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Condenser Consistency

Carl Lindemann likes Marshall's
 MXL 990 for stations on a budget.

Page 18

Win This Shirt

John Bisset wants your
 circuit ideas.

Page 6



Radio World

\$2.50

The Newspaper for Radio Managers and Engineers

September 1, 2005

INSIDE

HD RADIO

▼ Mark Ramsey says if HD Radio fails, it will be because we ignored good marketing sense.



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ENGINEERING

▼ The regulatory challenges facing digital radio.

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STUDIO SESSIONS

▼ Frank Beacham says if you like the Marantz PMD660 Flash Recorder, you'll love the new PMD671.



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OPINION

▼ Chris Imlay on pirates and Tim Cutforth on thinning the AM 'herd.'

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NEWS MAKER

Kelly to Stations: Promote, Promote, Promote

COLUMBIA, Md. Long-time radio programmer Don Kelly has been logging a lot of air miles since going to work for Ibiquity Digital in the spring of 2004.

He travels to meet radio managers and help them craft ways to promote the fact that their stations have gone digital.

This fall, radio begins a big consumer push for HD Radio, in time for fourth-quarter holiday purchases, typically the biggest selling season for consumer electronics.

Radio World News Editor/Washington Bureau Chief Leslie Stimson spoke with Ibiquity's broadcast strategic marketing manager before he caught a plane on his way to advise yet more stations.

RW: You and Ibiquity consultant Dan Mason often do station presentations together on HD Radio. What is the difference between what you two tell man-

See KELLY, page 5 ▶

Studio Foundations

Furniture. It uses no electricity and pretty much just sits there. But it's a big, even emotional, buying decision. Buyer's Guide looks at furnishings. page 22

Some Question AM IBOC Readiness

This is the second installment of excerpts from public comments received at the FCC regarding NRSC-5, the NRSC-approved transmission standard for IBOC.

We support the idea of reallocating current TV Channel 6 for the new digital FM broadcast band as an alternate means to deliver digital broadcasting to the FM services. These frequencies could be easily incorporated into the over 60 million current FM receivers in the U.S. marketplace today.

This would eliminate the need for current FM stations to bear additional expenses of being forced to purchase equipment for digital transitions that TV broadcasters are being forced to face. Additionally, consumers would not have to dispose of current receiver technology, but rather "add on" to existing technology for incorporation of a new band reserved for digital broadcasting. Interference issues currently encountered on the existing analog FM band would not be supplemented by additional (yet unforeseen) interference issues that would be encountered by IBOC proposals.

Jim Trapani, President
 JT Communications
 See NRSC-5, page 3 ▶

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◆ NEWS WATCH ◆

Emmis, SBS Settle L.A. Tower Fight

INDIANAPOLIS Emmis Communications Corp. and Spanish Broadcasting System agreed to settle a legal dispute over a format as part of a tower lease arrangement. Emmis agreed to drop a lawsuit filed in district court against SBS and withdraw a complaint letter to the FCC.

As part of the agreement, according to Emmis, SBS vacated Emmis' tower at Flint Peak in Glendale, Calif.

The dispute began in June when SBS changed the KXOL(FM) format while leasing space on the Emmis tower.

Emmis contended SBS needed to notify the broadcaster of any format change that could compete with an Emmis station in the market.

Harris Ends FY '05 Up

MELBOURNE, Fla. Harris said broadcast revenue was up in the fourth quarter compared to a year ago, helped by the acquisition of Encoda Systems.

Revenue in the Broadcast Communications segment was \$114.6 million, up from \$89.1 million. Operating income

was \$7.9 million for the quarter, compared to \$3.9 million in the year-ago quarter.

A company spokesman declined to specify how much of the revenue change was attributable to the Encoda acquisition.

In its report, Harris also reiterated plans, previously reported here, to cut costs by moving European transmitter production from the U.K. to Illinois, outsourcing radio console assembly and cutting 150 to 200 positions in the broadcast division.

The company said these moves will cost about \$27 million and Harris expects to gain that back in about two years.

FCC Reviewing Payola Settlement

WASHINGTON FCC Chairman Kevin Martin has promised swift action if his team looking into the settlement between Sony BMG and the office of New York Attorney General Elliot Spitzer turns up evidence of payola.

Martin said in a statement in early August that he is concerned about activities that led up to the New York investigation and has directed the Enforcement Bureau to review the settlement.

Spitzer and Sony announced in July that Sony agreed to pay \$10 million and stop paying radio employees to feature its artists, settling a yearlong investigation into allegations of pay-for-play. FCC Commissioner Jonathan Adelstein and Sen. Russ Feingold, D-Wis., called for the payola issue to be addressed on a national scale.

Martin said the bureau would investigate complaints of payola rule violations outside the settlement as well.

Adelstein applauded Martin's decision, saying, "This payola scandal may represent the most widespread and flagrant violation of any FCC rules in the history of American broadcasting."

Motorola Tests Dashboard Internet Radio Product

SCHAUMBURG, Ill. Motorola is testing iRadio, which it calls a podcast-like technology that allows Internet radio to play through cell phones to car music systems, according to the Chicago Tribune in a report carried by UPI. The monthly service would cost \$5 to \$7 per month.

iRadio is being tested in L.A. and
See NEWSWATCH, page 3 ▶

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NRSC-5

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I have been in radio broadcast engineering for 30 years. Recent experience with HD Radio has proven to me that in-band HD is *not* the way to go. This is especially true in the AM band where interference is a big factor and degrading the current system to 5 kHz is just plain stupid. Considering the number of current AM radios in use today, there is no reason to degrade the AM band any further.

Although not as bad an issue, I did find that after installation of an HD system on FM that the HD does in fact interfere with the analog signal on some radios, including my own car radio. The effect on the analog signal was volume

fading while driving in areas both near and far from the transmitter.

I would hope that common sense would prevail over pressure from special interest groups wanting to sell HD hardware and services.

Edward Jurich

I believe the IBOC standard proposed by the NRSC should be amended to allow operation in the S2 extended sideband region (69-101 kHz) in the extended hybrid FM mode if a station is willing to give up its analog subcarriers which operate in this region. I estimate that this would extend the digital bandwidth in the extended hybrid mode by about 48 kbps to offer a data rate of up to 192 kbps.

The bandwidth opened up would be enough to offer many of the services which because of limitations (144 kbps) are now

put off into a distant and perhaps improbable all-digital mode. As public broadcasters, for example, we could use the bandwidth to multicast two additional high-quality services (instead of just one) plus the digital version of the analog signal.

I note that the S2 sidebands are reduced in amplitude. Perhaps this is because such an option was considered and concern about inference between the analog and digital sidebands was thought to be an issue. If this is the case, then a small reduction in analog modulation (1 or 2 dB) could be used to create a guard band to ameliorate the problem. I believe that many broadcasters would be willing to accept a small reduction in analog loudness to carry more services.

*Thomas Ammons
Broadcast Technician*

BCA thus respectfully requests that the commission halt IBOC operations by AM stations, oversee full, unbiased testing to determine the real-world potential for interference by AM IBOC stations, and then modify NRSC-5 so that the standard ensures that AM IBOC operation will not cause interference to stations operating on adjacent frequencies. ...

In order to forestall IBOC interference, three steps must be taken by the commission before a new IBOC NRSC standard is approved. First, IBOC operation of AM stations should be immediately suspended until a new standard is approved. This will prevent needless expenditure of funds by the nation's broadcasters and will ensure that the public is not deprived of service while the revised and improved standard is being developed.

Second, the commission must oversee an independent study of IBOC-caused adjacent-channel interference. The study should examine real-world operating IBOC transmitters in different combinations of first- and second-adjacent-frequency conditions.

An independent study is required to ensure the study's accuracy given the substantial investment in IBOC by the largest group owners. Moreover, as part of this study, the commission should consider whether the IBOC standard should require a station operating in IBOC mode to be able to turn off or reduce one of the sidebands. ...

Finally, the commission must specify in detail the appropriate measurement procedures to be followed if interference complaints arise.

Broadcast Company of the Americas LLC.

NEWSWATCH

► NEWSWATCH, continued from page 2

Washington and could be available nationally by the end of the year, the newspaper reported. Subscribers could select six downloads from a menu of channels available on the Internet. The phone and the car radio have to be Bluetooth-enabled so the system also may involve a \$50-\$70 adapter.

Beasley Launches WPOW(FM) HD-2

MIAMI, Fla. Beasley Broadcast Group's WPOW(FM) in Miami is multicasting its HD Radio signal to form a sister dance-formatted station.

Beasley says WPOW HD-2 is the market's first multicast station and the 15th in the country. The 24/7 channel is commercial-free and features dance music.

Listeners can hear the new station with an HD Radio by setting the tuner to "96.5 - HD-2." Listeners who haven't bought an HD Radio tuner that can decode multicast signals will be able to sample the sound on the station Web site.

Ibiquity, Traffic.com Extend Pact

WAYNE, Penn. The satellite radio companies have on-demand traffic and weather services, and Ibiquity is working with Traffic.com to make sure terrestrial stations upgrading to digital have a similar service. Ibiquity and Traffic.com, which collects and reports traffic data, are extending a testing and marketing agreement.

Some 460 broadcasters were on the air with HD Radio as of the end of July, according to Ibiquity, which also said 60 percent of Americans now have access to HD Radio programming.

Feds Shut Down San Diego Pirate

SAN DIEGO, Calif. Agents from the U.S. Marshal's service and the FCC

shut down a pirate station in San Diego in late July. Agents seized amplifiers and computers and climbed on the roof of a house next to the wooden shack to dismantle the 43-foot-tall antenna, the San Diego Union reported.

"Free Radio 96.9" had allegedly broadcast illegally for three years out of a house and streamed its signal on the Internet at www.pirate969.org.

Price Rises for Radioscopy MultiStream HD

NORTH SIOUX CITY, S.D. Radioscopy has raised the retail price of its multicasting receiver for HD Radio, which is expected to reach stores in September.

Radioscopy President/CEO Richard Skeie cited manufacturing costs. "Despite the small price increase, at \$269, the MultiStream HD is still about half the price of the other table-top HD Radio receivers."

The price has crept up from the \$249 the company had projected in spring.

Radioscopy said in July it would continue taking pre-orders for the MultiStream HD, which is expected to begin shipping in September. Radioscopy said it would honor sale prices on orders placed prior to July 27.

Registration Opens For BE IBOC Seminar

QUINCY, ILL. Broadcast Electronics plans another HD Radio seminar, this one on Sept. 21 in Philadelphia during the NAB Radio Show. Attendees have begun reserving seats for the event at the Marriott Downtown.

"The big draw this year is second-generation deployment issues. We're getting a lot of interest from engineers who are ready for multicasting and data," stated Neil Glassman, BE's vice president of strategic marketing.

The seminar is free; to register, e-mail BE at HDR@bdcast.com.

BCA (Broadcast Company of the Americas) now has real-world experience with operating in an IBOC environment. That experience demonstrates that the current implementation of the NRSC-5 standard results in adjacent-frequency interference to AM stations that is so severe that interference is actually experienced within the 5 mV/m contour of the station receiving the interference.

The implications for AM service are staggering. If the IBOC standard is not modified to eliminate the interference that it currently causes, the millions of listeners who depend upon AM stations as their major source of news, weather, traffic reports, sports and emergency information, especially those who reside in rural areas between major cities, will be deprived of service.

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Words, Words, Words

Writing girds our society. As a business skill, it may be more important than ever, given our ability to communicate instantly with written words.

But the immediacy and ubiquity of media such as e-mail and Instant Messaging have tended to hurt, rather than enhance, our writing skills. We've gotten sloppier. I see this in all manner of written material: stories submitted to RW, letters to the editor, online posts, job applications.

Big deal? Yes, actually. My experience has been that many radio people undervalue writing skills; but if you wish to be treated with respect as an engineer, a station executive or any kind of industry professional, you must be aware of how others perceive you; and people will judge you in part by your ability to communicate.

Perhaps an engineer can navigate a technical career without having to write an effective cover letter, budget request or product review, although I doubt it. Regardless, why give the boss or potential employer a reason to prefer another person?

So allow me a diversion from radio topics to share some writing traps. These are chosen from RW's internal guidelines but may help anyone who wishes to be a more effective communicator.

It is/there are — Many writers love to start sentences with these. Too often the habit allows a writer to avoid naming a subject. Examples: *There is plenty of room on the control screen to throw in SFX and music cuts. It is a good idea to pursue SBE certification. There are no buttons on the transmitter's front panel. It should be noted that the output was fed into a dummy load.*

An occasional instance won't kill anyone, and careful use is fine, as in the second sentence of this column, in which "it" refers to "writing."

But poor writers tend to use these constructions constantly; the result is a reduction in the impact of your text. Provide or imply a clear subject: *The control screen offers plenty of room to throw in SFX and music cuts. I strongly urge you to pursue SBE certification. The transmitter's front panel doesn't have a single button. We fed*

the output into a dummy load.

Unnecessary words — Learn to spot them. Example: *There are two very good reasons why RF switching systems should not be allowed to switch "hot."* Not only does this sentence start with "there are," but we can make our point by eliminating seven words. Just write *RF switching systems should not be allowed to switch "hot."* The two reasons will follow.

Another example: *A benefit of a DayPlanner is that it helps in organizing your time.* Write: *A DayPlanner helps you organize your time.*

Keep it short. Keep it punchy. Keep it active.

Common instances of using more words where fewer will do: *despite the fact that* (write *although*); *the reason why* (use *the reason*); *the first-ever* and *the very first time* (just *the first*); *new introduction* and *future plans* (are there any other kinds?); *forward progress* (as opposed to backward?); *at 2 a.m. in the morning* (redundant); *pre-planning* (just *planning*); *fully compatible* (is that like *fully pregnant*?); *expensive to purchase*; *end results*; *on a daily basis*. Question each word you write; eliminate what you don't need.

Clichés — May the journalism gods protect us. Excise the following and their kin whenever you detect them in your writing: *Both large and small. Beyond the call of duty. Out there on a limb. To the naked eye. A win/win situation. Pay off in the long run. Get the nod. Pulled out all the stops. Up and running. It worked like a charm. One thing led to another. The future looked bleak. Bit the bullet. Got their feet wet. At our fingertips. More bang for the buck. In the long run. The other side of the fence. Reared its ugly head. Beck and call. Out of the blue. Just what the doctor ordered. Put the product through its paces. Moved on to bigger and better things. Stood on solid*

ground. The clock was running. Tried and true. Covered their tracks. For all the world to see. The name of the game. In the footsteps of. In the final analysis. Shoes will be tough to fill. The shoe is on the other foot. In this day and age. Uphill battle. Gave 100 percent (or 110 percent!). Dropped it like a hot potato. Best that money can buy. Start from scratch. And last but not least, last but not least.

Match a clause to its referent — Example: *Once saved, I could toggle through the program.* I doubt the author means that once he had been saved he

could toggle through the program; but that's what he wrote. Another: *Simple in operation while complex in function, the performance of the console exceeds expectations.* The *performance* is not simple in operation; the *console* is.

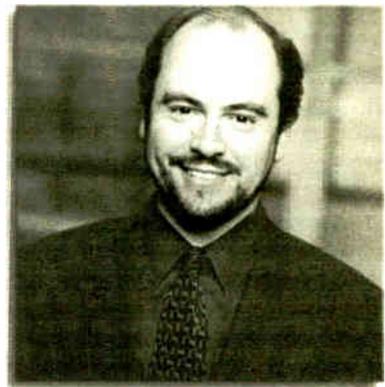
Write for one person — For example, avoid constructions like *Some of you reading this...* The reader is but one person. Effective radio writers know this.

Run your spell-checking program — It's there, why waste it? Don't e-mail a memo to your boss saying *I like this product, it has a realistic scrup wheel.* Do that frequently and you'll earn a reputation for poor attention to detail.

Know the rules of hyphens — One little dash, so much meaning. Consider that the following sentences do not mean the same thing: *Eight-LED indicators are used to display input/output levels. Eight LED indicators are used to display input/output levels.*

Be fanatical about names — The first and greatest rule of journalism also applies to anything you write: Spell the name properly. This applies as well to company and

From the Editor



Paul J. McLane

product names.

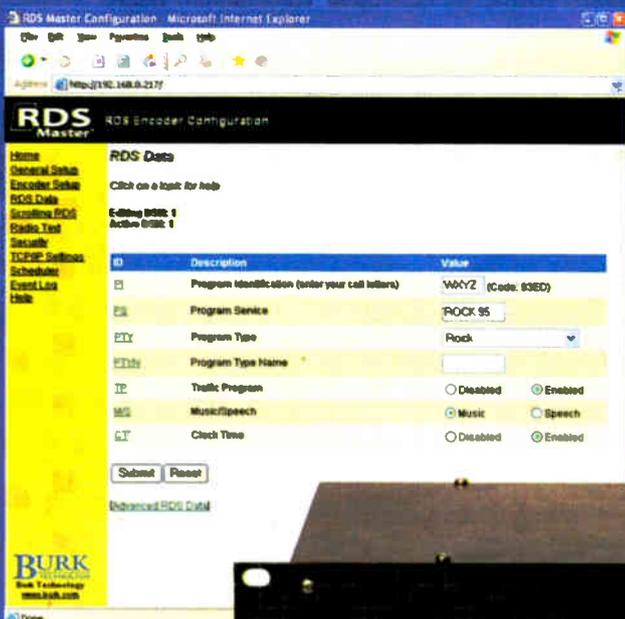
One press release I received from a major broadcast vendor misspelled three names. An announcement from a lobbying group misspelled the name of the FCC chairman. We're not perfect, either; one of our colleagues wrote *Eddie Fritz* in an issue of the NAB Daily News some years back.

