GUY WIRE ON BMC'S DRAMATIC SPECTRUM IDEA. Page 12

Tech Isn't the Problem

Ed Dulaney says until we start taking radio seriously again, 'not even HD Radio will get us out of this hole we've dug.'

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Journal Broadcast Group installs new studios in Milwaukee.

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Radio World

$2.50 The Newspaper for Radio Managers and Engineers November 5, 2008

INSIDE

NEWS

▼ Public radio engineers discuss the implications of more than one digital transition.

Photo by Leslie Stinson

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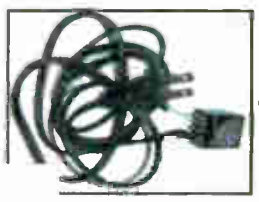
ENGINEERING



◀ Do you know what this thing is? Tell John.

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ur head makes a very good na at 800–900 MHz. Why d you care?

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hould the FCC let you mortgage station license?

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Based on an image by ayzek/iStockphoto

NEWS ANALYSIS

Wireless Mics Concern Radio STL Users

Reallocation of Some UHF Spectrum Could Result in Scramble

by Randy J. Stine

LOS ANGELES Concerned about what they describe as misleading information from at least one wireless microphone dealer, the Society of Broadcast Engineers and others in the broadcast industry are worried that interference within spectrum used for STL paths could increase significantly by early next year.

Two complaints against Location Sound Corp. of North Hollywood, Calif., have been filed with the Federal Communications Commission regarding the company's marketing.

In a recent newsletter, the company encouraged non-broadcasters to use 944–952 MHz for wireless microphone applications.

However, only broadcast licensees and broadcast networks can operate devices in 944–952 MHz, and the band is used extensively by radio broadcasters for licensed aural studio-to-transmitter links.

The reallocation of analog UHF Channels 52–69 from the 700 MHz band will result in a severe reduction of available spectrum for Part 74, Subpart H Low-

See WIRELESS MICS, page 5 ▶

Booth photos by Jim Peck; background ©NAB

NEWSWATCH

IBiquity Expands HD Radio Reference Platforms

HONG KONG IBiquity Digital showed a "reference platform" aimed at helping developers make battery-powered portable HD Radio products that cost less and use less power.

"The market has been demanding portable HD Radio products, and our partners are anxious to begin development," stated COO Jeff Jury.

Another announcement could speed development of HD Radio data services and visual-radio user interfaces; the company is also offering a reference platform for a low-cost, USB-powered HD Radio product, giving manufacturers a path to add HD Radio technology to a PC, portable navigation device or any device featuring a USB port.

Chipset Production Reaches 1.5 Million

HONG KONG Meanwhile, iBiquity said more than 1 million HD Radio modules had been manufactured for retail radio receivers using Texas Instruments DRI Series chipsets; and more than 1.5 million HD Radio chipsets have been shipped overall, with Texas Instruments and NXP leading.

The company also said the number of HD Radio products certified has passed 100, including clock radios, tabletop systems, stereo tuners, high-end components, iPod docking stations, OEM head units for more than 10 auto manufacturers, aftermarket head units, tuner boxes to upgrade OEM or aftermarket in-dash radios, and upgrade kits.

Also in October, iBiquity said it has certified Samsung Electro-Mechanics' HD Radio module, the 2023-CR, the first certified HD Radio module with Samsung's new RF and decoder chipset SEMHDR100A and SEMHDRC200A; iBiquity said it will enable a range of lower-power, lower-cost HD Radio products.

Consumer electronics maker Kensen Technologies Ltd. is offering HD Radio products using lower-cost, lower-power chipsets from Samsung Electro Mechanics and SiPort.

News Roundup

ALERTING: Global Security Systems and Northrop Grumman are working together to offer a "turnkey" integrated alert system they hope will be deployed by homeland security officials.

NAUTEL: Nautel announced it will open a customer support center based in Quincy, Ill., Nelson Bohorquez and Jim Krueger were hired; sales engineer Steve Schmitt also will be based there.

VOIP: Research company Pike & Fischer says 8.5 million more U.S. households will start using Voice over Internet Protocol for their home phone service during the next two years, bringing the total number of VoIP-connected households in the United States to 30 million by the end of the decade.

SIRIUS XM: Mel Karmazin said Sirius XM "will be the most successful company in the audio entertainment industry." According to CNET, he told a business conference, "We're probably one of the top 25 media companies today" and that its big goal right now is to grow its free cash flow. He also said that at a bare minimum, 6 million new cars will come off assembly lines with satellite radio installed next year. He made the comments a few days before word emerged about the layoff of some 50 to 80 employees; Sirius XM did not comment on those reports.

Index

Public Radio Engineers Discuss Future

'Mini-PREC' Participants Share Updates on Traffic Data, APRE Status, TV Channel 6 Protection

by Leslie Stimson

AUSTIN, Texas What happens to the rules protecting TV stations on Channel 6 from FM interference when TV finalizes its digital transition next year?

NPR Labs has performed FM interference testing of DTV Channel 6 receivers to address the question. Though it did not make specific recommendations, lab officials said their results show "significant improvement in interference immunity" to FM signals in TV tuners.

Senior Technologist John Kean said NPR will seek FCC reaction before figuring out its next steps. The results were filed with the commission during a "mini" Public Radio Engineering Conference in Austin in September.

NPR itself initiated the interference testing based on two factors, according to Kean. From tests by the ATSC and the FCC Lab, NPR Labs knew that digital television should enjoy improved interference rejection, compared to analog television. Further, television tuner performance had improved since 1979, when the FCC tested interference on Channel 6 as the basis for rules used today.

Consequently, NPR expected to find an improvement in FM interference rejection. This could help reshape the rules imposed on NCE-FM stations in 1985, once full-service television goes all-digital in February.

Kean described tests on 17 DTV receiver models to determine the level of interference from signals transmitted by NCE FM stations operating on reserved FM channels to reception of TV Channel 6.

"Specifically, the tests of FM Channels 201 to 220 (88.1 to 91.9 MHz) are reported, which are required by FCC rules to protect full-service TV Channel 6 stations (47 CFR § 73.525)," states NPR Labs in the document.

