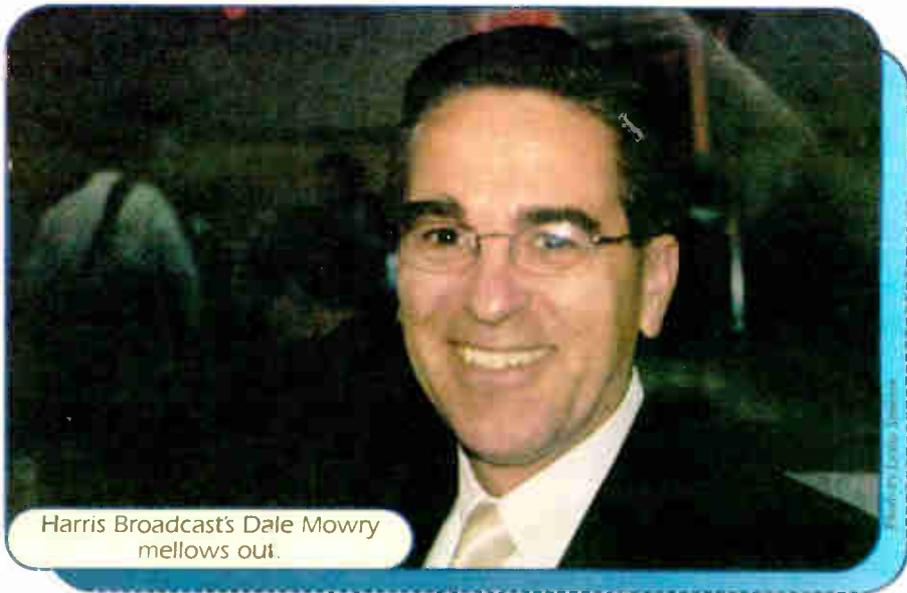
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NAB...

...A WALK AROUND



Sierra Automated Systems signed up Jack Williams as its director of console and systems development. Celebrating the event are Director of Marketing and Strategic Development Howard Mullinack, President Ed Fritz, Vice President Al Salci and Williams.



Harris Broadcast's Dale Mowry mellows out.



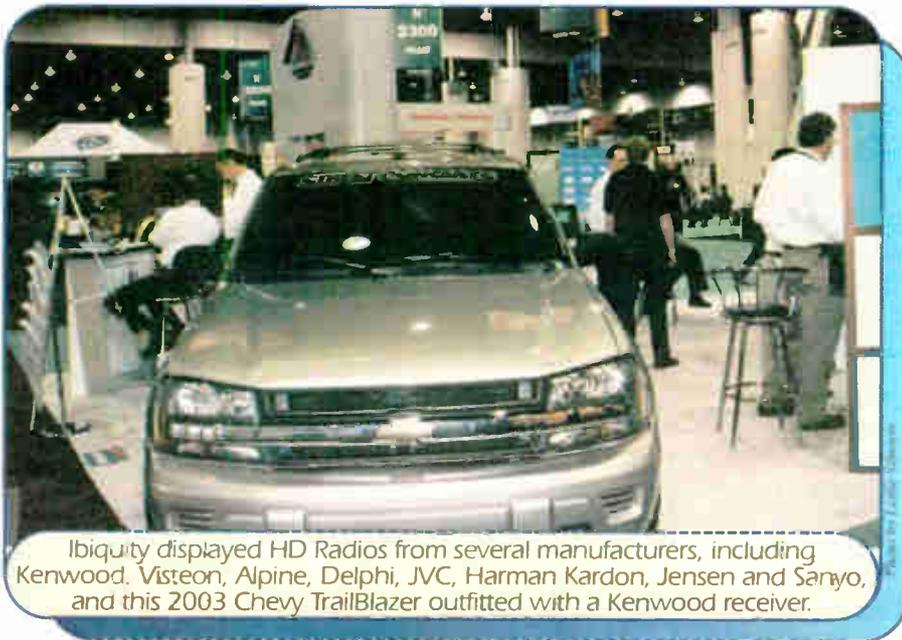
The merger of Audemat and Aztec is complete. Christophe Poulaine and Sophie Lion-Poulaine will manage sales for North America and be based in Florida. They pose with the AM Fieldstar.



This Kenwood HD Radio received the live digital/analog broadcast from Infinity/Viacom's KLUC(FM) in Las Vegas. Initial HD Radios have simple text displays, like this one.



Buckley Broadcasting's WOR(AM), New York, Corporate Director of Engineering Tom Ray tests out a demo in Ibiquty's booth. Ray made several appearances in the booth to discuss his experiences with implementing HD Radio.



Ibiquty displayed HD Radios from several manufacturers, including Kenwood, Visteon, Alpine, Delphi, JVC, Harman Kardon, Jensen and Sanyo, and this 2003 Chevy TrailBlazer outfitted with a Kenwood receiver.



Non-commercial WGUC(FM) in Cincinnati signed a license to use HD radio technology. Chief Engineer Don Danko, right, met with Ibiquty's Jeff Jury.

NEWSWATCH

NAB Again Assails XM's Local Plans

WASHINGTON Responding to XM Satellite Radio's disclosure that it intends to offer localized weather reports as a premium service, NAB is complaining to the FCC again about the satellite company.

NAB said it has not received answers from XM regarding a patent that would allow local XM programming to be delivered via translators, nor on the satcaster's plans to provide locally-differentiated programming or data.

"It appears XM does intend to convert its service from an exclusively national program service to one that delivers locally-differentiated content," wrote NAB. It said the agency should not allow XM to avoid disclosing its plans while the satcaster asks for permanent licenses for terrestrial repeaters. Without such disclosure, NAB says, the FCC should cancel the STAs for XM's repeaters.

Also, NAB stated, the FCC should, in its final repeater rules, bar the use of the repeaters to "deliver programming to consumers in one market that is different from that delivered to consumers in another market."

Infinity Fine Puts Indecency Back in The Headlines

WASHINGTON Infinity has come in for yet more scrutiny on the subject of indecency.

The FCC in April raised the threat of license revocation against the group for future indecency violations after levying a \$27,500 fine against WKRR(FM) in Detroit in a Notice of Apparent Liability.

Infinity spokesman Dana McClintock said the group would respond to the commission.

FCC Chairman Michael Powell said the fine was justified. "What they said was indefensible."

The commission found Infinity apparently liable for broadcast indecency because of an afternoon segment of the "Deminski and Doyle" show in which nine callers described extreme or violent sex acts. The programming aired outside of the 10 p.m. to 6 a.m. "safe harbor."

The commission increased the fine in this case to the maximum amount allowed for a single violation and stated, "Additional serious violations by Infinity may well lead to initiation of a revocation proceeding."

Two commissioners, Republican Kevin Martin and Democrat Michael Copps, said the penalty was not high enough and thought the agency should have begun a revocation hearing immediately.

Infinity was scrutinized earlier for broadcast indecency violations as a result of complaints relating to the "Opie and Anthony" show on WNEW(FM). That case is still under review.

In 1995, Infinity made a \$1.7 million payment to the U.S. Treasury to settle indecency allegations involving Howard

Stern. Its record was wiped clean, leaving Infinity free to acquire more stations.

PRI to Launch Capitol Hill Bureau

MINNEAPOLIS Program distributor Public Radio International will open a Capitol Hill bureau in July.

Print and broadcast journalist Melinda Wittstock will head the bureau, which will be based at WAMU(FM) in Washington. The service will produce news modules of varying lengths for stations and eventually will offer interactive interview opportunities between citizens and elected officials.

The bureau is funded primarily by a grant from the Corporation for Public Broadcasting, subscription revenue from participating public radio stations and in-kind support from PRI.

FCC Proposes 23% Rise in Fees

WASHINGTON The FCC has proposed collecting \$269 million in regulatory fees for fiscal 2003, an increase of roughly 23 percent over 2002.

The fees are mandated by Congress and recover costs associated with enforcement, policy- and rule-making and other activities. The agency has pro-

posed expanding the radio categories, taking into account "the trend toward more powerful stations, and increases in the overall population."

The commission is proposing a fee category for stations that serve populations of 3 million or more. Currently the categories stop at stations that serve 1 million or more. Proposed FY 2003 fees range from \$600 for an AM station Class A serving a population of 25,000 or less, to \$8,125 for most classes of FMs serving a population of 3 million or more.

Only commercial stations pay regulatory fees; noncoms are exempt. The responsibility of paying the fee, due Oct. 1, 2003, rests with the holder of the license or permit as of Oct. 1, 2002.

Reply comments on the proposed fees were due May 5 (MM Docket 03-83).

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Forum

► Continued from page 5
in downtown Seattle, particularly along the harbor area.

Improving AM Reception with Digital Transmission — Herbert P. Jacobson, senior design engineer at HCJB Engineering, presented test results of a digital system for medium-wave transmission. He played actual off-the-air recordings of the Digital Radio Mondiale system.

DRM has been under development, designed to meet European needs. It can operate on medium wave up to 30 MHz.

Tests of DRM in Europe were conducted between transmission facilities in England, Germany, Spain and Norway. Paths longer than 1,000 miles were tested on shortwave and standard broadcast frequencies, comparable to AM broadcast band in the United States.

Jacobson first played a recording of the standard transmission, followed by an audio sample of the digital transmission, recorded at the same time. While many of the audio samples using analog modulation were unlistenable due to interference, the digital samples all achieved good audio quality with no interference.

Jacobson additionally demonstrated

reception of DRM over a 6,000-mile shortwave path from Europe to the Caribbean with good fidelity.



Herbert P. Jacobson is a senior design engineer at HCJB Engineering.

Testing and Results of a New Efficient Low-Profile AM Medium-Frequency Antenna System — A new approach to AM transmission was presented by Michael W. Jacobs, manager of research and development for the Star-H Corp.

Jacobs explained the principles behind the design of a reduced-height AM antenna for standard broadcast service.

"A principle of antennas is the gain-volume-bandwidth product, which is to say that if you want to have high gain and wide bandwidth, you need to have a

large-volume antenna. If you are going to try to make a smaller, more compact antenna, you can only do so by compromising on the gain, the bandwidth or both," Jacobs said.

The Star-H concept for a reduced-height antenna preserves the volume of the radiator by using a caged monopole design.

"I like to say that it's essentially taking a monopole tower and peeling the legs down, like you'd peel the skin of a banana," Jacobs said. To keep the antenna impedance high, multiple driven elements are used in parallel.

To prove that the concept works, both a standard quarter-wave monopole antenna and a reduced height (45-foot) caged monopole were constructed on 1680 kHz in cooperation with Kintronic Laboratories. Jacobs showed photographs of the construction of the caged monopole in detail.

antenna on the tower. Often it is not possible to pre-assemble a master antenna at the factory, and final installation is done by a tower company that may not have experience with master antennas. In particular, the proper grounding and support of the semi-rigid harness lines are essential to ensure long antenna life and good performance.

"Quality field installation is critical to long-term performance," said Kerkhoff.

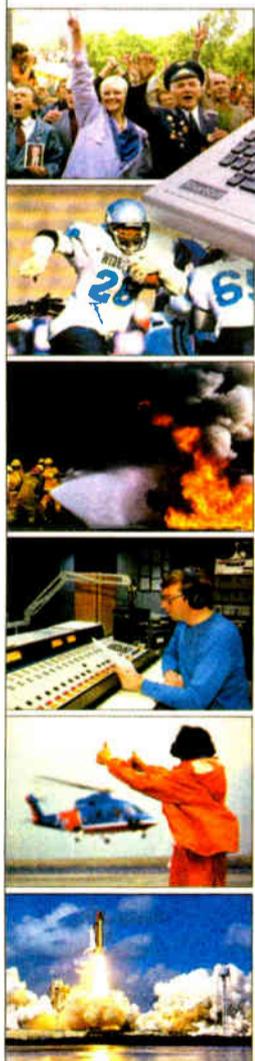
He recommended that the antenna installer and buyer visit the factory to review installation requirements and clarify expectations on the amount of time required. Photographs documenting actual installation should be taken and shared with the antenna manufacturer for review.

System testing of the master antenna should be made while the installer is on site so that adjustments can be

It's essentially taking a monopole tower and peeling the legs down like you'd peel the skin of a banana.

— Michael W. Jacobs, Star-H Corp.,
on the Kinstar antenna concept

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Signal strengths for both antennas were measured by an outside consultant, Don Crane, and analyzed by Ron Rackley of du Treil, Lundin and Rackley, consulting engineers. The results showed the efficiency of the caged monopole as nearly equal to that of the standard antenna, around 99 percent.

Jacobs said Star-H has done modeling for the use of a caged monopole in a directional array.

"We're very certain we can implement this in a directional pattern," said Jacobs.

Care and Feeding of FM Multichannel Antennas — Installation and maintenance of master antenna systems was the topic of a paper presented by William Kerkhoff of Dielectric Communications. He reviewed basic master antenna system designs, construction and long-term maintenance considerations.

According to Kerkhoff, the most important aspect of master antenna performance is the installation of the

made if necessary.

Once performance is satisfactory, a full set of measurements should be retained as a reference for troubleshooting antenna problems later.

Kerkhoff also recommended annual maintenance of master antenna systems, consisting of photos and a full set of system measurements.

Advanced Modulation System — An anticipated paper on a proposed Advanced Modulation System by Mike Dorrough was not presented. Apparently Dorrough was held back by legal considerations.

According to Andy Laird, vice president of radio engineering for Journal Broadcast Group and moderator of the forum, "Mike Dorrough ... will not be presenting. He looks forward to presenting his Advanced Modulation System at a future date, but on advice from his counsel involving progress on patent applications that he has going, he can not speak to us today."

DIGITAL NEWS

NRSC to Look At HD Radio Data Interface

Members of the National Radio Systems Committee have formed several subgroups to work on aspects on the HD Radio rollout.

The newest, formed to handle data aspects of the system, expected to meet soon after NAB2003, where the group was formed.

Kenwood's Mike Bergman and Cox Radio's Dom Bordonaro co-chair the subcommittee, which will look at factors involved in designing an interface between Ibiqity Digital's HD Radio system and receivers.

Ibiqity's current system design

includes a data component so the first terrestrial digital radios can display RDS-like information such as song titles and artist names. An effort to create an open data standard also is underway, and members of this committee are charged with the intricacies of designing the data standard to handle more complex features such as TiVo-like capabilities and telematics.

The NAB and the Consumer Electronics Association sponsor the standards-setting NRSC. Its members continue to evaluate Ibiqity's FM system to develop a standard. It will begin that process for AM when Ibiqity submits further nighttime test and other results showing system performance with its PAC codec integrated into the AM and FM systems.

— Leslie Stimson

If HD Radio doesn't sound better, what's the point?

There are lots of ideas about audio processing for HD Radio. While opinions are subjective, here's one firm fact: HD Radio supports a full 20Hz - 20kHz audio bandwidth.

So why use an audio processor that doesn't?

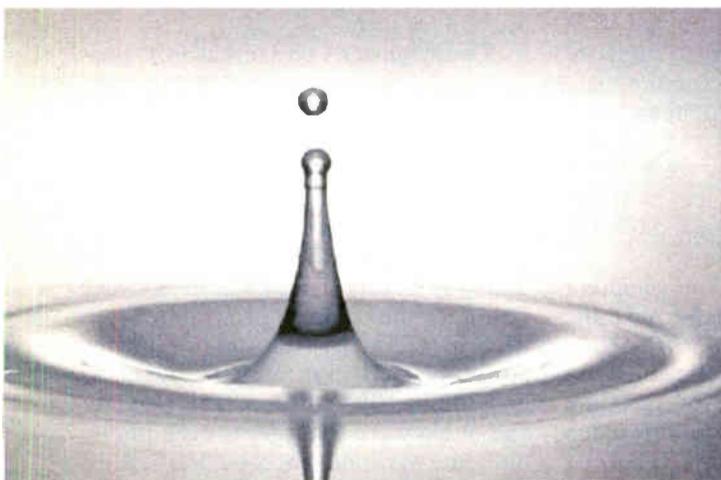
The new Omnia-6HDFM is a combo processor that serves both your analog and HD Radio signals. Its advanced dual-output design provides full-fidelity and precision look-ahead limiting for the digital signal – and everything Omnia is famous for on the analog FM side.



The AGC sections are shared so you get smooth transitions when HD Radio's blend function activates. But this powerful integrated processing package has two fully independent limiter sections, each optimized for the characteristics of the associated transmission channel.

Telos and Omnia are pioneers in coded audio. With our many years experience making bitrate-reduced channels sound good, we know how to deal with systems like HD Radio that involve both dynamics processing and bitrate reduction coding.

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* Arbitron Spring 2002 survey period, 12+ Mon-Sun 6A-12P.

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World Radio History

IBOC

► Continued from page 1

at \$120,000 to \$125,000. A station benefactor who wished to remain anonymous is putting up most of the conversion funding.

Key players in the promotion effort were not quite prepared to detail this summer's digital radio promotion efforts just yet; many elements were still fluid in April.

NAB President/CEO Eddie Fritts said an NAB task force promoting digital radio is consulting with a PR agency to counter the negative image fostered by satellite services about terrestrial radio.

The NAB campaign would use a positive approach, he said, "to point out that if you live in a glass house, you shouldn't throw stones."

One issue of immediate concern for Ibiquty was availability of receivers for stations already on the air. Managers at stations want to demo their new sound for clients; engineers want to hear the digital, period.

Some engineers told Radio World they gained access to HD Radios from Ibiquty for a short period after their stations went on the air, but that Ibiquty took the units back.

Hearing the digital

Mike O'Shea, chief engineer at WUSF(FM) in Tampa, Fla., said he and other employees could hear the station's digital service for a day and a half before they had to return the receiver. He told attendees at NPR's Public Radio Engineering Conference, held in Las Vegas just before the NAB, that hearing the digital was important to his colleagues.

Ibiquty President/CEO Robert Struble acknowledged that receiver availability is an issue and said the company is working to get receivers to stations.

Director of Broadcast Business Development Scott Stull said after the show that he had loaned out some test receivers to stations for implementation, demonstration and promotion, and that more would be loaned as he

received them "on a rotating basis" until commercial radios become available this summer.

The date of commercial availability has slipped a bit since some industry participants made their rollout predictions at the Consumer Electronics Show in January. Manufacturing sources attribute the delay to a number of factors including a shaky economy and a complicated rollout process.



Kenwood's Bob Law, WOR's Tom Ray and Ibiquty's Jeff Jury updated the HD Radio receiver rollout for attendees.

Kenwood USA is taking orders from retailers and plans to ship HD Radios in June, with a full rollout the next month. It has 18 models in its 2003 line, with list prices ranging from \$180 to \$600. The company has been shipping HD Radio-ready car receivers since January. These work with existing Kenwood head units.

Yamaha and Kenwood are due out with home receivers in the fourth quarter of this year. Panasonic and Fujitsu said they would make automotive HD Radios.

Kenwood USA Senior Vice President Bob Law wouldn't speculate about how many units will be shipped to stores in 2003; but he said the company wouldn't have invested in the technology unless it thought it would sell radios.

"We feel this will bring attention back to the radio dial," said Law. Auto manufacturers also have approached Kenwood about HD Radio production.

Retailer Gregg Thomas of Ultimate Electronics said consumers want easy-to-use products. Once HD Radio is available, he said, salespeople will be

able to demonstrate electronics using the customer's favorite radio stations instead of CDs.

Ibiquty's data demos drew attention at the NAB convention, as did one of Neural Audio's 5.1 surround sound. Harris Corp., which also showed the technology, said NeuStar, powered by Neural Audio, is an add-on product meant to enhance the HD Radio sound. It is a codec pre-conditions

tioner to enhance digital processing at low bit rates. Harris claims NeuStar will make "digital AM comparable to analog FM and enable digital 5.1 broadcast or quality dual stream radio on digital FM."

That local flavor

Anecdotal experiences from the first HD Radio stations is beginning to filter out.

Some chief engineers of stations that have gone digital say listeners are anxious for HD Radios.

Could radio stations soon be broadcasting a 5.1 experience for listeners?

Tom Ray, corporate director of engineering for Buckley Broadcasting's WOR(AM), New York, which went digital this fall, said he has heard from listeners who purchased a satellite radio service and are disappointed to learn they can no longer hear local traffic reports.

Ray also said he believes the problem of AM nighttime service will be resolved; he feels it must be fixed for AM IBOC to be successful.

"At 4:30 in December, you shouldn't have to go back to analog because the sun went down," he said.

Currently, AMs are authorized only to broadcast HD Radio during daytime hours, due to unresolved interference questions about the system's nighttime performance. Ibiquty hopes to deliver AM test results to the NAB soon.

Broadcast engineering consultant Glen Clark declared that IBOC's AM nighttime bugaboo isn't so bad, quipping that it's "not time to drink Kool-Aid" over the issue. At a digital broadcast engineering session, Clark detailed his theory, submitted earlier to the FCC, that most AMs could go

IBOC now without causing undue interference to their analog hosts or neighbors.

Of the roughly 2,800 AM stations in the United States authorized for nighttime operation, Clark said, 1,881 could go digital at night now, another 873 could go digital with a reduced digital power level and 95 could not go digital without causing potential interference to neighbors.

One broadcast consulting engineer speculated that even these 95 could eventually go IBOC at night, with the FCC approving them on a case-by-case basis.

While nighttime signals travel by both groundwave and skywave propagation, the issue of AM nighttime skywave vs. groundwave interference is shaping up to be a battle between group owners who own historically-protected clear channel stations that rely primarily on their skywaves at night, and group owners whose stations rely on their groundwaves at night.

'Messy' issue

One radio group engineer said there's no easy way to solve this problem.

"It gets messy. There's no clean and easy way to make it nice," said this observer, who added that politically, the issue pits large group owners against smaller station owners and splits NAB's radio membership.

Clear Channel Radio Senior Vice President for Engineering Services Jeff Littlejohn asked Clark whether his study took into account nighttime changes in the earth's atmosphere, which cause frequent changes in skywave characteris-

tics. Clark said it did not. He later told Radio World there's no reason he couldn't alter the parameters of the study to account for them.

One engineer said current FCC analog-to-analog skywave interference protections don't take into account the atmosphere's nightly changes; the calculations are based on signal strength and probability.

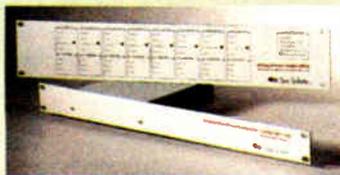
Littlejohn sought to dispel the notion, held by some, that skywave listening is unimportant. He said skywave listeners make up approximately 10 percent of such a station's nighttime audience and that such listening is quantifiable by Arbitron. The percentage of skywave listeners is even higher on some stations, such as Nashville's WSM(AM).

Also discussed was the so-called dual antenna approach to HD Radio broadcasting. An ad-hoc committee of the NAB is trying to determine under what circumstances the FCC would expedite approval of this concept before the commission issues final IBOC rules. Radio World will have more on this topic in the next issue. 