Avoid overuse of the passive voice. — Consider these sentences: *A voltage potential was noted between the rack and the ground strap. During the move, a huge tangle of wiring was found below the floorboards.* We can't tell exactly who noted the voltage potential, who found the tangle. Write: *My assistant engineer noted a voltage potential between the rack and the ground strap. During the move, Bob's contractor found a huge tangle of wiring below the floorboards.*

Avoid reliance on gerunds. — Gerunds are nouns formed by adding "-ing" to a verb: *He loved going to the chapter meetings.* The gerund in that example is "going," a valid use. But gerunds tend to be overused, and again allow the writer to be vague about who is doing what: *Putting a microphone on a boom can extend its reach. Placing a roll of solder on the cassette holds it securely in place during testing.* The impact is greater if we avoid the gerund in the subject: *Jeff uses a boom to extend a mic's reach. A roll of solder on the cassette holds it securely during testing.*

In sum: Keep it short, keep it punchy, keep it active, keep it clean. 🌐

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Kelly

► Continued from page 1
agers and programmers?

Kelly: Dan and I ... go out to talk to market managers, PDs, sales managers, promotion directors, and so forth. We do some cluster meetings also, where we go to specific clusters within a market. Dan has a very good grasp on the history of where IBOC and HD Radio have come from. He's been involved since the very beginning.

He has a sales background and a management background that's different from mine. Mine is primarily a programming and marketing background. So he will talk about the sales and revenue opportunities that multicasting and data (digital) has to offer; and I talk about the necessity for promotion, marketing educating the listeners to what HD Radio has to offer them and the benefits to the listeners.

RW: Greater Media Detroit executives said they have done focus groups to see how to position HD Radio and multicasting to the listeners. What kinds of things are you telling stations that they should do?

Kelly: I think the most important thing about branding and marketing of HD Radio is that each radio station tailors that marketing campaign to their specific format and their marketplace. So what we try to do is go in and give them the objectives. ...

I'll give you an example... HD Radio is the centerpiece of what has to be marketed. And the reason for that is every receiver sold in America has the HD Radio logo on it.

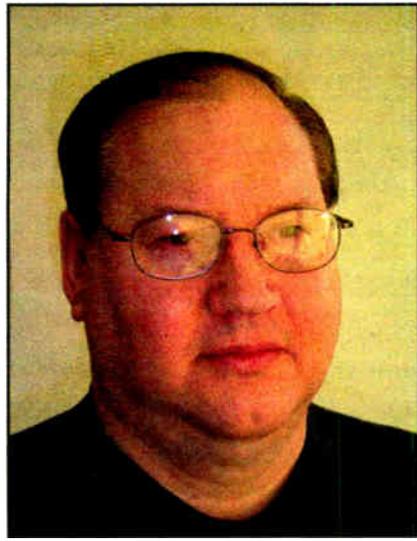
If a listener is going to go in and try to purchase a receiver ... especially in the early stages where many of the people on the sales floor may not be familiar with HD Radio at that point, to really be able to get what they want, which is an HD Radio receiver, they should be able to walk in and recognize that written on the front name plate of a receiver.

So therefore calling it anything else other than HD Radio, I think, creates a potential confusion problem with the listener's carrying through with the purchase of a receiver. I encourage the stations to use descriptors of HD Radio that fit their market. ...

RW: How can Ibiqity, stations and the consumer electronics industry combat confusion — say, if someone walks into a store and says, "I want digital radio"? I realize you're advising stations to call it HD Radio. But how can you prevent that sale from being converted to satellite radio or something else?

Kelly: The most important thing is that the broadcasters continue to emphasize that it is HD Radio and they may even call it "digital HD Radio," but as long as there's HD Radio there, that helps.

But the other half of this is we have efforts that are being led by Bernie Sapienza (Ibiqity vice president of retail business development), our retail expert, where they are training floor personnel for retailers. They're working on other ways of getting more of the store personnel who are selling or will be potentially selling HD Radio receivers in the future and educating them to what HD Radio and digital AM



Don Kelly

and FM is all about.

I don't think you can fault the people necessarily on the floor, if someone walks in and says, "I want a digital radio," because, quite frankly, the only digital radio out there is satellite in their minds — because they need the education just as much as listeners do about HD Radio; and we're in the process of doing that.

One of the strategies we're using is we're attempting to get the broadcasters to interest listeners in going to their Web site. For instance, they may say, "We're now broadcasting in digital HD Radio. If you'd like to know more about this great technology, go to our Web site and click on the HD Radio logo." ...

They pop up with a one-pager that explains what HD Radio is, what the benefits are, and in many cases, the broadcasters are actually telling listeners what retailers in their marketplace either are carrying or potentially can order HD Radio receivers in their marketplace.

Also, those HD Radio pages, are, in many cases, linking to our *HDRadio.com* site so that people that are listening to the station can gain as much information as they'd like. ...

The idea is to entice them to go further. It would be virtually impossible to educate a listener as to what HD Radio is *only* by using the airwaves. I think we have to interest them in it and move them to the Web site for the full information. ...

RW: Is it different promoting a multicast channel than a regular HD Radio channel? Are you advising people differently on those?

Kelly: Actually, it's interesting. Right now, how to promote a multicast channel is really being developed by those people who are multicasting. Several of them are tying their multicast channel and they're also streaming it on the Web, and they're promoting between the Web and their multicast channel. Others are promoting from their main channel to their multicast channel.

There's a number of different ways that will be explored by the broadcasters. ...

RW: XM and Sirius have kiosks in the retail stores. Is Ibiqity planning anything like that? Something that would set the HD Radios apart?

Kelly: We're a technology company, so we're not in the business of selling receivers. We're not in the business of being the content provider. And that's really what the satellite guys are. They're the radio station.

We're the technology people, but I will say this, that in talking with Bernie Sapienza and the retail folks here, we know of retailers who are planning on doing just that: Setting aside special locations and special type of marketing within their store to sell HD Radio.

I think you'll find retailers connecting with stations to do co-promotions. For instance, in Seattle, there's a co-promotion with the Entercom stations and Car

Toys, where Car Toys is promoting the stations that are HD within their locations.

And the Entercom stations are giving away receivers and promoting Car Toys as "The place to go to hear HD Radio" and so forth.

There will be a lot of cross-pollination between, not only the manufacturers and retailers, but the broadcasters and retailers. ●

Kelly Forgot to Turn on the Mic

Don Kelly has consulted stations in markets such as San Francisco, Chicago and New York. But his radio career began when he dropped out of a junior college in Maryland to work as an on-air talent at WARK(AM)/WARX(FM) in Hagerstown, Md. — "to the chagrin of my parents," he said.

Kelly was hired for the FM, which aired a beautiful music format. He had a live, 60-second commercial to read during the first hour of his shift on his first night on the air.

"I spent two hours before I was on the air practicing and practicing and practicing, so I would be perfect. I came on the air, and it came time for that commercial. The music faded out on the beautiful music station, and of course I gave it plenty of time to fade out to the total end. I did the commercial, got through it *perfectly*."

"One of the air talents from the AM came over, and opened the door, and said, 'Hey! What's all of that dead air?'"

"I had forgotten to turn on the mic. That's a true story."

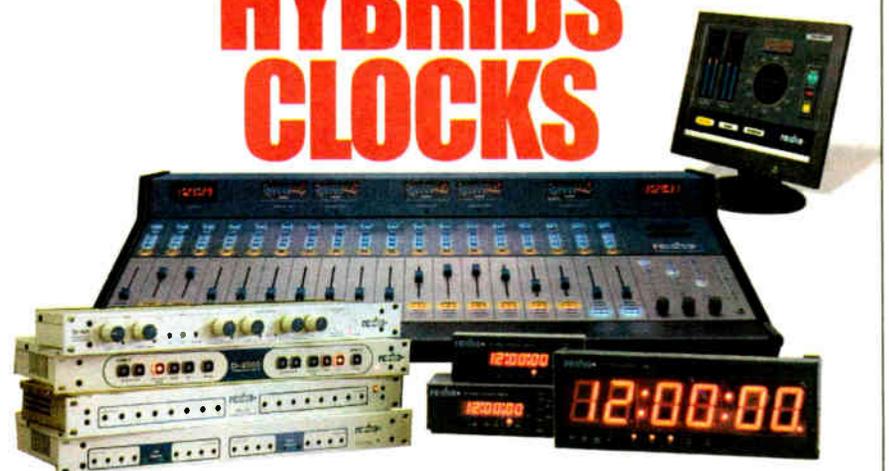
Kelly worked in radio for 25 years before joining Ibiqity. As air talent and program director, he helped to build stations such as KIOI(FM), San Francisco and WRKS(FM), New York. His consulting clients for programming and marketing included KPWR(FM), Los Angeles and WQHT(FM), New York.

He launched and developed AC, rhythmic CHR and urban formats in New York, Los Angeles, Chicago, Philadelphia and San Francisco. He was also part-owner and station manager of WJKS(FM), Canton, N.J.

— Leslie Stimson

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Maybe Food and the Studio Can Mix

by John Bisset

On the phone with an engineer the other day, I heard him interrupt to chastise a co-worker trying to steal one of his cardboard boxes.

"You have so many," came the reply. "Can't you let me have just one?" Sounds familiar.

We may not be able to help with those boxes; but how about the problem of a

sales, locked in the prize closet, you know the routine. So the engineers took it a step further.

Thanks to this lock and chain, the truck isn't taken, used and then forgotten. Not that the engineers won't share. But they make the person using the hand truck accountable for returning it.

Jon Bennett heads the engineering department at Cox Richmond. A frequent contributor to this column, he can be

The issue of food and drink in the studio is near the top of the list. The topic touches readers' hot buttons, too.

Terry Skelton was the "tech sup" or engineering manager for the NBC television network news shows in New York many years ago. He and his staff felt it was illogical (as well as a losing battle) to try to go against human nature and needs.

Frequently, audio engineers worked

from equipment (over a wastebasket, for instance), and usually at the blank end of the furniture at the end of the console. Drinks were allowed there, but only there. If that rule was broken, it was time for discipline.

The same solution could be applied to food, perhaps using a small roll-around table or one mounted against a wall. Food could be limited to that spot.

Just keep in mind one of the basic rules of electronics: If you put drinks near the gear, sooner or later someone, no matter how careful or well-intentioned,



Fig. 1: Equipment stays put when it's locked down.

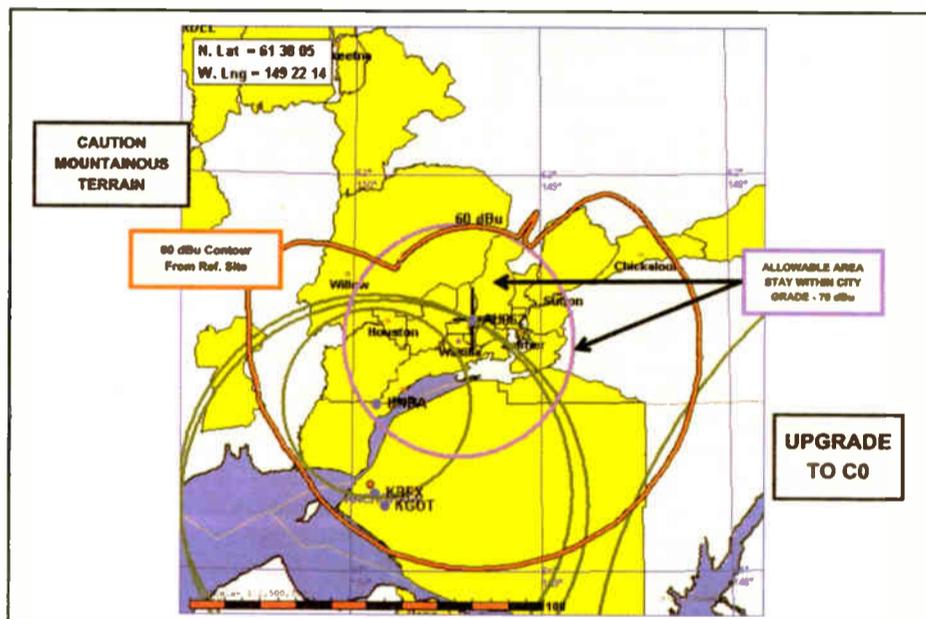


Fig 2: A typical map detail for the FM auction by Mullaney Engineering is shown.

missing hand truck?

Engineers at the Cox stations in Richmond, Va., found that it doesn't help to simply label a truck as engineering property. Promotions has their own, yet the engineering hand truck often went missing anyway — later found in the back of a remote van, down the hall in

reached at jon.bennett@cox.com.

No matter which market you work in, how many stations are in the group or the number of employees, some problems are universal among broadcast engineers.

long hours and exhausting swing shifts. That cup of coffee helped prevent errors; and management didn't allow errors on the "Today" show or "The Nightly News."

Terry installed teak cupholders, obtained from boat supply companies, in the audio booth and other locations. The cup holders would be mounted away

will spill it into the faders. Terry adds that he speaks from lots of personal experience.

Skelton is now a manager with a military, aerospace and government contractor in Santa Fe, N.M. He's terskelton@aol.com.

See WORKBENCH, page 7 ▶

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Workbench

► Continued from page 6



Fig. 3: Got a good circuit idea? You can win this or another engineering-themed T-shirt.

★★★

When engineering manages board ops or other engineers, disciplining errant behavior is one thing; but when it's engineering against the programming staff, you may face a struggle to be heard.

Here's the policy adopted at Clear Channel Orlando, home of five FMs, two 50-gallon AMs and the Florida State Network.

It's a simple one, says engineer Frank Lovre: Any equipment damage due to food or drink spills is charged back to that station's programming budget.

Now that will get some attention. Reach Frank at flovre@frn.com.

★★★

Although plenty of tips roll in, we haven't had as many do-it-yourself circuits lately, so here's an incentive.

Our editor Paul McLane has worked out a deal with the folks at the NAB Store to provide us with neat engineer-

ing-themed T-shirts to give away to the three best "home brew" circuit projects submitted to *Workbench*. (Paul and I will be the judges, and our decision will be final.)

This circuit can be an equipment modification that improves performance, or a bread-boarded circuit that you came up with to solve a problem at your stations. (Sorry, the idea for the relay that drops the jock's headphone feed if the door to the audio processor rack is opened is already taken.)

E-mail or fax your entry using the information at the end of this article. Be sure to include a clear drawing of the schematic, a high-resolution digital picture of the device, a parts list and a description of what the circuit does.

So put a few ticks in your pocket and maybe a shirt on your back. Let's hear

from you talented readers.

★★★

The FM Auction 62 process is underway. By now auction owner has filed a Form 175, indicating what allotments he or she is interested in. Before Sept. 30, bidders should look at the allowable areas and population served.

To assist with this evaluation, Jack Mullaney and his staff at Mullaney Engineering have a useful map package. The package includes allowable area maps for each auction channel. It also describes whether the channel can be immediately upgraded, and includes a separate map for that upgrade.

A population analysis uses the FCC as well as the Longitude-Rice methods. Mullaney says tower heights were some-

what limited to be realistic.

The bid file identifies which of the allotments was in a previous auction; what, if any, the last bid was; and whether the bid was withdrawn or the bidder defaulted on payment. Coordination problems with Canada or Mexico or with a pending rule making are noted.

For information, contact Mullaney at mullengr@aol.com or (301) 921-0115.

John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is northeast regional sales manager for Broadcast Electronics. Reach him at (571) 217-9386.

Send ideas and submissions to jbisset@bdcast.com or fax to (603) 472-4944. Submissions for this column are encouraged, and qualify for SBE recertification credit.



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Next Steps for IBOC Are Critical

Station Conversion Is Only One Part of the Process

Now that it seems like the conversion to HD Radio is gaining momentum, let's take a closer look at what really needs to happen for the process to move to a successful conclusion.

As with almost any broadcasting system's conversion, its impact will be felt well beyond the transmitter site, and it will deeply affect the business and legal elements of station operations. It will also have impact on the consumer electronics marketplace.

We'll start this time with a look at upcoming regulatory change, which nec-

essarily serves as foundation and catalyst for other developments.

Hot topics

The FCC recently closed its comment period for NRSC-5, and by adding these to the many other comments received last year in response to the FNPRM & NOI on FCC 04-99, it should have all the input it needs to move from its current interim rules adopted in 2002 to final ones for U.S. digital radio. When this will actually happen is anyone's guess, but we can surmise on some of the key

points likely to be addressed in the anticipated "Second Digital Audio Broadcasting Report and Order."