"In anticipation of the conversion to digital television broadcasting and termination of analog TV transmission in early 2009, it is appropriate to reconsider the FM interference performance of receivers available to consumers for digital television reception," states the lab.

The engineering consulting firm of Meintel, Sgrignoli and Wallace chose the models of DTV receivers for testing.

NPR told the FCC the results demonstrate that the conversion to digital transmission, along with advancements in TV tuner design, yielded substantial improvements in FM interference rejection. The 17 receivers, which ranged from premium 50-inch screens to set-top converter boxes and "USB stick" tuners, performed 20 to 25 dB better than the original analog sets across the 88.1 to 91.9 MHz sub-band.

Testing methodology consisted of applying a variable-level FM broadcast signal to the antenna terminals of an operating DTV receiver and observing the level at which picture degradation began.

Laboratory digital TV signals were generated with a Harris Broadcast CD-1A exciter driven with a sports broadcast recording to provide moving images.

Interference tests were performed with a hybrid FM IBOC signal, including both the host analog FM carrier and the digital OFDM carriers.

The NPR Labs tests on DTV receivers can be found on the FCC's Web site in MB Docket 87-268 and MM Docket 99-325.

Lessons of traffic data deployment

NPR is a member of the Broadcast Traffic Consortium, formed this year to distribute traffic data from Navteq and other location-based information.

Photo by Leslie Stimson

APRE President Ralph Hogan hands the official association seal to Jobie Sprinkle.

BTC aims to build a low-cost nationwide data distribution network of stations and use their IBOC signals to broadcast the data to portable navigation devices and in-dash systems (see *radioworld.com*, keyword "BTC").

About 10 NPR member stations are contributing content data to the consortium.

"HD Radio receiver penetration must increase," Mike Starling, vice president and chief technology officer of NPR and executive director of NPR Labs, said. "Consortium members are convinced traffic is something that may move more receivers — initially even more than multicasting."

Discussing lessons learned as stations install their equipment, Starling said, "Issues we find are typically IT-related." To capitalize on ROI stations must have qualified IT networking expertise, he said.

Jobie Sprinkle, director of engineering for WFAE/WFHE, Charlotte, N.C., said the consortium gathers traffic data from Traffic.com, owned by Navteq, which customizes the data and sends it over the Internet to the appropriate station to be broadcast with that station's IBOC stream.

"If you're already an HD station, this

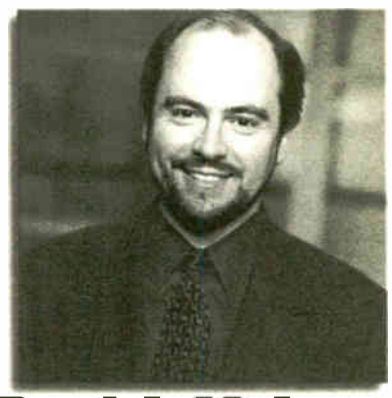
See PREC, page 5 ▶

If you're already an HD station, this is a low-cost entry into the wireless digital content delivery business.

— Jobie Sprinkle, WFAE/WFHE

Why Jim No Longer Likes Ike

From the Editor



Paul J. McLane

Jim Withers was 8 in 1956 when his grade school held a mock political campaign and election. His parents, being Republicans, sent him off to school wearing an "I Like Ike!" button.

But that was then. In September of 2008, Jim didn't like Ike so much.

On Wednesday, Sept. 10, the storm of that name had just slid off the west coast of Cuba and was gathering energy to push across the Gulf of Mexico and plow into Texas. All of the models showed Corpus Christi — which just happens to be the location of Jim's little broadcasting empire, 700 watt KSIX(AM) — right in the middle of the likely landfall. Jim, himself based in St. Louis but in regular contact with his staff in Texas, began to think this might be "the big one."

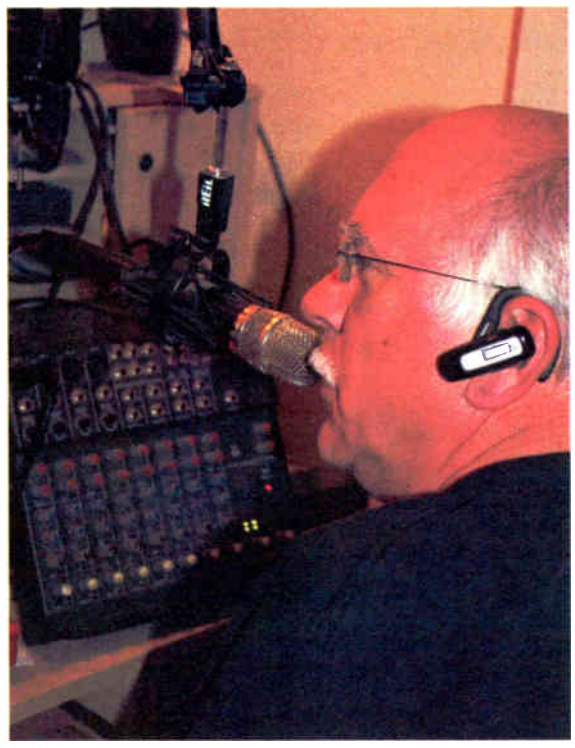
Jim is a Radio World contributor and shared his thoughts throughout the next four days and lessons he took as a broadcaster from the experience.

Day One
Wednesday

7:06 a.m. I've got the Weather Channel on, and so far, Corpus is still in the bull's eye. Today, I've got Yannis, my operations manager, picking up the standby generator from the servicing place, where foolishly it has languished for a few months because there never seemed to be enough time to pick it up. I'll need to make sure that happens.

7:24 a.m. I'm sending an e-mail to the staff to get everyone's emergency contact information. I've got to get an idea of who plans to stay and ride this one out, and who is going to head for higher ground. I share a transmitter site with Malkan Broadcasting's KEYS(AM), so my Plan B is to see who intends to stay over there and see if I can use them if I need some critical help.