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- Alan R. Peterson, *Radio World*, March 2003



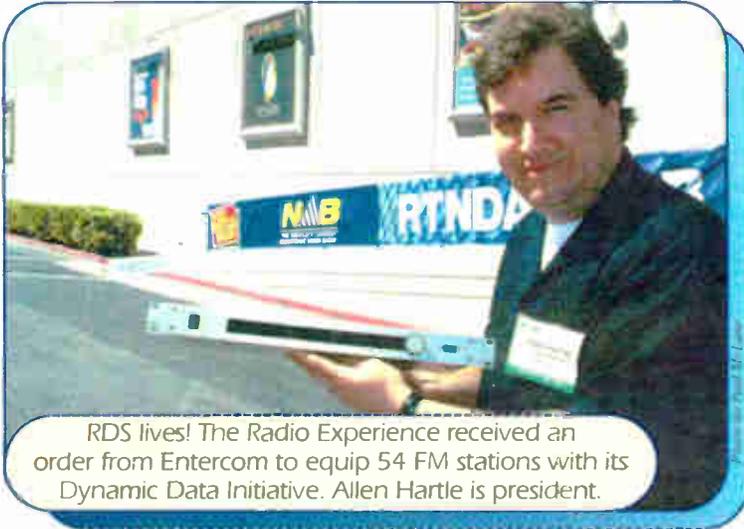
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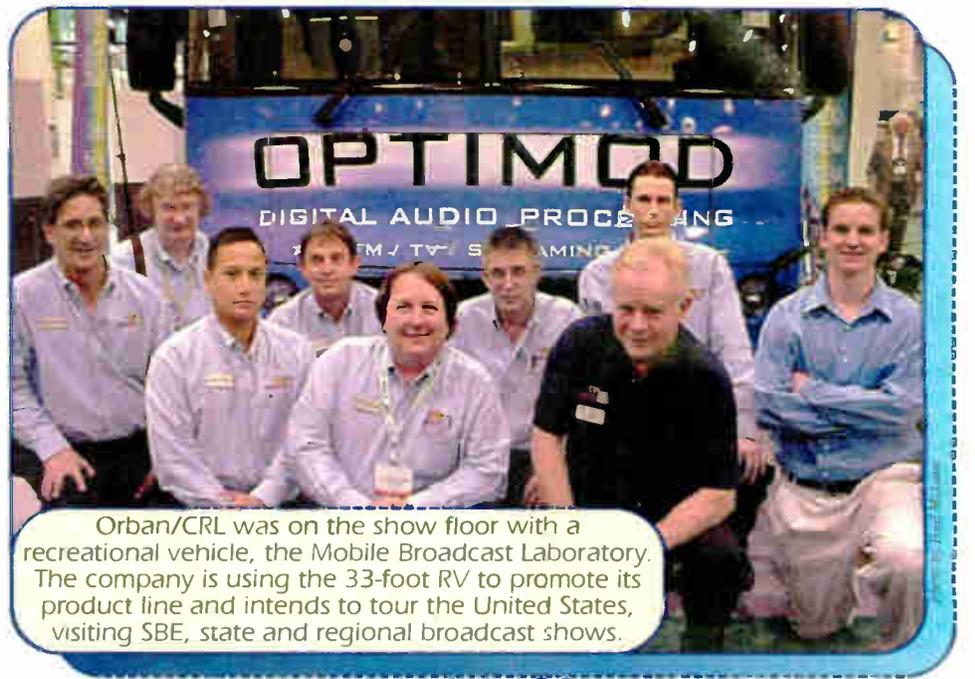
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NAB...

...A WALK AROUND



RDS lives! The Radio Experience received an order from Entercom to equip 54 FM stations with its Dynamic Data Initiative. Allen Hartle is president.



Orban/CRL was on the show floor with a recreational vehicle, the Mobile Broadcast Laboratory. The company is using the 33-foot RV to promote its product line and intends to tour the United States, visiting SBE, state and regional broadcast shows.



Clear Channel regional engineers give the thumbs-up after an all-day seminar. Several radio groups held engineering meetings during the convention.



Doug Ross works the PSI booth.

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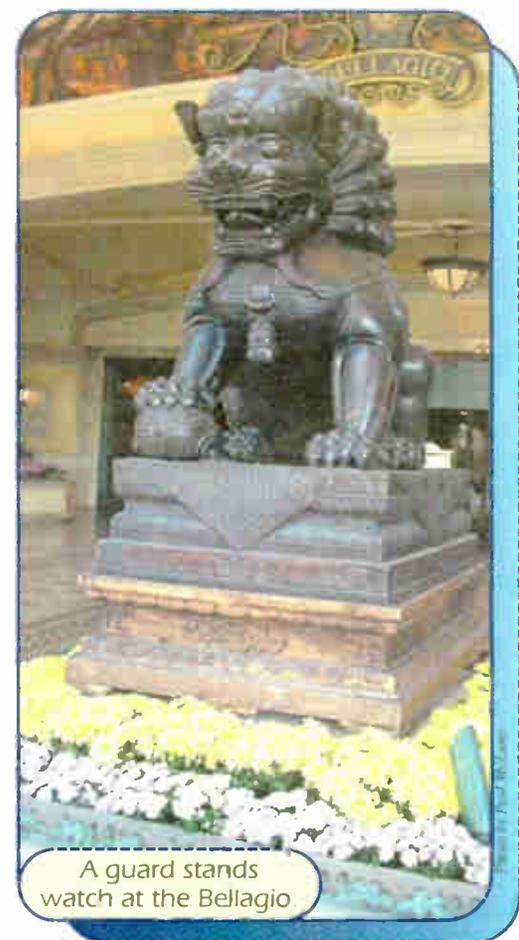
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A guard stands watch at the Bellagio.



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Easier and lower cost Xport's ISDN option lets you use it as a universal field codec.

Better sounding Xport's aacPlus is the finest low-bitrate codec on Earth – and Xport is the only POTS codec to have it. You'll be stunned at how good an analog line can sound.

Now, your POTS and ISDN remotes are more reliable, better sounding, easier, and cost less.

Today, Zephyr Xport and Xstream are *The Best Way to Hear from Anywhere.*

More reliable Zephyr Xstream's pure-digital ISDN connection on the studio side eliminates a lot of the analog line problems that can make a modem unstable. An Xport call is converted to digital by the nearest Telco central office, and continues through the network to your studio in digital form. Working as a tightly integrated system, Xport and Xstream extract maximum performance and reliability from real-world Telco lines.

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World Radio History

NAB...

...A WALK AROUND



Zoomeister Scott Shannon, center, was inducted into the NAB Broadcasting Hall of Fame. Eddie Fritts and David Kennedy serve as sidekicks.



Gary Kline of Cumulus hears about the wireless GSM module for the Matrix from Comrex's Tom Hartnett.



Friends and colleagues of the late Scott Beeler raised \$22,000 for Beeler's family in a benefit golf outing. Shown are ERI's Marty Sacks, Jim Thomason, Max Brown and Terry Becht.

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SCOTT BEELER Annual Memorial Golf Tournament Las Vegas, Nevada

A Golf Benefit, And a New Beeler, Are Born

Organizers hope to make the Scott Beeler Memorial Golf Tournament an annual event.

They raised at least \$22,240 for the family of the late broadcast equipment executive, who died last fall.

The money was raised through the participation of 60 players in a golf outing in Las Vegas prior to the NAB convention in Las Vegas (see photo above). Brian McConnell of Sierra Automation Systems, who helped coordinate, called it a "big success."

The winning group was led by Beeler's stepfather Tom Stout and included members of the extended Beeler family. Andy Merriman, Andy Stout, Jim Higdon and Doug Tharp were among the winners.

Separately, McConnell said, Beeler's widow Kim gave birth to Scott Allen Beeler Jr. recently. "Mother and child are doing fine and are back home," he said.

WIRED FOR SOUND

Voice Over Wire: Imagine That

by Steve Lampen

Come gather 'round, little ones, as Old Mr. Steve blathers on about the history of wire. We left off in the April 7 issue just as the telephone was being invented.

On June 25, 1876, Emperor Dom Pedro of Brazil listened to the receiver of an early telephone at the Philadelphia Centennial Exposition. "My word! It talks!" he exclaimed.

But you had to alternately talk and listen to the same device, a difficult task. Eventually, by 1878, Bell provided an identical device to both talk and listen. Also into this fray entered Thomas Alva Edison (1847-1931), one of the most prolific inventors ever, with 1,082 patents at the time of his death.

'The telephone has too many shortcomings to be seriously considered as a means of communication.'

— Western Union memo, 1876

Bell had invented the moving coil "earpiece," while Edison had invented the carbon microphone. Each tried to reinvent the other half until they realized that they needed to join forces. In 1886 they did so. Francis Blake Jr. (1850-1913) added an improvement in the carbon microphone and the modern telephone was born.

A wall-box was the first telephone produced by Western Electric and set the style for telephones for the next 50 years, with an adjustable mouthpiece and the "salt shaker" earpiece.

Meanwhile, in England, the Post Office, which was in charge of all "communications," got wind of this new-fangled invention. William Preece, head of the Post Office, was called before Parliament and questioned about this new invention. He is reported to have said, "The Americans have need of the telephone because of the great distances between cities. We British, however, have plenty of messenger boys."

A Western Union memo of the same period was equally unflattering: "The telephone has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us."

In 1877, Bell married and went on an extended honeymoon, leaving his assistant, Thomas Watson (1854-1912), to continue work on the telephone. He developed a reproduction device in 1882

that used a balanced armature moved by an electromagnet, the same mechanism used for early speaker designs a quarter-century later.

Now here, boys and girls, I run into an interesting sidelight of history. I have been told that Eli Whitney, inventor of the cotton gin and of modern manufacturing (where pieces are made to be interchangeable), also invented a machine to weave cotton around a bare wire.

The fact that this machine was invented is without doubt. And the timing (in the 1870s) would have been about the right time. But not even the Eli Whitney Museum could corroborate

this story. So if you, dear reader, know who invented the fabric wire braider, I would love to hear.

Something afoot

These machines still exist, and every manufacturer who makes wire and cable has dozens, even thousands, of them. Their original design was to make ... shoelaces!

A bare wire run through the machine was covered with cotton. Fancier insulated wire was covered with silk, which made a tighter, stronger covering and was the insulated wire of choice well into the next century.

You may recall that silk-covered wire was the choice of Joseph Henry, when he made the first true inductors in 1830.

By 1883, Horace Lamb (1849-1934) and Oliver Heaviside (1850-1925) noted that, as frequencies or "oscillations" increase on a wire, the signal tends to move to the surface of the wire. The concept of skin effect was born.

By 1888, Heinrich Hertz (1857-1894) showed that the propagation of signals down wires moved at the same speed as signals through air. These signals through the air he described as "electromagnetic radiation." He also showed that signals though air can best be received when the receiving circuit is "resonant" with the originating circuit.

What other miracles could he have discovered if he had not died of blood

See LAMPEN, page 16 ▶



Up to...

Stepping

Many have realized the benefits of going HD Radio with BE, as orders for new equipment and system designs have poured in since last year. Entercom, Clear Channel, Greater Media, Crawford Broadcasting, Beasley Broadcast Group, WJLD-AM (first non-experimental AM station to broadcast HD Radio), and many more have chosen BE to help them prepare for the future—the HD Radio future.

"This is the future of AM radio, so this is definitely money well spent."

— Gary Richardson, Owner and Chief Engineer
WJLD-AM - First non-experimental AM station to broadcast HD Radio

"We're excited about the impact of HD on the future of Radio. BE's solutions have the flexibility to make our implementations easy and cost-effective."

— Bob Demuth, Vice President and Chief Technology Officer
Beasley Broadcast Group, Inc.

Broadcast Electronics was there at the beginning, the birth of HD Radio. And now we're leading the pack in implementation and design of real HD Radio systems for the real world of broadcasting.

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Lampen

► Continued from page 15 poisoning at the age of 37?

The unit of frequency, the Hertz, was named for him. If you remember "cycles per second," consider yourself a geezer.

We are, of course, set for wireless transmission of all sorts. As this is the story of wire and cable, we will try valiantly to ignore all that "wireless" stuff.

Many of today's common wire configurations came about due to research, and some luck, in the 1880s and '90s.

When telephones were attached to telegraph systems, in which one wire was on a pole and the other conductor was "ground," the noise on the phone was unbearable. Modern engineers (that's you, dear reader) often wondered where this noise came from. There was no

radio, no television, almost no man-made sources of electrical noise.

A clue came when someone noticed that the noise dropped at night. Yes, the source of noise was the sun! But how could one get rid of that?

Do the twist

This is where researchers for the Bell System, eventually to be called Bell Labs, started.

They noticed something curious: when the pair of wires used to run a telephone were twisted together, the noise went down. When the wires in a pair were untwisted, run in parallel or otherwise separated, the noise went up.

We can characterize this noise reduction as seen in the accompanying table, although the term "decibel" used here was not used until 1929, another chapter in our story.

As you can see twisting the wires *at all* makes a huge difference. More and

more twisting buys you less and less. From six per foot (lay length of 2 inches) to 12 per foot (lay length of 1 inch) gets you a measly 2 dB for all your work. More twists mean you use up more wire, so lots of twists can be expensive. Besides, how much noise rejection does a telephone need? 30 dB? So most of the phone cable was twisted by-guess and by-golly and worked just fine, giving 20-30 dB of noise rejection.

We'll revisit this subject, lay length or twists-per-inch, when twisted pairs come

back into play as data cables in the 1980s and '90s. Even now, more than a century later, our table still applies. And super-tight twisting of pairs does not result in the "best" twisted pairs. But we will save that for later.

Of course, this is only the beginning of twisted pairs. More amazing twists and turns lie ahead. Don't change that dial!

Steve Lampen's latest book, "The Audio-Video Cable Installers Pocket Guide" is published by McGraw-Hill. You can reach him at shlampen@aol.com.

Twists-Per-Inch Noise Rejection Improvement

Parallel	0 dB	-
3 per foot	23 dB	23 dB
4 per foot	37 dB	14 dB
6 per foot	41 dB	4 dB
12 per foot	43 dB	2 dB



NEWSWATCH

Reiser Salutes Fellow Engineers

The annual Technology Luncheon at NAB2003 honored contributions by two veterans of the Federal Communications Commission, and gave attendees some food for thought.

FCC veteran John Reiser received the NAB Engineering Award for Radio. He spoke with respect of the many engineering professionals with whom he has worked, regaling his audience with examples of "the inventiveness and endurance to keep signals radiating." He marveled at the collective skill and know-how developed by radio engineers and said those skills help keep the system going.

He paid tribute to engineering legends and consultants, including Radio World contributors John Bisset and Harold Hallikainen, and said that in his "sincerest humble opinion, (engineers) are the broadcast industry's real talent."

Reiser, who retired in 2000 as a senior broadcast engineer with the FCC's International Bureau, was with the commission for 39 years. He was involved in the standardization of the FCC program for broadcast station inspections in the 1970s, a notable revision of the broadcast rules and regulations and the reorganization of the Broadcast Bureau into what is now the Media Bureau.

He was U.S. chairman of technical study groups on broadcasting that participate in the standards and conference preparatory work of the International Telecommunications Union; and he represented the United States at numerous international broadcast meetings.

The NAB's Engineering Award for Television was given to Robert P. Eckert, instrumental in the FCC's assignment of

digital television channel assignments.

Also at the luncheon, futurist George Gilder gave a talk called "From Telecosm to Telechasm." He examined communications models and asserted that industry is well past the Television Age and now even the Age of Computers.

Gilder said the TV Age was characterized by a "top-down solution for a peer-to-peer world." He suggested that the Computer Age was characterized by a scarcity of bandwidth. His description of the state of streaming video: "a dribble-cast."

Gilder says society now is deep into a Communications Era, characterized by ample information but a scarcity of time.

Gilder suggested that optical networks will become the systems of the future as robust fiber-optic networks become more prevalent. He discussed the concept of "span of life" and proposed changes to widely used advertising models. He said advertisers who are considerate of the customer's time and craft ads that contribute value will win the hearts and minds of customers. The consumer "won't watch ads he doesn't want to see."

In his model, power devolves to the customer, rather than the organization, which currently treats the customer as an externality and does not take into account the value of that customer's time.

Gilder suggested that "content and conduit have to separate," invoking the examples of AOL and other media companies in trouble. "Profits will migrate (to those who provide) the missing element in the system," he said.

— Paul Kaminski

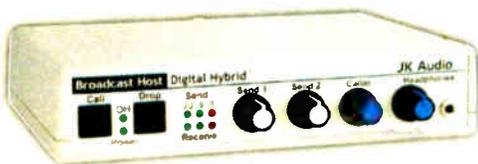
The Perfect Hybrid

JK Audio's Got A Digital Hybrid With Features Just Right For Your Job – Whatever Your Job Is!

Over the years, we've heard many ideas of what the "perfect hybrid" might be. We've learned that the "perfect hybrid" is actually different things to different people, depending on its use. The good news is that it really comes down to a handful of features, combined in ways that make a lot of sense. We're happy to introduce a series of digital hybrids that hit the nails on the heads, making them perfect for their respective jobs. Check them out and let us know what you think.



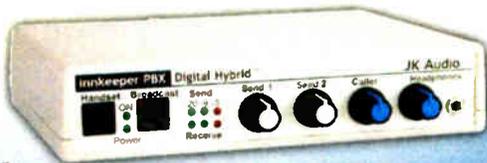
INNKEEPER 4 squeezes four independent digital hybrids in a 1U rack space. The front panel keypad, display, and handset jacks provide easy speed dialing and call setup. Maintain excellent separation between your voice and the caller. XLR output jacks contain only the caller's voice. Available July 2003



BROADCAST HOST turns your desktop into a professional broadcast center. Everything you need to get talk show quality phone recordings into your mixer or sound card. Send mic and line level signals into the phone line while maintaining excellent separation between your voice and the caller. Available June 2003.



INNKEEPER PBX easily converts your multi-line PBX type telephone system into a professional, affordable talk show console. Simply connect between your telephone handset and the phone base. So simple, anyone can do it. Winner of Radio World's 2003 Cool Stuff Award. Available June 2003.



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World Radio History

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Slow Growth for Streaming to Stereos

by James Careless

Where have all the Internet radios gone?

An "Internet radio receiver" captures streaming audio from the Web, then plays it through some kind of radio-type device. Before the dot-com crash, they were the next big thing on the horizon.

After all, thousands of commercial and Internet-only stations were on the Web and more were signing on every day. With this music selection online, why would anyone endure over-the-air top 40 radio?

That was then, and this is now. The survivors of the dot-com blowout are a little wiser (we hope), a little (or a lot)

poorer and leery of anything with an "e-" or "i-" prefix attached to it.

Among the demised is the Kerbango Internet Radio. Styled to look like a modernized AM/FM radio receiver, the Kerbango was able to receive these bands plus plug into the Web to access RealAudio stations and MP3s. It came close to making it to market, with demo versions winning awards from the 2001 Consumer Electronics Show and Popular Mechanics magazine.

Kerbango fell victim to the financial ills of 3Com, however, which bought the Internet radio startup for \$80 million in 2000.

A few months later the dot-com bomb blew up, and 3Com found itself in a bru-

tal fight for survival. As a result, the company axed "non-core businesses," including Kerbango.

Today, www.kerbango.com no longer hosts pictures of the cheery blue Kerbango prototype. Instead, the site presents a 3Com logo, a lone tree in a golden field topped by a blue sky and the words "End of Life."

Get iRhythm

The other Great Hope of Internet Radio was the Sonicbox from iM Networks.

Fortunately, this technology survived the dot-com crash. Now billed as the iRhythm Remote Tuner, the technology is included in consumer equipment made

by Philips and Creative Technology.

An iM Networks' Internet radio does not scan the entire Web for audio streams. Instead, the company collects the best feeds, categorizes them by genre and makes them available free of charge at its Web site, www.imnetworks.com.

Once connected to the Web, the iM Networks receiver contacts the site, and a list of genres/stations is displayed on the receiver's LCD screen — this is the so-called "iM Band" — and selections are made using controls onboard the receiver.

Philips first incorporated iM Band tuning in its FW-i1000 mini-stereo, which was billed as offering "world-wide Internet Radio!" Next, iM Tuning was added to the Streamium MC-i200 mini-stereo with the slogan "Don't Dream It. Stream It."

In both cases, the iM Band is just one of many features included in the mini-stereos, along with the ability to download and play MP3s from a personal computer, CD/CR-R/CR-RW playback and, of course, AM/FM radio reception.

iM Radio Internet Tuner software also can be found in SoundBlaster Audigy computer soundcards from Creative Technology.

The Kerbango and Wave/PC are gone, but the nascent market for Internet radio receivers did not die with them.

Creative has built an external SoundBlaster device known as the Extigy. Resembling a conventional AM/FM tuner, the Extigy bridges the gap from a PC to headphones and/or speakers. It also can support CD, DVD and MP3 players, making the Extigy the 21st century heart of a conventional home entertainment system.

Finally, Panasonic has licensed iM Radio tuning for its planned Broadband Set Top Box, and the Acer iRhythm Remote Tuner — the renamed Sonicbox — remains available through www.imnetworks.com.

Other options

A few other options for an Internet radio receiver are on the market or will be soon.

The Simple Devices SimpleStereo unit essentially is a wireless bridge between a PC and home stereo unit, but its ability to transmit streaming audio from the Web makes it a de facto Internet radio. This unit is being sold as the Motorola SimpleFi.

British Telecom is pumping up demand for its broadband services by releasing a portable broadband radio. This walk-around device will let BT broadband subscribers access Internet radio stations anywhere in the house. Details are sketchy at press time; however, it appears that this radio will work as an extension of BT's home wireless networking product, which is also being sold along with broadband.

See STREAMING, page 22 ▶



THE POWER PORTABLE

Only PORTADISC has the strength, sound quality and features necessary for the most demanding portable recording applications.

USB Connectivity

PORTADISC is the only MD portable with a USB interface for transferring audio to and from computers. So a PORTADISC and a laptop with the appropriate software is all you need to record and edit finished pieces in the field.

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The PORTADISC portable MiniDisc recorder combines exceptional sound quality, a rugged, dependable MD drive and a full complement of professional features including a 6 second pre-record buffer, 40 second memory buffer and lockable controls. Comprehensive connectivity includes balanced

XLR Mic/Line inputs, RCA/phono line outputs and coaxial and optical digital I/Os. An On-board sample rate converter is included and Mic inputs feature switchable attenuation, bass roll-off, limiter and 48V phantom power.

An intuitive menu structure makes it easy to configure the PORTADISC for your precise requirements. There are five user programmable set ups so you can switch quickly for different recording applications. The large illuminated display also provides clear metering, margin indication and track, time and battery information while working in the field.

Comprehensive Connectivity

5 User Set-Ups

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Workbench

Radio World, May 7, 2003

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

A Cheap Cable Reel Holder

by John Bisset

Our recent stories about technically challenged operators generated a number of replies recounting similar episodes. Here are a few.

We'll start with a good example of how stress management and anger control are vital to the health of an engineer.

What had been playing on the air before the power bump? A record. Was the turntable still going around? The DJ replied, "No."

Calmly, the engineer stated that if the jock would hit the start button again, all would be well. The jock hit the button and indeed everything was dandy.

This is where self-control and anger management allowed him to hang up the

deck. I can hear it in cue, but when I put it up, it's not there."

Dick asked what buttons were selected on the Tape module on the console. The operator replied, "Input A and Program." Dick asked if anything else was selected, and the operator replied, "No, nothing."

"What about the button that says 'ON'?" Dick asked.

the Relay Thing mounted on a Krone block. After some experimentation, Norm found that not only do the relays fit better on the Krone, but the isolation and resistance specs are much better than the standard 66 block.

It appears that the Krone blocks are coming more and more into use for audio. Their data applications are a given. Furthermore, the cost of two blocks is close enough that the Relay Thing can be offered on either block for the same price.

A minor drawback is that a special tool is required to punch down on these blocks



Fig. 1: This collapsible cable reel stand was made at home by Aaron Winski.



Fig. 2: The stand will hold a reel of 20 inches wide.



Fig. 3: The sides are made of 1-inch square tubing, welded to form a T.

This true story comes from about 1980. The station was designed with a window between studio and transmitter and featured those new high-dollar Technics turntables with the digital control.