Most controversial and divergent among the comments to NRSC-5 was the interference potential of AM IBOC service. You'll recall that the interim rules allow only daytime AM IBOC operation, and some broadcasters have called for the commission to allow full-time operations in its final rules (as the commission has hinted it might do in the past). Yet numerous other comments brought forth evidence of harmful interference caused by AM IBOC even under daytime operations.

The FCC will have difficulty resolving

The Big Picture

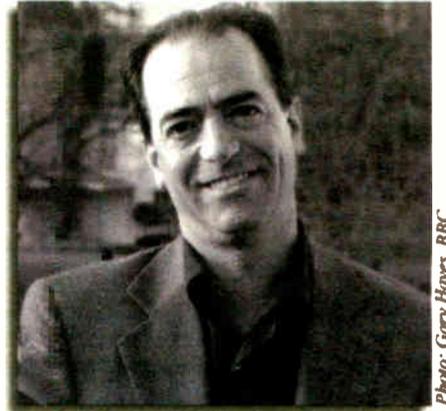


Photo: Gary Hayes, BBC

by Skip Pizzi

the diversity of opinions on this issue, and however it rules, subsequent action is likely to be undertaken by some party. So we may not see the last word on AM's digital conversion for some time.

The other key regulatory component awaited is full authorization of FM IBOC multicasting, which under interim rules is only allowable under special permission. This is probably the area of greatest recent change and potential early impact of IBOC, and it's an issue that is still resonating through the radio business from top to bottom, as the industry tries to come to terms with it and grasp its ultimate value. Comment has been strongly positive on multicasting, but the issue presents regulatory challenges nonetheless.

Careful what you wish for

On one hand, commissioners have gone on record extolling the virtues of multiple new services that IBOC can bring to American consumers. Yet they also have taken so much heat from Congress and the public on media ownership and consolidation recently that they may be reluctant to overtly allow anything that looks like they are giving more channel capability to incumbent broadcasters.

NRSC-5 calls for up to eight services to be carried on a single IBOC FM channel. One way to spin this is that it allows broadcasters great flexibility to provide increased public service, without being forced to make pure binary decisions on carriage of content based primarily on revenue considerations. Another angle is that it can help terrestrial broadcasters compete with satellite radio, and thereby provide increased local services. But from another perspective, allowing multicasting can also be interpreted as raising the ceiling on the number of services a single broadcaster is able to control — from eight to 43 in the largest markets.

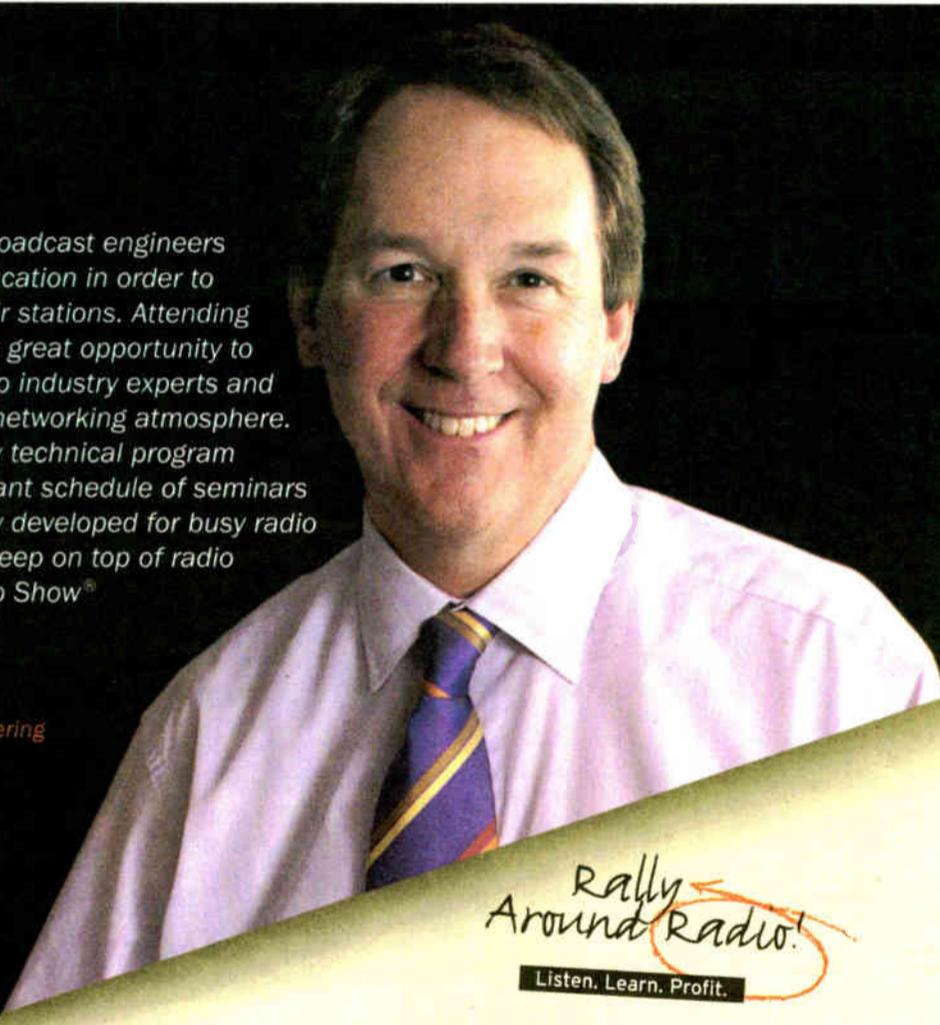
(You'll recall that current limits allow for an operator to own up to eight stations in a single market, up to five of which could be FMs. Under NRSC-5, those five FMs could provide a maximum of 40 services, plus three AMs — which would remain limited to a single service — totaling 43 services at a maximum.)

A countering argument, of course, is that those single-market ownership caps are scaled to the number of stations in the market — the abovementioned limits of eight total and five in either band applies only in markets having 45 or more stations, for example, and the limits decrease with the number of stations in the market. Because all FM stations in the market would be similarly enabled to expand their service, the relative proportion of services controlled by a single operator theoretically should not change.

See IBOC, page 15 ►

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Vice President of Engineering
Greater Media, Inc.
Boston, MA

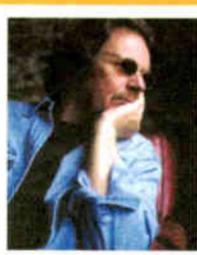


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Speaking of heights, did you know that Omnia processing now powers stations broadcasting from every one of the famous structures pictured above?

Big or small, isn't it high time you upgraded to Omnia?

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GUEST COMMENTARY

The Premature Death of HD Radio

by Mark Ramsey

You and I are not Kevin Costner, and HD Radio is not the Field of Dreams. Because we build it does not necessarily mean the audience will come.

The HD Radio path we are galloping down is a treacherous one. And the future of our industry hangs in the balance.

HD Radio has been much examined by the engineers and sellers and owners and programmers. But from what I can tell, not a single consumer marketer has ever tried to make sense of it.

Until now.

Will HD Radio die a premature and ignominious death? I hope not. But the difference between the success of, say, digital photography and the failure of, say, AM stereo is the difference between understanding the way consumers think and ignoring it.

So far, we're ignoring it.

Here are the reasons HD Radio could die on the vine — unless you and I do something about it now.

Problem 1: How Do You Sell a Radio?

HD Radio requires that consumers buy new hardware. New radios. Not since the dawn of our industry have we needed to drive sales of hardware.

But we are content providers. And we own the pipes. We handle a distribution channel that's already in every car, workplace and home — it's universal. We don't know — and haven't needed to know — how to sell radios. And if you think selling these radios is as simple as "getting behind the effort," talking it up and handing out free samples, please stop taking the brown acid now.

People will buy these radios for two reasons: Either the radios will piggyback on something they buy for other reasons,

i.e., "I buy a new car and HD Radio comes standard," or they will want the content that is available exclusively on HD Radio and nowhere else.

Problem 2: HD Radio Is Selfish

HD Radio presumably solves an industry problem, namely how to keep up with technology, expand our offerings to advertisers and compete more effectively with satellite radio. But what audience problem does it solve uniquely?

Here is a slate of competing answers, all of them flawed:

More choice? The vast majority of listeners already have enough choice — all our research and ratings experience tells us that. We assume that listeners subscribe to satellite radio because of the enormous choice. I think this assumption is wrong.

The statistics indicate that satellite listeners tune in only slightly more channels than radio listeners tune in stations. Having access to 100 channels is not an attraction if I don't use them.

But choice isn't just about using more channels or stations, it's about having more unique ones to choose from, you might argue. True enough. But would it surprise you if you discovered that the most popular satellite radio channels are clones of the most popular radio stations? The hits are the hits. ...

More versions of your core format? This is the same as "more choice." Besides, dozens of format skews are already available on satellite radio or via streaming broadband — soon to your cell phone, the ultimate "portable radio." By the time HD Radio is widely available, these alternatives to radio will likely be flourishing.

"It's Digital!" — i.e., better audio quality? To the industry, and any consumer who does their homework, HD Radio is positioned as "Pure Digital.

Clear Radio." The pitch, in other words, is that this is technologically better radio.

Where's the evidence that audio quality is a meaningful benefit, that "bad audio" is one of radio's audience problems? Most people don't have a problem with the audio quality of their radios. The vast majority of your audience does not consist of audiophiles. In fact, your listeners are less likely to be discriminating musicologists and more likely to be tone deaf.

As marketing guru Seth Godin wrote me on this topic of audio quality as a benefit for HD Radio: "Yikes, (this) is such a hard sell. I just spent thousands of dollars lowering the quality of my stereo at home by switching my CDs to MP3s and buying a Sonos player. *The iPod vastly outsells turntables because people don't want quality, they want control.*"

Where's the "control" with HD Radio? In the hands of broadcasters, that's where, not listeners.

No commercials? Commercials: Now there's a listener problem. But HD Radio won't help us there.

Data channels for services such as traffic, news, and weather? Those services are already on the market and will be commonplace by the time HD Radio is widely available.

But radio is "free"! Indeed it is. But time and again consumers prove they're willing to pay for what they value. After all, water is free, yet people buy the expensive bottled stuff every day — more than \$8.3 billion in 2003 alone. Just try telling folks HD Radio is free in the same breath you tell them a new radio costs \$200. ...

Problem 3: What's the Simple, Clear Benefit?

People buy what benefits them — in fact, in a real sense people buy the benefit, not the product. They buy products



Mark Ramsey

that satisfy wants better than other products do and they buy stuff that satisfies those wants uniquely. If I as a consumer don't have a problem with radio, I don't need HD Radio.

This, in fact, is why there aren't already millions more subscribers to Sirius or XM: Most people don't have a radio problem. And no problem requires no solution. ...

Problem 4: Who's the Target Audience?

Who are the best first customers for HD Radio? They are the tech-heads, the innovators, the gadget freaks, the trend-setters.

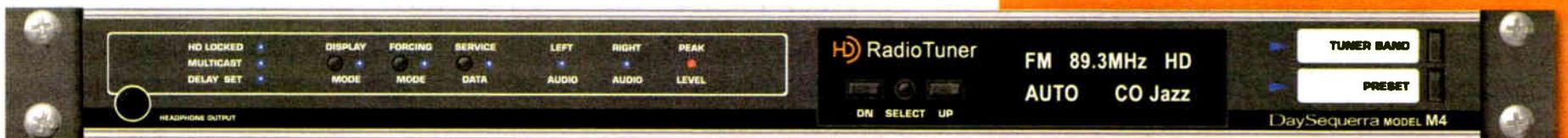
They are, in other words, the very same folks who took the dive with satellite radio and are now under contract with Sirius or XM. They are the same folks who pay Launch.com or MSN to stream their "radio" online. Either way, they will be disinclined to cancel just so they can buy yet another radio — unless our content is utterly unique.

See HD DREAMS, page 12 ▶

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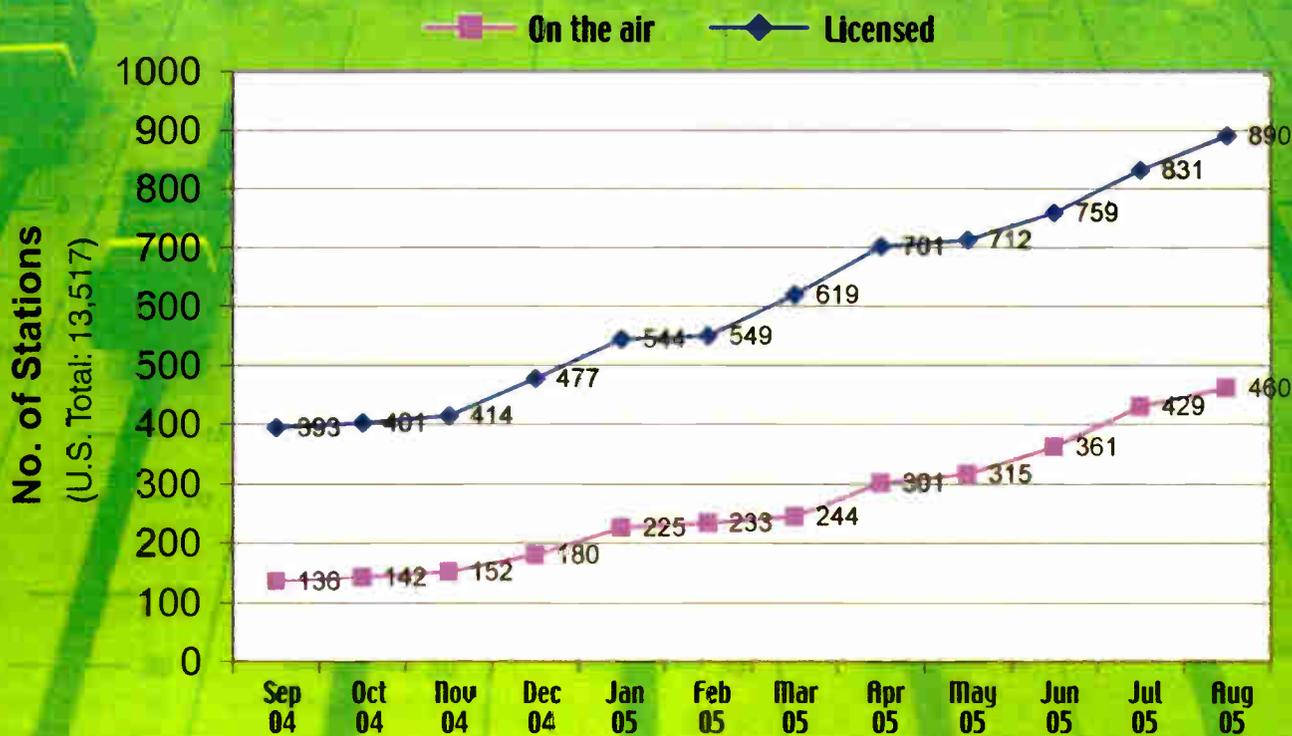
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Radio World's HD Radio™ Scoreboard

The HD Radio Scoreboard is compiled monthly by Radio World using information supplied by iBiquity Digital Corp. and other sources. The data shown reflect best information as of late July. This page is sponsored by Broadcast Electronics. HD Radio is a trademark of iBiquity Digital Corp.

A Year in HD Radio



The HD Radio Bottom Line
Total Licensed On the Air

890

460

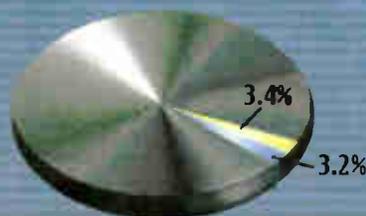
Last Month
Total Licensed On the Air

831

429

Market Penetration
United States
13,517 AM & FM Stations

Number of
FM Stations
Multicasting:



21

■ Licensed by iBiquity and on the air
■ Licensed by iBiquity and not on the air

Greater Media Multicasts in Motown

by Leslie Stimson

Greater Media has converted three Detroit FM radio stations to IBOC and is multicasting those stations. It's an early case study in how radio groups are eyeing and trying out their new channel capabilities.

Converted to HD Radio are WRIF, WCSX and WMGC. Their companion multicast stations are designated as WRIF2, WCSX Deep Trax and More Magic respectively.

Few listeners can hear the supplemental channels over the air, but that should begin to change in September, when manufacturers are expected to start shipping multicasting-capable receivers. The channels can also be heard online.

Tom Bender, senior vice president/general manager of Greater Media Detroit, said his stations are doing on-air marketing and explaining the HD Radio story on their Web sites.

"We did a couple of focus groups to find out how to explain (the switch) in listener language," said Bender.

Brand extensions

WRIF2 is described as a local mix of alternative and indie rock, hip-hop and punk. Greater Media says it is a "new execution" of the WRIF format and targets listeners 18-24.

WCSX Deep Trax HD2 is a companion station to WCSX; it provides classic rock songs that are outside the regular format.