7:55 a.m. Yannis just called back and is staying, so that's good news. He's taking his folks to San Antonio and then coming back. He plans on bunking on the couch in the lobby, so we should be OK operationally, provided the phones and power stay on. If not, we'll move to the transmitter site and use our sports mixer to go live from there. I told him to stock up on microwave meals and pay for them out of petty cash. Yum yum.



Jim Withers

8:10 a.m. I just downloaded the latest release from the Nueces County Emergency Preparedness Office (NCEP) and have e-mailed it to the morning show guys. Since we don't have an official news department (unless me pounding away on the keyboard here in St. Louis counts), this will have to do for now. I know Nueces County has a phone line we can access for refinery evacuations. Maybe it will also be used for this. I need to check that out this morning. We've started live updates in the morning and afternoon shows, so we're treating this like the real deal on-air, and that makes me happy. Reminds me of why I got into this business.

9–10 a.m. A lull in the planning process, so I'm just trying to think of everything we need to consider. The satellite dishes on the studio roof are going to be a problem if the wind kicks up too high, which seems likely, even if the storm veers away from us. At best, we're probably going to lose signal as the wind buffets them. At worst, they'll end up decorating a live oak tree somewhere between Corpus and San Antonio. Either way, we're going to have to figure out what to do if we lose the network.

I'm conflicted about the storm's path. The station owner side of me wants this storm to head north. That's because if the storm hits north of Corpus, the wind, waves, everything is less impactful due to the way these storms rotate.

The human side of me votes for a southerly track. Two of the least populated counties in the whole country lay just south of Nueces County. Kenedy and Kleburg Counties are home to the King Ranch, which has a land mass about the size of Rhode Island and way more cattle than people.

10:11 a.m. Just got a call from a very good client. Her dad is on oxygen and they are headed out and need a hotel in San Antonio. I'll call a guy I know and offer him every trade baseball and theme park ticket I have.

10:25 a.m. The first hiccup. Apparently, the EAS decoder, which flawlessly spits out weekly and monthly tests, keeping us squeakily legal, doesn't want to broadcast actual emergencies. For some reason it doesn't put the weather receiver on the air. I've got a part-time guy babysitting it and manually putting it on the air until I can figure it out.

1:43 p.m. I found the hotel in San Antonio. I think I've got a client for life.

2:45 p.m. Nueces County just announced a mandatory evacuation. Looks like it's Show Time.

3:34 p.m. The second hiccup. Our standby generator, which worked so well at our old transmitter site, has, of course, never been tested at the new site, and no one down there is too certain how to hook it up (assuming of course that we can get it there, which still has not occurred).

That sound you hear is my head banging against the wall. I'm pretty sure I can get John Gifford, the CE of KEYS, with whom we share our new transmitter site, to help us with this since I have offered to share some of our critical 30 amps with him. I've done the math and figure we can both run about 60 percent power for the duration ... easily enough to cover everyone left in what is quickly becoming a ghost town.

5:11 p.m. Scott, our sales manager, calls to tell me he has taken the lead and decided to call all of our local clients to tell them they will get full make-goods for the spots that we are running during the emergency. Much better than waiting for them to call us. He gets a gold star for being client-friendly, particularly because I would never have thought to do this.

7:05 p.m. My wife does the logs up here in St. Louis and I do the accounting for the

See JIM & IKE, page 6 ▶

Wireless

▶ Continued from page 1

Power Auxiliary equipment including wireless microphones, industry experts said. Non-licensees have long used 700 MHz for wireless mic operation on vacant TV channels. In February it will become illegal to market or sell 700 MHz band wireless mics in the United States.

Public safety and commercial broadband applications are moving to 700 MHz on Feb. 17, 2009, a move coinciding with the country's digital television conversion.

Industry observers say as spectrum is pinched for wireless mic users being booted from 700 MHz, broadcasters must be vigilant during what could be a scramble for spectrum.

In addition to the complaints against Location Sound Corp., the SBE posted a statement on its Web site saying that the society is aware of manufacturers producing and selling wireless mics to ineligible parties that operate in the 950 MHz Aural Broadcast Auxiliary Service (BAS) band.

'Illegally operate'

"The active marketing, sale or leasing to ineligible or unlicensed persons is wrong and unlawful and endangers reliable broadcast and BAS operation," SBE states in the letter. "SBE will provide assistance and serve as a resource to the FCC Enforcement Bureau in locating entities who illegally operate Part 74 wireless microphones without benefit of the required FCC license."

Richard Rudman, chairman of the Southern California Frequency Coordinating Committee, was one of the first to notice the article in Location Sound's newsletter. The company stated that the "little-known area of UHF spectrum (944–952 MHz) is, for the most part, wide-open and available for production use." Rudman described Location Sound Corp. as a well-established distributor that caters to the TV and film production industry and sells nationally.

In a world of crowded spectrum, with some broadcasters in urban areas already struggling to find space in the 950 MHz band for STL links, anything viewed as a spectrum grab should be met with strong resistance, Rudman said.

He filed an official complaint in September with the FCC about Location Sound's statements. Rudman also believes Location Sound previously conducted unauthorized transmissions in the band at Universal Studios. Though the FCC field office in Los Angeles took no immediate action, the complaint was forwarded to its Enforcement Bureau in Washington, Rudman said.

As spectrum is pinched for wireless microphone users being booted from 700 MHz, some broadcasters worry about a scramble.

Location Sound, in an e-mail response distributed to several parties including Rudman, stated that it now realizes the company should not have made claims that the 944–952 STL band is available for wireless mics by unlicensed users, Rudman said.

"After consulting with our vendors who manufacture products in the 944 MHz band, we have come to the conclusion that Location Sound Corp. will immediately cease marketing wireless microphones that operate in the 944 MHz band to our customers who would be generally classified as motion picture or television producers," wrote Mike Paul, technical director for Location Sound.

Location Sound also promised to follow up with Universal City, Rudman said.

Efforts to reach Location Sound representatives for comment on this story were unsuccessful.

'Spectrum chaos'

"I do not think the FCC yet realizes the predicament many wireless mic users, such as bands, theaters, churches, clubs and production companies will face if 700 MHz use goes away as the FCC intends," Rudman said.

"Either we have a world where FCC license requirements are enforced, or we invite further spectrum chaos if they are not."