The chief engineer's telephone rang about 3 a.m. The rookie disk jockey announced that the station was off the air.

Knowing that a good engineer never puts on clothes until he has asked for further information, the chief asked. So the DJ explained further: "There was a power bump and the meters on the transmitter look normal, but nothing is going over the air."

The chief asked whether the meters on the control board were moving; the DJ said no.

phone without swearing and get back to sleep — until the jock called the chief back 20 minutes later to apologize for waking him up for such a stupid problem.

So much for sleep. By the time the sun came up, the chief had rebuilt a Marti and gone through several cups of coffee.

Dick Parrish is a market chief for Clear Channel in Fort Myers, Fla. He was awakened early one Sunday morning with a frantic call.

"Hey, Man," the DJ said, "I've got the public affairs program rolling on the tape

"Yeah, Man, that's it!"

Dick says this call makes the top spot on his "Forrest Gump" list.

We featured Norm Laramie's Relay Thing in the March 15 *Workbench*. The device is a series of 14 DPDT relays wired to a standard 66-style punchblock.

The concept permits wiring specialty relay circuits without boxes, on your wall or 66 blocks in your wiring closet or rack room. Norm writes that in addition to providing relays connected to a Siemens 66-style punchblock, he now offers an option,

properly. But if you're already using these blocks for your audio termination, you'll have the tool. For more information, e-mail support@diproservices.com.

Have you seen those portable cable spool holders for paying out reels of cable? You may have used one, or fabricated one using all-thread or even a broom handle across two boxes.

A friend of Aaron Winski of WPW Broadcasting owns an auto body shop. The friend has been giving Aaron lessons

See WORKBENCH, page 20 ▶

Digitally Diverse Omega_FM - \$5880

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COMPREHENSIVE PROCESSING FOR FM, WITH AN INDEPENDENT AES/EBU OUTPUT THAT CAN FEED A DAB EXCITER AT THE SAME TIME.

Omega_FM is a 100%-digital, software-based design. New Rev2 software offers a built-in scheduler for dayparting, plus advanced AGC logic, a fourth section of parametric EQ, harmonic bass enhancement and composite output filtering.

While Omega_FM's composite/MPX output feeds your existing FM exciter, the fully independent AES/EBU digital output can be configured for flat, 20kHz response with programmable delay. This allows a single processing chain to impart a common 'sonic signature' to simultaneous FM and DAB transmissions. The inherent audio quality limitations of FM (15kHz cutoff, plus pre-emphasis and its attendant 'protection' limiting) will not compromise the digital broadcast.

Despite its modest price, Omega_FM challenges the versatility and performance of any processor on the market. Even if you are delighted with what you're using now, see your preferred equipment supplier for a comparison demo at your station.

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Hear It...

Processing doesn't get any better than this.

World Radio History

Workbench

► Continued from page 19 on the use of a mig welder.

For his first project, Aaron built a collapsible cable reel stand. The stand will hold up to a 20-inch wide reel, 24-inches in diameter.

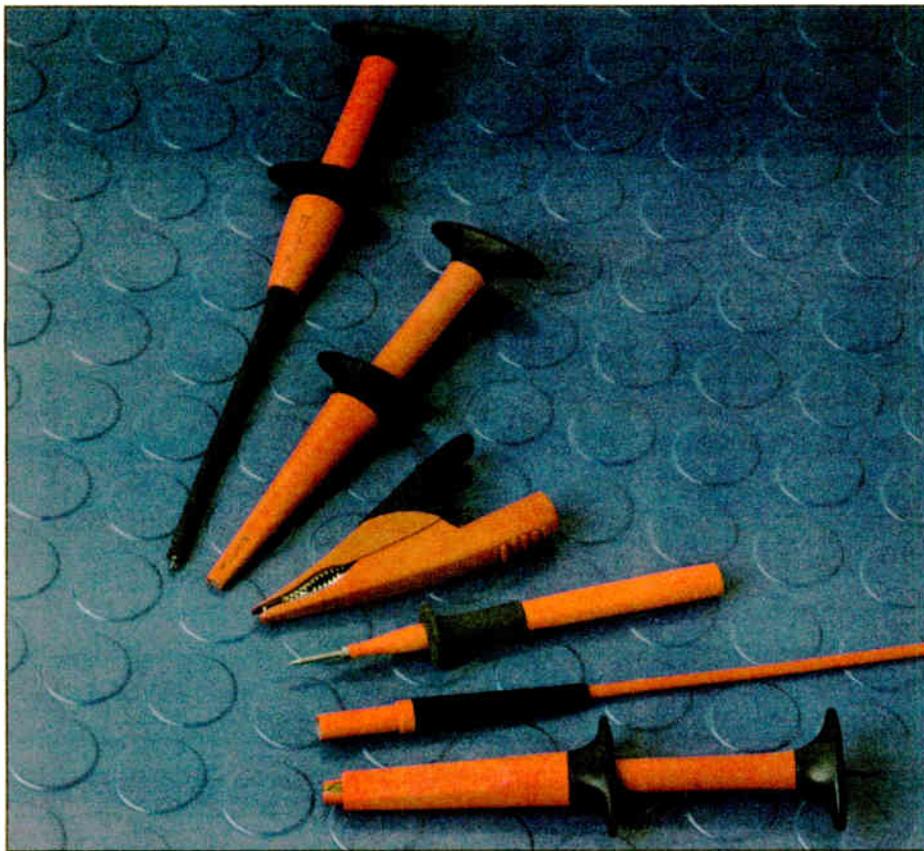
The sides are made of 1-inch square tubing, welded to form a "T," measuring 20 by 13 inches. On one side, there is a 1/2-inch by 13 nut welded onto the top inside. On the other side are two 1/2-inch holes for the connecting rod to pass through.

minum tube is slipped over the ready-rod, and then inserted into the leg of the T-brace, and screwed into the 1/2-inch nut for convenient transport.

The cost of materials is negligible. Except for the nuts and threaded rod, all the parts were metal scrap. Aaron is willing to answer questions on the project by e-mail at wpwrengineer@yahoo.com.

★ ★ ★

Fluke Corp. is out with a line of test equipment accessories to improve gripping ability and reduce the chance of probes slipping from a hand or off the component.



SureGrip accessories improve grip and reduce the chance of probes slipping.

The rod is 1/2-inch x 13 ready-rod, about 21 inches long, with a 5-inch bolt welded to the end, to form a "T" handle. In assembling the spool holder, one can slide the rod through the one side, then put a 19-inch piece of 1/2-inch aluminum tubing over the ready-rod, and screw it into the opposite side.

The aluminum sleeve helps the reel spin more freely and prevents the threaded rod from damaging the wooden cable core.

After use, everything can be unscrewed. On the end of one of the "T" braces, Aaron has welded another 1/2-inch nut inside the square tubing. The alu-

The SureGrip line includes clips and test leads with rubber over-molded surfaces and "finger-hugging curves." Call the company in Washington state at (888) 492-7542 or visit www.fluke.com.

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

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

Antenna Consortium Refocuses

The National Antenna Consortium is trying to reenergize and focus its efforts on core issues: promoting national, uniform and equitable antenna and tower regulation.

Participants met at the NAB convention in April to strengthen an organization its founders say is even more important now that digital television has rolled out, noting that a number of stations have been unable to launch digital due to delays over tower buildouts.

In light of homeland security issues, the organization also pointed to the importance of establishing a secure national communications infrastructure.

Incorporated as a nonprofit corporation in 2001, the NAC was formed as a response to increased local and state regulations and prohibitions on tower sitings.

"The difficulties of not having a national antenna policy is that you have inconsistent, irrational standards," said Barry Umansky, member of NAC. This in turn makes it more difficult for antenna and towers to be approved and built.

Antenna and tower use is a national issue, the organization said, and a national policy is necessary to provide for reasonable accommodation of antennas and towers.

"Without a ubiquitous tower service, we won't be able to provide the kind of services that this industry needs," said Jerry Agliata, executive director of NAC.

— by Susan Ashworth



Fred Baumgartner enjoys a laugh with attendees during NAB2003. The director of engineering for Comcast Media Center co-chaired the SBE Ennes Workshop.



Continental Electronics Broadcast Channel Manager Dave Hultsman, center right, was recognized for taking part in his 40th NAB convention. NAB's Chris Brown, center left, presented him with a plaque.

Simple level setup . . . for a switch.

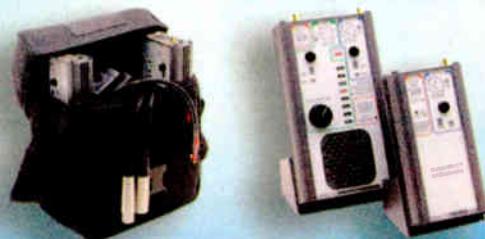
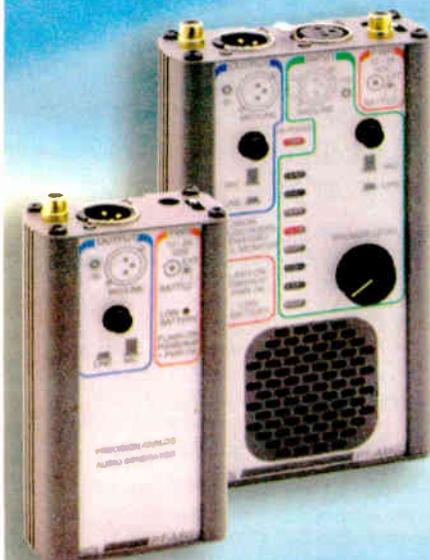
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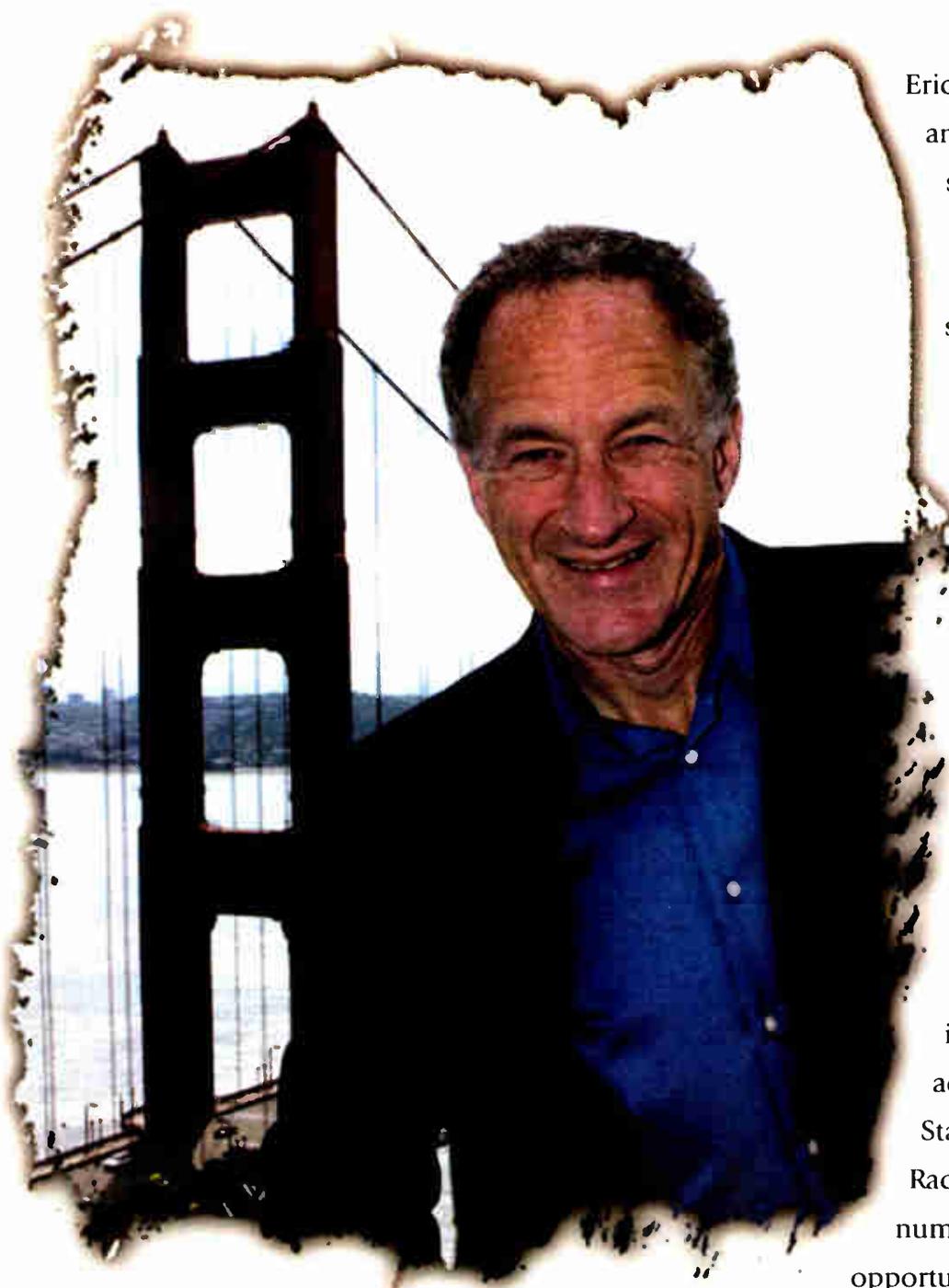
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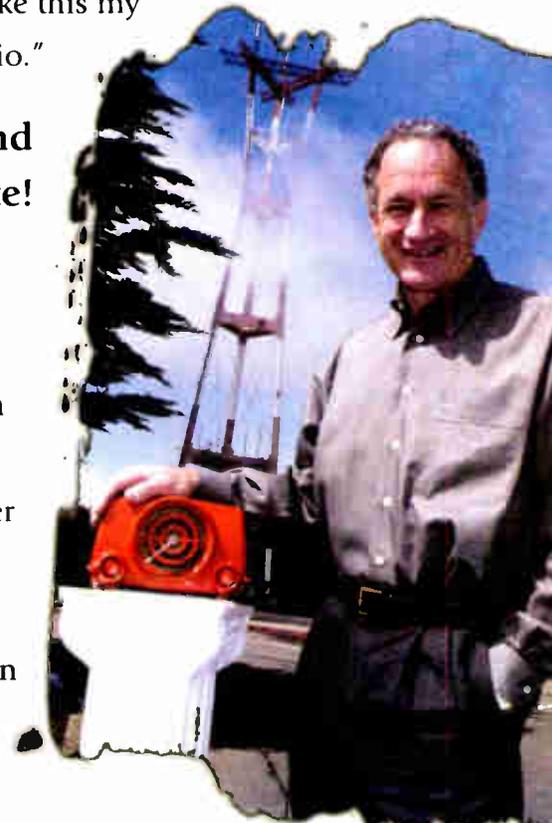
Erick Steinberg's job is challenging, demanding, and requires a very hectic work pace. It's something he describes as "hard fun." "Radio is show biz," he says. "It should be fun!" Of course, it also helps that he's surrounded by people who share his passion for the industry.

"We're all career broadcasters around here, and I enjoy working for a company that is run by broadcasters," Erick says. "Their commitment to technical excellence and training at all levels is unbelievable!"

When he first arrived at Susquehanna Radio, Erick says, "I felt right at home." Now, six years later he adds, "Susquehanna is just the right size. My work friends are here, my work family is here. I intend to make this my last stop in radio."

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With operations in major markets across the United States, Susquehanna Radio Corp. offers a number of radio career opportunities. For more information, visit our website or call our Human Resources Department at (717) 852-2132.



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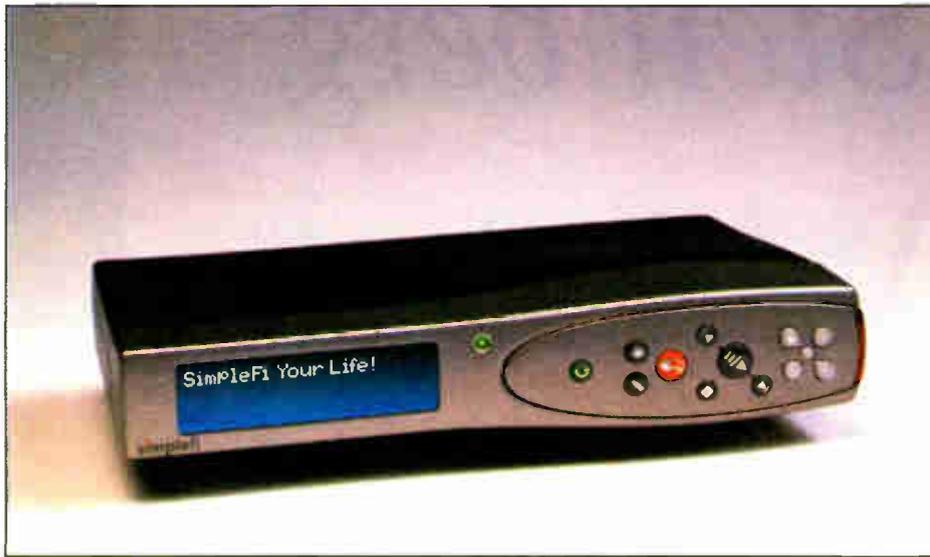
Streaming

► Continued from page 18

Penguin Radio continues to say that it will be producing a Linux-based Internet radio someday.

And although Bose continues to support its Wave/PC Interactive Audio System — a version of the Bose Wave radio that also connects to the Web — the Wave/PC was discontinued by the company last year.

So the Kerbango and Wave/PC are long gone, but the nascent market for Internet



The Motorola SimpleFi

"We'd love to have released this to you about a year ago, but our goal has always been to build the best quality device that is functionally a computer, but works like a radio," the company's Web site stated. "Adding this level of functionality to a small device is tricky." Apparently so.

radio receivers did not die with them.

Granted, this method of tuning webcasters has not developed nearly as fast as many expected. However, thanks to the ongoing efforts of iM Networks and others, it has at least arrived in the consumer marketplace. 🗣️

Kahn Pushes New AM Digital Technology

Leonard Kahn says he has developed a new technology that will restore AM to 15 kHz stereo fidelity by using digital processing.

"The system, Compatible AM Digital (Cam-D), unlike the pending proposal now before the FCC, will not increase adjacent or co-channel interference," he said in a statement. The "pending proposal" refers to IBOC.

Kahn, familiar to the industry from his advocacy of AM stereo, said Cam-D could operate day or night and "provide improved fading performance over vast distances at night." The system is backward-compatible with existing receivers as well as new "digitally-enhanced receivers."

Some midwestern stations, ranging from a 500-watt AM daytimer to 50 kW AMs with directional antennas, have agreed to test the system to prove that stations using the technology would not interfere with their neighbor's signals, Kahn stated.

The system is based on a number of Kahn's patents. The scientist said the technology would perform with a station's existing transmitter and antenna.

He has not withdrawn his Petition for Rule Making filed at the FCC asking the agency to stay its order authorizing IBOC in interim operations (RW, April 23, page 12). Kahn has amended the petition and asked the FCC to evaluate and compare his system to Ibiquity's.

Engineers queried about the system said the description was vague and lacked technical details. Several commented that, throughout the terrestrial digital radio rule making, the NRSC and FCC solicited system proposals.

— Leslie Stimson

How to Submit Letters

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

Letters should be 100 to 300 words long; the shorter the letter, the better chance it will be published in full. We reserve the right to edit material for space. Longer commentaries are welcome but may not reach print as quickly.

Include your name, address and contact information, as well as your job title and company if appropriate.

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.

BROADCAST TOOLS® *new* "Rack-Ables"



The upgraded SS 2.1/Term III & BNC III switcher/routers are improved with new front panel switches. They may be used as a desktop device, and are equipped with mounting holes for wall mount installation or may be installed on the new RA-1 "Rack-Able" 1RU mounting shelf.

The new "Rack-Able" SS 4.1 III switcher replaces the popular SS 3.1 while adding a fourth stereo input channel and front panel control. We've kept the best of the SS 3.1 features and added a few more.

The new Silence Monitor III improves on the features of the original SSM, with front-panel control, removable screw terminals, "Plug & Play" installation, built-in program switcher, restore timing delay, aural alarm and relays for most remote functions. Now rackable!

The new SS 8.1 II switcher replaces the popular 6x1 with the addition of two more stereo input channels and GPI, while keeping the price the same! The SS 8.1 II may be desktop, wall mounted or installed on the new "Rack-Able" mounting shelf.

The new RA-1 (1-RU rack shelf) provides mounting for three tri-rack or two half-rack "Rack-Able" configured products. The RA-1 is pre-drilled for flush and recessed product mounting. The RA-1 is furnished with filler panels and mounting hardware.

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Soundcraft said Wisconsin Public Radio purchased an MH4 console for its comedy quiz show, "Michael Feldman's Whad' Ya Know?" The show is produced by WPR and distributed by Public Radio International. Full Compass Systems made the sale of the mixer. The MH4 is used at Monona Terrace Community and Convention Center, the show's base in Madison, Wis. It also travels with the show. ...

Spanish Broadcasting System and Crawford Broadcasting chose Broadcast Electronics gear to transition their first digital stations. SBS ordered BE's FMI 201 broadband transmitter and FXi 60 digital exciter with FSi 10 signal generator for Miami station WRMA(FM). Crawford Chicago station WPWX(FM) is slated to go on air with HD Radio using a BE FMI 703 transmitter and FXi 60 exciter with FSi 10 signal generator. Both systems use high-level combining and shared antenna configurations. ...

West Virginia Radio Corp. placed orders with Harris Corp. for digital radio

gear. It bought two Z8HDs HD Radio FM transmitters and two Dexstar AM/FM digital exciters for WVAF(FM) in Charleston and WVAQ(FM) in Morgantown.

Harris also announced several separate HD Radio deals. Among them: Beasley Broadcast Group purchased equipment for WHSR(AM) in West Palm Beach, Fla., and WWDB(AM) in Philadelphia. Each ordered a Harris Dexstar AM/FM HD Radio Exciter; Beasley also purchased a Harris DAX-5 kW transmitter for WHSR.

Harris announced a deal with Hispanic Broadcasting Corp. The \$725,000 contract will allow HBC to bring HD Radio to nine stations. Cox Radio's WEDR(FM) in Miami will convert to HD-R with a Harris Z24HD transmitter.

Harris also said it would supply HD gear for Clear Channel radio stations WVAZ(FM) and WNUA(FM) in Chicago and WSAI(AM) in Cincinnati. Also ordering Dexstar HD Radio exciters and/or Z-HD transmitters from Harris were several stations owned by Federated Media,

Cleveland Classical, James Crystal Holdings, Elyria-Lorain and Fenix Broadcasting.

now in two facilities. ...

The TCI International business unit of Dielectric Communications was awarded a



Designcraft built Premium custom furniture for WHMI(FM) in Howell, Mich.

Entercom Boston upgraded its Harris Intraplex STL Plus system at WQX-FM to HD Radio and purchased a wireless STL system for the group's five stations. Harris said it will supply 10 Clear Channel stations with FM analog transmitters including the HT-20 transmitter and Z-CD transmitters for various markets including Nashville, Tenn.; Roanoke, Va.; Columbus, Ohio; and Mobile, Ala.