More Magic is a soft AC format that includes '70s and '80s hits, standards, Broadway hits and classical hits.

Bender and President/CEO Peter Smyth described the formats chosen for the supplemental channels as brand extensions. Research helped pinpoint format holes in the market that supplemental channels could serve.

The company also plans to multicast HD Radio stations in other markets but chose to begin with Detroit, "because it sends a signal to automakers that radio is serious about this," Smyth said. Clear Channel's WJLB(FM) in Detroit also is multicasting, according to data from Ibiqity Digital.

'It's different.'

The Greater Media multicast channels carry no ads at present; short on-air sponsor announcements are mentioned at the top of each hour. The company wants to keep ads brief "until we gauge demand as an advertising vehicle," said Bender.

He and Smyth also said that, in the future, radio may not use only 30- and 60-second spots. Multicast channels provide an opportunity to try different approaches to ad lengths.

"We don't have to make the channels pay their bills right away," said Bender.

Smyth said, "It's different. It's an economic investment for us, not only money but also time for our programmers to program it and to set the stage for where we're going in the future. People are looking at

these channels as different and new, so we have to think about it differently."

Greater Media is using HD Radio transmission equipment from Broadcast Electronics, and Klotz consoles and routing equipment in the studios for the main digital channels, with BE's AudioVault for the multicast channels. To prepare the plant, Mark Kernen, chief engineer for the Detroit cluster, said he had staff working on creating a new audio server for each of the three supplemental stations, in order to port that data into the transmitters along with the analog and digital signals. That process took six weeks.

The company is splitting its digital signals to achieve a data rate of 48 kilobits per second for the main channels and 48 kbps for the supplemental channels, Kernen said. Some early multicasters have been using a 64/32 kbps split, but Kernen said he liked the audio quality better at 48 kbps than 32.

The stations are in a new facility, five years in the making, built with an eye for

going HD Radio, Bender said.

"We left all the carts, cassette machines and CD players in the old building," Bender said.

The conversion was done in two stages, with the HD Radio install first and then multicasting capability added a couple of months later, said Bender, who estimated the total IBOC costs at about \$150,000 for each station including multicasting capability.

Though WMGC has been an Ibiqity test station for more than three years, Greater Media is now publicizing the station's switch. WMGC is using high-level combining of the analog and digital signals to an ERI Rototiller antenna.

The ERI Cogwheel antenna for WCSX was modified to accept dual inputs of the analog and digital signals. WRIF is using the ERI Lynx Dual-Input FM Antenna.

Greater Media tested the IBOC system on the other stations for 90 days before going public, said Kernen.

As of Aug. 2, 21 U.S. stations were multicasting, according to figures from Ibiqity, including the Greater Media Detroit facilities. 🌐

HD Dreams

► Continued from page 10

Problem 5: Fighting Satellite Radio on Its Terms Is a Losing Proposition

There's a logic that says because satellite is nipping at radio's heels we must take action to be more like satellite radio. This logic ignores the fact that becoming "more like" satellite means becoming redundant to satellite radio. ...

Problem 6: The Product Is Different in Every Market

Satellite radio is a coherent brand, the same nationwide. HD Radio will be different in every market, depending on the programming decisions made in that market.

That means that satellite radio is selling one product but HD Radio is selling as many products as we have markets.

How do you sell a technology that is different everywhere you sell it? Answer: You can't. You can only sell the content on it.

That adds a sizable quantity of confusion to the mix; and the more confusing the product, the less consumers will pay attention to it. And the less attention they pay to it, the less apt they are to adopt it.

Problem 7: The Technology "Cart" Is Before The Content "Horse"

We should know what we're going to multicast on this technology before we set out to market it. Consumers aren't buying radios, after all, they're buying what we put on them. When was the last time you bought a ticket to a show without knowing who was playing?

Why are we as an industry inviting our audience to a "blind date" with our future? It is the content in the technology — what we put on the radios — not the presumed "gee-whiz" factor, that can make HD Radio a hit.

Make no mistake: That content must be special and magnetic and unique. Splintered versions of our existing formats will not be sufficient. HD Radio will demand star talent and will, I predict, be driven by non-music content — talk and entertainment — if it is to be driven at all.

Problem 8: Radio Doesn't Live in a Vacuum

HD Radio is already competitively outfoxed, before it even gets out of the gate. The phenomenon of podcasting will allow listeners to get both music and non-music content while bypassing radio of any kind.

I know it's a licensing nightmare right now and the technology required to podcast is not yet mainstream, but both of these issues will be resolved within a matter of months, well ahead of HD Radio's rollout.

Meanwhile, my sister doesn't listen to radio. Her office, her co-workers and the hundreds of listening quarter-hours they represent every week belong to streaming audio, which will only grow as high-speed connections become ever more ubiquitous.

And that only scratches the surface. High-speed Internet connections to cell phones are on the horizon — and (unlike radios) cell phones are commonly upgraded every two years.

Within the next 24 months WiFi will be widely available and free to all in cities like Austin, Portland, Philadelphia, New York City, San Francisco and others. And that's not all. Reuters reports, "Slightly more than 100 US cities ... are setting up wireless networks now ... (and) close to 1,000 local governments worldwide have plans in the works."

Free wireless audio access? There's another name for that:

"Radio."

A Call to Action

If HD Radio fails, it will be for one reason: We ignored good marketing sense and allowed it to fail. But if it succeeds we're still not out of the woods.

Radio's long-term relevance is not linked inextricably to the fate of HD Radio. Our industry must understand that we have a seat at the table of wireless audio — the biggest seat with the broadest distribution.

We can use our influence and muscle and talent and resources to develop and own that big seat until the end of time.

Ramsey is president of Mercury Radio Research in San Diego. Reach him via e-mail to mramsey@mercradio.com. This article was excerpted from the original, published on Ramsey's blog at www.radiomarketingnexus.com.

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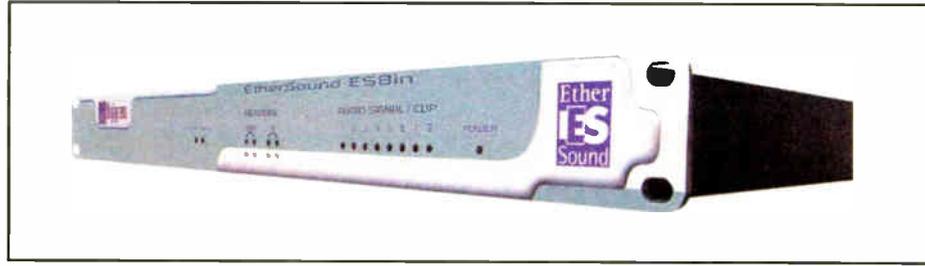
Building and Running a TCP/IP Audio Plant

by Tom Vernon

The speed with which the digital audio plant has matured is amazing. A decade ago, a few pioneers interconnected digital consoles, recorders, codecs and hybrids using AES3 and S/PDIF cable, and the first all-digital broadcast studios were up and running.

Progress has been swift, and today's digital audio infrastructure bears virtually no resemblance to that of the mid-1990s.

While the term IP audio generally is used to describe network-based audio, many vendors offer both Ethernet solutions for low-latency studio applications as well as IP solutions for distribution and routing of audio where slight delays



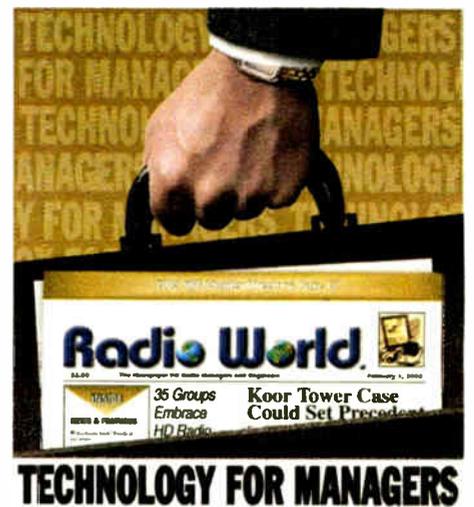
The Digigram ES8in and out is used in a Cartersville, Ga., installation.

are not a concern. Typical components include a PC-based mix engine, audio terminals to connect legacy gear and an Ethernet switch. The entire system is usually interconnected with Cat-6 cable or fiber.

Supporters of this approach say an IP

audio plant has many advantages over a conventional TDM digital installation, particularly for those contemplating HD Radio.

Mike Dosch, president of Axia Audio, said, "Most stations that are going HD are already digital, and have RDS. What



TECHNOLOGY FOR MANAGERS

is uncertain is where HD is going. Surround sound is a definite possibility. With an IP audio system, the differences in setup between stereo and surround are minimal. A traditional TDM system doesn't have this flexibility."

Dosch said an IP audio system can be installed one studio at a time, while TDM requires the entire plant to be converted at once, usually a significant expense. A greatly simplified wiring infrastructure with IP or Ethernet audio reduces cabling and labor costs.

Frank Seidel, communications manager for Digigram, said, "The biggest obstacle to widespread adoption of IP or Ethernet-based systems is the large installed base of TDM users, who have a major investment in these plants." Seidel predicts that the advent of surround sound will be the driving force for the acceptance of this new technology.

Users of IP audio plants get a break on equipment costs as well. While a typical TDM router can cost about \$50,000, the necessary Ethernet switch sells for about \$750.

By no means do TDM supporters take all this lying down.

"TDM systems are more secure than IP audio," says Brad Harrison, director of international sales for Wheatstone. "IP systems are not proven 100-percent secure from viruses. IP systems have bandwidth management issues. IP systems require a whole layer of management that is not necessary for TDM systems."

'Buy in'

Further, if surround sound is a driving force, confusion over standards may be a restraining force.

Some companies have standardized approaches to IP audio distribution using the Internet RTP (Real Time Protocol) format, and others have proprietary schemes. While it's not always possible to connect different vendors' equipment directly together through the network, interfacing through PC soundcards is usually a practical solution.

Stephen Turner, vice president of AudioScience, said the lack of "buy in" by other equipment manufacturers could also be a hindrance.

"It would be a huge plus if consoles, processors, codecs and other studio gear had a standardized Ethernet port on the back so that users could mix and match network-capable gear easily as AES3 or analog audio equipment."

While some interconnection issues are still in limbo, several IP plants have been completed. NewCap Radio of Edmonton in Alberta, Canada recently switched over to a studio buildout with IP audio technology. Three local stations, a satel-

See IP, page 15 ►

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IP

► Continued from page 14

lite head end and associated production facilities were involved in a move to the West Edmonton Mall. The new 26,000 square foot facility uses Axia Audio components, including five control surfaces and 36 nodes.

Bruce Wilkinson, vice president of engineering for Pippin Technical, supervised the installation and noted some of the savings from this type of studio build.

"There are lots of data cabling companies who will pull and certify Ethernet cable quickly and inexpensively. The same crew who pulled the data cable for the offices also did the Ethernet in the studios. This saved considerable time and money, and allowed us to concentrate on the rest of the job."

While IP audio can coexist on the same network as VoIP phones and conventional network traffic, Wilkinson used

studio system.

The Axia network extends to the penthouse atop the mall's 12-story hotel,

vides audio feeds back to the studios from off-air receivers.

Virtual LAN

When WBHF(AM) in Cartersville, Ga., moved studios from corporate headquarters into new facilities in a historic district, it couldn't mount its five satellite dishes on the roof.

"Since there was already fiber running the four miles between headquarters and the new station, we installed Digigram's Ether Sound ES8in and ES8out using the existing Ethernet," said Mark McKelvey, director of management information systems for Anverse Inc., which owns the station.

The Digigram ES8in takes up to eight analog audio sources and inserts them into an EtherSound network. On the other

See IP, page 16 ►

It would be a huge plus if consoles, processors, codecs and other studio gear had a standardized Ethernet port on the back so that users could mix and match network-capable gear.

— Stephen Turner

separate networks in the Edmonton installation. One PC serves as the gateway between the networks, allowing PC audio workstations to connect with the

allowing both program feeds from three stations along with satellite audio to be routed to the Moseley digital STL and satellite uplinks respectively. It also pro-

IBOC

► Continued from page 8

One could also argue that the eight-service multicasting level is an extreme case that is unlikely to ever be achieved or served on a full-time, simultaneous basis, but if final rules are based on NRSC-5 as written, they would imply that such maximum service levels would be permitted.

'Questions'

So the commission will have to walk a fine political line here, balancing the value of multicasting with the perception of further relaxation of ownership limits.

This is not an academic concern. It was addressed directly by Commissioner Michael Copps in his separate statement accompanying last year's FNPRM. Here's an excerpt:

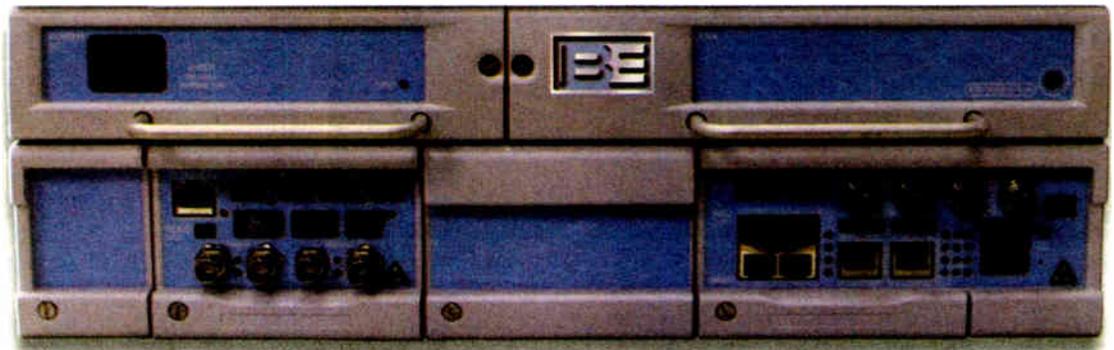
"I ...believe that multicasting raises questions about our ownership rules. As the Further Notice recognizes, digital radio and multicasting hold out the promise of new opportunities to enhance diversity and to promote localism. But there may also be some risks involved here, particularly as regards changes in the local competitive landscape. Might not the ability to multicast several streams in a community instead of just one have at least some effects on the competitive landscape in that particular media market? What does it mean for competition if a company that would be permitted to own eight radio stations in a market also obtains the ability to multicast many more programming streams? Does that really promote competition, localism and diversity in the digital era?"

Therefore, notwithstanding the industry's recent embrace of the multicasting movement, full approval in its current form is not necessarily assured. And despite its seemingly rosy future at present, the adoption of any significantly burdensome or costly new regulatory requirements for broadcasters who implement multicasting could kill the movement as quickly as it arose.

If multicasting truly is IBOC's killer app, how the U.S. digital radio transition as a whole — perhaps more than any other single regulatory element.

Next time we'll consider how the receiver marketplace might react in the IBOC era.

Skip Pizzi is contributing editor of Radio World.



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IP

► Continued from page 15
end, the ES8out converts them back into analog audio. Both units can provide bidirectional control.

audio feeds coexist on the fiber with traditional network traffic between corporate headquarters and the WBHF studios.

"The alternative to this Ethernet solution," said McKelvey, "was spending about \$150 per month each for five dedicated lines from the phone company."

director of engineering for Buckley Broadcasting's WOR in New York, recently supervised the installation of an IP studio buildout.

Proper prep

"On one hand it can be scary, but you need to look on it as a new challenge," he said.

Success depends to a large degree on engineers getting the proper training and skills beforehand. A good jumping-off point, according to Ray, is to study the Certified Broadcast Network Technologist exam questions in the CERT Preview CD, available from the SBE. Much of the material is relevant to the TCP/IP audio plant, and it wouldn't hurt to take the exam to become certified.

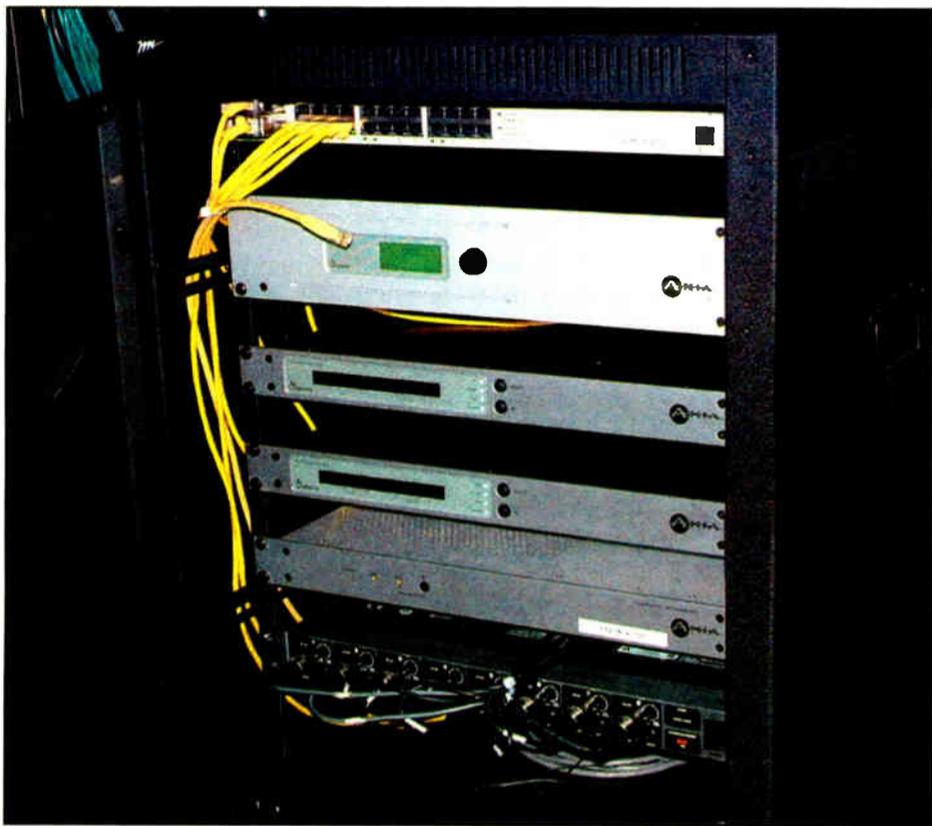
For those contemplating an Axia installation, understanding the basics of the Linux operating system is valuable. "When you're on the phone with the Axia tech support guys, things go a lot faster if you know the Linux commands," Ray said.