Dane Ericksen, senior consulting engineer with Hammet & Edison, said, "You have a whole pot full of wireless mic users being booted in February from 700 MHz. Some are legal users and others are illegal. However, I believe that the FCC will begin strict enforcement once public safety moves to 700 MHz," Ericksen said. "FCC non-enforcement has been an issue for years."

To make matters more confusing, he said, some wireless mic manufacturers appear to be marketing to ineligible groups.

"Part of the confusion is that there are Part 15 wireless mics that are in the 902–928 MHz band and they're perfectly okay," Ericksen said. "Unscrupulous dealers could take advantage of the complexity of the issue."

While the 944–952 STL band in major radio markets, with its limited white space, would seem the most susceptible to interference from unlicensed wireless mic users, smaller radio markets could experience problems, too, said Thomas Ray, corporate director of engineering for Buckley Radio and WOR(AM) in New York, a Radio World contributor.

"I'm more concerned with what will happen in the Midwest where you have hops of 20 to 50-plus miles to the transmitter facility," Ray said.

Ray said he is unaware of any broadcasters experiencing interference with their 950 MHz STL paths in New York City. That's despite the theater district's proximity to 4 Times Square and the Empire State Building, where the vast majority of the city's FM stations have transmission facilities.

"There is a huge potential for problems here though, particularly near the city's theater district, where every theater is using wireless mics," Ray said.

The mobility of wireless mics makes it more difficult to track down sources of interference when it does occur, said other RF experts.

"Each day radio broadcasters everywhere experience unexplained interference. Was it a wireless mic? Was it a bird? Ice? Heat? Was it the green insulator atop a power company transmission tower? There is no way of knowing," said Ralph Beaver, SBE board member and CEO of Media Alert LLC.

SBE firmly believes the 944–952 MHz Aural BAS band is already heavily occupied in most areas of the United States, Beaver said, and offers little capacity for operation of wireless microphones by eligible licensees and no options for unlicensed or ineligible licensees to use the spectrum.

"That is contrary to what some vendors of wireless microphones are saying," Beaver said.

PREC

▶ Continued from page 3

is a low-cost entry into the wireless digital content delivery business," said Sprinkle. Participating stations need reliable Internet access for both the studio and transmitter site.

His station purchased a Navteq-compatible RDS encoder; in order to have a core service, consortium stations typically begin their participation with RDS and then move on to IBOC.

The consortium's goal is to establish a data network; with that in place, consumer electronics manufacturers can create consumer products.

Eight broadcasters are founding members of the consortium: Beasley Broadcast Group, Bonneville International Corp., Cox Radio Inc., Emmis, Entercom Communications Corp., Greater Media, NPR and Radio One.

APRE is official

The Association of Public Radio Engineers has incorporated as a non-profit organization. Its purpose is education and outreach for non-commercial radio engineers.

In Austin, the group held its first board meeting since incorporation. The group established committee chairs during the meeting.

The APRE board named Dan Mansergh of KQED(FM) San Francisco as vice-chair and Jan Andrews of NPR Labs as treasurer. Ralph Hogan, KJZZ/KBAQ, Tempe, Ariz., who has been president of the group, remains in that capacity. Mansergh also is a contributor to Radio World.

APRE named standing committee chairs: Mansergh, education and outreach; Rich Parker, Vermont Public Radio, Public Radio Engineering Conference planning; and board development, Roger Carroll, WWNO(FM), New Orleans.

Additional committee chairs: awards, Gordon Carter, WFMT(FM), Chicago; scholarship, Parker; membership, Paxton Durham, WVTF(FM), Roanoke, Va.; and strategic planning, Bruce Wahl, NPR.

Still up for debate are membership class definitions and dues amounts.

Jim & Ike

▶ Continued from page 4

station, so all of that will be unaffected by Ike. She's doing triple duty, though, since we are now on our third log for tomorrow. We run a lot of local sports, and game locations and times are being moved around like chess pieces. I'm just going to stay on the phone and out of her way.

9:04 p.m. On the phone with Yannis again. He's going to gas up the station van and take it to the transmitter site tomorrow morning (picking up the generator on his way). The lateness of this is driving me nuts, but it's my own fault, so I'm trying to stay calm. On the plus side, the transmitter site is a few miles from the beach and 50 feet above sea level, so it will stay dry. Also, the building is an old 1960s fallout shelter made of concrete block. Both it and the van parked behind its west wall will survive the wind. We'll also have an extra 20 gallons of gas that we can siphon out to keep the generator going if we really need it.

9:38 p.m. Yannis calls back to tell me that Texas will activate the "Contra Lane Interstate Plan" first thing tomorrow, in which all lanes of I-37 from Corpus to San Antonio will be turned around to make four lanes out of town. I told him to make sure we get that announcement on the air as well.

10 p.m. One final look at the Weather Channel. Ike is turning north, but is a huge storm, 400 miles across.

That is actually a benefit. Since 1995, when I bought my first station in Texas, I've become a student of these things, and know that wind speed is based on the pressure gradient between the center of the hurricane and the outer edges. The steeper the gradient, the stronger the winds, so smaller storms typically pack deadlier winds. On the flip side, bigger storms dump more rain and cause bigger storm surges, so that's a problem. And with those thoughts to dream about, I'm going to bed.

Day Two
Thursday

4:11 a.m. I woke up remembering that we are running spots for a resort on Galveston Island. I also remembered seeing an interview with the mayor of that town saying a voluntary evacuation was in effect. I'll have to have those spots pulled this morning.

7:05 a.m. Coffee in hand, I'm back on the Weather Channel. No doubt about it, Ike has turned north. Still forecast as a big deal in Corpus, but not as big. Most of our morning call-in show this morning is dealing with evacuations and game rescheduling. I doubt any other station is paying much attention to sporting events, so we're definitely filling our niche. The local NCEP emergency information number has also been changed for some strange reason, so we're broadcasting the new number every 15 minutes or so.

11:43 a.m. Timing in life is everything. The station van — The Death Van, as we call it — has chosen this moment to die. Yannis is working on it, but I'm thinking tow truck and have begun kicking myself, even as I bang my head into the wall.