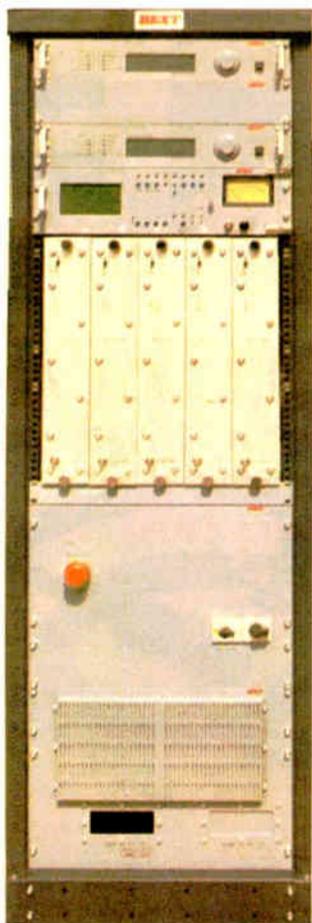
And on the studio side, Harris won a contract to supply studio gear, including five AirWave Digital on-air consoles and studio furniture, for a Clear Channel facility in Sarasota, Fla., that will house six stations

subcontract by Harris for the supply of medium-wave radio equipment and services. The subcontract supports Harris in a three-year program to upgrade and expand the medium- and long-wave broadcasting facilities of the Societata Nationala de Radiocomunicatii, the state-owned Romanian broadcast organization. The TCI contract is valued at \$3.5 million.

Also, Dielectric was chosen by Hunt Media Group to build a 2,000-foot radio tower and FM antenna systems in Sterling, Colo. It will accommodate KLES(FM), KBRU(FM) and emergency and cellular

See WBW, page 26

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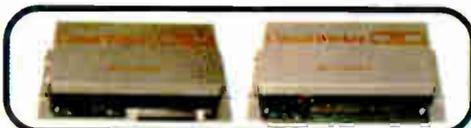
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A=AES/EBU S=SPDIF

WBW

► Continued from page 24
antennas for the Denver area. ...

CNBC bought 18 Telos Systems ONE+One dual telephone hybrids from Dale Pro Audio. Separately, Wisdom Media Group in West Virginia ordered a Telos TWOx12 Talkshow System for studios for the Wisdom Radio Network. NPR purchased five Zephyr Xstream ISDN Transceivers; Bonneville's WDRV(FM) in Chicago ordered an Xstream. TWOx12 Multi-Line Talkshow Systems came from Emmis station KZLA(FM) in Burbank and from Sony for NYNet's Empire State Plaza studios, slated to open in May.

And Clear Channel bought a Telos Series 2101 Multi-Studio Talkshow System for its

seven-station cluster in Chicago. ...

APT signed a licensing agreement with UK manufacturer Systembase, allowing the company to use APT's data compression algorithm, apt-X, in its audio codecs.

Separately, APT won an order from Sonifex Ltd. to supply 70 ICD128 PCBs to fulfill a contract for the AA in the United Kingdom for its Roadwatch traffic news service to the GWR Group of radio stations. ...

Greater Media's WPEN(AM) in Bala Cynwyd, Pa., purchased 12 Audion Laboratories VoxPro PC software/control panel bundles plus VoxPro PC Network software from Broadcast Supply Worldwide. Separately, Taping for the Blind in Houston bought 15 VoxPro PC bundles plus network software from Broadcast Electronics. ...

Thales Broadcast & Multimedia was selected to provide 13 more shortwave transmitters and a rotatable antenna broadcasting



Radio Systems provided StudioHub+ wiring for the Motor Racing Network's remote broadcast vehicle.

Tieline POTS Codec upstages ISDN at Grammys!

John Garabedian uses i-Mix at the Grammys

The Open House Party entrusted Tieline POTS Codec Technology to deliver the Grammys LIVE to 160 stations across the USA.

Reed Lewis, VP of Technology for "The Open House Party" had this to say about Tieline: "The Tieline connected over an analog line for seven hours straight over notoriously bad New York phone lines with a rock-solid connection. Audio was definitely broadcast quality, and 'blew us all away'. We didn't have to use an ISDN line! Tieline delivered studio-quality audio over a plain telephone line".

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system to China. The company said the Administrative Bureau of Radio Stations and China Radio and TV Co. issued the contract. ...

Hispanic Broadcasting purchased seven Neumann TLM 103 microphones for KSOL/KSQL and KEMR in San Francisco as part of a studio upgrade. Separately, Dale Pro Audio provided four Neumann U 87 mics to WBGO(FM) in Newark, N.J. ...

Minnesota Public Radio is using microphone pre-amps from Great River Electronics to replicate audio characteristics of its former Neve 1073 consoles. The supplier said MPR is using new Great River MP-2NV pre-amps. ...

Designcraft finished two projects involving its Premium custom furniture. WHMI(FM) in Howell, Mich., is owned by the Livingston Radio Co. The new facility includes four studios and features an ENCO Systems digital audio system. A 12-person conference table and reception desk were part of the contract for Designcraft. The company also finished a project for ABC station WJRT(TV) in Flint, Mich. ...

Several Canadian broadcasters ordered R2K consoles from Ward-Beck Systems including CHUM, Corus, Rogers, Standard and New Cap. ...

Wicks Broadcast Solutions contracted with eMediaTrade as its direct EDI interface with ad agencies and media buyers using systems such as Adware, DataTech, Donovan Data Systems, Strata, and MRP SmartPlus. ...

Entercom signed Creative Studio Solutions to build and install a suite of broadcast studios at a new facility at The Denver Technology Center in Denver. Entercom operates four stations there. The deal is for 12 studios. Wheatstone products will be used, as well as Stardraw Radio documentation software. ...

Burk Technology won a contract to supply 200 of its GSC3000 transmitter remote control units to the U.S. Coast Guard. The systems will be used to monitor and control solid-state Long Range Navigation (LORAN) transmitter facilities, which provide position information for mariners and aviators. ...

Radio Systems provided StudioHub+ wiring for Motor Racing Network's 53-foot, double slide-out/double deck remote broadcast facility. Equipped with three digital studios, the mobile facility will begin service this May, providing race coverage to MRN's affiliate network. ...

Newsroom software provider Burli Software Inc. in Canada has landed a prominent U.S. user, Infinity station KRLD(AM), NewsRadio 1080 in Dallas. The supplier said KRLD NewsRadio 1080 is using Burli for its schedule of news programming to gather, produce and broadcast the news in a digital newsroom. 

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Introducing NexGen II Studio Suite, the perfect solution in a box!



"In today's economy, we all have to stretch our dollars and our time. Large, complex solutions are too costly and too time consuming for the realities of modern radio. But everyone still needs all the features and redundancy possible, because off-air is simply not an option. NexGen II Studio Suite is all about convenience, and getting the most for your money."

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President of Prophet Systems

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Ryan Olsen, like all BSW Sales Associates, has an extensive and diverse background in pro audio. He started his career working in radio production and most recently focused on streaming media production.

He holds degrees in Audio Engineering and Audio Production Aesthetics, so

he knows his stuff. And he's worked on both sides of the mic, so he understands the real-world needs of broadcast professionals. Let Ryan put his expertise to work to help you find the perfect audio solution for any situation.

Along with Shannon, Tom, John Lynch, John McDonald, Laz, Paul, Ric, Gary and Steve, Ryan is another reason why Broadcast Supply Worldwide really *is* your best source for professional audio — our friendly folks really DO know their stuff. Whether you need a pop filter or a whole new studio full of gear, call our experts today and we know you'll agree.

Nothing is finer than the ocean breeze and the malodorous smell of diesel from the BSW yacht. Actually, we don't have the boat yet, just this picture of one, but if everyone could order a bunch of stuff right now we could pick one up cheap from one of the failed dot-coms around here.



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Right now, buy two VoxPro PC software/controller bundles, and get VoxPro PC Network software for only \$99.00 - a savings of almost \$600.00! VoxPro PC Network links two or more VoxPro PC workstations using Novell, NT or peer-to-peer networks.

This is a limited time offer exclusively from BSW. Call for sale prices and more information.

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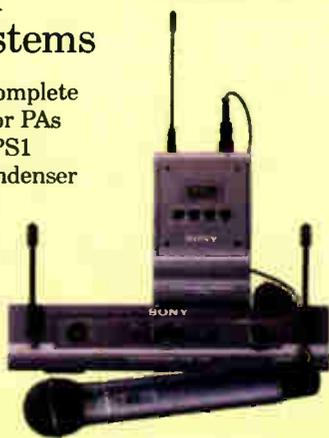
BSW is giving away a pair of Patriots valued at \$5,300.00! Sign up to win at www.bswusa.com. Contest ends 05/31/03. No purchase necessary. One entry per person. See website for all rules.

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The Sony UWPS1 and UWPS2 are complete wireless microphone systems, perfect for PAs and many other applications. The UWPS1 comes with a unidirectional electret-condenser lavalier and bodypack transmitter; and the UWPS2 comes with a unidirectional, dynamic handheld microphone with an internal antenna – both with level controls. The half-rack-size tuner is equipped with both balanced XLR and unbalanced 1/4" output, the XLR switchable between mic and line levels. Two frequency ranges available (specify when ordering).

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UWPS1 Lavalier System List 640⁰⁰ **569⁰⁰**
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For quality 2-track broadcast applications, crucial master recording or cost-effective backup, Tascam's MD-350 MiniDisc deck is a proven industry leader. The MD-350 features state-of-the-art recording at a surprisingly economical price. **Features:** balanced XLR and unbalanced RCA analog I/O and S/PDIF digital I/O, front panel optical input, front panel keyboard port for easy control; Auto Ready function (play one track and pause); Auto Cue function (cue to first audio in track); pitch control; and headphone output with level adjustment. Wireless remote control included.

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The dbx 286A is an inexpensive way to get really great-sounding vocals. **Features:** a single, studio quality mic preamp with phantom power; compressor circuit; de-esser; patented high-frequency and low-frequency detail controls; high-pass filter; expander/gate section; balanced mic and line level inputs; insert jack for utilizing outboard processing and effects; balanced XLR inputs; balanced 1/4" TRS outputs.

286A List 299⁹⁵ **199⁰⁰**

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HD202PKG **89⁰⁰**

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ST95MKIIPKG **99⁰⁰**

WS912PACK **24⁰⁰**



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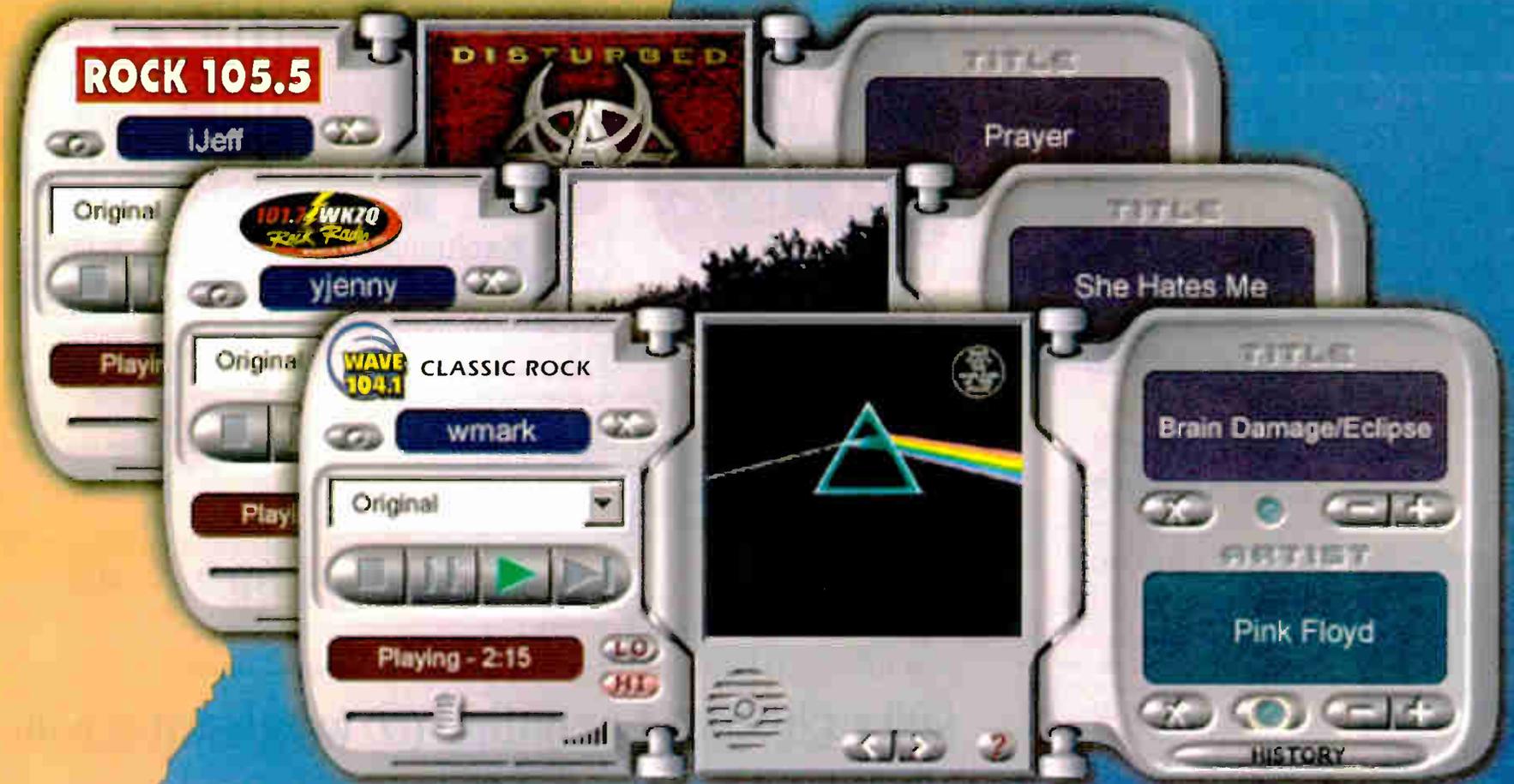


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See Page 34

Radio World

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May 7, 2003

MARKET WATCH

Wilmington Radio: A Unique Niche

by Susan Ashworth

There's something unique about the city of Wilmington, Del. And the handful of radio stations in this port town consider that uniqueness a boon.

Relatively compact, the city has a population of 73,000 but a surrounding listener base of 655,800. One of Wilmington's most significant credentials is that it is known as "corporate capital of the United States."

Baltimore — has no network-affiliated television station within its borders, and therefore little TV new coverage focused solely on the state.

Melting pot

The result: a unique melting pot. This is a city with residents who call for homegrown, locally focused radio stations, and a corporate population that demands sophisticated, smart business news and talk.

Wilmington stations took in \$24.7 million in radio revenue in 2001, down slightly from \$26.1 million in 2000, according to BIA Financial Network.

According to Mark Fratrick, vice president of BIAfn, Wilmington stations have always had to keep a close eye on Philly, which has a tremendous impact on Wilmington radio. Only 32.2 percent of local listening is to Wilmington-based stations, with the remainder going to Philly stations, he said.

In addition, the slumping national economy has affected Wilmington. The area's major economic strongholds include tourism, credit card banking, chemicals, pharmaceuticals and automobile manufacture. Major employers include the state government, MBNA, a local health care system and, most famously, DuPont.

Using its edge

Wilmington radio has found success by focusing on both its local listenership and its corporate constituency.

"One of the truly unique things about Wilmington — that it's the corporate capital of the United States — has created a unique niche for radio news, and we're playing to that," said Allan Loudell, program manager for WILM(AM).

DuPont dominated Delaware's economy for decades, taking an almost paternalistic role in the community. It remains the second-largest employer in the state, according to The News Journal newspapers.

But the number of its employees in the little state has plummeted in the past decade. DuPont has been joined in the top business ranks recently by corporate banks and credit card companies in making their homes here, and both WILM and cross-town legacy station WDEL(AM) have positioned their

See WILMINGTON, page 36 ▶

War Sends News Streamers Soaring

by Craig Johnston

Because it took place around the first of April, Web Watcher had to read through the agreement between Webcasters and the recording industry several times before he was sure. But the two sides have indeed settled on sound recording copyright royalty rates for 2003-04.

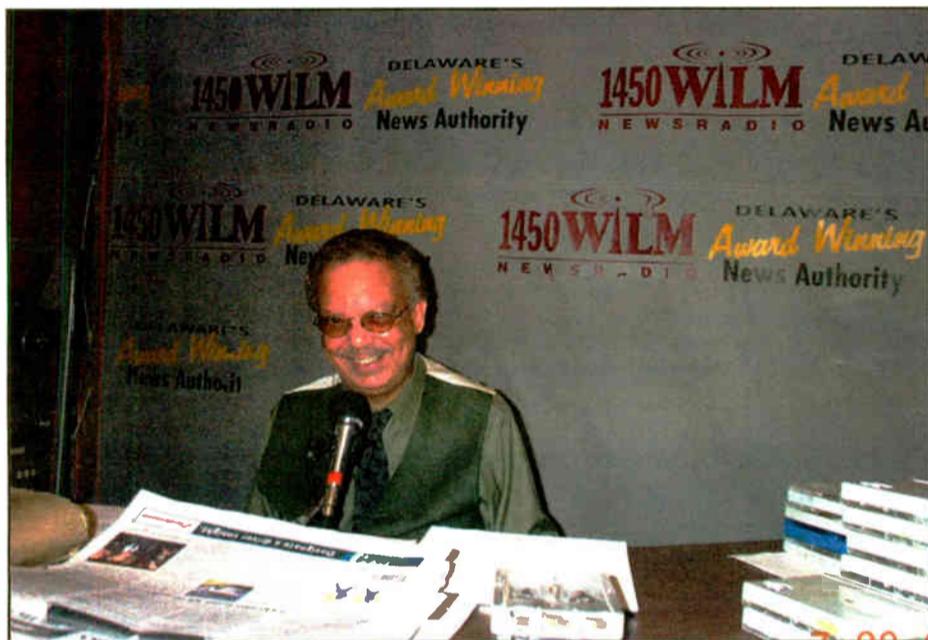
Executive Director of the Digital Media Association Jonathan Potter termed the agreement "a temporary Band-Aid that avoids millions of dollars of legal fees associated with a broken arbitration process."



The rates agreed to are essentially the same as the seven-one-hundredths-of-a-cent per-song, per-listener that the Librarian of Congress determined for the original copyright royalty fees through 2002. It also allows for two other payment options: 1.17 cents (\$0.0117) per aggregate tuning hour; or 10.9 percent of gross revenues.

Not covered by this agreement are small commercial Webcasters, who negotiated a different deal with the recording industry in the wake of congressional action during the lame-duck hours of the

See WEB WATCH, page 38 ▶



WILM Talk Host and Public Affairs Director John Watson

More than half the nation's Fortune 500 companies have named Wilmington their physical corporate headquarters. Hundreds more incorporate here due to Delaware's business-friendly tax and incorporation laws and Chancery Court system, the latter of which is devised to determine corporate disputes.

Further, Delaware — not far from the big markets of Philadelphia and

Wilmington's radio stations have moved to serve those two key demographics in recent years.

The area's stations continue to fight for ad dollars and listenership with the older, more powerful Philadelphia, which ranks as Arbitron's No. 6 radio market. Wilmington is coupled within Philly's designated market area and is Arbitron market No. 76.



Internal Sorbothane Shock mount system
Internal windscreen
Cardioid Pattern
Minimum proximity effect
Removable base for inverted boom mount
600 ohm balanced out
40 Hz - 18kHz



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There's a new sheriff in town - the new Heil PROLINE...Classic PRO and GOLDFINE PRO.

Rick Volpatti, production mgr. 101.1 'The Breeze'
"The Heil GOLDLINE PRO delivers the richness of the RE 20 bottom end, complimented by a brilliant and shiny top end. A combination I have never heard before in any dynamic mic."

Joe Dolinsky, Minnetonka, Mn.
"The sound is smooth and balanced. I do not have to tame the 2.5K peak in the RE 27. No "F"s for "S". No 4K bilateral lips to EQ or de-ess. The Heil PROLINE mics are an exceptional value."

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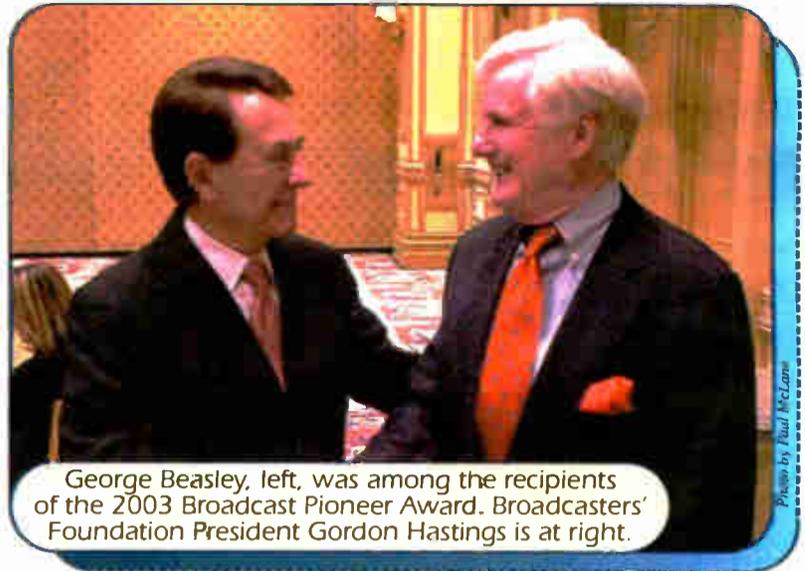
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NAB... ...A WALK AROUND



A highway motif helped attendees find their way around.

Photo by Paul McLane



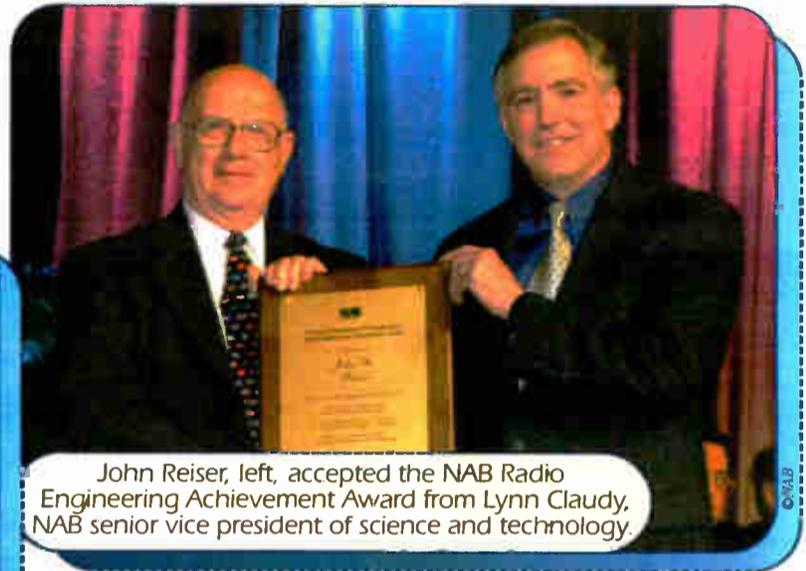
George Beasley, left, was among the recipients of the 2003 Broadcast Pioneer Award. Broadcasters' Foundation President Gordon Hastings is at right.

Photo by Paul McLane



In remarks to the RTNDA, President Barbara Cochran, right, mourned the deaths of David Bloom and other journalists who died while covering the war in Iraq. Radio World caught up with Cochran and husband John Cochran of ABC News.

Photo by Paul McLane



John Reiser, left, accepted the NAB Radio Engineering Achievement Award from Lynn Claudy, NAB senior vice president of science and technology.