Another thing to learn and understand is the wiring convention for Ethernet cables. Standards specify specific pairs of wires in the cable that must be used for transmitting and receiving data. Ray notes that if the wires are not correctly mapped to the pinout on the connector specified by the standard, the cable might generate errors due to noise or cross-talk.

He said it's also good to understand the workings of networking components. "You may be asked by management to explain why you're using the more expensive Ethernet switch in an IP plant, when inexpensive hubs are readily available at the discount office supply store."

Documenting the TCP/IP plant has some unusual twists. The traditional cable runlists and flow diagrams are still used; but, Ray said, that isn't enough.

"It's important to have a listing of what is on each node, so if it fails it can easily be recreated. To do that, we've taken screen shots of the node listings and stored them on CDs." 🌐



Axia system in place at NewCap Radio installation in Edmonton, Alberta.

The station set up a virtual LAN that dedicated a 100 MHz bandwidth on the network. The audio from the five satellite dishes travels as a stream through the system and breaks out at the studio end. Tones are sent from the studio back through the same system for remote control of the dishes. The five

While the physical wiring of an IP audio plant is pitched as a big benefit compared to that of a traditional analog or digital installation, it has hidden complexities, and its coming can be a shock to an engineering staff that is unprepared.

Tom Ray, vice president/corporate

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The Networked Workbench

Your trusted DVM will be of limited use when it comes to troubleshooting a delinquent IP network. This kind of plant upgrade requires different test equipment and methodologies than those that are used in a traditional analog or digital installation.

WOR's Tom Ray recommends that users start with a laptop containing both a network (TCP/IP) port and a COM port, which can be difficult to find on today's portable computers. The TCP port allows users to access the system's Web pages for configuration, logging and troubleshooting. The COM port permits access to the system when there are failures that make TCP/IP access impossible.

The management software that comes with Ethernet routers and the IP audio gear is valuable in logging system failures and spotting bottlenecks.

A network cable analyzer such as the \$5,995 Fluke DSP-4000 or \$125 B+K Precision 240A is essential for locating cables that are noisy, have incorrect pinouts or are otherwise bad.

Network analysis software installed on your laptop enables you to visualize the data flow through the system, check security, and run housekeeping chores. Among the popular programs are shareware such as IP-Tools and NetworkActiv Scanner.

Even though this type of audio plant is basically an Ethernet network, don't toss your conventional audio test gear. It's still valuable for setting levels and testing analog and digital throughput on recorders and other source equipment.

— Tom Vernon

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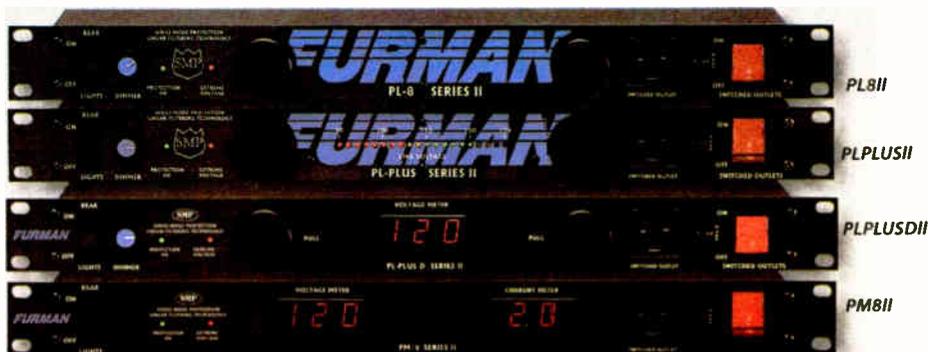
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PRODUCT EVALUATION

Marshall Plan: A Quality Condenser

*Consistent Sound, Inexpensive Price Make
MXL 990 Suitable for Stations on a Budget*

by Carl Lindemann

Can you really get a high-quality studio condenser mic with shock mount and a rugged travel case for what seems to be less than the cost of the case and shock mount? In the past few years, a flood of Chinese-made condenser mics have made such bargains possible.

There's an inevitable skepticism about the outrageous price/performance ratio these represent due to the vast difference in prices compared to their European and American competitors. But after chasing down rumors about the Marshall Electronics MXL 990 online, I decided to have a listen to find out for myself.

The MXL 990 is a phantom-powered cardioid condenser mic with 20 mm gold diaphragm capsule. Company specs claim 30 Hz-20 kHz frequency range, a 80 dB S/N ratio and 20 dB equivalent noise level. Maximum SPLs are high at 130 dB.

In terms of features, this mic does not offer any bells and whistles; no switchable low-frequency filters, pad for high SPLs or other controls. From the outside, the metal construction and champagne finish look substantial. Unscrewing the top, the soldering for the electronics inside looks to be clean. Inside the protective grill into the capsule, there's a protective cloth to cut plosives. Though

To my ear, there's low-frequency roll-off and a slight rise in the mid to high frequencies. This corresponds to the



company specs showing increased response from 5-15 kHz.

On the subjective side, the sound was a bit too bright for my taste. There isn't much warmth. Instead, it has a hard, unforgiving quality. It picked up and accentuated brittle sounds like the inevitable and inadvertent click of the lips. But with a soundbed mixed under, it seemed fine and I didn't feel it was necessary to rerecord using a more expensive mic before delivering the spot.

Attaching the second mic for a side-by-side comparison showed them to be a close match. Panning them left and right and playing an A 440 tone and pink noise, they were indistinguishable to my ear. Having them lined up side-by-side

Product Capsule:

**Marshall Electronics MXL 990
Studio Condenser Microphone**

Thumbs Up

- ✓ High intelligibility
- ✓ Low cost
- ✓ Includes case and shock mount
- ✓ Minimal proximity effect and popping plosives

Thumbs Down

- ✓ Lacks warmth
- ✓ Hard, unforgiving audio quality

Price: \$200 retail,
street price substantially less

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California at (800) 800-6608 or visit
www.mxlamics.com

I plugged the MXL 990 into a Behringer MX602A mixer for phantom power to record a voiceover. The sound was clean, crisp and highly intelligible. The proximity effect wasn't pronounced and it handled plosives well.

As I made contact with the manufacturer, I explained one common theory about these products. I've heard the problem with them is lack of quality control. If you get a "good" cheap mic, you're fine; but that is a hit-or-miss proposition.

Marshall's claim is that, in fact, the MXL 990 is one of the most consistent products around. To prove this, they sent me two MXL 990s to see how they match up.

there aren't any extras save the case and shock mount, the basics seem well attended to.

I plugged the MXL 990 into an inexpensive Behringer MX602A mixer for phantom power to record a voiceover to produce a spot for a client. The mic covered the basics well. The sound was clean, crisp and highly intelligible. The proximity effect wasn't pronounced and it handled plosives well, too.

created a nice stereo sound for speech, with depth that made up for the lack of warmth in mono.

The analysis utility in Adobe Audition showed minor variations that could be due to any number of factors in the signal chain. It may not be a perfect match, but it's not a mismatch either. I'm sure that an occasional bad unit makes its way through, but that's what warranties are for.

Remembering the days when I was scrambling to get a few hundred dollars together to get a decent voice mic, I can well appreciate the large audience for the inexpensive MXL 990s. For a student or community station with a limited budget, this is a good way to get started or to have a few extra mics around. It won't cut it for voiceover artists that rely on exceptional mics to bring forth their singular talent. But for the meat-and-potatoes of rip-n-read recording, the MXL 990 gets by in a budget pinch.

Carl Lindemann is a frequent contributor to Radio World.

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PRODUCT EVALUATION

Marantz PMD671 Is a Worthy Step Up

Refinements Bring This Flash Recorder Into a New Comfort Zone for Radio Use

by Frank Beacham

It took the recently introduced Marantz PMD660 solid-state flash recorder to break my decade-long MiniDisc habit. But as often happens with the discovery of a new technology, a little hands-on field experience can lead to the next step. That step for me was the even newer Marantz PMD671.

This is not to denigrate the PMD660. At a street price of under \$500 and a

weight of about a pound, Marantz's breakthrough 16-bit flash recorder with XLR mic connectors is a terrific basic portable for radio production. I suspect it will be an instant classic.

However, after some field experience with the 660, the compromises in its design became more apparent. Its finicky mic preamps limited my choice of microphones; it lacked a limiter; the USB 1.1 file transfer was too slow; and the lack of a rechargeable internal battery meant

constant AA-cell changes in a cheap compartment not designed for frequent use.

Then Marantz announced the PMD671, a model that addressed my criticisms of the 660 plus added a few nice extras I hadn't realized I wanted. My 660 went on eBay, I made the upgrade to the 671 and haven't looked back.

Tradeoffs

First, there are some clear tradeoffs between the two models that might overshadow other differences. At about \$1,000, the street price of 671 is double that of the 660 and — though still quite

Product Capsule:

Marantz PMD671
Solid-State Flash Recorder

Thumbs Up

- ✓ Improved mic preamps
- ✓ 'Virtual third head' for conference monitoring
- ✓ Convenient programmable presets
- ✓ USB 2.0 port
- ✓ Recording options for CompactFlash media
- ✓ Extended battery life (over the 660s)
- ✓ Digital/analog I/Os

Thumbs Down

- ✗ Uses a Microsoft header description for 24-bit multi-channel audio, which most audio editing applications don't yet support

Price: \$1,200

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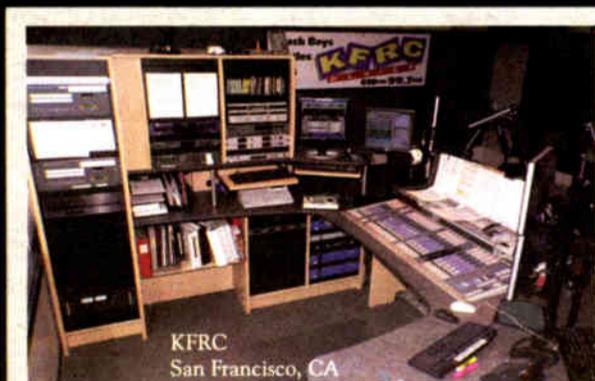
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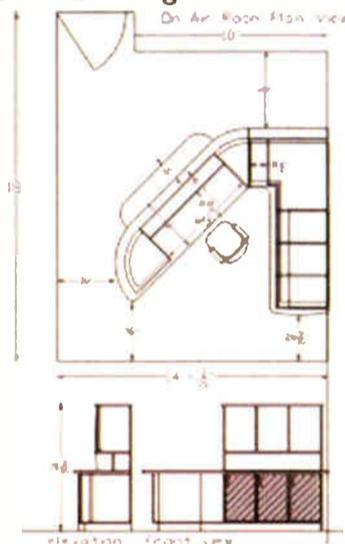
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- At Omnirax we work together with you from initial design concept all the way through finished product, ensuring that your furniture will provide you with years of satisfied use.
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- We are small enough to give every job the personal touch, large enough to outfit a complete facility.
- The measure of our success is the achievement of a synthesis of form, function and ergonomic comfort.



CAD drawing



CAD rendering



portable — the 671 is considerably larger and weighs about two pounds more than its petite cousin.

The 671 adds the ability to record 24-bit, 96 kHz PCM audio (a feature radio producers might not need or want), offers improved mic preamps and features a "virtual third head" for confidence monitoring in the field. This read-after-write capability also allows for random access playback of various parts of the flash memory while recording.

The unit also features convenient programmable presets that allow the recordist to make up three recording configurations in advance and recall them easily in the field. These memory banks simplify field use of the recorder. The 671 also has a built-in USB 2.0 port for much faster file transfer to a PC or Macintosh.

The recorder has an array of recording options for Compact Flash (CF) media. It can record uncompressed 16- and 24-bit PCM WAV or Broadcast WAV files at 44.1, 48, 88.2 or 96 kHz; mono MP3 files at 64 kbps; or stereo MP3 files at 128 kbps.

Most radio producers will choose the 16-bit, 44.1 kHz mode. In this case, a 1 GB CF card can hold almost 90 minutes of uncompressed stereo. By comparison, a 1 GB CF card can hold almost 30 minutes of uncompressed stereo (24-bit, 96 kHz), or over 17 hours (stereo) or 36 hours (mono) of compressed MP3.

Battery life on the 671 is extended to an estimated maximum of six hours with eight standard AA alkaline batteries, and up to five hours with an externally recharged NiCad battery pack. However, the 671 is specified to run for up to seven hours on a new NiMH battery (Marantz model RB1651) that will recharge while inside the recorder. Unfortunately, that battery pack had not been released by the manufacturer in time for this article.

In addition to two XLR mic connections with +48V phantom power, the 671 has both digital and analog I/Os (RCA connectors), a built-in speaker, a headphone jack and a jack for the optional RC600 wired remote control with peak indicator.

Preset pleasure

In operation, the 671 is a delight to use. Its big, clear display is bright and well lit in dark rooms. Its controls are simple and intuitive. The recording level

See 671, page 21 ►

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671

► Continued from page 20

knob is big and gain riding is a cinch, even with the limiter turned off. Over all, once the implications of the various choices are understood, the 671 is simple to operate.

The presets are an ergonomic inspiration. In fact, I cannot imagine how the operation of Flash recorders was before them. There are many choices the operator has to make prior to a digital recording on a device like this. Without the presets, there's no doubt that errors — perhaps serious ones — would be made in the din of confusion on location.

As a Macintosh user, I found compatibility with the 16-bit, 44.1 files I recorded. My editing application, Peak 4, opened them with no issues. The quality of recordings made on the 660 and 671 — made virtually all on location — were indistinguishable. Both were excellent.

I had a different experience with 24/96 files. Peak 4 would not open them, yet the latest version of Quicktime would. I learned from Marantz tech support the 671 uses a newly defined Microsoft header description for 24-bit multichan-

nel audio. Unfortunately, most audio editing applications don't yet support this Microsoft revision.

Marantz said it plans to offer a free downloaded firmware update for the 671 that will restore 24-bit file compatibility with existing editing software.

There are an increasing number of competitive Flash memory recorders entering the audio market. Each is designed and priced to appeal to a specific market segment. The Marantz PMD671, a refined device whose design reflects decades of practical experience in portable field recorders, clearly pulls from the company's deep roots in radio field production.

It's a solid candidate for a new workhorse field recorder for the most demanding news and documentary recordists. This machine deserves a serious audition. ●



The 671 has the ability to record 24-bit, 96 kHz PCM audio, improved mic preamps and a 'virtual third head' for confidence monitoring in the field.

PRODUCT GUIDE

Road Ready Cool Cases Have Electric Fans

Road Ready Cases debuted its Cool Cases line, which include electric cooling and venting fans.

The cases are plugged in for power and cool gear by an average of 12 degrees Fahrenheit. The company says these are suitable for DJs and production companies that deal with heat and humidity during indoor and outdoor summer gigs.



The RRCCDP is a case for top- and front-loading CD players measuring up to 14 inches deep, 8.5 inches wide and 4.5 inches high.