11:47 a.m. Scott has called with an updated program schedule for tomorrow, Friday. I've got a call into ABC to confirm that they will begin sending a hurricane network feed and have called in on the remote line to make sure we can access that to do updates as we get them from the NCEP office. We're dead if the phones quit.

2:55 p.m. It's turning! Not good news for Galveston and Houston, but I'm breathing easier by the minute. We're still on high alert, but it looks like we've dodged the bullet.

3 p.m. The afternoon show just started and we're all over the new track of Ike. According to our callers, the exodus has slowed already, although schools, banks, colleges and even the mall, all are closed tomorrow.

5:15 p.m. The battery in The Death Van was dead. Yannis has gotten it charged and is on his way to test the generator at the transmitter site. We had to bring in a part-time producer for the afternoon show, and that resulted in some on-air gaffes, so now we've got to somehow make that right with today's sponsor. Things do snowball in the most unexpected ways.

7:06 p.m. Yannis again, who says the dedicated Network Hurricane Feed is just tone. Too late to call them, so we'll check on it again tomorrow. Wonder of wonders, we now have an on-site emergency generator at the transmitter site. Another mark in the plus column and I now figure that the things we've done right at least equal the things we've goofed up.

8:31 p.m. I owe my wife another dozen roses. We just got word that the Astros and Texans both moved their respective games for this weekend. Two more revised logs coming up.

10:30 p.m. Ike is headed north. I'm headed to bed.

Day Three
Friday

6:47 a.m. Ike is a monstrous storm. Not the biggest from a windspeed standpoint, but on the size scale, this thing is huge. The outer bands extend over at least half of the Gulf of Mexico, and that's no fish pond. Some wind and Lots O' Rain are predicted tonight and tomorrow in Corpus. I'm still worried about the satellite dishes, but we've got more than one, so I've got my fingers crossed.

10:12 a.m. Just got off the phone with the FCC. They have a group of folks calling radio stations (and presumably TV stations) throughout the affected area to tally up what each station's situation is, and to let everyone know that they are assembling a list of resources available to stations that might need help staying on the air, or coming back on if they take a big hit. I told them that we were "The Little Station That Could" and planned on staying on unless the tower blew down. A bit more bravado than I might have been able to muster had Ike been bulldozing directly toward my little seven hundred-watter.

11:47 a.m. Still no feed from the network on the special satellite channel. Called the affiliate relations guy and got V/M. Looks like it's not going to happen.

2:24 p.m. We've updated the last announcement, loaded the computer, finalized the logs for the weekend, put together the contact list and tested — again — the Programming Source of Last Resort: the dial-up phone coupler. Now we're just going to wait it out.

Day Four
Saturday

9:03 a.m. Against all odds, Ike has veered way north, all the way to Houston, which is over 200 miles away. We are just spectators now, but looking at the video, Ike has hammered Galveston and Houston.

10 a.m. Yannis is at the station setting up for the Texas A&M Kingsville Football game, which was moved to Oklahoma in deference to Ike. Except for the Astros and Texans games that were moved, all of our programming is back to normal.

Noon. Now that the crisis has passed uneventfully, I have time to reflect on our preparations and execution.

At best, I give us a C+. On the plus side, I was absolutely committed to staying on the air, and I believe that commitment is at least 75 percent of getting something done. So long as the tower hadn't come down, we would have stayed on ... sounding ragged, perhaps, but on the air nonetheless.

On the negative side is almost everything else. Unlike tornadoes, hurricanes are easily forecast. The track is unknown and, as this storm demonstrated, not accurately predictable, but we knew Ike was coming. Even so, we — and by that, I mean "I" — deferred basic decisions until it was almost too late.

Lessons? Many.

Write down emergency procedures. Train people in them. (And don't forget to train new people as they join the staff).

Test things. A standby transmitter (or in our case, generator) is no good if it won't fire up when you need it.

Plan for the worst. We did this somewhat, by having a plan to stay on the air no matter what, but the details escaped me. I am still upset about the things we missed.

Broadcasting is the source of choice for Americans during times of local, regional and national crisis. We are an integral thread in the national fabric. As station owners, managers and operators we have a special responsibility to be available to our audiences during those times. That availability must not be compromised by poor planning or execution. To that end, we'll note our mistakes with Ike and correct them.

As for the next storm and our little band of merry men (and women): I'm a Texan at heart. Bring it on.

Thanks to Jim Withers for this first-person account. Comment to radioworld@nbmedia.com.

Congratulations Tampa Bay Rays on a FANTASTIC season!

*Above: Rays broadcasters **Andy Freed** (left) and **Dave Wills** (right) interview Rays' star third base prospect **Evan Langoria** on the "The Hot Stove Radio Show."*

*Top: **Larry McCabe**, Tampa Bay Rays Senior Director of Broadcasting and **Rich Herrera**, broadcaster and Director of Radio Operations are shown on the field during spring training.*

Impossible Remote?
Nah...You've Got ACCESS!

Tampa Bay Rays' Real-World Super Hero Saves the Day!

Fans of the Tampa Bay Rays baseball team are intimately familiar with Dave Wills and Andy Freed, play-by-play announcers and hosts of "The Hot Stove Radio Show." Offering the inside track on all things Rays, the show kicked off its 2008 season with the "Countdown to Opening Day" series. While at a remote from a well-known sports bar, ACCESS showed its true worth. Two minutes before the broadcast, the ISDN line that was supposed to be used for the broadcast failed to connect. Luckily, they had the ACCESS running on Wi-Fi provided by the restaurant. The broadcast got on the air and was flawless for the entire one hour show.

ACCESS delivers mono or stereo over DSL, Cable, Wi-Fi, 3G cellular, satellite, POTS (yep, ACCESS is a full featured POTS codec and works seamlessly with Matrix, Vector and Bluebox)—plus some services you may not have even heard of. Given the challenges of the public Internet, it's no small boast to say that ACCESS will perform in real time over most available IP connections.