Photo by Paul McLane



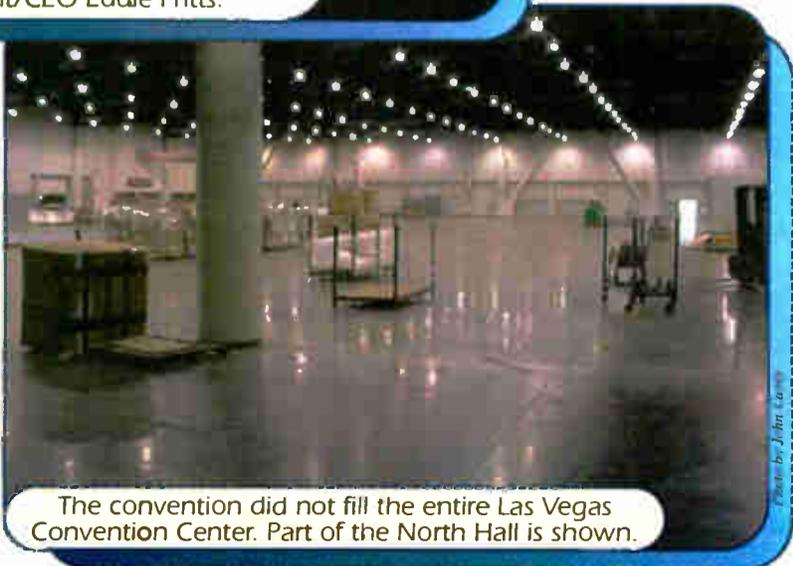
Distinguished Service Award Recipient Cokie Roberts of ABC News and NPR, with NAB Joint Board Chairman David Kennedy, left, and NAB President/CEO Eddie Fritts.

Photo by Paul McLane



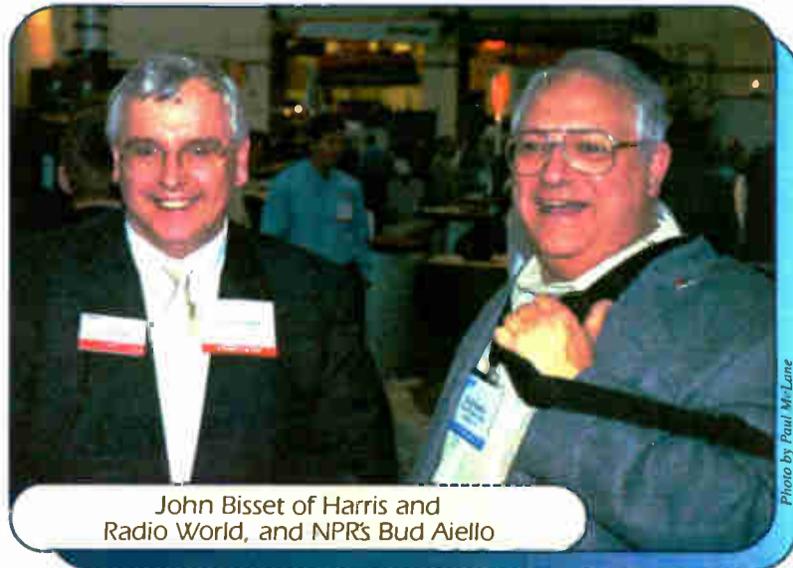
By next year's show, the Las Vegas Monorail, running along the east side of the Strip and stopping at seven stations including the LVCC, will make it easier to move around the city. The LVCC station is shown under construction.

Photo by Paul McLane



The convention did not fill the entire Las Vegas Convention Center. Part of the North Hall is shown.

Photo by Paul McLane

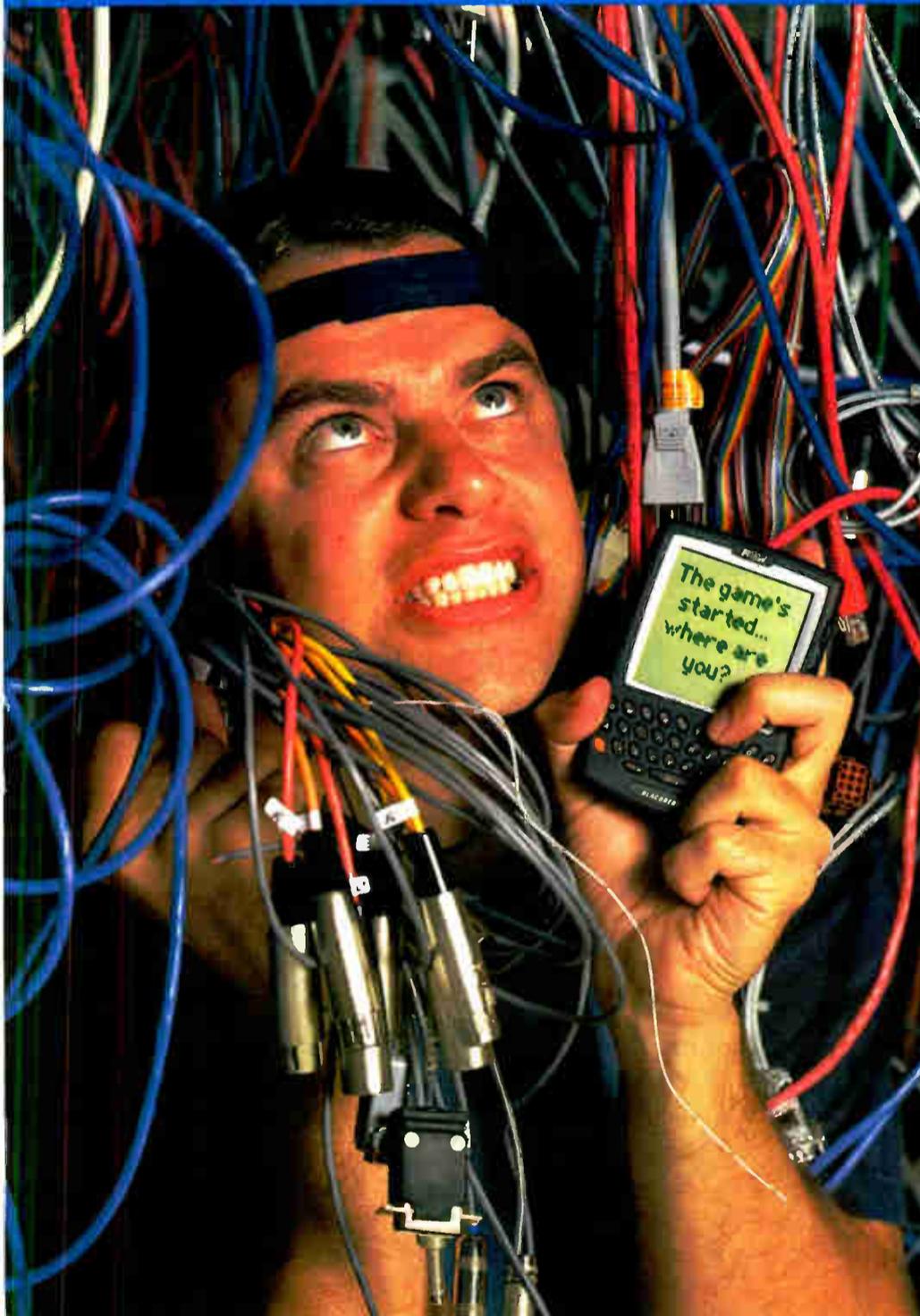


John Bisset of Harris and Radio World, and NPR's Bud Aiello

Photo by Paul McLane

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There's No Biz Like Syndicated Show Biz

by Dee McVicker

The right syndicated radio show can practically carry a station from one book to the next.

Shows like Rush Limbaugh's and Howard Stern's are top billers in part because they have the national momentum to amass rich audience numbers that leave other shows choking on their dust.

Conservative talker Limbaugh has the ear of 20 million weekly listeners, according to syndicator Premiere Radio Networks. And not only is his audience penetration deep, it's wide. Limbaugh is cleared in every rated market in the country.

No slouch, Stern's ratings may be dropping in some markets, but he's still a long way from the floor with some 1 million weekly listeners in the Big Apple alone. In the fall New York City 2002 Arbitron, Stern's morning show ranked second with a 6.9 AQH share 12-plus, sustaining a long-running healthy lead over most stations in the market.

Big dollars

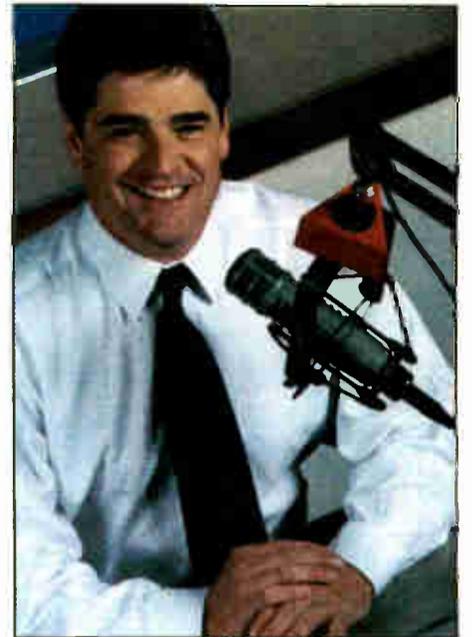
Stern, who's heard on about 50 stations, mostly FMs, continues to deliver the male listenership that big ad dollars chase. To a lesser extent, so does the legendary Don Imus, whose show "Imus in the Morning" is heard on 66 stations

nationally, most of them AMs.

"If you listen to those shows, they carry very heavy spot loads and they carry a great deal of revenue because they do have reach. Financially, I think they're doing well," said Chris Witting, CEO of Creative Broadcast Consulting in Skokie, Ill.

Although many of the blue-chip advertisers have a policy of not allowing their spots to be aired on shock-jock shows, there are countless others who apparently revel in the revelry.

"It's amazing to me that Stern will run 15 to 20 minutes of commercials as a block and people still listen through that and advertisers will still buy that time because they obviously get



About 200 stations signed up for Sean Hannity's show in the last year. The ABC-syndicated show, which airs after Rush Limbaugh's time slot, has accumulated more than 10 million weekly listeners.

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results," Witting said.

Stern brings in some \$20 million annually in advertising revenue and licensing fees for Infinity Broadcasting, according to E! Online. Westwood One wouldn't release revenue numbers for "Imus in the Morning," but if audience is any indication of success, the show is continuing to hold its own. Conservative estimates put this show's weekly audience reach at 5 million listeners.



Jones Radio Networks' 'Delilah' is on 220 stations and has a weekly cume of 7 million.

Not surprisingly, new shows are constantly nipping at the heels of syndicated success, some greatly surpassing expectations. Sean Hannity's issues-oriented show, which follows Limbaugh's time slot in the afternoon, has more than 10 million weekly listeners and 257 radio affiliates, 200 of which were signed up in the last year, according to its syndicator, ABC Radio Networks.

The show isn't overtly conservative, and nor is it particularly shocking.

"What's so unique about Hannity is that he appeals to both men and women equally," said Jennifer Purtan, the senior vice president of advertising sales and marketing for ABC Radio Networks in

See SYNDICATION, page 41 ►

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Wilmington

► Continued from page 31

programming to appeal to that market, though on different ends of the spectrum.

Known as "1450 WILM News Radio," the station went on the air in 1923 and has positioned itself as a news-centric format since 1976. It ranked 11th in the fall 2002 Arbitron ratings with a 3.1 share (persons 12-plus, Monday through Sunday, 6 a.m. to midnight).

"We bill ourselves as the only primarily locally originated all-news station outside a top 20 in the United States," Loudell said. The station airs only one daytime syndicated program, "The Mike Gallagher Show," for a few hours a day, "but for all other hours you'll hear a locally originated news format — you won't hear syndicated talk," Loudell said.

Indie

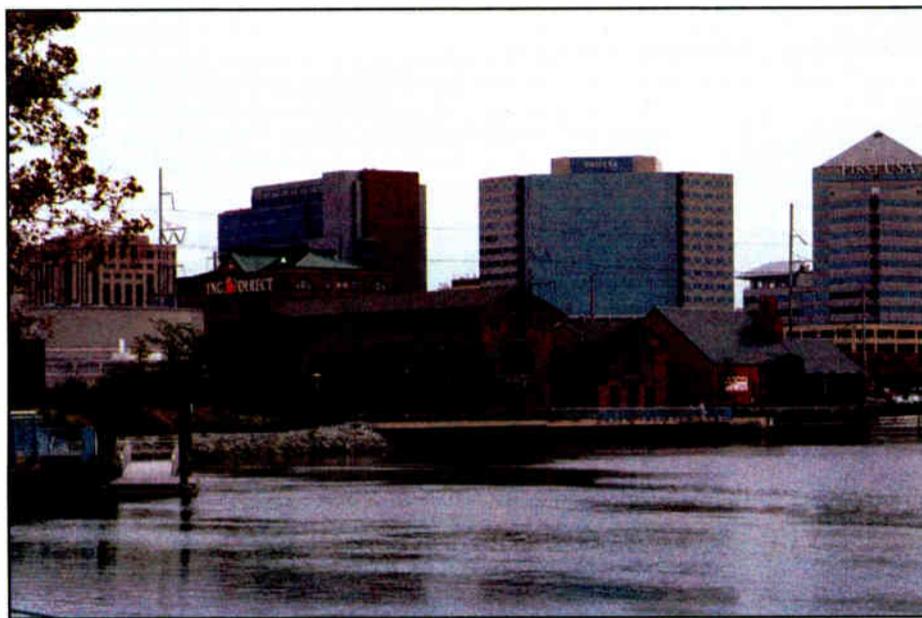
An independent station owned by Sally V. Hawkins, WILM airs programming that is issue-driven, "something that has kept me here, because frankly that I can do stuff here that I couldn't do" at a corporately owned station, Loudell said.

Known in the market as a more conservative news-talk radio station, WDEL is owned by Delmarva Broadcasting and airs syndicated talent such as Dr. Laura Schlessinger, Rush Limbaugh and Sean Hannity. The station was honored with several awards last year, including awards from the Radio & Television News Directors Association and The Associated Press, and was an NAB Crystal Award nominee this spring. The news team updates news daily via e-mail through WDEL.com.

Delmarva Broadcasting Co. also owns WSTW(FM), a station that won the 2001 revenues battle, according to BIAfn, banking \$6.1 million in 2001, followed closely by competitor WJBR(FM) with \$5.5 million. WSTW is a CHR-formatted station that also offers local music on its "Hometown Heroes" program and songs from the '80s on "BackTrax USA."

In the fall 2002 Arbitron ratings, WSTW received an 8.1 AQH share, placing it No. 2 in the market for persons 12-plus. Delmarva also owns WXCY(FM), known as "Your Favorite Country" station for the market.

Because of its diverse audience — comprising both local listenership and a



The Wilmington Skyline

corporate constituency — there seems to be room for an equally diverse type of ownership groups, with no one group dominating the market.

In addition to Sally V. Hawkins and QC Communications, two locally based independent owners, the market also has room for the bigger regional players like Delmarva Broadcasting and national companies like Clear Channel Communications.

In other markets, the average jock may move stations every year and a half or so. The Wilmington market has bucked that trend somewhat.

WILM's Loudell has been with the station 15 years; his colleague John Watson, who anchors "Newstalk AM," has been with the station since the mid-'80s.

The same rings true for stations

WJKS(FM) and WFAI(AM), both owned by QC Communications Inc. Serving in the roles of owner, general manager, promotions director and program director for the two stations, Tony Quartarone purchased the two stations in 1997 when they included a block format of religious music and news.

gospel format.

"We said, 'Finally, there is a Delaware station playing hip-hop and R&B for the local market.' We're here to support the listeners."

That philosophy has worked well — in the last Arbitron ratings the station was in ninth place out of 39 radio stations for persons 12-plus, when for years it had ranked near the bottom, Quartarone said.

"When things bother my listeners, they e-mail me personally," he said. "We have more of a kinship than in a bigger DMA like Philadelphia."

QC Communications also is in the midst of quadrupling the height of its tower, which would allow it to cover the entire Philadelphia market.

Testing ground

The Wilmington market found itself in a unique spot in 2000 when Arbitron selected it to serve as the first U.S. test market for the new Portable People Meter ratings tracking system.

PPM units were passed out to 300 individuals in the Wilmington area in an effort to track usage of radio and TV stations.

The Wilmington market was selected as a PPM site in part because it represents a variety of formats, from oldies to country to adult contemporary. Perhaps the most unique is WPWA(AM), a foreign-language station with a Korean Christian format owned by Mount Ocean Media.

With an audience of approximately 10,000 Koreans in the area, the station does a mix of sports, talk, news and public affairs, said Jim Havens, WPWA general manager.

The current format is not the only unique iteration the station has pursued in its several-decade history. For much of its history it was a country-music station, but changed to the nostalgia format when Beasley Broadcast's WXTU(FM) launched a country format in nearby Philadelphia in 1985.

See WILMINGTON, page 37 ►

Photo by Bradford Glacier

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Wilmington

► Continued from page 36

"We decided to go with something that was a little different, and we have changed drastically every time we've changed a format," Havens said.



Photo by Bradford Glacier

A statue of Caesar Rodney, signer of the Declaration of Independence, stands in Rodney Square in downtown Wilmington.

After following the nostalgia format for a year and a half, the station adopted the syndicated "Radio Aahs" format for a year before embracing Catholic family talk radio. A year later, the station switched to the Korean format.

More changes are on the horizon, though prosperity seems to come from one main theme.

"We've been the most successful we were doing public service," Havens said. Later this year the station plans to add more English-speaking block

Network Changes At Moody

In an effort to strengthen its core ministries, Moody Bible Institute has announced changes within its broadcasting division. The reorganization will take place within the next few months.

Changes include regionalization of stations in Tennessee, Florida and Indiana; the shutdown of the Moody Audio Ministry on June 30; the closure of MBN Broadcast Services, including ceasing domestic and international distribution of MBN programming via U.S. mail (satellite delivery will continue); and a department name change from MBN Network Development to MBN Distribution Development.

The latter will allow the agency to function in-house, handling affiliate relations and placement of MBN programs.

Perry Straw, a 38-year Moody veteran who previously served as broadcast services manager, will take over as head of the MBN Distribution Development.

"The broadcasting division realignment decisions are part of a second and final stage of our initiative to keep MBI on a solid footing as we move into the future," stated MBI President Dr. Joe Stowell.

Other changes include ceasing of publication of Moody magazine following the July/August issue and the reconfiguration and move of Moody Aviation to Spokane, Wash. MBI will also dump its retail business.

programming, gospel music as well as sports reporting.

"There is definitely a big following of religious-type radio in this area," Havens said.

Long familiar to AM listeners, WAMS(AM) is now marketed as "1260 WAMS, Oldies That Jam" and is owned by Vin-Lor Broadcasting. The station also carries play-by-play coverage of the Wilmington Blue Rocks baseball team, a Class A farm team for the Kansas City Royals.

According to radio executives and stations in the market, the real ratings battle in this town is between WJBR(FM) and WSTW. The stations are No. 1 and No. 2, respectively, in the Wilmington ratings battle.

WJBR is owned by Clear Channel Communications. An adult standards for-

mat, the station was ranked first in the Arbitron fall 2002 advance ratings with a 9.9 share 12-plus. The 50,000-watt station plays "Today's Hits and Yesterday's Favorites" including Rod Stewart, Whitney Houston, Gloria Estefan and Elton John.

Known as "Delaware's Rock," station WRDX(FM) also is a Clear Channel station and plays classic rock for the Wilmington market. The station appeals to the sports fan in Delaware, airing Winston Cup racing.

The Wilmington market also supports a public radio presence via WHYI, a radio and TV station for Philadelphia and to a lesser extent Wilmington. Another noncommercial station, WMPH(FM) a high school station, found a unique spot in the market by providing a broadcast learning center for students, and a rhythmic dance station, said Clint Dantine,

WMPH general manager. Like other stations in the Wilmington market, "station WMPH filled a niche that wasn't being met by Philly."

All in all, radio execs in the market say Wilmington has been put in a unique position — one that tends to boost the local radio angle.

"We're a separately rated Arbitron radio market but we're part of the greater Philadelphia market, and because we have no local TV channels it creates a unique niche for radio," said WILM's Loudell. "We're not just a separate town but also a separate state, so you really have to listen to local radio to get a sense of what's going on."

Susan Ashworth is former editor of TV Technology, and is a contributing technology writer/editor based in San Francisco.

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Web Watch

► Continued from page 31

last session. Nor are the noncommercial Webcasters, who have yet to come to their own deal.

A final group not included in the Webcaster/recording industry agreement is terrestrial broadcasters who simulcast their programming over the Internet. The broadcasters have insisted from the beginning that the Librarian of Congress misinterpreted the sound recording copyright royalty legislation when he included them with other Webcasters.

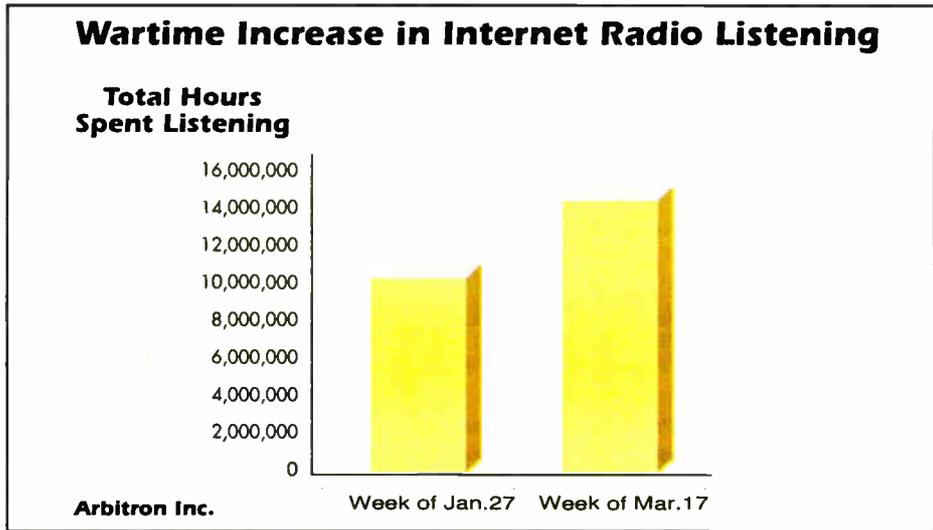
Thus far the broadcasters have lost every appeal of the decision they've made, and at press time were still awaiting a decision from the Third District Court of Appeals in Philadelphia.

As to the Webcaster/recording industry agreement itself, Web Watcher is reminded of Churchill's predecessor Neville Chamberlain holding an agreement in his hand and predicting "peace in our times." How did that one turn out, anyway?

★ ★ ★

While we're on the subject of copyright royalties, when the lame duck 107th Congress passed the Small Webcasters Settlement Act, more than one broadcaster told us that Congress may think its job is over.

As Robby Richardson, director of international Internet ministries for Gospel Communications International and a mem-



ber of the National Religious Broadcasters' Internet Committee cautioned:

"Any time, obviously, that you get something through, it's going to be harder to get their attention the second time. If you come back and say, 'Wait a minute, that's only half the answer,' (Congress feels like they've) done that. 'Before I listen to you I've got 30 other people hollering at me that I've got to listen to.' So there's that danger."

But perhaps Richardson and the others shouldn't have worried, because on the



Robby Richardson

first of April the House Subcommittee on Courts, the Internet, and Intellectual Property heard testimony on H.R. 1417, the Copyright Royalty and Distribution Reform Act.

The bill would replace the Copyright Arbitration Royalty Panel that recommends royalty rates for sound recording play with a Copyright Royalty Judge. Testimony focused on both the fairness of the rates ultimately determined, and the high cost of the CARP system to the participants.

Noting that the debate on the bill may only yield a new process, not different royalty rates, Rep. Howard Berman, D-Calif., quipped, "Even those who feel abused by the current standard can at least be abused in the future cheaper than they've been abused in the past."

★ ★ ★

Just as television cable news networks saw their ratings swell with the breakout of war in Iraq, Web Watcher could have predicted that news and talk channels would see an increase in total time spent listening on Internet radio.