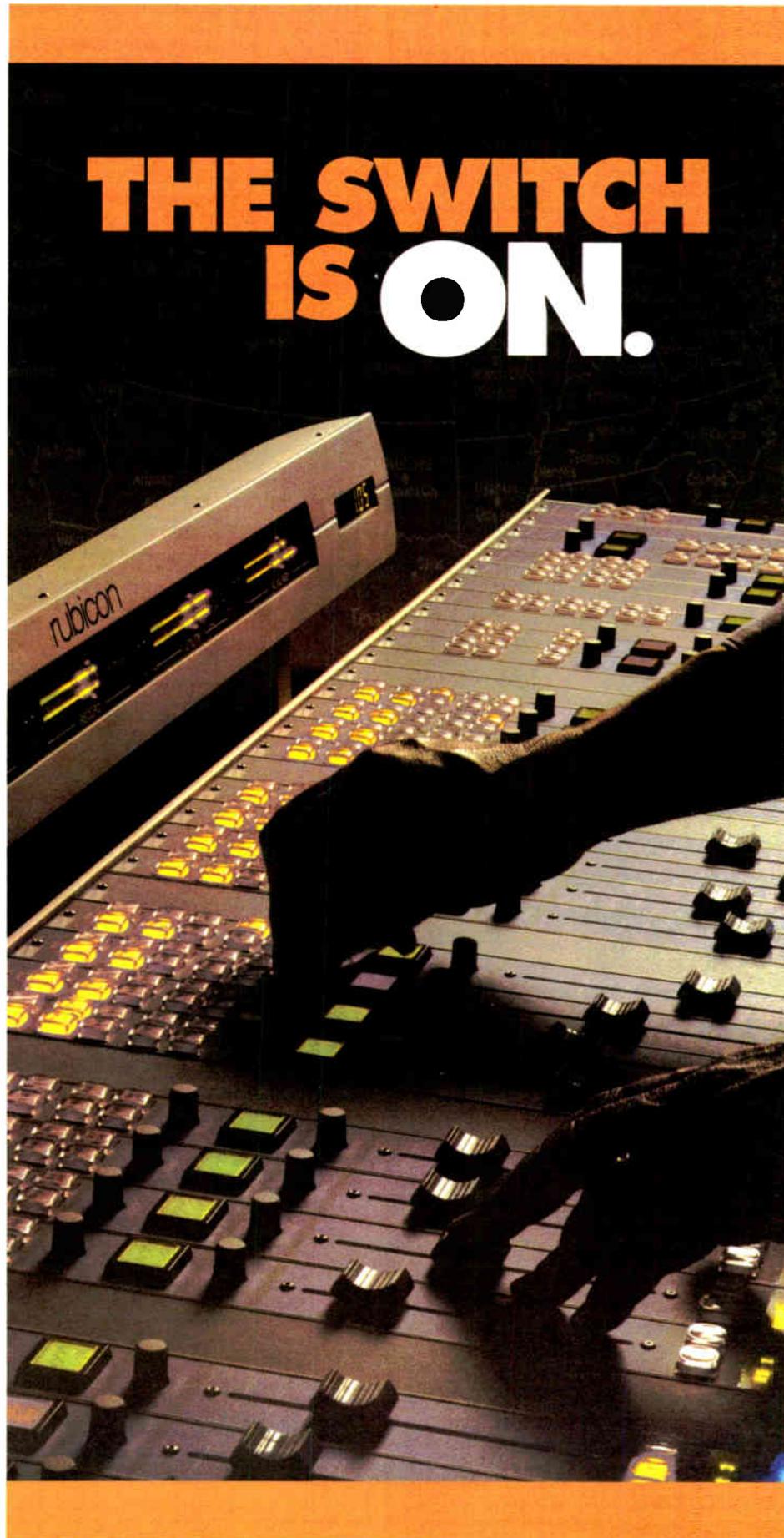
The RRCCDP is a case for Pioneer CDJ1000/CDJ800, Denon DNS5000/DNS3000, Techics SL-DZ1200 and Stanton C303/304 digital CD players. The RRCD-JCD10W is a case for two of each of these units, plus a 10-inch mixer; and the RRCD-JCD12W and RRCDJCD19W hold two of each plus a 12-inch and 19-inch mixer, respectively.

The company also offers three mixer cases for the pro audio market.

The RRONYX1220 is designed for the Mackie Onyx 1220 12-channel mixer. The RRONYX1620 holds the Mackie Onyx 1620 16-channel mixer and the RRONYX1640 accommodates the Mackie Onyx 1620 16-channel /four-bus mixer.

Each features a removable, latchable cover with Road Ready's No Pressure design, which protects mixer controls, and a low-profile base that allows access the rear connection panel without moving the mixer from the case.

For more information, contact Road Ready in California at (310) 767-1772 or visit www.roadreadycases.com.



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Buyer's Guide

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Radio World

Studio Design & Furnishings

September 1, 2005

USER REPORT

Radiovisa Prefers a Modular Design

Spanish-Language Broadcaster Selects Arrakis Modulux Line for Its Assembly, Wood Quality

by **Kent Kramer**
Director of Engineering
Radiovisa Corp.

BURBANK, Calif. When Radiovisa brought me on board as its engineer, the first project was to build a studio facility that would be versatile and easy to use, and look good. I've seen and worked with several vendors but none have given me the results that I get from Arrakis wood products. Specifically, I prefer the Modulux line for my studios. The versatility, flexibility and good looks fit into any studio, and that is what I was looking for.

My first project with Rod Graham, vice president of Arrakis, was during the first couple of years of my career. I

needed copy stands for two older consoles I had moved into our new newsrooms. The Autogram consoles were too big to set a stand over them and too long to put one at the end of the board. I decided I needed to mount the stand on top of the lid that provided access to the wire connections inside. Because the lid flipped up, the stand would have to be removable.

The chief engineer at the station suggested I call Rod. After the first call, I knew I'd get what I wanted and knew I'd do business with him again. His simple suggestion of putting a piece of paper on the end of the console and tracing the angle of the lid on the paper would give him what he needed to make what turned out to be the perfect copy

stands for the console.

Since then I've asked Rod for lots of parts and pieces to his furniture and he never ceases to come through with a quality product. His latest project for me, two sets of custom speaker stands for near-field monitors, were exactly

removed for access, if needed, without compromising the strength of the furniture.

While Rod has standard colors he uses for the counters such as my favorite, classic black, and off-white for the sides, he is able to match your existing color scheme in your studios as well. At the last group I was with, he took the colors our architect suggested and matched the furniture to the facility.



Arrakis ships its furniture pre-assembled on a moving van, or via freight line in boxes for those wanting to do their own assembly.

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-Tom Ray: Vice President/Director of Corporate Engineering, Buckley Broadcasting

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what I needed and the price and quality beat what I had seen from other vendors I examined.

I also should mention that Rod had never built these stands before. They were something the company developed in a few days' time, a testament to the quality and talent of his woodshop.

I have heard engineers say, "The furniture is so hard to assemble" and comments of the type. The assembly isn't hard if you just look at it logically. And it is well worth it when three or four years from now you need a new top or side panel and Rod can ship you one from stock.

Room to grow

The Modulux line has numerous options, such as the Blind Option where the hardware that holds the furniture together is placed inside the furniture. Access panels can be held in place with either four normal screws, a single access screw or magnetic catches.

Countertops for the furniture have a nice piece of oak trim with a smooth radius capable of standing up to the beating of a working studio. The support for the counters comes from the steel corner posts. This takes all the weight off of the side panels, which are now only used to stabilize the tops and not support the tops; and allows for an entire series of side panels to be

The modular design also allows for later growth. Recently when completing our final studio, the production director for our station decided he wanted a little more countertop, and I decided we needed just a bit more room to get his computer off the floor. A call to Rod and we had an additional pedestal base and a new countertop that went in place in a couple of hours.

Shipping the furniture isn't a problem. If you don't want to assemble it, he can pre-assemble it and ship it on a moving van that leaves you a minimal amount of setup time. Or it can be shipped via freight line in boxes that will leave you all the assembly. When the time comes to replace a panel here or there, your favorite overnight or ground carrier can drop the parts at your reception desk.

Something that impresses me is Rod's ability to work with furniture he manufactured 10 years ago. In my current station, the former owners had several rooms of Arrakis furniture. When I started talking about modifying it to use in our new studios, Rod was able to pull the file and not only see what I had, but also was able to tell me the exact date he shipped it.

For more information, including pricing, contact Arrakis Systems in Colorado at (970) 461-0730 or visit www.arrakis-systems.com.

USER REPORT

WOR Uses CSS for Studio Move

by Thomas R. Ray, III
 Vice President/Corporate
 Director of Engineering
 Buckley Broadcasting/
 WOR-710 AM

NEW YORK WOR had been in the same location in New York City for more than 75 years. The location had served its purpose for decades, but it was time to move.

After more than a year of searching and planning we found a location one and a half blocks from the newly revitalized "Ground Zero" section of New York City. It was perfect for our requirements: four on-air studios, four control rooms, one production studio, one news suite and master control.

After selecting the location, one of our primary decisions was choosing the right firm for our broadcast studio systems integration. This was an historic move for Buckley Broadcasting and WOR, and I wanted to be sure the move and integration would go as smoothly as possible.

What does a studio integrator do? These are the people you go to when you have a design for your new studio, and equipment and location selected, but no one to expertly install your systems.

Why did WOR use an integration team? From the beginning we knew we were going to need help with this project. With the amount of remotes WOR does, and having to tend to a severely ailing facility at our old location, there was no way we could have put the facility together entirely on our own. There just aren't enough hours in the day.

There were many qualified firms that could handle the job, but one company stood out: Creative Studio Solutions Inc. of Colorado.

Integration man

I have been familiar with CSS and its CEO/Chief Engineer Andrew Rosenberg for a number of years. They've done big and small integrations around the country and I knew that the team from CSS for this integration, CSS brought its chief engineer, assistant engineer and two integration technicians.

Integrating a new studio facility can be demanding work. Timelines have to be met. When you plan on going "live" from a new location, 9 to 5 days simply don't exist. I knew that the team from CSS was prepared to work long and odd hours to get the job done on time.

WOR was going to utilize new technologies. The most significant was the Axia SmartSurface and Livewire System. At WOR's old facility, people had to go to a router to get audio from outside the studio. Axia's SmartSurface and Livewire System gives WOR the ability to get audio from inside the studio consoles. This was the first large-scale implementation of the new system.

Even though the CSS Integration Team had never installed the new Axia system — no one except the folks at Axia were really familiar with it — the CSS team understood the system right away and how best to integrate it into the new studios. In fact, I understand that since our integration went so well, Axia is now partnering with CSS, making the latter an

authorized integrator of its products.

In addition to hooking up the consoles, CSS was responsible for wiring and connecting all equipment, running cable to various parts of the facility and keeping track of the entire integration process for documentation. Rosenberg knows the importance of a well-documented studio. He and his staff kept track of all changes that were made on the fly, and when the project was completed, Andrew delivered a detailed CAD drawing of our completed studios.

WOR went "live" with its studios in a new building on May 4, 2005. I can speak for the entire staff at WOR when I say

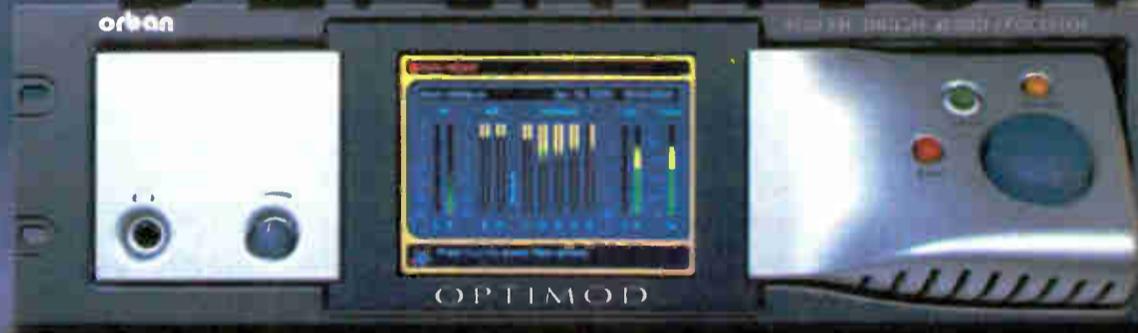
that everyone is excited about the new facility. There were many people who made this project a success. A significant and positive contribution to that success rests with the team from CSS. Their expertise and work ethic made this a smoother process — and we got some dynamite studios.

For more information, including pricing, contact Creative Studio Solutions in Colorado at (303) 425-5004 or visit www.creativestudiosolutions.com.



Dr. Joy Browne in the new WOR studios

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USER REPORT

La. Boardwalk Welcomes Cumulus

*Cumulus Shreveport Picks Preference Furniture
By Wheatstone for Facility at Entertainment Center*

by Dave Supplee
Northeast Regional
Engineering Coordinator
Cumulus Media

SHREVEPORT, La. June 2005 marked the completion of the new Shreveport — Bossier City Cumulus Broadcasting showcase facility in the new Louisiana Boardwalk. This shopping and entertainment center was built from the ground up to house many outlet-type stores, multi-screen theatre, several restaurants and nightclubs.

Our five-station cluster was seen as a vital element to the hoped-for success of the Boardwalk. As a result it was important that we complete the facility as soon as possible after the space was ready for us. Numerous delays in the construction of the facility not due to Cumulus pushed back the grand opening date of the boardwalk.

Working with Jay Tyler and Phil Owens from Wheatstone, we selected the Preference series studio furniture for the nine studios we were building. The furniture is modular and allowed us to select the components we needed for each studio. We also customized the furniture, selecting cherry trim on the corners of the base cabinets and countertop edge, which looks good with the black laminated sides and countertop.

Because much of the audio equipment was to be located in the rack room, we felt we would have an excessive amount of



Cumulus expanded the available counter space by asking to have the announcer panels mounted in the mic risers.

blank space in the studio cabinets, so we asked Wheatstone to build wooden drawers to fit inside one of the cabinets in each studio. The idea was to fill the empty space and reduce studio clutter. The studio per-

sonnel loved the extra space to store things.

We also selected other furniture products for the project: the announcer panels and headphone controls. In the past we had mounted the announcer panels in the countertop. For this project, we asked to have these mounted in the mic risers to avoid

cutting holes in the countertop in the field. This expanded the available counter space and also eliminated the problems we've had in the past with newspapers or other things accidentally turning on mics.

The furniture arrived in two shipments, within a few days of each other. Lightner Electronics had been contracted to install the audio trunk lines and punchdown work in the rack room and studios. We also had them assemble the furniture. The remaining wiring, integration and buildout chores were handled by Cumulus engineers.

Each piece was shipped well protected, individually covered with movers' quilts and protective wrap. Documentation for assembly was clear and easy to follow. The result was that the furniture for all eight stu-

dios was in place and bolted together in several days, about a day per studio.

We made extensive use of Wheatstone's services, specifying a significant amount of integration work at the factory and saving us time in the field. The announcer panels and headphone jack panel accessories we purchased came prewired and pre-mounted into the mic risers. They were prewired only at the panel end; the other end was unterminated, or pigtailed. We were saved hours of work in the field by not having to wire these items in detail, and instead just punching them down to Krone Punch blocks.

We also had purchased the Audioarts D75 consoles for eight studios, along with the Wheatstone Phase 3 Prewire. We had the prewire mounted in the wiring cabinet at the factory. We also requested that the wiring access slot be pre-cut in the countertop. When the furniture arrived, we only had to fish the cables through the wire slot, plug them into the console and tie the excess, of which there was very little. Using this integrated approach ensured that all the pieces fit and the prewire cable was the exact length.

The furniture itself is well-built and attractive. The sections bolt together by connecting steel framework, which makes for a solid, durable installation. The pieces fit together well, the screw holes lined up and the countertops fit perfectly.

I also was impressed with the countertop strength. Our design called for a two-foot overhang on the guest side of the furniture. The double-thick particle board was strong enough that a 200-pound man could stand on the overhang without fear of damaging the top. Access for wiring is good, with wire paths above and below the cabinet racks, allowing for us to keep the AC physically separate from the audio and control lines.

The wood panels are removable from the steel framework, so access into the cabinets was good as well. The steel framework also was handy for attaching D-Rings, KVM Extenders, power strips and other components that can sometimes be difficult to mount cleanly.

For more information, including pricing, contact Wheatstone in North Carolina at (252) 638-7000 or visit www.wheatstone.com.

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- ◆ Market demographics: Who's listening to surround sound?
- ◆ Surround sound's use and impact in sports, music and educational content
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- ◆ Budgeting for equipment, design and staff training
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Skip Pizzi is a renowned expert in digital audio and co-chair of the NRSC Surround Sound Audio Task Group, as well as a Contributing Editor to Radio World. He is also a former technical training manager for broadcast technology.

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USER REPORT

Clear Channel Renovates With Mager

Group's Houston Stations Appreciate Mager Systems' Artificial Stone, Warp-Free Birch

by Bob Stroupe
Houston Director of Engineering
Clear Channel Radio

HOUSTON When Clear Channel approved plans to relocate its previously separate Houston AM and FM operations in 2003 to a central location, I knew I had a puzzle with many pieces. Our architect and general contractor handled the physical construction of the studios. My biggest hurdle was going to be constructing and equipping the studios.

During the thought process, I realized the studio furniture would be one of the most important decisions, not only for budgetary reasons, but also because the studio furniture would be the foundation on which the studio would be built.

Eclectic mix

The previous studios had a mixture of furniture. The FM studios had furniture from a non-broadcast manufacturer purchased in 1997. Initially this looked nice and functioned well; but it had several design flaws including the use of access panels that relied on pressed-in nuts and were only laminated on one side. The nuts made it difficult to remove the panels and the one-sided lamination caused the panels to warp after a time.