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Here's Another of Those … Uh, *Things*

by John Bisset

Any thoughts on what Fig. 1 is? We're sure Guy Wire has an idea; but we'd like you to weigh in with your thoughts. E-mail your suggestion to *john bisset@verizon.net.*

★ ★ ★

Marc Mann writes from San Diego that an article in the Sept. 24 issue, "ISDN Can Help Generate Studio Rentals," referred to the practice of creating a "studio" using, among other things, "egg-crate foam on the walls."

This reminded Marc of loss of life that occurred when flammable and toxic "egg-crate foam" was used at The Station nightclub in Rhode Island several years ago.

Articles regarding the fire mentioned that investigators blamed flammable, polyurethane egg-crate style foam on the walls and ceiling of the club for fueling the blaze.

Marc poses a good question: How many radio stations unwittingly have this type of material in their own studios right now?

I'm sure you would agree that most professionals wouldn't think twice about utilizing this type of foam if they knew its inherent danger of flammability and toxicity when ignited. Marc writes that he trusts the author did not mean to imply that readers should use anything less than properly fire-rated soundproofing product.

So what are some alternatives? Gone are the days of carpeting the studio walls — or are they? Tell me your thoughts. Also, what reputable soundproofing manufacturers do you recommend? Are there ways that station personnel can easily identify potentially deadly pseudo-soundproofing foam products?

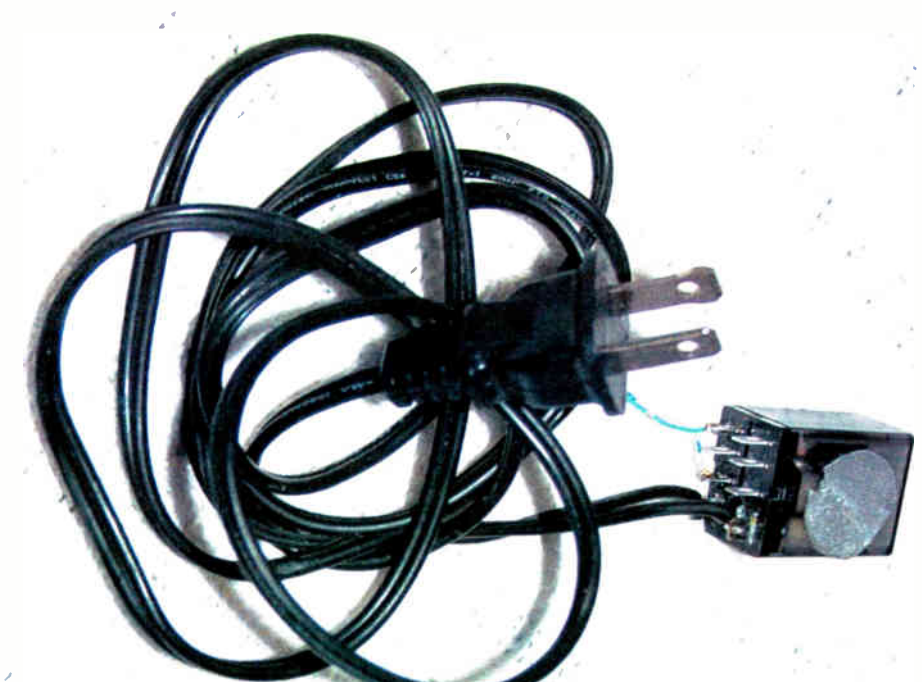

Fig. 1: Take a guess as to what this device is.

We'll see what our readers have to say. Write to me at *johnbisset@verizon.net.* Marc Mann can be reached at *mrmco@san.rr.com.*

★ ★ ★

At a recent Ennes Workshop co-sponsored by the Connecticut Broadcasters Association and the Connecticut Valley Chapter 14 of the SBE, we had a good discussion about promoting engineering.

The engineering manager for the Citadel/ABC Radio Cluster in New York City, Kevin Plumb, told me he'd put together a spreadsheet with management's names and numbers, reduced it to wallet size and laminated it. Each was distributed to station managers.

In addition to names and cell/home numbers, he included station hotline numbers and transmitter site info and numbers.

This is a great example of an engineering department taking a step to keep everyone organized. Now there is no excuse for not calling the hotline if a programming problem develops; all managers have the number. Does the sales manager hear station interference on the way to work? There's a contact name and number he can refer to.

The only drawback, Kevin says, is that cards have to be updated periodically as staff and cell numbers change; but this is a small price to keep everyone in the loop.

This information in the hands of your co-workers may be invaluable in an emergency; the effort also demonstrates your care for the station. Take 10 minutes, head to your local copy center and enjoy a pleasant reaction from your GM. Budgets are evolving, and now is a good time for that little "extra" that makes the engineering department shine.

Kevin Plumb can be reached at *kevin.plumb@citcomm.com.*

★ ★ ★

Sources of engineering formulae, like those found on the sites of transmitter manufacturers and equipment reps, are helpful.

Recently on the SBE listserv, Senior Master Sgt. Chris Bailey weighed in with a site that is unbelievable in scope. Bookmark *www.calculatoredge.com.*

This is a compilation of every kind of calculation imaginable. Need to figure out the right size dropping resistor for an LED? Look under electronics. Pouring your own concrete pad? Head to the

See FORMULAE, page 10 ▶

Axia consoles come with 24/7 support.

(Because radio is a 24/7 business.)

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Support

Fig. 2: A used ambulance makes a roomy remote truck ...

Fig. 3: ... and an excellent Jambulance.

Formulae

▶ Continued from page 8

"Civil" tab and enter the length, width and depth. You'll instantly get the volume of concrete required.

In addition to chemical, plastics and structural tabs, there's a finance tab that will do mortgage and car payment calculations. If you really want to get depressed, throw some numbers in the retirement calculator and see how much you'll have to save for retirement.

I guarantee you'll spend some time on this site and I suspect you'll use it for future projects. Thanks to SMSgt Bailey, a wireless systems superintendent who serves with the 256 Combat Communications Squadron of the Washington Air National Guard. Chris can be reached at *chris.bailey@qimail.af.mil*.

★ ★ ★

What better use for the old ambulance in Fig. 2 than to turn it into the station remote vehicle ... or the Jambulance?