Consider one week in mid-March as an example. Arbitron ranked two news and talk stations within the top 10 individual Internet radio stations ratings for the week of March 17.

WLS(AM) Chicago was ranked the No. 3 individual Internet radio station with 255,623 hours TTSL, and KFI(AM) Los Angeles was No. 10 with 130,233 hours TTSL.

When war came, stated Bill Rose, vice president and general manager of Arbitron Internet Broadcast Services, "We have seen a significant increase in online tuning to news and talk Internet radio stations.

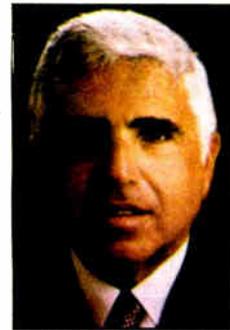
"For the week of March 17, the 65 Talk and News/Talk stations measured by Arbitron MeasureCast Ratings had a combined 1,389,717 hours of TTSL, nearly three times the listenership of the same stations for the week of Jan. 27."

Web Watcher was curious whether overall Internet radio listening would be up or down during the first week of the war, so he asked Arbitron to compare the whole universe of its subscriber stations during a pre-war week against the war's first week. The results: a 29 percent increase in listening that first week of the war.

Despite the war, radio's radioEclectic was ranked the top Internet radio station with 314,604 hours of TTSL, with MusicMatch's Artist Match ranked No. 2 with 283,159 hours of TTSL.

★ ★ ★

Web Watcher has never interviewed or even met Viacom president Mel Karmazin. But we've read plenty enough to know that Karmazin has maintained a kind of allergy to Internet radio.



Mel Karmazin

By distancing the Viacom's Infinity group of terrestrial stations from Internet streaming, he's kept it from losing millions of dollars while Webcasting gets its financial legs under itself.

So it's easy to understand why initial reports of a liaison between Infinity and AOL to put five Infinity stations on the Internet kept reporting the deal on and off, on and off: no one could believe it was true. But it's on.

Streaming the stations' programming is a tertiary part of the deal, however.

"First and foremost, the AOL and Infinity deal is an ad buy," Radio@AOL General Manager Jim Van Huysse told Web Watcher, "and an important one because AOL has never utilized terrestrial radio to



Jim Van Huysse is general manager of the AOL Radio@Network.

market to intenders, whether they be narrow-band intenders or broadband intenders, which is obviously what we're going for this time around."

("Intenders" are those individuals who intend to subscribe to an Internet service provider.)

"Second, it really represents a strategic marketing alliance between Infinity and AOL. Infinity gets AOL for broadband physically within 183 stations, plus they get all the great content which is exclusive to the AOL for broadband offering."

Whether the Webstreaming is on the front burner or not, for the five Infinity stations it represents an opportunity to go from zero to 60 in an instant, so to speak. Because of the immediate exposure the AOL shelf space gives them to the Internet giant's millions of members, the five stations can become big players from the moment they turn on their streams.

At press time the five stations had not been identified, and AOL declined to discuss who will pay the copyright royalty fees.

★ ★ ★

Speaking of going zero to 60, there's a new player in the Internet stream coding and decoding (known as "codec") game. Not a new name, but a new player.

Web Watcher thinks that to break through the entrenched positions held by the three dominant streaming formats in use for Internet radio: RealAudio, Windows Media and Quicktime, will take a combination of two conditions.

First, the new player would have to be a well-established technology company whose name carries a lot of cache in the audio community. Second, they would have to be allied with a huge Internet partner that could supply tens of millions of users at the click of a mouse.

See WEB WATCH, page 39 ►

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Web Watch

► Continued from page 38

So a combination of Dolby Labs and America Online might just work.

Though neither company wanted to talk about it at press time, Web Watcher has it on good authority this marriage will happen. Dolby will supply its Advanced Audio Coding technology as the default codec for the new AOL 8.0 Plus service.

Dolby is well-known for its audio coding technology used by the motion picture, broadcasting and music recording industries. The sight of the Dolby trademark should be enough to convince users the audio they're listening to is better. But how do they get millions of users to download the Dolby players?

AOL's subscribers get software updates to their AOL software all the time, so when they download AOL 8.0 Plus, the Dolby technology will be bundled in. Web Watcher predicts this will be a slam-dunk.

Dolby's entrance into AOL doesn't spell the end to the relationship between AOL and RealNetworks. For one thing, the two companies are among the partners in the MusicNet subscription music service, with AOL as MusicNet's primary distribution outlet and RealNetworks supplying the streaming and download technology.

★ ★ ★

Getting to the bottom of rumors is where Web Watcher has most of his fun, so he was happy to put on his double-billed cap and grab his magnifying glass to look into and quash this one.

At the beginning of April, a story appeared that Clear Channel Communications "is considering a subscription-based solution for the future, based on the geographic location of the listeners."

Clear Channel Radio's Vice President of Technology Brian Parsons then experienced the equivalent of that game where you sit in a circle and whisper a secret around the room.

"Funny how news reporters take one word ... say 'thinking,' and then change it to another word under the guise that it means the same thing as 'considering,' and then the next thing you know its an actual 'proposal.'"

Parsons said the rumor had its genesis in a posting Parsons made on an Internet bulletin board to an industry news group.

"My posting to the group was in response to someone's question, 'Have you thought about subscriptions?', during a discussion of the situation in New York where our stations have stopped streaming because of the high music performance rights fees. In the message, I was really hypothesizing about how the service would work, because we have tossed it around.

"There is no proposal. I look at and explore streaming models constantly. That's my job. Not that there aren't subscription radio companies constantly pitching us."

That's pretty clear to Web Watcher.

★ ★ ★

Web Watcher wants to use a big word for this next item, but he's not an analyst or PR person, so he probably ought to look it up first: "ubiquitous: (seemingly) present everywhere at the same time."

Okay, let's see how it fits.

Though almost all Internet radio listening goes on directly through a PC and its speakers or headphones, there are a growing number of Internet radio appliances, devices that look and work more like stereo components than computers. Most of these appliances require that they be hooked up by wire to the Internet itself.

It seems to Web Watcher that for these Internet radio components to become ubiquitous in the home, they need to be able to receive Internet radio signals through the airwaves, just like an AM/FM tuner or receiver. (How did I do?) And it has to be affordable.

A big step down this road has been taken by Rochelle Communications Inc., which introduced its Model 2600 stand alone Internet Radio, which can access the Internet via an Ethernet connection or



Rochelle Communications Model 2600 Internet Radio

wirelessly through an optional Wi-Fi (802.11b) receiver.

While Wi-Fi has been touted as a technology allowing computer users to connect to the Internet wirelessly over a short range, utilizing Wi-Fi for Internet radio is

a great idea. Web Watcher reported playing with Dell Computer Corp.'s Axim X5 Pocket PC at January's Consumer Electronics Show (RW, Feb. 12, 2002).

Wi-Fi isn't limited to the home or office environment. Starbucks has Wi-Fi access in thousands of its coffee houses, and McDonalds recently announced it was installing Wi-Fi in a hundred or so of its restaurants as a test.

The Model 2600 allows the user to pre-select up to six stations, and can scan hundreds to radio stations based on location, program type and language. It features a stereo headset and audio line out jacks.

Rochelle officials said the Model 2600 will be available in the second quarter. Single-unit pricing will start at \$129.

Craig Johnston is a Seattle-based Internet and Multimedia developer. Reach him via e-mail to craig@craigjohnston.com.



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Syndication

► Continued from page 31
New York.

Still, syndicators aren't pinning all their hopes on any one show. If there's one clear trend in syndication, it's diversification.

The major syndicators will tell you they have a show for just about every format, every demographic and every time slot.

ABC Radio Networks, Jones Radio Networks, Premiere Radio Networks and Westwood One now syndicate well over 400 shows among them. They cover a range of programming, from Premiere's "The Bob & Tom Show" morning show with Bob Kevoian and Tim Griswold, for rockers, with nearly 5 million weekly listeners, to ABC Radio Networks' popular "The Tom Joyner Morning Show," practically a staple of urban radio.

Distribution advantage

Premiere Radio Networks has the biggest advantage in terms of show distribution. This program syndicator has the king's ear as a subsidiary of Clear Channel Communications, the nation's largest group owner with more than 1,200 radio stations.

At the other extreme is Jones Radio Networks, an independent syndicator with no radio ownership interests. Whereas ABC Radio Networks can run shows on its own stations — and may have even purchased stations for the explicit purpose of clearing its Disney

RADAR 76, March 2003 Top-10 Network Rankings by Daypart
Audiences to All Commercials: Mon-Sun 6A-12M
Persons 12+/Total U.S. January 2002 - December 2002

RADAR-Rated Network	Audience (000)	AQH Rating	Rank
ABC Daytime Direction Network	9192	3.8	1
Westwood CNN Max Radio Network	736	3.1	2
Premiere Pulse Network	5431	2.3	3
ABC Morning News Radio Network	5361	2.2	4
Premiere Morn Drv AM Network	517	2.2	5
ABC Young Adult Radio Network	477	2.0	6
Premiere Focus Network	4379	1.8	7
Premiere Mediabase Network	4278	1.8	8
Premiere Morn Drv FM Network	4244	1.8	9
ABC Prime Reach Radio Network	3855	1.6	10

Radio program in the top markets — Jones has to earn its audience one affiliate at a time.

Early on, Jones made a play for adult contemporary stations with "Delilah," now on 220 stations with a weekly cume of 7 million female listeners. The syndicator parlayed that success by following "Delilah" with adult contemporary overnighter "Dave Wingert" and then cross-marketing into hot adult contemporary with "Alan Kabel," another women magnet that's managed to bring in 13 affiliates in just a few months.

Jones Radio Networks is working the

same strategy on country. Its fastest-rising star for the format is "Lia," now on 186 radio stations with a weekly cume audience of three-point-one million. "Danny Wright All Night" is rising along with "Lia," and is now on 90 country stations following "Lia."

The big syndicators are branching out into new areas of programming, often with unpredictable results.

Premiere said its two most promising shows for the year are "Last Night on the Tonight Show With Jay Leno," a feature program, and a live request show hosted by Carson Daly, who has accumulated nearly 5 million weekly listeners in as many months.

Westwood One, managed by Infinity Broadcasting Corp., which has 180 radio stations, isn't resting on its laurels, either — although, of the big players, this syndicator would have the most reason to. Westwood One syndicates big hitters like "Imus in the Morning" and has an impressive lineup of sports programs. Yet it, too, is adding shows to its roster, most notably "The Radio Factor with Bill O'Reilly," a talk show that goes up against Rush in the weekday afternoon slot.

As an example of its success, the syndicator pointed to San Diego station KFMB(AM) and Wichita station KNSS(AM), which substantially increased their metro shares for ages 15 to 54 after they began airing O'Reilly, each increasing the afternoon time slot 150 percent from the fall 2001 Arbitron book to the fall 2002 book.

Other stations that began airing O'Reilly increased metro share anywhere from 27 percent to 143 percent in the same time frame and for the same demographic group.

Not surprisingly, syndicators are placing as much importance on time slot as they are on format.

Non-traditional dayparts

"We're taking a close look at non-traditional dayparts," said Edie Hilliard, vice president and chief operating officer of Jones Radio Networks in New York. The independent syndicator launched "Americalive with Ernie Brown" last year, a live news/talk airing midnight to 2 a.m. that so far is on

See SYNDICATION, page 42 ►

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Crystal Radio Award Winners Named

Ten stations were honored at the NAB convention in Las Vegas for community service.

The winners of the 2003 Crystal Radio Award are KFME, Overland Park, Kan.; KNOM, Nome, Ala.; KOIT, San Francisco; KOZT, Ft. Bragg, Calif.; KPRS, Kansas City; KVAK(AM), Valdez, Ala.; WGMS, Washington; WIBC, Indianapolis; WJYY, Brainerd, Minn.; and WUGO, Grayson, Ky.

"The community service showcased by this year's winners has been truly exemplary," stated NAB President and CEO Edward O. Fritts. "This is what broadcasting is all about and NAB congratulates these 10 stations for their commitment to localism and public service."



Syndication

► Continued from page 41
55 affiliate stations.

Premiere Radio Networks is a confirmed night owl, and not just because it sees overnight as an easy filler for stations. Premiere Executive Vice President of Talk Programs Gregory Nowack challenges broadcasters to think of overnight programming as more than something to fill the time until the morning talent arrives.



Lia is Jones Radio Networks' rising star, now on 186 stations and capturing a cume of 3.1 million.

"People tend to listen to overnight radio for extended periods of time. They don't tend to be in a place where they are pushing buttons on a radio. And so for direct response advertising, overnight works extremely well," he said.

Premiere's "Coast to Coast" continues to be one of its strongest shows in terms of number of affiliates (500) and long-term listenership in the 1-6 a.m. time slot, according to Nowack.

Shows like this will probably never get the same airplay as Rush or Stern, but syndicators are banking that they will nonetheless be top billers in their own right. 

Audio Theatre Workshop Set for Mid-June

June 14-20 marks the dates for this year's National Audio Theatre Festivals' Audio Theater Workshop. The weeklong session is held at The West Plains Civic Center and the campus of Southwest Missouri State University in West Plains, Mo.

Audio dramatists come to the heart of the Ozarks from all over the world to teach students of all ages the skills necessary to participate in the audio theater entertainment industry, including lessons in location recording and voice acting.

The fee for participants who register by May 15 is \$375; after May 15 the cost is \$425. A limited number of scholarships for the program are available.

The ATW is made possible in part by the Missouri Arts Council, The National Endowment for the Arts and the Missouri Humanities Council.

For more information visit www.natf.org.



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Buyer's Guide

Tech Updates



Inside

Radio World

Transmitters

May 7, 2003

USER REPORT

Harris Gear Helps WRAL to Digital

by Keith Harrison
Chief Engineer
WRAL(FM)

RALEIGH, N.C. WRAL(FM), an adult contemporary station owned and operated by Capitol Broadcast Co., has always had a strong commitment to leading broadcast technology. With our sister WRAL(TV) being the first commercial TV station to be licensed to broadcast in high-definition and provide digital newscasts, and along with our ongoing relationship with Harris, it seemed only logical and fitting for WRAL to be an early adopter of HD Radio.

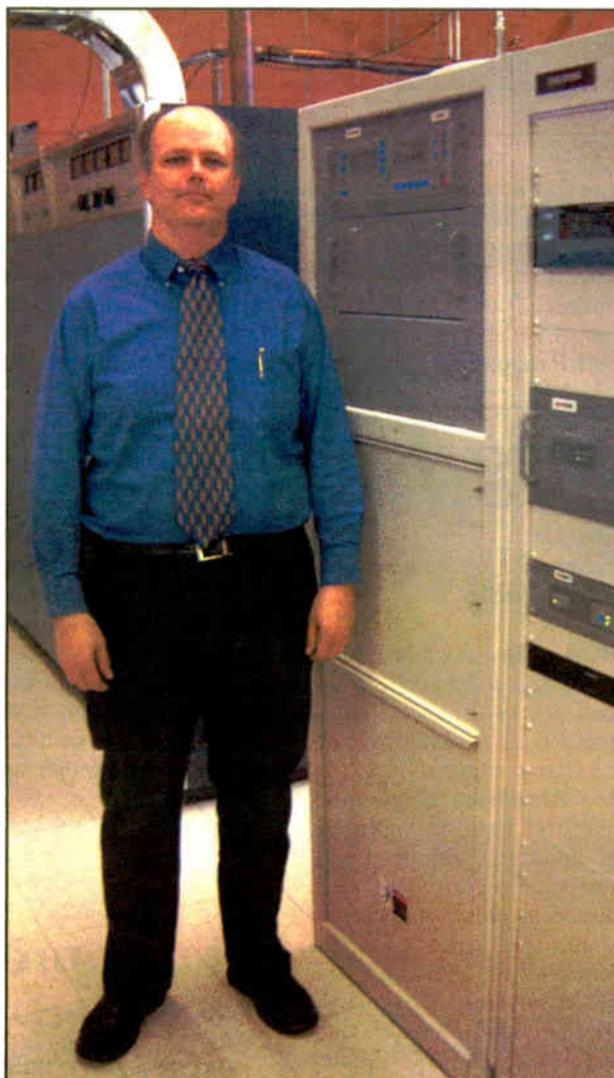
We knew from the transition experience to HDTV that HD Radio would provide similar listener-oriented benefits and capabilities, including CD-quality sound and streamed text information on the new HD Radio receivers being developed specifically for HD Radio. We worked with Harris and Ibiquity Digital, the licensor of HD Radio technology, to make it happen.

Conversion to digital

For the conversion to digital, we purchased a Harris Z16HD solid-state transmitter and a Dexstar AM/FM HD Radio exciter. Harris was the first out of the gate with this kind of technology. The Z-HD transmitter offered the redundancy and linear amplification necessary for HD broadcasting that we were looking for.

And we were pleased that the "Z-Plane" combiner in the transmitter would allow the transmitter to operate even when an RF module is removed, which would enable us to do maintenance while the station is on the air. Finally, the Dexstar exciter features the ePAL option, which allows for a seamless transition to digital.

The response from Harris was just great. The turnaround was fast, just as we needed, and installation by our folks ran smoothly. The entire installation process from delivery of the Z-HD to on-air operation took less than a week. Our staff



The author stands beside his Harris Z16HD solid-state transmitter.

was able to install the majority of the HD equipment on our own, taking delivery on Tuesday, running into a dummy load Thursday evening, and broadcasting an on-air high-definition digital audio signal by Friday, Dec. 20, 2002.

As a public preview, we wanted to display and demonstrate HD Radio at the annual North Carolina International Auto Expo car show in Raleigh.

We worked with Ibiquity to arrange such a demonstration. Listeners attending the Auto Expo had the opportunity to experience WRAL(FM) in high-definition.

We have a great analog signal, but the difference in the digital signal was impressive. In a special ceremony at the Auto Expo, we accepted a certificate graciously provided by Ibiquity commemorating our place in HD Radio history as one of the first stations to broadcast an HD Radio digital signal.

We are eagerly looking forward to the appearance of the first HD Radio receivers for consumers so that our listeners can hear what a difference HD Radio makes.

For more information, including pricing, contact the company in Ohio at (513) 459-3400 or visit www.broadcast.harris.com.

TECH UPDATE

BW Has Low-Power FM Transmitters

The Broadcast Warehouse range of low-power FM transmitters can be used as stand-alone FM transmitters or as exciters driving high-power amplifiers.

BW says microprocessor control and switched mode techniques provide a lightweight broadcast system.

Units contain digital control and metering, both on the front-panel display and remote computer interface. Power outputs are available from 5 to 300 watts.

For more information, including pricing, contact the company in England at 011-44-208-540-9992 or visit www.broadcastwarehouse.com.

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USER REPORTS

Nicom Weathers All Fronts

by John White
Technical Consultant
KIXC(FM)

QUANAH, Texas In March of 2002, 100.9 KIXC(FM), about three hours west of Fort Worth, Texas, had just completed a power upgrade to 50 kW and changed its format to oldies.

Station owners and management saw a significant portion of the North Texas population who enjoyed oldies music being underserved. It was determined that a FM translator channel, owned by J&J Broadcasting, was available on 105.5 KUSJ(FM) to serve the people of Wichita Falls.

I was called in to handle the technical aspects of getting the translator operational. When the translator location was surveyed, it showed strong RF fields. As a result we needed a high-quality translator receiver to ensure clear reception of our main FM transmitter operating on 100.9, about 65 miles away in Chillicothe, Texas.

Choices

Fred Morton, one of KIXC's owners, recommended the Nicom NLR-FM1 receiver. We also chose the Nicom BKY3/P FM directional transmit antenna and LOG FM P5 receive antenna to complete the system.

When I received the equipment, I found it easy to assemble and operate. The NLR-FM1 receiver features signal strength reading in a dBuV scale, which makes it easy to determine the received signal strength as well as a modulation indicator. As our translator shares a location with the majority of the other radio and TV stations in Wichita Falls, we were happy to find out that the Nicom receiver has a tunable bandpass filter with 1 MHz bandwidth to help reduce unwanted interference.

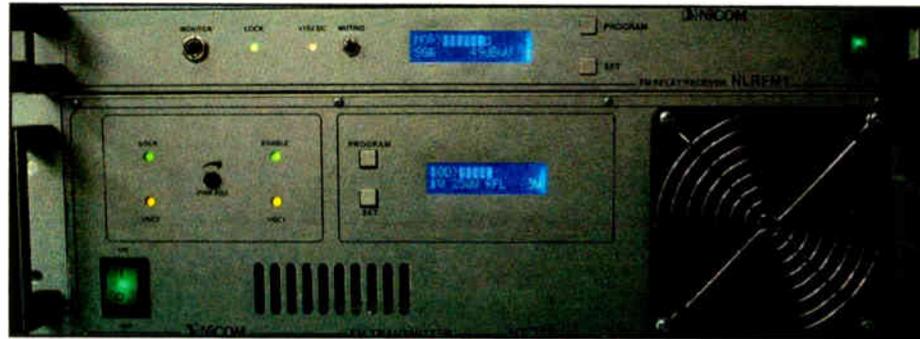
Both forward and reflected power readings are shown at the same time via the LCD display on the front of the unit, making antenna testing simple.

This filter would prove itself useful because of the strong RF fields at the transmitter site. The quality of design of the components shows; the antennas have weathered ice, strong winds and wild Texas thunderstorms over the past year without damage. Both antennas are DC grounded to help reduce any lightning-related issues and the 22 dB front-to-back ratio of the LOG FM P5 receive antenna ensures that undesired signals coming from the backside of the antenna are attenuated enough not to cause problems.

Another nice fact is that both antennas can be delivered via UPS to help cut down on shipping costs. In our situation,

shut the translator down if the primary station goes off the air.

The sales and technical support staff at



Nicom's NLR-FM1 Receiver

we chose to run 7/8-inch Heliac to both transmit and receive antennas; connection was a breeze using industry standard type "N" connectors. The NLR-FM1 receiver is translator-friendly, with BNC jacks on the rear of the unit for composite audio and for a RF muting relay that will

Nicom were friendly and responded quickly to any questions we had with the equipment.

In February of this year, we replaced an older transmitter we were using with our translator with a Nicom NT-250 exciter/transmitter. Installation was a

breeze and we had no problems getting it on the air. The unit is also frequency-agile, making it attractive for anyone who operates multiple stations.

Both forward and reflected power readings are shown at the same time via the LCD display on the front of the unit, making antenna testing simple. The transmitter features a universal power supply allowing it to operate over a large range of voltages either 110 or 220 volt.

Also, the transmitter is rated at 270 watts so that you can run it at 250 watts comfortably and know there is still some headroom designed into the unit. I personally like the design of the NT-250 with dual fans to keep the components cool. The ruggedness of the transmitter shows that Nicom's engineers took time to ensure the product is reliable.

Both the NLR-FM1 receiver and NT-250 transmitter have serial ports on them, making configuration via computer possible as well. I would encourage anyone in the market for translator equipment to give Nicom a call.

For more information, including pricing, contact the company in California at (619) 477-6298 or visit www.nicomusa.com.

Resting Easy With the BE FM-35T

by Keith Tela
Chief Engineer
WBHJ(FM)/Cox Radio

BIRMINGHAM, Ala. As a broadcast engineer with more than 20 years in the business, I can pretty much tell how many late nights I'll be working by simply looking at a station's transmitter.

WBHJ(FM)'s Broadcast Electronics FM-35T transmitter had me stumped, however. I was unfamiliar with this transmitter's performance record when Cox Radio hired me on as chief engineer for this station and six others in the Birmingham market three years ago. The 35 kW single-tube transmitter was unknown to me, although I was encouraged by the fact that the FM-35T I inherited had been running nonstop since it was installed at WBHJ's transmitter site in 1994.