Another issue was that the oak-trim edges looked awfully bad from stains and wear. The AM master control and talk studio furniture, purchased from a major broadcast manufacturer in 1998, had similar problems with its oak trim. I came to the conclusion that the sturdiest furniture should be in the AM master control and FM air studios. Somewhat less sturdy furniture could be utilized in production and voice track studios.

There also was a need to have a first-rate appearance for the three AM talk studios, as numerous guests are interviewed in these studios. Another consideration was the fact that the most difficult piece of studio equipment to replace would be the furniture.

By design

It had been a number of years since I purchased studio furniture, so I decided to poll some associates in Clear Channel as well as other friends in the industry. I came up with several names and decided to try a major broadcast furniture manufacturer first.

Studio space was at a premium and this manufacturer came up with a good design; however, several items concerned me. The biggest concern regarded delivery time but other concerns included laminate on particle board construction and the lack of rack space in the studios. The overall value did not appear to be that great.

A couple of my industry contacts had suggested I consider Mager Systems. I had seen some of his previous designs but was concerned about cost.

I contacted owner Mager Kizziah and gave him the design goals, space plan

and my concerns. After a few design iterations to hit our budget goals, we had workable designs for every studio.

One of Mager's specialties is the use of artificial stone. We came up



Clear Channel's Houston studio

with a workable plan to use artificial stone (in this case Avonite) in the AM talk studios, AM master control rooms and FM air studios. The production rooms and voice track studios would be laminate over plywood with plastic edging to reduce the cost, as their usage patterns really did not justify artificial stone.

After consultation with our architectural firm's color expert, Mager began construction. Our AM stations were scheduled to relocate first and these studios were the first to arrive. Mager contracts a moving company he has had good experience with to deliver the furniture, as damage is costly in dollars and time. He had an employee on site during delivery to ensure the movers took reasonable care and to begin the set up process.

See MAGER, page 28 ▶



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USER REPORT

Stations Rebuild After Hurricanes

Studio Technology Helps Stations Reestablish Studios Quickly and in a Reduced Space

by Jim Davis
Vice President-General Manager
Vero Beach Broadcasters

VERO BEACH, Fla. The weeks and months after Hurricanes Charley, Francis, Ivan and Jeanne hit Florida were some of the most difficult of my broadcasting career. It is heartbreaking to know so many of our residents lost so much, and that a state we all love suffered great tragedy.

We were hit by the eyes of two hurri-

canes, back to back. Our studios were destroyed and yet we kept broadcasting. The radio stations of the Treasure Coast banded together under adverse conditions to work hand in hand with local and federal authorities to meet the needs of our residents hurt by these storms.

We went to an all-news format to provide emergency information, as requested by government authorities and as called for under the circumstances. Radio "threw out the format book" during this time to help

Floridians emerge from this challenge as strong communities who bonded together from this experience.

Tight quarters

Vero Beach Broadcasting radio group includes WOSN(FM) — the No. 1 rated radio station in the Treasure Coast — WGNX(FM), WGYL(FM) and WTTB(AM). When our building was destroyed, we were able to resume broadcasting from temporary facilities housed in the old building without interruption while we made plans for permanent studios in a reconstructed part of the building.

We contacted a furniture manufacturer, and designed and contracted for a six-studio pre-fab complex, which would allow us to transfer our programming seamlessly when completed. I had viewed the company's studios at NAB and had viewed one of its high-profile installations, and was impressed with the acoustic noise reduction, as well as the rigid and durable construction.

As nice as the studios were, though, we were "space challenged." We needed to locate six studios in less than 1,500 square feet. We raised the ceiling height to 9 feet to give the feeling of more spaciousness; however the key was going to be selection of furniture that made best use of space.

After a lot of window-shopping by myself and Director of Engineering Ballard Fore, we selected **Studio Technology of Pennsylvania** to be our furniture supplier. A division of our company had used them with great satisfaction at its New Jersey properties. Ballard and I contacted Vince Fiola, who heads Studio Technology, and described our challenge.

Because of our construction deadlines, we needed furniture quickly. And it had to be functional and fit well into the reduced

See VERO BEACH, page 29 ▶

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Mager

▶ Continued from page 27

Mager had worked with our console manufacturer, SAS, to ensure the proper fit and finish. His attention to these details made the furniture, console and equipment installation proceed smoothly. Due to studio size restrictions, most racks were against walls with no space behind, but Mager carefully located access panels so the rear of equipment was accessible. His on-site set up was equally impressive.

For example, when one On/Off/Cough button was improperly located in a talk studio, it required a sizeable hole to be filled in the artificial stone. The first repair was noticeable, as the repair material was taken from a different batch than the top. Mager resolved this by obtaining a piece of material from the same batch as the top construction. This led to a repair that is indistinguishable from the original.

I am 47 years old; getting down to access wiring during troubleshooting is not as easy as it was in my 20s. Mager's design and construction made this exercise as easy as possible. Instead of screw-type fasteners, access panels use clip-type construction, which makes removal and reinstallation a breeze.

Another feature I appreciate is that the panels will not warp. They are constructed of 15-ply birch with laminate on both sides. In fact, all the base and cabinet construction is 15-ply birch. Unlike our previous furniture with oak trim, wear has been undetectable not only on the solid surface tops but on the laminated tops as well.

Mager Systems would be at the top of my recommendations if studio furniture were required. Mager not only went above and beyond to help meet budget goals and construction time lines, but also gave us a product that is a source of pride and a pleasure to work with; and I can rest assured it will give us many years of service.

For more information, including pricing, contact Mager Systems in Phoenix at (623) 780-0045 or visit www.mager-systems.com.

Vero Beach

► Continued from page 28
 space. Vince explained he had a long-standing relationship with the original manufacturers and would obtain their CAD drawings and formulate a plan.

Vince provided working PDF files with sketches of layouts for the six studios within 24 hours. We forwarded them to Bob McAllan, managing partner of our company, for discussion. Bob offered some valid modifications on the scheme such as table heights (we chose all "stand-up" heights) and construction tips (Bob requested plywood construction as opposed to a composite material).

We chose a Formica finish called Ubatuba granite — a greenish hodgepodge of colors, which we determined was a 'busy' enough pattern not to show scratches or dirt.

The base cabinetry was constructed using 3/4-inch birch plywood. Accessories were constructed using 3/4-inch melamine component panel, or MCP. Countertops were made of 1-inch-thick MDF built up to 2 inches around the perimeter. The counter tops will have a solid wood edge sprayed with a lacquer finish. We chose a light blonde wood trim.

Vince told us that any combination of standard thickness color or design plastic laminate could be chosen for this furniture. We chose a Formica finish called Ubatuba granite, a greenish hodgepodge of colors, a pattern we determined was "busy" enough not to show scratches or dirt.

The drawings were returned to Fiola with our sign-off to begin work.

Access

Like many of us in the state of Florida, frustration with the insurance company's procrastination to pay claims has made every purchase price-sensitive. We have re-used much of our damaged equipment. However, this was not an option with the furniture; it had to be replaced. While Studio Technology was not the lowest price, we perceived it as the best value.

The delivery schedule worked seamlessly with our studio construction. Two installers arrived with the truck full of furniture. Within a day and a half, the furniture installation was finished and the installers were on their way. The fit and finish reminded Ballard and me of a fine upscale imported car.

Ballard chose to use a 25-inch brass piano hinge at the bottom of the cupboard door, on which he mounted the punch-down blocks for the audio, Internet and phone connections. Simply swinging down the door gave access to the interface

connections. I thought it was a creative way to avoid those small, tight quarters in which most of us wind up trying to crawl around.

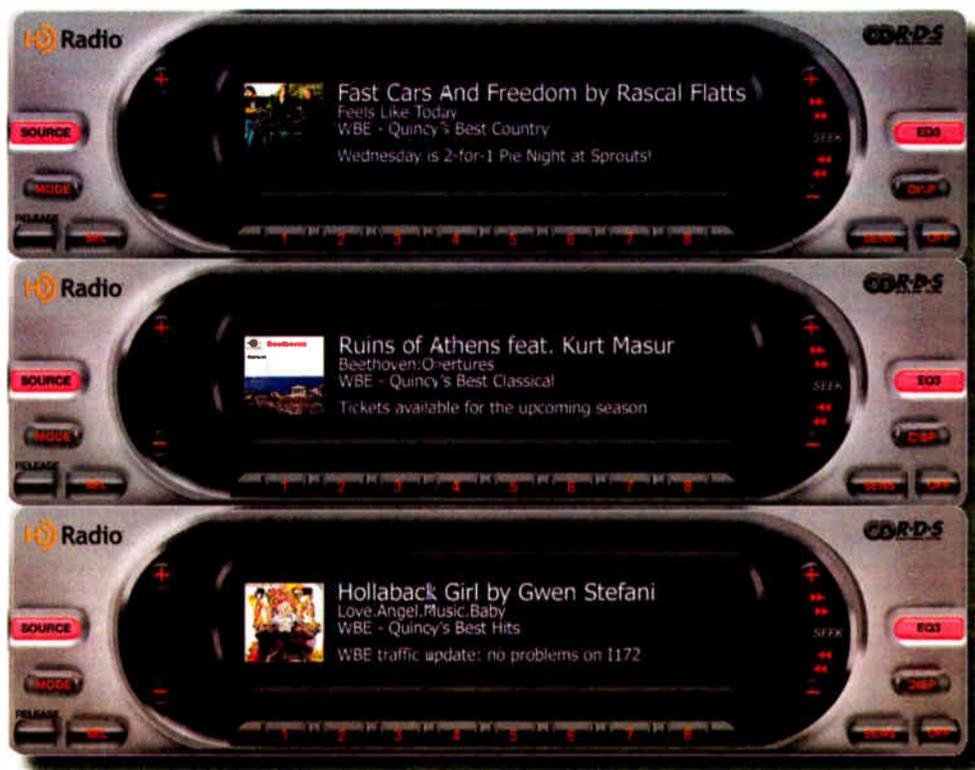
Things are coming back together for us here along the East Coast of Florida — some would say just in time for the next hurricane season. It's a time we'll never forget and hope to never encounter again. But I'm proud to say that the Treasure Coast radio stations threw out their normal competitive rulebook and for over a month exemplified the Communications Act of 1934 mandate: "To serve the public interest, convenience and necessity."

Boy, did that feel good.

For more information, including pricing, contact Studio Technology in Pennsylvania at (610) 925-2785 or visit www.studiotechnology.com.



VP/GM Jim Davis, forefront, and DOE Ballard Fore check out Vero Beach Broadcasters' new studio.



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TECH UPDATES

Omnirax Installs Innova Broadcast Furniture Line

Omnirax recently completed two major installations of its Innova line of broadcast furniture.

Infinity San Francisco, headlined by KFRC, shown, has four on-air and four production studios. Bonneville San Francisco, with stations KOIT, KDFC, KZBR, had four on-air, two production, two dubbing and one interview studio. Both companies were moving their operations into newly constructed spaces.

The Innova line debuted at last year's NAB Radio Show in San Diego. The company says a big selling point is the ability to create customized room layouts at near production prices. Modular components — rack bays, CPU bays, storage cabinets and above counter turret racks — are linked by a panel and raceway system designed to assemble easily and quickly. Countertops are precision-cut to fit the size of the room, and shaped to enhance ergonomic functionality.

The stations requested custom copy that go with their selection of SAS Rubicon consoles. Omnirax designed several single- and dual-sided clear acrylic stands, which straddle the Rubicon's meter pods. The company says this keeps copy, and in some cases computer keyboards, close at hand while



maintaining sightlines between announcers and guests.

Both facilities used Omnirax's "G-Bar Raceway" system for wiring. A series of

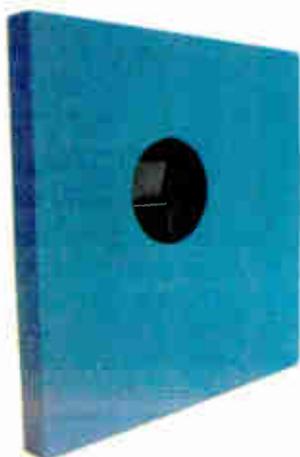
steel G-Bars works as structural support and a pathway for cable linking consoles with equipment racks. Covers are removable for access to Krone blocks, telco panels and wiring harnesses.

Computer monitors and keyboards were handled in a variety of ways. The ability to dual stack monitors for AudioVault and RCS computer systems freed up counter space, while keyboards were mounted underneath countertops where space permitted, and hung beneath cantilevered upper racks. Additional multi-monitor, multi-keyboard arrays were configured for co-hosts. Matching countertop turrets were designed and built to accommodate couch switches and clocks.

For more information, including pricing, contact Omnirax in California at (415) 332-3392 or visit www.omnirax.com.

Acoustical Solutions Diffusers Eliminate Hot Spots

AlphaSorb/SoundSuede sound diffusers by Acoustical Solutions are molded plastic diffusers that disperse acoustic energy throughout a given space. The multiple facets and angles redirect and redistribute sound waves in the room, which the company says helps to eliminate hot spots and dead spots while maintaining a live sound.



The Sound Suede diffuser (with a cutout to reveal the substrate).

AlphaSorb/SoundSuede diffusers come in more than 100 colors, are two inches thick and are available in sizes of 2 x 2 feet; 2 x 4 feet and 4 x 4 feet. AlphaSorbs use Guilford FR701 fabric, and the SoundSuedes use a suede fabric.

For more information, including pricing, contact Acoustical Solutions in Virginia at (804) 346-8350 or visit www.acousticalsolutions.com.

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USER REPORT

Jefferson-Pilot Taps Harris for WQXI

by **Scott Trask**
Director of Engineering
Jefferson Pilot Radio of Georgia
WQXI(AM)/WSTR(FM)

ATLANTA Consoles and automation gear are among the most widely covered topics in professional radio, while the importance of studio furniture and design too often goes unrecognized. Jefferson-Pilot Radio of Georgia, owner ofWSTR(FM) and WQXI(AM) in Atlanta, has long placed an emphasis on studio comfort and workflow. Since 2000, our engineering staff has worked exclusively with **Harris** to provide

workflow-efficient furniture and design upgrades to our facility's eight studios.

WQXI was the focus of our most recent upgrades, with turnkey designs integrated within its control room and talk studio as of February 2005. WQXI brokers much of its on-air and production time to outside organizations. We swapped our control room and talk studio areas this year to create a six-position, sit-



WQXI's new arrangement, shown in a virtual image, allows the board operator to view talent clearly in the talk studio.

down studio that provided more room for on-air guests. Last year, we decided to implement a fresh design for both rooms to create a more efficient work environment.

The modern studio

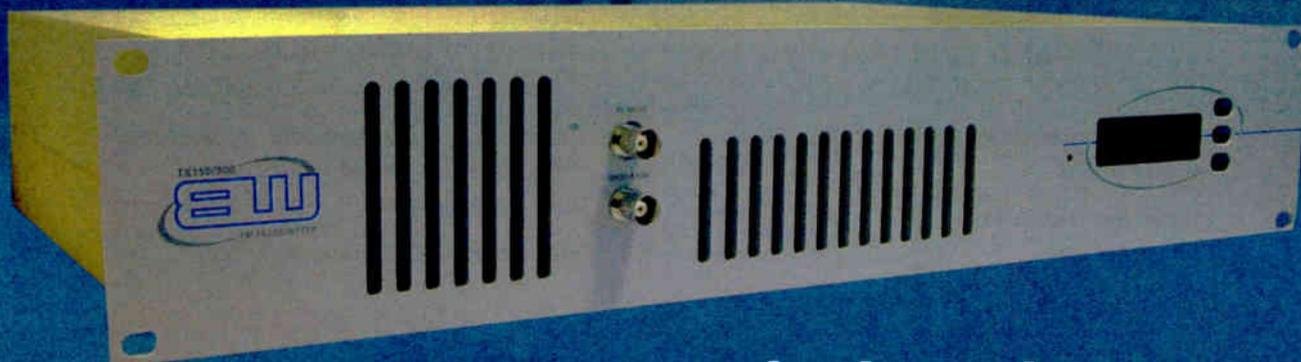
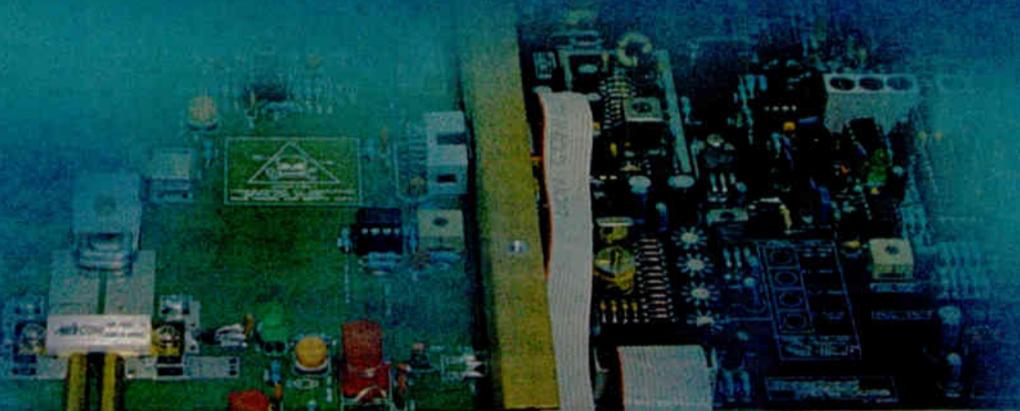
My main Harris contact for studio design is David Schlegel, who provides the initial AutoCAD drawings that evolve into final plans. I forwarded WQXI's control room and talk studio dimensions to David, who responded with questions about required sight-lines, wire entry, desired furniture layout and various counter top equipment. David tied the functional and ergonomic factors together and presented us with his initial design, which was tweaked until the desired result was achieved.