There's no question this remote vehicle gets attention. Quantum Broadcasting in Cape Cod is the proud owner. Thanks to their chief, Joe Jarjoara, for passing along the photo. He can be reached at *avcraftsmen@aol.com*.

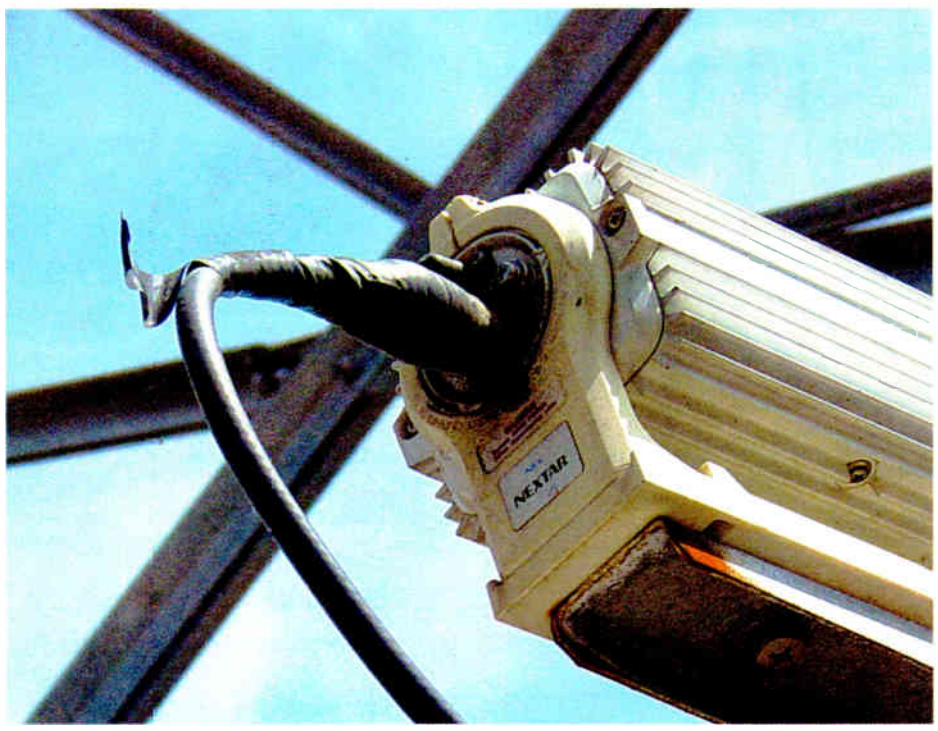


Fig. 4: Pay close attention to connectors exposed to the elements.

★ ★ ★

It's that time of year: time to inspect outdoor connections. A visual inspection will ensure that your waterproofed connections are really waterproof. See Fig. 4.

Make an inspection of satellite dishes and rooftop antennas; if you are in an area that gets hit by winter, do it before the weather turns sour. It doesn't take long and the findings might just save you some off-air time.

Thanks to RJ Perkins with Emerson College's WERS for noting the problem, and repairing it — but not before snapping a picture for *Workbench*! We love pix.

He can be reached at *richard_perkins@emerson.edu*.

★ ★ ★

Don't forget to let me know what you think Fig. 1 is. Write to *johnbisset@verizon.net*!

John Bisset has worked as a chief engineer and contract engineer for 39 years. In 2007 he received the SBE's Educator of the Year Award. Reach him at johnbisset@verizon.net. *Faxed submissions can be sent to (603) 472-4944.*

Submissions for this column are encouraged and qualify for SBE recertification credit.

The Big Picture

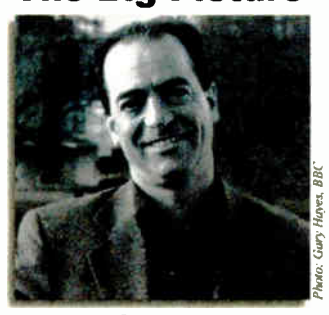


Photo: Gary Hayes, BBC

by Skip Pizzi

Skip Pizzi's column is on hiatus this week; he will return next issue.

MARKET PLACE

730 Is a COM/USB/TCP-IP Dynamic RDS/RBDS Encoder

Inovonics is offering a new RDS/RBDS encoder, shown here being tested by Ben Barber. The company calls this its new flagship data encoder.

The unit shows incoming data from automation "on the fly" and displays scrolling messages as they are seen by listeners. It connects with most playout systems to give song title and artist information, and supports RT+ "tagging" and other advanced applications.

The Model 730 is a TCP/IP-capable encoder that builds on the Model 713. Features include a front-panel knob that allows settings to be viewed and modified. This includes PI, PTY, DPS, IP, IP-Port#s, AFs, time-date and RS-232 baud rate, among others.

A dynamic DNS client service allows a "static IP-name" while being behind a dynamic IP address. The unit has an improved RAW command with FIFO buffer, which incorporates flexible Free-Format Group redundancy (for example: RT+ and TMC).

It supports DHCP and manual IP; either is configurable from the knob and LCD. The MAC address is visible from the front-panel LCD as well.

The Model 730 includes automatic RDS Group 4, Clock Time/Date packets. When connected to the Internet, the internal clock is updated automatically.

Its internal Daylight Saving Time scheduler can change the clock for up to 10 years. Scheduler capabilities allow a planned scrolling PS message independent of an automation system. It allows events to be saved as either a one-time event (date+time, then expires) or a recurring event (M,T,W,Th,F+time, never expiring). The user can schedule up to 99 events this way. Retail price is $2,200.

Photos by Carl Mayer

Info: www.inovon.com.

Swe-Dish Suitcase Line Expands

Swe-Dish Satellite Systems was awarded a Federal Communications Commission license for its Suitcase CCT90 portable satcom terminal.

The broadband satellite terminal has a 0.9-meter antenna and CommuniCase technology, which is based on a modular system architecture that features modems, amplifiers and other components that can be switched out and plugged in to another CCT product, such as a Drive-Away CCT120. This design allows for quick adaptation.

The company said the Suitcase CCT90 and its IPT Suitcase are the only mobile broadband satellite terminals with sub-one meter antennas that have been awarded an FCC license.