Standards

A quick look inside the transmitter cavity my first week on the job also told me that the workmanship far exceeded transmitter standards. I hadn't seen this quality of workmanship in a transmitter. The BE FM-35T is built like a battleship, so I was able to go about the business of engineering seven stations with some confidence that it wouldn't keep me up late at night.

In fact, in my three years with Cox Radio, the BE FM-35T hasn't given me a moment of trouble. Even a particularly fierce power spike in March couldn't knock this transmitter off the air.

Spikes at WBHJ's transmitter site aren't out of the ordinary. The BE FM-35T has taken more than its share of hits because of its location on the local power grid.

In 1994, my predecessor purchased the FM-35T to replace an old Collins, which we've retained and are now using for backup. The purchase coincided with WBHJ's change in tower location, which enabled the station to get up to 100 kW ERP but also put the transmitter 20 miles from a power substation and at the end of

the power line.

If Cox Radio's previous chief engineer chose the FM-35T because of its Automatic Power Control design, he was right on the mark. The FM-35T's APC maintains smooth power levels coming into the transmitter, so as voltage on the line fluctuates — as it is so prone to do at the site — transmitter operation stays on an even keel.

I can pretty much tell how many late nights I'll be working by simply looking at a station's transmitter.

He must have also derived some comfort from the transmitter's patented tuning and output coupling design that omits notoriously fickle high-voltage blocking capacitors and high-current slide contacts.

The forgiving nature of this transmitter was demonstrated to me firsthand when I decided to change the transmitter's tube, a 4CX20000C that had been in operation 22 months. I anticipated hours of fuss based on past experiences. I expected to spend an hour "cooking" the gas out of the tube to the transmitter's satisfaction and another few hours finessing the controls, which are usually extremely jittery on higher-powered transmitters especially.

The experience was quite different. I literally pulled the tube out of the box, burned it in for two minutes, set the transmitter controls and, within 30 minutes, was driving away from the transmitter site assured that I wouldn't be back there anytime soon.

Not only could I plug in a tube and walk away, this transmitter didn't complain when we left a tube in for almost two years — well past the industry stan-

dard of six to 12 months for a tube change. The FM-35T's power control is so exceptional that even when we came close to burning out the filament at the end of the tube life, the FM-35T didn't even blink.

This transmitter hasn't complained in nine years! To my continual amazement, the FM-35T has held up to dozens of electrical storms and power spikes. It

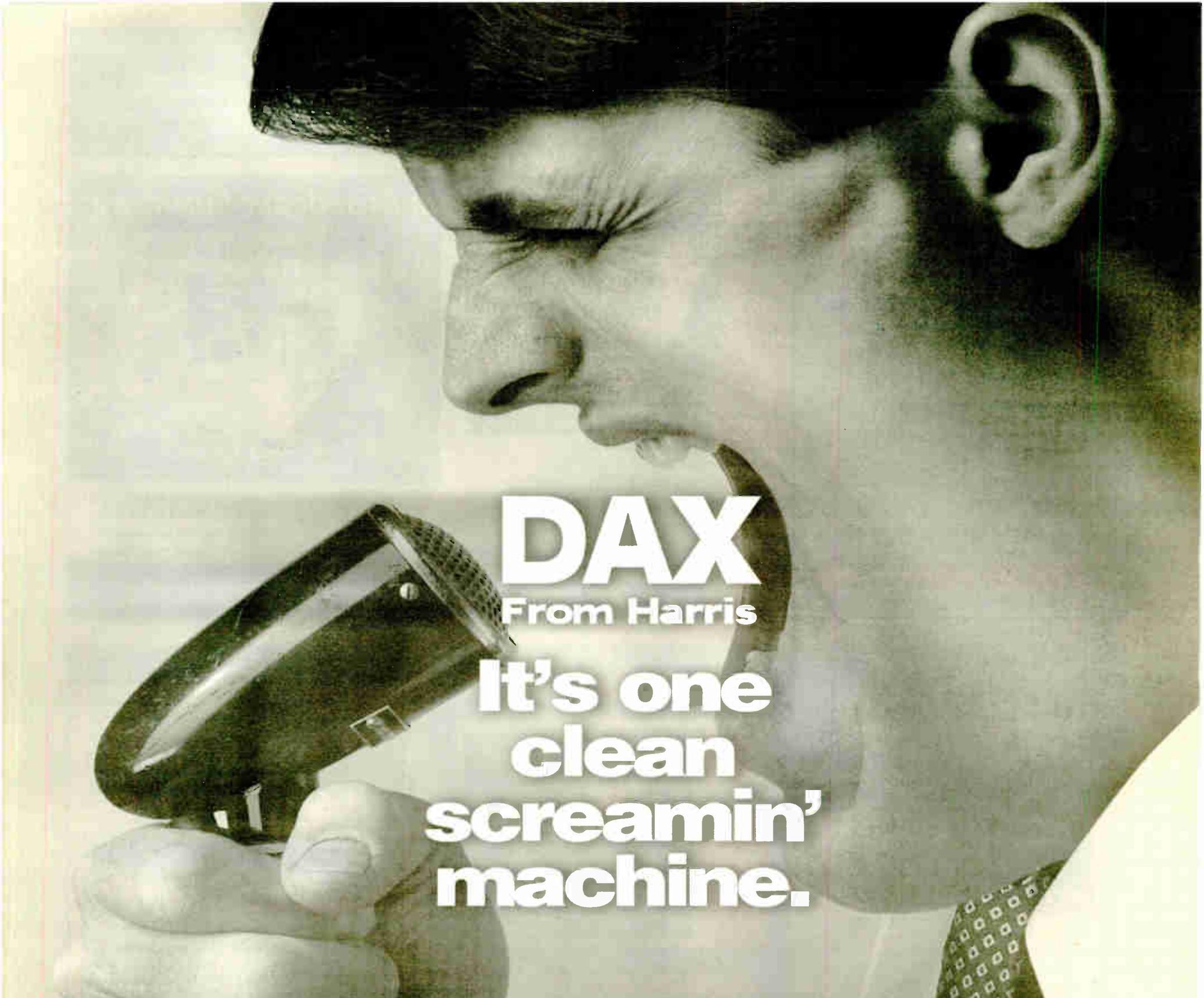
weathered nine years of abuse, including a particularly nasty thunderstorm with violent electrical activity that rolled into the area in March. During the storm, it took a potent power spike, causing damage to its intermediate power amp.

Even that wasn't enough to bump the transmitter off the air. The FM-35T simply dropped power automatically, powering down to 45 percent to keep the station on the air. What's more, because the BE FM-35T has two IPAs, I was able to bypass the combiner in a matter of minutes and recover a full 90 percent of operating power with the remaining IPA.

Within 48 hours of the storm, WBHJ was brought back to 100 percent power thanks to BE customer service, which sent the parts overnight and walked us through the repair.

I've been roused out of bed in the middle of the night to tend to equipment problems on a number of occasions, but never because of the FM-35T.

For more information, including pricing, contact the company in Illinois at (217) 224-9600 or visit www.bdcast.com.



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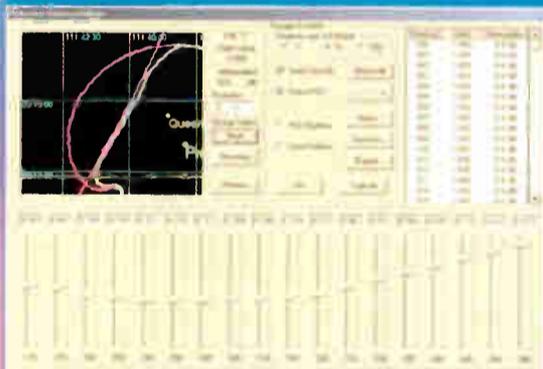


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USER REPORT

Bext's Lex 30 Has 3-in-1 Appeal

by Don Hobson
Retired Broadcast Engineer

SAN DIEGO I have retired as an engineer at KJQY(FM); but when I heard about Bext's Lex 30, the new frequency-agile FM transmitter, I called them up to see if I could test it out of personal interest.

My findings? Price, performance and features. It is not often that you can get all three in the same package. But long-time radio/television supplier Bext has come up with a winner in its Lex 30.

external composite or monaural and turn the limiter on or off. An RS-232 DB9 female connector for direct or modem serial communication is available on the front panel.

Now to the performance.

Let's say you are an all-digital plant. You can keep your audio in the digital domain all the way to the exciter and then use the built-in stereo generator to modulate the transmitter. Yes, it is that good. Still have an all-analog setup? Feed your audio processing directly into the composite input. Need a



Bext's Lex 30

Industrial power supply, cooling fan, stereo generator, peak clipper, stable modulated oscillator and power amplifier easily combine into 1 RU. It is designed well and laid out nicely.

A two-line LCD display provides front-panel controlled functions. Except for the internal slide switch for 120/240 V operation, there are no adjustments necessary with any cover removed.

Functions

Eleven menu-based functions are provided. You can check operating frequency, adjust forward power and observe reflected power. You can set frequency in 10 kHz increments. The unit lets you observe right and left peak input levels with a visual 100 percent point, unclipped modulation level, clipped modulation level when limiter is on and peak clipper action.

Users can set input impedance to 600 or 10 k ohms. Inputs can be unbalanced through a BNC connector or balanced/unbalanced through XLR connectors. You also can set input sensitivity level from -6 dB to +6dB and pre-emphasis at 75 microseconds, 50 microseconds or flat as well as activate internal stereo generator, select

monaural feed for use as a translator or other low-power feed? It's all here, with no accessories needed or rewiring required.

For testing, I hooked a CD player up to the left and right audio inputs. Levels were easily set with the peak reading meters that clearly display the 100-percent point. The results were clean and flat. Radio should always sound this good.

Needless to say, I was impressed. What you put in is what you will get back; and with so many options you should have no trouble achieving the results you want.

Stainless-steel chassis and some artistically designed rack handles complete the solid, well-built feel of the product. This, along with Bext's two-year warranty and introductory pricing well below the \$2,000 mark, make this a package that everyone should be able to afford. Whether a large-market radio station, a contract engineer for a number of FM stations in the area or just starting off in the field, this product will satisfy everyone's needs.

For more information, including pricing, contact the company in California at (888) 239-8462 or visit www.bext.com.

TECH UPDATE

Nautel Offers HD AM Transmitters

Nautel's line of 1 kW to 60 kW solid-state AM transmitters is compatible with IBOC digital transmission.

The Interphase Pulse Duration Modulator uses what the company calls an ultra linear extended band filter. It says the phase and amplitude linearity of these transmitters contribute to symbol-to-noise ratio, which is a discrete point rather than a continuous analog signal type, when transmitting the digitally encoded signal.

The Nautel ND and XL series 1 kW to 60 kW transmitters provide direct interface with its HD Radio/IBOC Digital Exciter.

Designed to tune within the AM and FM bands, the Digital Exciter provides an IBOC modulated waveform in accordance with Ibiquity-defined service modes. It performs encoding of the digital audio input to be transmitted in the IBOC waveform and supports supplementary data services.

The Digital Exciter allows pre-distortion of magnitude and phase of the individual IBOC subcarriers in order to correct for transmission system variations.

Upgrades are available for Nautel ND and XL series transmitter owners.

For more information, including pricing, contact the company in Maine at (207) 947-8200 or visit www.nautel.com.

ENTER TO WIN

Here's your chance to unpack FREE GEAR in 2003. Enter to win one of 26 New Technology prizes.

Over the past two years, Radio World and dozens of industry suppliers have joined forces to award more than \$115,000 worth of radio and pro audio gear — from microphones, master clocks and sound cards, to audio processors, routers, CD mastering machines and shopping sprees.



In 2003 you can expect a similar range of cool New Technology products from our great sponsors. It takes only seconds to sign up online. And best of all, there are 26 chances to win in 26 drawings - - one for every issue of Radio World. This is our way of saying "thank you" for allowing us to bring you New Technology for the past 27 years.

To enter the sweepstakes you must complete these 3 easy steps:

- 1 Go to our website www.rwonline.com
- 2 Click on the New Technology Sweepstakes icon
- 3 Follow the instructions and fill out the electronic entry form — that's it, you're done!

So what are you waiting for? Don't miss out in '03. Enter to win New Technology products from these fine Radio World supporters:



Contest Rules: To enter the drawing, simply register online at www.rwonline.com/sweeps. 26 drawings will be held throughout the year. Contest registration expires Dec. 3, 2003. Final contest prize announcement on Jan. 1, 2004. One prize per winner. All contestants MUST reside in the United States and have a valid mailing address. Winners should receive prizes within 30 days of notification; however, actual delivery time may vary and is not guaranteed by IMAS publishing. Federal, state and local tax/tariffs may apply to prizes and are the sole responsibility of the winner. Employees and affiliates of IMAS Publishing are not eligible.

USER REPORT

KCMT Fires Up Nautel Solid-State

by Gregg Garcia
Chief Engineer, KCMT(FM)
Arizona Lotus

TUCSON, Ariz. It has been one of the enduring truths in broadcasting that FM solid-state transmitters don't like to put out more than 20 kW.

That was certainly the case until Jan. 6, when we fired up a 40 kW FM solid-state Nautel transmitter and set a new record in solid-state transmission power.

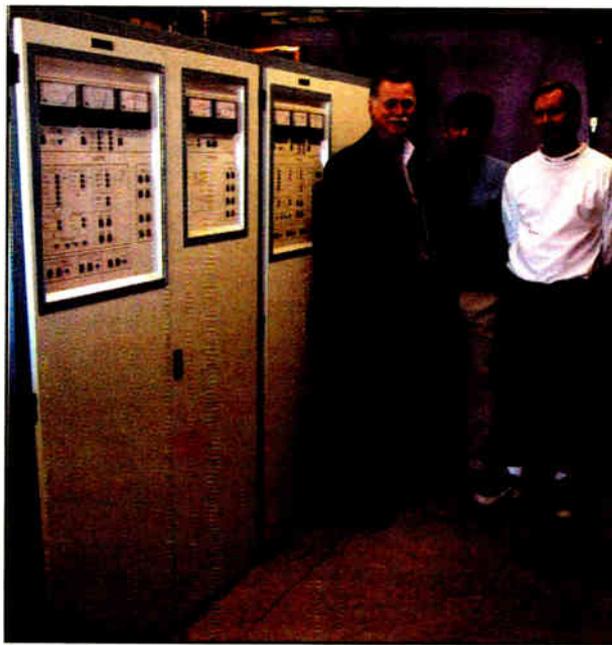
Breaking a record was the furthest thing from my mind when we received notice to change Tucson station KCMT(FM) from a Class A to a Class C 100 kW. Among the requirements was a 40 kW transmitter to make 39 kW power output to a new ERI directional antenna system designed with a deep null to stop the signal just short of the Mexican border, a mere 60 miles to the south of the station's transmitter site.

With 39 kW beyond the power limits of most solid-state FM transmitters, KCMT seemed destined for a 40 kW tube transmitter.

Then we heard about the new Nautel Q40 solid-state transmitter, the first solid-state FM transmitter with just one hybrid combiner to output 40 kW from two 20 kW Q20 transmitters.

Both Hank Langlais, RF engineer for Arizona Lotus Tucson, and Lindy Williams, director of engineering for Lotus Broadcasting, were hopeful. They had grown used to the reliability and easy maintenance schedule of solid-state transmitters, and they didn't want to return to the tyranny of a tube transmitter if they could help it. None of us relished the thought of buying tubes again, a \$5,000 hit to the budget every 12 to 18 months.

Yet we questioned whether a solid-state transmitter could put out 39 kW reliably. Our primary concern was load imbalance, a problem prevalent in 40 kW solid-state hybrid combiner designs using cascading networks



Lotus Broadcasting Director of Engineering Lindy Williams, left, Arizona Lotus Assistant Engineer Dave Shelton and Chief Engineer Gregg Garcia, far right, stand in front of KCMT's new Nautel 40kW solid-state FM transmitter.

to step up power to 40 kW. The specific concern was the combining of out-of-phase transmitters, the cascaded effect of which can add significantly to the size of the reject load required and result in large amounts of wasted power and dissipated heat. We wanted to avoid excessive heat dissipation, especially because our station is located in the desert, where the mercury can reach 115 degrees during the summer months.

We quickly learned that our concerns were unfound-

ed. We were assured that Nautel's patented single-stage hybrid combining technique would minimize load imbalances and reject load heat dissipation in the Q40's power blocks. Because the Q40 design combined power blocks in a single step, there was little chance we'd run into large reject loads or massive amounts of heat buildup.

With heat dissipation no longer an issue, we took the plunge as the first station to order a production Q40 transmitter.

Powering up to 40 kW

The Q40 arrived just before Christmas. We bolted the two 20 kW cabinets together and with the hybrid combiner in place, we fed transmission line to our new ERI directional six-bay antenna with enough gain to take us to 100 kW of effective radiated power.

To our relief, the Q40's power modules and combiner unit snapped together almost as easily as Lego pieces. After putting in a new antenna system, we appreciated not having to stay up nights putting together a transmitter.

We thanked our luck once again when we realized the Q40 wasn't going to give our old, yet still useful, air conditioning unit any problems. So minimal was the heat dissipation from the Q40, the building's two 10-ton units handled the heat load as easily as it had the heat coming out of a 3 kW solid-state transmitter previously in service when KCMT was a Class A operation.

Any remaining concerns that the transmitter wasn't up to the task of putting out 40 kW were dismissed quickly when we turned on the power and the reject load power meter moved a hairline to the right of the zero — and stayed there. We haven't seen the meter move from that position since the day we installed the Q40.

For more information, including pricing, contact the company in Maine at (207) 947-8200 or visit www.nautel.com.

TECH UPDATES

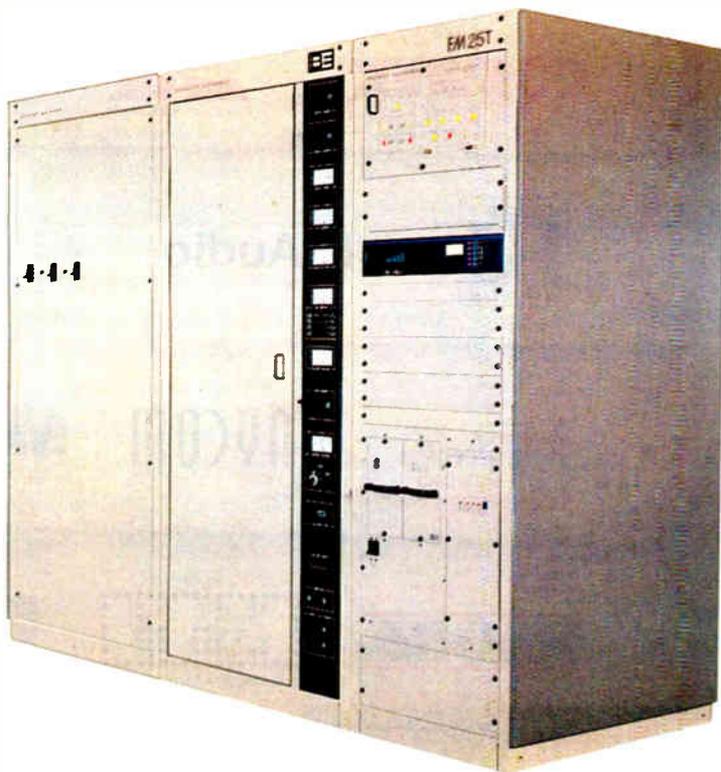
BE's FM-25T Powers 25 kW or 50 kW

Broadcast Electronics' FM-25T single-tube transmitter shares the features of its T series transmitter and targets outputs between 21 kW and 26 kW. It can also be used in dual configuration for transmitter outputs between 40 kW and 50 kW.

The FM-25T adds to BE's T series transmitter lineup, which includes 5 kW, 10 kW, 20 kW, 25 kW, 30 kW and 35 kW models. It is designed with a folded half-wave cavity that BE says eliminates the need for a plate-blocking capacitor and sliding contacts. It has proportional foldback for protection during the antenna load conditions.

The FM-25T uses the 4CX20000A tube and filament regulation for added tube longevity. The single-tube transmitter has diagnostic tools for remote monitoring and logging of transmitter operations and offers RTDS as an optional feature. The 25 kW transmitter is in production and shipping.

For more information, including pricing, contact the company in Illinois at (217) 224-9600 or visit www.bdcast.com.



Bext Offers HS Series Of FM Transmitters

The HS Series is a hot-swappable family of FM radio transmitters from Bext. The 5 kW model has five independent RF modules and the 10 kW model has 10.

Modules are hot-swappable from the front, which, according to Bext, does not affect the rear of the transmitter, so users don't need to turn off or turn down the power for removal or swapping.

Each of the RF modules are capable of 1,250 W of power, although they are used at 1,000 W each and contain their own independent voltage regulation circuit. Both the 5 kW and the 10 kW models are housed in a 6-foot-tall, standard rack cabinet.

For redundancy, the transmitter accommodates an optional dual exciter with auto changeover. A dual transformer system option is available on the 5 kW model (the 10 kW model comes standard with dual-transformer system).

The unit is remote-controllable via standard remote-control interface and by PC via modem. Power can be adjusted and frequency can be reassigned remotely, so Bext targets the HS 5000 to N + 1 systems (multiple frequencies, stand-by applications). The HS series comes with a frequency-agile exciter and a broadband amplifier.

Protection circuitry, low-pass filter, proportionate auto-foldback, automatic power level control and visual display for functions and parameters are standard. Hot-swappable FM transmitters from Bext include 20 kW and 30 kW power levels.

For more information, including pricing, contact the company in California at (888) 239-8462 or visit www.bext.com.

JT Communications Offers Product Range

JT Communications has several transmitter and exciter products on the market, including the PLFM-100 PLL FM replacement exciter module, used to upgrade or replace obsolete or out-of-date FM exciters.

It comes with a 3-x-5-inch PC card with standoffs to mount on the chassis or metal enclosure. Features include 100 kHz PLL steps, 100 mW output, composite and pre-emphasis audio inputs, -70 dBc AM/FM noise, -80 dBc spurious and +/- 300 Hz drift typical. It takes 12 VDC power.

Retailing for \$249.94, the PLFM-100 targets stations needing a drop-in replacement or stand-alone test exciter.

For more information, contact the company in Florida at (352) 236-0744 or visit www.jtcomms.com.

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ANTENNAS/ TOWERS/CABLES

Want to Sell

Superior Broadcast Products FM Antennas All Power Levels. Contact Jimmie Joynt Phone 800/279-3326

Andrew 1-5/8" air dielectric cable, approx 100', BO. Ken Diebel, KHMB, 1707 Louisa St, Rayville LA 71269.318-728-2370.

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Andrew 1-5/8" foam cable, approx 150', BO. Ken Diebel, KHMB, 1707 Louisa St, Rayville LA 71269. 318-728-2370.



Cablewave 3 bay medium power, frequency 92.1 MHz, BO. Ken Diebel, KHMB, 1707 Louisa St, Rayville LA 71269. 318-728-2370.

Rohn 65G 460' freshly painted tower, complete, on ground, \$18,000. Ken Diebel, KHMB, 1707 Louisa St, Rayville LA 71269. 318-728-2370.

S.W.R FM & Television Antennas

Contact Jimmie Joynt Phone 800/279-3326

SWR 8-bay antenna, 5 yrs old, tuned to 89.7 FM 20 kW input, 70 kW output. In service until removed 3 mos ago. You pick up in Baton Rouge LA, \$1500. Willie Kennedy, WPAF, POB 1390, Centerville MS 39631. 800-324-1108.