Harris provides easy-to-install custom furniture with a modular design that facilitates construction of the studios. Lack of time prevents us from allowing outside organizations to do on-site installation.



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The producer is seated behind the board operator at a separate furniture station featuring a phone system and screener plus associated computers.

Other companies offered suggestions for providing installation that would have required additional space for construction while staying on the air. The Harris furniture arrives in a way that allows us to handle pre-wiring and installation easily. We can swing tabletops into a studio space without difficulty and build the studios according to our timetable.

Radio furniture has evolved to accommodate the modern studio. Our older studios were designed around reel-to-reels, cart machines and similar space-consuming legacy equipment. The growth of automation systems and computers reflect the more compact design of modern furniture.

The compact nature of Harris' custom furniture line allowed us to condense our control room and create a tight, economical operating surface. A Harris Legacy on-air console, featuring both analog and digital I/Os, sits atop the main operating surface as the control room's centerpiece.

The furniture sits in a corner facing the talk studio. The previous furniture arrangement was away from the windows, which often reflected an uncomfortable glare. The new arrangement allows the board operator to view the talent in the

See HARRIS, page 33 ►

Harris

► Continued from page 32
talk studio clearly without trouble.

The producer is seated behind the board operator at a separate furniture station featuring a phone system and screener plus associated computers. The layout allows the producer to execute Internet searches and answer incoming calls comfortably. A turret on the right side of the room encases CD and MiniDisc players among other playback devices.

The talk studio features a more open design that accommodates up to six people around the main furniture piece. Three hosts can look into the control room and face three guests simultaneously. The furniture accommodates six microphones plus two

computer monitors to surf the Internet and read the Telos Assistant Producer software for caller information. A 360 Systems Instant Replay sits on the desk to play sounders, and a Telos Keypad Control provides a second

We added punchblocks underneath the Legacy console on the main control room surface, again proving the efficient nature of the furniture design. Wiring is out of the way and hasn't been touched since installation.

The talk studio features a more open design that accommodates up to six people around the main furniture piece.

means of activating phone calls. Belden cross-connection cables link the control room and talk studio operations, including headphone feeds and talkback circuits, reflecting the careful wiring design within Harris' drawings.

The WQXI build-out went smoothly, with one week of prep time required to pre-wire and build the furniture. A construction crew bore holes for cross-connect cables and relocated electrical outlets in preparation for studio

integration. One week later the WQXI new control room was completed. Three days after that, the talk studio was finished. Feedback from staff and outside organizations has been positive.

Jefferson-Pilot Radio of Georgia now is redesigning one of its more cramped production studios with Harris custom furniture. The design will make the production studio a far more efficient workspace. This is especially important because this room also serves as WSTR's backup on-air studio.

The compact furniture destined for this room will provide far better service to on-air personalities, and will serve as the latest example of our long-running satisfaction with Harris furniture designs.

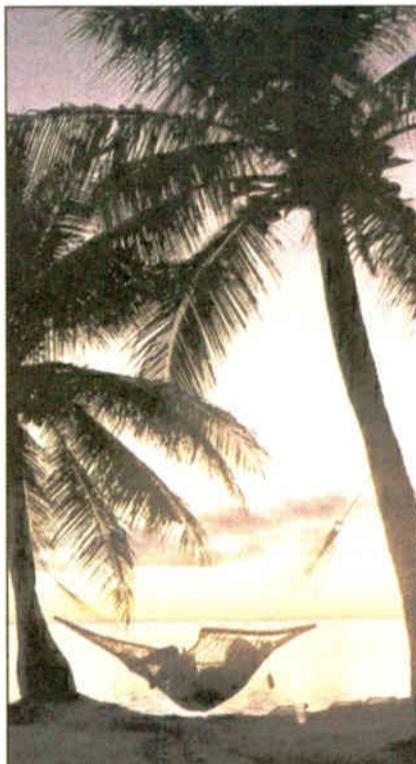
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◆ READER'S FORUM ◆

HD Radio Interference

I have to disagree with Glynn Walden (*Reader's Forum*, RWEE, June 15) about the effects of interference caused by IBOC-equipped AM transmitters on first-, second- and third-adjacent channels.

Recently we traveled from our home in Northern California to the Los Angeles area. We stopped at a popular roadside restaurant complex, Casa de Fruta, southeast of Gilroy, a town in Santa Clara County roughly 90 miles south of San Francisco. While parked I tuned in (or tried to) KSFO 560 out of San Francisco, a 5 kW, nondirectional AM owned by ABC.

On the low end of the dial, KSFO has (or had) a large footprint throughout much of northern and central California. However, recently Infinity's KMJ 580 (50 kW DA2) in Fresno, about 225 miles southeast of San Francisco, started broadcasting with IBOC.

The result: spurious emissions from the KMJ IBOC system have destroyed the KSFO signal outside the immediate Bay Area. In fact, one can even hear KMJ IBOC "garbage" on top of KFRC 610 (also a 5 kW ND based in San Francisco), 30 kHz above the KMJ main channel.

Here's another example. While in the Los Angeles area on June 9 we were free-way-driving around 7:30 p.m. and decided to listen to KGO 810, also from San Francisco. KGO has a 50 kW north-south beam signal and really gets into Southern California in the post-sunset time, and of course, it's as strong and loud as a local signal throughout much of the nighttime in Southern California. Not anymore. Either 790 or 830 was using IBOC, and until local sunset KGO was unlistenable. At local sunset the big 810 magically appeared out of thin air.

The rapidly spreading installation of IBOC-HD on AM should be titled The Radio Localism Act of 2005. When you consider the horrible interference generated by this technology, it essentially mandates forced local AM listening.

When at least 50 percent of the AM stations are using IBOC-HD the band will become virtually unlistenable. Then we will all watch what is left of AM's dwindling audience leave for XM, Sirius or some other form of uncompromised electronic media.

Mark Carbonaro
Marina, Calif.

Combating Pirates

I am a big fan of Randy Stine's articles, not only for his writing style, but for his choice of topics. However, I was fooled by Randy's article, "Florida Pirate Law Has Mixed Results" (July 6).

Randy gave a good explanation of the difficulty of dealing with the burgeoning broadcast pirate epidemic in Florida, but I had assumed the article would address the overbreadth of the relatively new Florida statute, Section 877.27, and the Petition I filed on behalf of ARRL, the National

Association for Amateur Radio, on Feb. 25, 2005, asking FCC to declare that statute void as preempted by the Communications Act of 1934. The petition is now pending at FCC.

As communications counsel for a fair number of Florida broadcast stations, I am most sympathetic to the goal of the Florida Broadcasters' Association in looking for innovative ways to combat pirate broadcasting. So are the amateur radio operators represented by ARRL. Amateurs have unlicensed intruders into their spectrum allocations also. But the Florida statute goes far beyond the proper limit of state jurisdiction over radio.

All radio interference is subject to exclusive federal jurisdiction. Congress and the FCC have said so many times, consistently. Yet, the Florida statute on its face prohibits any person (licensed or not) from causing interference with a public or commercial radio station licensed by the commission or to enable such interference to occur.

So, if my amateur station in Florida — or for that matter, my blender — causes interference to broadcast radio reception, I am guilty of a third-degree felony. Of course that is not the intent of the legislation, but Florida Radio Amateurs are not, and should not, be sleeping well at night nevertheless.

Besides, do Florida broadcasters really want the state to have jurisdiction over radio interference? Do they want blanketing interference issues to be adjudicated in state courts, or by state or local police? That is a slippery slope indeed. Broadcasters should want the agency with expertise in this area to retain exclusive jurisdiction over interference. The statute is overbroad and should be rewritten.

Randy, give us the other half of your fine article.

Christopher D. Imlay
General Counsel, ARRL
Booth, Freret, Imlay & Tepper, P.C.
Silver Spring, Md.

Thinning

► Continued from page 38
hand?" I never saw one hand raised.

It is the same today. Stations do go dark when no one wants to talk to the people that station covers. However, look at the current auction filing frenzy and tell me with a straight face that there are more stations than anyone wants or needs. There are people standing in line for the chance to serve most communities, whether you think they are viable or not.

Guy, I think exposure to the early IBOC system must have a side effect that is just now being discovered in addition to undesirable interference. IBOC radio apparently causes nearsightedness with possible complications from the uncontrollable desire to force your vision of "The Public Good" on others who are not as enlightened as you are.

Tim Cutforth
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9	Omnia - A Telos Company	www.omniaaudio.com
20	Omnirax	www.omnirax.com
23	Orban (CRL)	www.orban.com
5	Radio Systems Inc	www.radiosystems.com
21	Sierra Automated Systems	www.sasaudio.com
16	Sine Systems	www.sinesystems.com
30	Studio Technology	www.studiotechology.com
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40	Vorsis	www.vorsis.com
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Radio World
The Newspaper for Radio Managers and Engineers

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Greg Muir
Principal Engineer
Wolfram Engineering, Inc.
Great Falls, MT

HEIL SOUND
www.heilsound.com

Shown: Heil PR40 Large-Diameter Dynamic Studio Microphone.

◆ READER'S FORUM ◆

What's the Fuss?

A recent letter from our Australian competitor, Tieline, took us to task for our POTS codec comparison ad (RW, Aug. 17). They said we were comparing to an obsolete product.

We are perplexed by all the fuss. At the NAB last April, we spoke with many other manufacturers, including our friends over at Comrex. If Tieline were so upset with our advertisement, why didn't they stop by our booth for a chat with us, or send us a letter? I can only conclude the reason is that they feel that "grandstanding" in the Radio World letters column is a way to get free publicity for their product.

As Tieline must know, advertisements begin preparation months in advance of their release. And for an ad to be effective, it must be repeated over a period of time. The ad that Tieline objected to has been running since May 2004. As it happens, the ad in question has run its course and has been replaced already.

We stand behind our ad just as we stand behind our technology. At the time this ad was prepared and placed, the Tieline Commander was being promoted and presumably offered for sale. We found that the Xport was comparable to the Commander in terms of features and so we chose that product for our comparison. It seems Tieline has chosen since that time to "obsolete" this product. Perhaps our competitive pressure has helped push Tieline to offer a replacement. Isn't the free market wonderful?

Tieline made other complaints.

They claimed that two Tieline G3 codecs are \$1,100 less than an Xport and an Xstream. While we do not dispute the math, the comparison is not apt. To achieve similar functionality a station would need a full-featured ISDN codec plus two POTS codecs vs. the Xstream+Xport combo. But given the thousands of Zephyr Xstreams already in station racks, the Xstream end of the system may well already be on hand. A user who does not yet own an Xstream would need to buy one, yes. But then he'd get both top-class ISDN and POTS capability. As the most popular codec in the world, the Xstream is a valuable tool independent of the Xport.

Tieline goes on to make quite outrageous claims about ISDN. We imagine this is motivated by Tieline's not having a product for ISDN in Xstream's class.

There is simply no disputing ISDN as the most reliable and high-quality dial-up

technology. One may legitimately argue that POTS is more ubiquitous, of course. Or that ISDN can be more expensive in some places. But there is no need to exaggerate the cost of ISDN, as the Tieline letter does. Recently, in a public online forum, Tieline's Webb made the same claims about the cost of ISDN and the following response was made by a prominent engineer on that forum: "It's \$80 a month here in Denver for ISDN service, and considering how much better the audio quality is, we find it is more than worth it."

An ISDN BRI has two B channels and is equivalent to two POTS lines, so the cost mentioned above is \$40 per "line," comparable to POTS. Until Telos released the Xport, a station that needed both ISDN and POTS capability needed both an ISDN and a POTS line at the studio. The Xport uses ISDN for both at the studio side, saving the \$35-45 a month for a POTS line that would have to be dedicated to POTS remotes. Telos' ISDN-for-all approach will save many stations around \$500 per year. The Tieline letter was misleading, to say the least.

Regarding Mr Webb's questioning of our commitment to open non-proprietary technology, the facts are clear. Telos is the only manufacturer to offer full disclosure of our algorithms in the hope that broadcasters will benefit from improved interoperability going forward. Proprietary technology, even if available from more than one vendor, is just that, and serves the manufacturer's interests over those of the users. As a long-standing advocate of the open standards approach, we are pleased to again have a chance to clarify this important point.

Rolf Taylor
Telephony Products Manager
Telos Systems
Cleveland

On Thinning
The He(a)rd

Responding to Guy Wire's column on the AM band (RW Engineering Extra, June 15):

So let me get this straight, Guy. The problem with AM radio is that America suffers from an excess supply and needs to be saved from it. There are too many AMs? What about FM stations, TV stations, satellite or cable channels? Shouldn't all of these be reduced to a smaller number so that those remaining would be economically robust and able to do a better job serving the public?

The FCC Should Approve NRSC-5

It's time for the FCC to act with respect to NRSC-5 and terrestrial digital radio.

Most of us remember the fiasco that came about as a result of the FCC's "marketplace decision" on an AM stereo standard. That decision was no decision; and with hindsight, we can see that the resulting delays, lawsuits and more delays eventually killed AM stereo. Who knows what the AM band might look like today had the FCC made a timely decision on that issue?

Our industry again finds itself at a critical juncture. This time, the threat to radio's livelihood comes not from within its own ranks. It's not a matter of FM stations taking audience share from AMs. Rather, the competition is from personal audio devices, iPods and other MP3 players and CD players, online streams, satellite radio.

Arguably, to date, these media have had little impact on terrestrial AM and FM radio. But their growing popularity should tell us something. One thing we should be hearing, clear and loud, is that many of today's consumers — particularly younger ones — demand "digital quality," however that may be defined, and even more important the flexibility and greater control over content that digital provides.

To remain viable and competitive, terrestrial radio stations must provide FM and AM transmission media that are different and better than the current analog schemes. This means noise-free, full-bandwidth, high-fidelity, artifact-free audio plus powerful new ancillary services. HD Radio offers all that when done right.

As is often noted by its supporters, 2,000 stations have made commitments to begin transmitting HD Radio signals within the next couple of years. That is certainly enough to get things started, especially because many of those stations are in the larger markets. But a critical piece is missing: an FCC-specified standard for terrestrial digital broadcasting. Without that standard and an accompanying set of technical rules, HD Radio is still "experimental." Stations must make notifications and obtain and regularly renew STAs to transmit digital signals. A set of technical rules would define clearly the allowable operating parameters and do away with all the paperwork.

Those terrestrial broadcasters who have committed to HD Radio are asking where the receivers are. Good question. We believe that if a standard were in place, receiver manufacturers could crank out the radios with confidence. One thing drives another; signal availability drives receiver availability, but both operate in the medium of an operating standard.

AM stations, which arguably stand to gain the most, are still hamstrung by the nighttime prohibition on digital transmissions. We recognize that this is one of the most painful parts of the digital roadmap for many; but it's time to broaden the digital radio experience to AM at night. Substantiated complaints of interference within protected coverage areas can be investigated and dealt with on a case-by-case basis, with digital power reduction and other remedial measures taken as needed. The FCC also can better define interference parameters and explain now how such complaints would be handled.

But to the FCC, we say: This is the chance to get it right. The industry brain trust has given approval to the NRSC-5 standard. Now it's your turn. Time is short, the window of opportunity narrow. It's up to you now.

— RW

Shouldn't all marginal businesses be euthanized so that the remaining businesses of every kind will be prosperous and busy serving the public better rather than wasting their resources "competing" with unnecessary enterprises? After all, aren't there enough voices? For that matter, shouldn't there be a government or broadcasters committee that would decide when there are enough varieties of music or talk? Aren't those unnecessary formats the basis for those stations that Guy Wire is sure we don't need? Since the government has in the past required all sides of every issue to be covered equally, why would we need more than one talk station in each market anyway? Isn't that the American way, Guy?

Of course it's not! The American way is freedom to pursue your own enterprise, to fail or succeed beyond your wildest

dreams. Of course some will fail. Not every good idea is guaranteed to succeed, even if government- or committee-approved.

What you have failed to address is the obvious bias that your own station and your favorite radio station will be the ones that survive the "thinning of the herd."

In the early 1990s, when the FCC was touting its interference reduction plan that was going to improve things nationwide, I used to ask from the podium at state broadcasting conventions, "Will everyone who is looking forward to the new lower interference on the AM band please hold up your hand?" Of course most of the hands went up. Then I asked "Will everyone who is going to turn off your station or reduce your power so that someone else would have lower interference please raise your

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