Cablewave CP-1000-2 FM transmit antenna with radomes, 2000 watt maximum power input capacity, tuned to 92.3 MHz, brand new, still in factory sealed cartons, \$1600/BO. Ray Knudson, KNXR, 1229 Park Ave, La Crosse WI 54601. 608-782-2254.

Rohn #25 galvanized tower, 50' w/base. 5 - 10 foot sections with base, \$350. Don Leutz, Clear Mtn Air Bdcg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

Rohn #55 galvanized tower, 30', 3 - 10 foot sections, \$300. Don Leutz, Clear Mtn Air Bdcg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

Radio World Equipment Exchange

AUDIO PRODUCTION

Want to Sell

ATI audio distribution amplifier 2016-1, approx 10 avail as a result of studio renovations, \$500 ea +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

AudioArts 8400 distribution amplifier, 7 available as a result of studio renovations, \$500 ea +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

RTS 416 distribution amplifiers (2), has slight problem pushing +4, \$350 +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

TFT 713 AM frequency & modulation monitor, \$1500 +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

dbx 155 tape noise reduction system, \$50. Don Leutz, Clear Mtn Air Bdcg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

CART MACHINES

Want to Sell

Audicord cart machines, about 15 "E" series PBs at \$50 each; 12 "DL" series PBs & 2 "A" series PBs at \$50 ea. Most of them have been refurbished. We also have one "A" series P/R mono, two "E" series P/R mono, two "DL" series P/R mono & two "DL" series stereo P/R at \$125 each. No connectors available, will sell as is +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

BE R/P cart machines (2) stereo units, as is, \$95 ea; (2) mono units as is, \$90 ea. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

Nidec motors for Audicord "E" Series (10), 117v 6H 3.1w 0.2amp 12p & 600rpms, will sell as is for \$20 ea, working condition, just noisy. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

Want to Buy

Cart machines R/P, used in working order. Mike Cardillo, 151 Morgan St, Cranston RI 02920. 401-942-8341 or mondokeradio@aol.com.

CD PLAYERS

Want to Sell

Pioneer PD-M502, six pack CD player, new in box, never used, \$100. Don Leutz, Clear Mtn Air Bdcg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

COMPLETE FACILITIES



CONSOLES

Want to Sell

ATI Vanguard Series sound board, 8 channels, \$275 as is +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

AudioArts A-50 8 channel with slides (2). Used in light recording, in excellent shape but will sell as is for \$900 each +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

AudioArts R-60, w/about 8 slides on it with room for 4 more. Used in light recording, \$2750 +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

BE Spotmaster 8M100A audio console. Very little know about this board, will take \$75 or BO as is +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

Schafer 5 channel mixer, very nice, but goes as is, ready to ship w/manual, \$75 +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.



DISCO-PRO SOUND EQUIP

Want to Sell

Transaudio speakers model 10128 (2 ea), \$100/pr; Advent AV-009 computer speakers, never used, \$25. Don Leutz, Clear Mtn Air Bdcg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

LIMITERS/ AUDIO PROCESSING

Want to Sell

Orban 8100-A ST/U studio pre-processor, used one year, \$750. Don Leutz, Clear Mtn Air Bdcg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

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

ROTRON BLOWERS AND PLATE BLOCKERS, new & rebuilt for Elcom, Harris, CCA, CSI, McMartin, Goodrich Ent. 11435 Manderson St. Omaha, NE 68164 402 493 1886 FAX 402 493 6821

Fidelipac "On-Air" light, we have some in Spanish too. \$25 ea +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

HollyAnne HU-961 EAS unit, BO. Ken Diebel, KHMB, 1707 Louisa St, Rayville LA 71269. 318-728-2370.

Honeywell medium intensity strobe system model K-6 225 TW KVA.6 120 VAC. Lines include royal electric 12/7 SOW 600v at 132' Royal Electric 12/5 SOW-A 90c & 60c with lengths or 52' & 160'. Good for parts only. Will sell total kit as is for \$3000. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

Inovonics Map II multiband processor, \$500, as is +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

Proteck 20 MHz spec analyzer, A-3502. BO. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

QEI ARC-27 automatic remote control, \$200 as is +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

Vintage editions of the NAB Engineering handbook. 3rd (1945), 4th (1949), 5th (1960) and 6th (1975) editions; complete and in very good condition. Will sell as set or individually. 540-887-7354 or email: bbetlej@mbc.edu.

Zercom 25 Hz TP-XT dual tone detect & notch filters (3), \$50 each as is +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

Motorola Radius P100 radio, with holster & rapid charger, \$150; 1964 Rock-O-La stereo juke box, good condition w/manuals, \$1500. Don Leutz, Clear Mtn Air Bdcg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

New Pioneer Six Packs, JD-M300TP, \$25. Don Leutz, Clear Mtn Air Bdcg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

Trace SW-4048 inverter (48 volt DC), factory rebuilt, never used, \$2500. Don Leutz, Clear Mtn Air Bdcg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

Want to Buy

45s, albums, rock & roll, R&B, Doo-Wop, looking for promo's for old time radio shows. Mike Cardillo, 151 Morgan St, Cranston RI 02920. 401-942-8341 or mondokeradio@aol.com.

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Optquest Q41, 14" color monitor, never used, in box, \$100; EMC 14" super VGA color monitor, slightly used, \$75. Don Leutz, Clear Mtn Air Bdcg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

RECEIVERS/ TRANSCIVERS

Want to Sell



GE MVP, 25 watt 1 channel radio with three sets of elements 147.210, 147.135, 147.270, new mic, \$25. Peter Russell, Bowdoin College, Sills Hall, Brunswick ME 04011. 207-725-3066.

Superior Broadcast Products FM STL Transmitter & Receivers 3,500 for both Contact Jimmie Joynt Phone 800/279-3326



RECORDERS

Want to Sell

Dynamax CTR100 Series R/P w/manual, like new & ready to ship, will sell as is for \$150 +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

Revox r-r's, good for parts but might be repairable, seven available, \$30 ea. Mike Raley, 704-523-5555 or email: Mraley@bbradio.org.

Akai DR-4d digital hard disk recorder, \$500. Don Leutz, Clear Mtn Air Bdcg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

Otari MX-5050, 4 track r-r tape deck with remote control, \$1500. Don Leutz, Clear Mtn Air Bdcg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

Tascam 122 Mark II (3), low hours, \$150 each. Peter Russell, Bowdoin College, Sills Hall, Brunswick ME 04011. 207-725-3066.





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REMOTE & MICROWAVE Want to Sell

Burk IP-8 front mount adaptor kits (2), for Burk remote control, \$25 each. Don Leutz, Clear Mtn Air Bdctg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

Burk IP-8 Interface panel, \$100; Burk LX-4 audio switch, never used, \$250. Don Leutz, Clear Mtn Air Bdctg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

Moseley MRC-1600 remote control, both studio & xmtr unit complete, \$1000. Don Leutz, Clear Mtn Air Bdctg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

Telos stereo Zephyrs 9200 (2), like new, used less than 10 times, \$3250 ea. Don Leutz, Clear Mtn Air Bdctg, POB 708, Twain Harte CA 95383. 209-586-5627 or email: sdl@goldrush.com.

SATELLITE EQUIPMENT Want to Sell

AnaCom ANASAT-C Series C-band transceiver 10 watt, just reconditioned, \$6800. For technical info email: rmuffey@bbnradio.org, for purchase call Mike Raley, 704-523-5555 or email: Mraley@bbnradio.org.

Comtech 5.5m dish and mount. Originally purchased back in 1983 but in good condition, will sell as is, buyer responsible for removal and shipment, \$5500. Mike Raley, 704-523-5555 or email: Mraley@bbnradio.org.

Moseley PCL-606/C STL xmtr, pulled from service because of band amplifier & it might be repairable or good for parts, will sell as is for \$400. Mike Raley, 704-523-5555 or email: Mraley@bbnradio.org.

Wegener DR96 digital Rx (2) units in excellent condition, BO. Ken Diebel, KHMB, 1707 Louisa St, Rayville LA 71269. 318-728-2370.

Wegener 1806 (2) audio subcarrier receivers, one for mono, 1 channel 15 kHz, panda reception, \$125; the other receiver for stereo, 2 channel panda reception, \$150. Greg Fitzgerald, Deutsche Welle Radio, 22 Hawthorne Rd, Wayland MA 01778. 508-654-1644.

Wegener DN86 digital audio receiver 3944.1 MHz, \$300 as is +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbnradio.org.

Zephyrus analog sat receivers (4), \$140 ea, as is +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbnradio.org.

STATIONS Want to Sell

1,000 watt AM in single station west Texas market. All new equipment and solid state BE transmitter. Great money maker for owner/operator. Paul Beane, 1-806-789-8700.

Radio station KYFO-AM in Ogden, UT. This is a 1k omni-directional station at 1490AM. Property is included. Asking \$600,000. For more information and pictures please email: Mraley@bbnradio.org or call 704-523-5555.

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AM/FM station located in RI, MA, CT FL areas. No station to small, commercial or non-commercial. Mike Cardillo, 151 Morgan St, Cranston RI 02920. 401-942-8341 or mondomikeradio@aol.com.

Christian Florida 1000W AM station that was looking to sell, please contact me, I'm very interested, but lost your number. Call Mike at 401-942-8341 after 6PM EST.

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Looking for AMs, FMs, non-commercials, translators or CPs in western US. Please email: Dougs@ihradio.org.

TEST EQUIPMENT Want to Sell

RCA FM modulation monitor BS85A, Belar stereo, probably needs repair, but will sell for \$200 +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbnradio.org.

RCA FM modulation monitor BW75A, Belar mono, needs some repair but will sell for \$200 +shpg. Mike Raley, 704-523-5555 or email: Mraley@bbnradio.org.

Want to Buy

Potomac Instruments AG-51 oscillator S/N #1333, have matching analyzer AA-51. C Hood, 412-622-1486.

TRANSMITTERS

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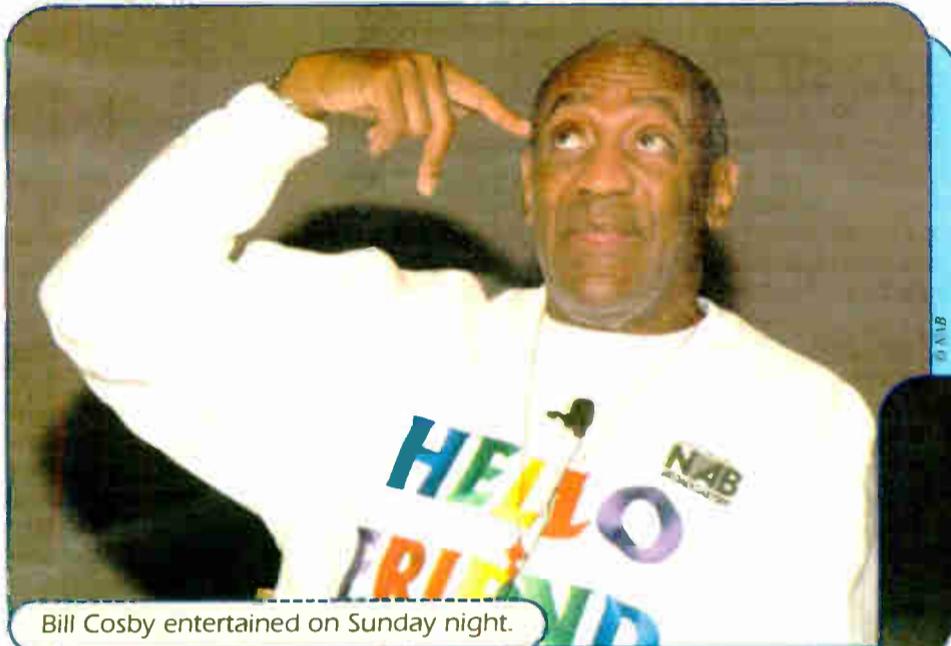
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Bill Cosby entertained on Sunday night.



Rita Rudner talks to David Lawrence in the OMT booth.



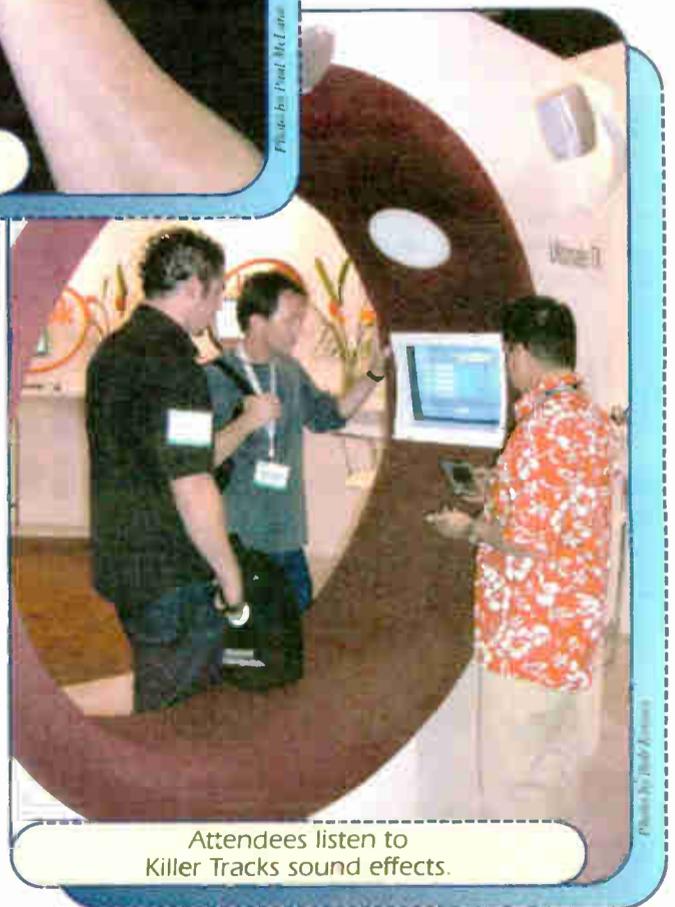
Lauren Darr of Harris shows off this year's Digidog.



Nice weather we had this year.



Hank Landsberg of Henry Engineering balances work and play. He has the new Digimatch 2X6 on his mind.



Attendees listen to Killer Tracks sound effects.

◆ READER'S FORUM ◆

Take off the blinders

I have the utmost respect for Ron Rackley (Mar. 26, "Rackley Delves Into AM IBOC") and have been fortunate to work with him on some DAB and other projects in the past.

The red flag that keeps getting waved in technical interviews and articles is regarding the ability for IBOC (which is really IBAC) to perform on directional arrays.

When I say it is really IBAC, look at the Ibiqum spectrum: you'll see that the digital carrier(s) are not at all on channel, but adjacent. This is the old AT&T method that its predecessor, USA Digital, pooh-poohed when it was demonstrated at the New Orleans fall show in the mid-1990s.

It was criticized fairly, because the method did not allow for every station in the United States to go digital as then required by the FCC for acceptance. This is one of the main reasons Eureka was not favored by U.S. broadcasters.

The idea of doing a digital phasor system, somewhat supported by Rackley's comments in the interview, seems to be the real way of attacking the phasor/bandwidth issues. This will be a significant step for the success of in-band digital radio for AM. But today's rules, current status and IBAC still do not work!

The contour (interference) protections must continue be honored to the first- and second-adjacent stations, unless the FCC wants to modify the rules for this purpose. Placing the carrier above and below, or above and/or below the main licensed carrier, will provide you varying results of bandwidths, phasing and ultimately a differing far-field contour from the FCC licensed contour.

As Rackley mentions, some arrays will require expensive modifications to their antenna system; their owners may deem it not cost-effective to go digital. Unfortunately, this number is relatively high.

As it is, the costs to obtain licensing from Ibiqum and to purchase the digital transmission system are going to be prohibitive for some. To add the costs of hiring a qualified engineer to redesign and build a new facility surely will be the end-all to many medium- and especially small-market stations.

And in some markets, this just doesn't work, even with the opportunity to do one of the digital carriers. Look at the situation in Chicago with the 930 and 950 allocations. Their digital carriers would have to

be reduced to one; but factoring in the not-so-far-away 940 in Ft. Atkinson, Wis., and the 920 in Milwaukee, they each have no way to transmit digital without interfering with someone else's analog signal. Not currently allowed by FCC rules! Or is this about to change?

If the FCC wants to play the give-and-take game for progressing into new technology by modifying rules to allow something to fit, I believe there is a much better way to approach it. If "the FCC seem(s) to be focused on protecting a station's signal within its contours," I beg for further clarification, as "signal" and "contour" basically mean the same thing. That's the way the rules are written.

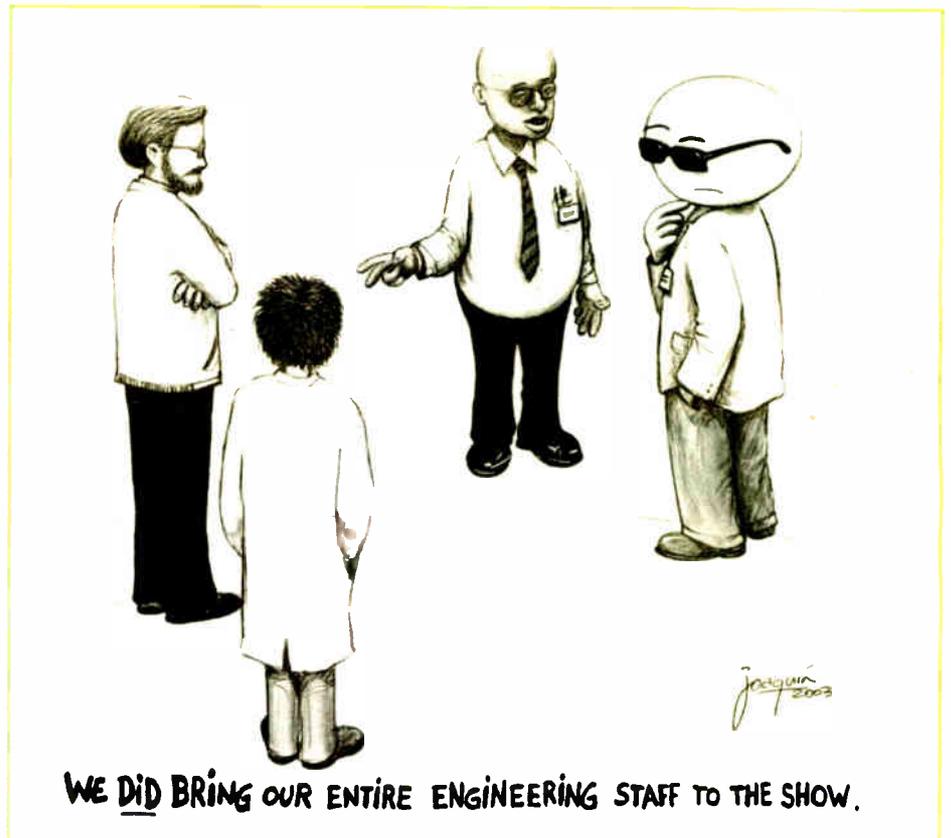
Are we protecting stations signals up to the written rule or a grandfathered varied contour? Does contour really mean "market"? Would this mean that WSCR, WGN, WLS and WBBM, etc., will be cutting back their power to what is necessary to cover "their markets"? Why have all that extra power causing interference and/or preventing many other stations from being on at night?

A prime example of this is just in analog: WBAP in Dallas preventing WCSN to have any financially worthy night signal. WCSN can't run enough power to overcome the analog interference and yet protect WBAP, while WBAP interferes with the power WCSN can run within its own market, making it unable to cover its market at night.

If the FCC were to reallocate the AM spectrum, it could find the solutions necessary to preserve the ability of U.S. AM broadcasters to transmit digitally and allow them to compete locally with their FM counterparts — not only with digital, but also in being a 24-hour broadcasting station, all without additional spectrum. No more grandfathering! Increase stringencies on antenna performances, especially with regard to skywave. Leveling the playing field for all would be the first major step.

With all the talk of needing to compete with XM and Sirius, the AM broadcaster again is really getting shafted by outdated rules. Satellite always will have an advantage over broadcast with its ability to play and be uncensored.

From jocks to music, this is a real attraction to the younger audience. They are getting hooked on satellite by the quality of sound and unrestricted speech. The core audiences appear to be in the prime spending ages, especially where \$9.95 a month is not an issue for the vast



selection of this unleashed programming.

Broadcasters have not yet seen the power of this competition, and AMs are going to be way behind in their ability to compete if something more serious is not considered. I hate to use the phrase "only the strong survive," but we have already seen this trend and it's only going to get worse.

If the NAB and FCC are concerned about preserving locally tailored programming and services, they had better act in a viable way to preserve it.

Scott Clifton
Director of Engineering
Sporting News Radio Network
Chicago

Right pew, wrong church

Why has nobody addressed the interference that IBOC/HD radio causes to first-adjacent stations? I work in north-west Ohio, and during the day I can no longer listen to WOWO(AM) at 1190 in Fort Wayne due to a constant "hiss" in the audio — this is directly related to when WCHB at 1200 kHz in Detroit has its IBOC turned on.

This is on my regular car radio, nothing fancy. WOWO's audio resembles an old blank cassette tape hiss with no audio on it. What is going to be done to reduce this harmful interference? AM IBOC needs its own new band as, unfortunately, the bandwidth just isn't there in the medium-wave band to utilize IBOC.

"Right pew, wrong church." IBOC is quite a project but, in its current form, it just won't work in our AM band without destroying reception of adjacents. In my opinion, the IBOC efforts would be better focused on DSP receiver improvements, not changes to the transmission methods.

I think Motorola and others might have the right idea with the "Symphony Chip Set" or the "Omega" receiver system, which provides analog a new lease on life by attacking the noise floor in a productive and "quieting" manner.

John Pavlica Jr.
Senior Engineer
ICON
Toledo, Ohio

Disney affiliate in HD-R

I read the "HD Radio Scorecard" listing stations broadcasting in HD Radio.

WOLF(AM), which began broadcasting in HD-R on Feb. 21, is the first Radio Disney affiliate nationwide to broadcast with the digital system.

Since we do broadcast a full-time music format, we are probably one of the few AM stations actually transmitting a full-time stereo program source. Most other AM HD stations probably are some form of a talk or news format, and while they benefit from the improved fidelity of HD, they are essentially a mono program source.

Craig Fox
President and GM
WOLF Radio
Syracuse, N.Y.

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—EDITORIAL CONTRIBUTORS—

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Telephone: (703) 998-7600 • Business Fax: (703) 998-2966 • Editorial Fax: (703) 820-3245
E-mail: radioworld@imaspub.com • Web site: www.rwonline.com

—ADVERTISING SALES REPRESENTATIVES—

US East: John Casey	330-342-8361	Fax: 330-342-8362	e-mail: jcasey@imaspub.com
US West: Dale Tucker	916-721-3410	Fax: 815-352-1698	e-mail: dtucker@imaspub.com
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Germany, Austria, Switzerland: Charles Kingston	+49-69-4908-5785	Fax: +49-69-4908-5804	e-mail: chaskingston@t-online.de
European Sales Mgr., Africa, Middle East: Raffaella Calabrese	+39-02-7030-0310	Fax: +39-02-7030-0211	e-mail: rcalabrese@imaspub.com
Japan: Eiji Yoshikawa	+81-3-3327-2688	Fax: +81-3-3327-3010	e-mail: callms@msn.com
Asia/Pacific: Wengong Wang	+86-755-5785161	Fax: +86-755-5785160	e-mail: wwg@imaschina.com
Latin America: Alan Carter	703-998-7600 x111	Fax: 703-671-7409	e-mail: acarter@imaspub.com

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