The company has also added a 1.2-meter antenna module to the CommuniCase Technology product line, creating the Suitcase CCT120.

Potential users for the Suitcase terminals include journalists, military personnel and emergency first responders communicate from remote locations.

Info: www.swe-dish.com.

The BMC Plan to Remap and Revamp Radio

Proposal Advocates Converting Underutilized TV Spectrum to Expand the Broadcast Bands

by Guy Wire

If you haven't read about or carefully considered the BMC's ambitious proposal that could literally save broadcast radio, keep reading.

The idea of converting TV Channel 6 for use by radio following the DTV transition has been around for a while and suggested by many. An enterprising group of broadcast consultants, lawyers and engineers decided to get busy and start developing the concept into a formal FCC proposal. Calling themselves the Broadcast Maximization Committee and led by Paul Reynolds, Jack Mullaney and Bert Goldman, the group has put together a compelling case. They filed their initial proposal as part of the FCC's Diversification of Ownership proceeding in July. Comments are still being accepted as "late filed" since that proceeding has ended.

The BMC wants to reuse TV Channel 5 along with Ch. 6 to create enough space to migrate all existing AM and LPFM stations to new spectrum. The scheme would also open up more space and coverage for LPFM and NCE opportunities. The resulting interference relief to existing bands that could then be "repacked" would be dramatic.

New channel details

Let's take a look at their basic plan. TV Channels 5 and 6 would add 12 MHz of additional spectrum immediately below the existing FM band. The BMC envisions creating 117 new 100 kHz channel allocations out of this spectrum called the EXB (EXpanded Band).

One hundred channels between 77.0 and 86.9 MHz would be allocated for AM migration. Four sub-classes of stations would be created to roughly match the existing 2 mV/m primary contour coverage reach of all existing AM stations. Class A-X stations would reach a 30 km primary contour, Class B-X to 60 km and Class C-X to 90 km.

Class Z is reserved for existing Class A, 50 kW, clear-channel AM stations with projected primary coverage in the EXB out to 150 km. These migrated operations would use digital-only, 100 kHz channels. The BMC filing includes an appendix that lists all existing AM stations and their projected new channels and classes in the proposed EXB.

The bottom of the EXB at 76.1 to 76.8 MHz would become eight channels allocated for exclusive use by LPFMs. The top eight channels at 87.0 to 87.7 MHz would be added to the existing NCE FM band to relieve congestion for new and existing NCE operations. One channel on 76.9 MHz would be set aside for NOAA/HSD use nationwide.

Paying for the big move

The single most obvious challenge that must be addressed is what to do with the remaining 24 TV stations that have chosen to remain on Channels 5 and 6 with their new DTV operations.

Most all had the opportunity to choose the replacement UHF channel offered for DTV or file separately for one and give up their stake in the old low-band VHF. But for various reasons, they chose to stay put. Come February, those stations will merely turn off their analog transmitters and switch the antenna to their new DTV rigs.

The good news, according to the BMC, is that all 24 can rather easily be relocated to open UHF channels. The bad news is that whoever gets to reuse Channels 5 and 6 is undoubtedly going to have to pay for that use. If television stations are forced to move to another channel by virtue of an imposed new allocation scheme, those stations would have to be compensated.

The broadcasters and engineers I've talked with largely support the BMC proposal, but realize that for there to be any chance of this becoming reality, quite a few rather high hurdles must be negotiated. It's going to take a lot more than engineers and small operators talking with the FCC to make it happen.

Considerable political muscle with help from the NAB and other lobbyists will be needed to convince the commissioners that the broadcast radio service deserves this spectrum more than other users. This comes at a time when the commission seems much more interested in new technologies that would augment the burgeoning wireless Internet revolution.

Airwaves on the auction block

The DTV transition was crafted to free unused analog spectrum long allocated to analog TV, and put it up for auction to the highest bidder. It is supposed to generate revenue for the federal government and create opportunities and demand amongst competing new technology players needing spectrum.

With that mindset, it would seem the commission would be more inclined to put a price on Channels 5 and 6 to compensate those 24 DTV stations that must relocate, and then auction the spectrum off instead of merely giving it back to broadcasters for free.

On the other hand, the history of spectrum auctions has not been the cash-flowing bonanza of success the commission had been hoping for. Witness the collapse of the Iridium satellite phone service. It produced little income and the need to re-auction the spectrum for much less money.

Auctioning off Channels 5 and 6 to the highest blue-sky bidder that could easily fail may not be the prudent thing to do here. It could be that this spectrum would be best used to support and improve an existing beleaguered service with almost 100 years of legacy value and public service.

Do more stations equal less money?

Unfortunately opening up a lot of new spectrum and opportunities for more stations always means more dilution of ratings and revenue potentials.

Existing licensees are almost never receptive to such proposals. Docket 80-90 taught us that lesson all too well.

Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.
76.1	83	80.0	122	83.9	161
76.2	84	80.1	123	84.0	162
76.3	85	80.2	124	84.1	163
76.4	86	80.3	125	84.2	164
76.5	87	80.4	126	84.3	165
76.6	88	80.5	127	84.4	166
76.7	89	80.6	128	84.5	167
76.8	90	80.7	129	84.6	168
76.9	91	80.8	130	84.7	169
77.0	92	80.9	131	84.8	170
77.1	93	81.0	132	84.9	171
77.2	94	81.1	133	85.0	172
77.3	95	81.2	134	85.1	173
77.4	96	81.3	135	85.2	174
77.5	97	81.4	136	85.3	175
77.6	98	81.5	137	85.4	176
77.7	99	81.6	138	85.5	177
77.8	100	81.7	139	85.6	178
77.9	101	81.8	140	85.7	179
78.0	102	81.9	141	85.8	180
78.1	103	82.0	142	85.9	181
78.2	104	82.1	143	86.0	182
78.3	105	82.2	144	86.1	183
78.4	106	82.3	145	86.2	184
78.5	107	82.4	146	86.3	185
78.6	108	82.5	147	86.4	186
78.7	109	82.6	148	86.5	187
78.8	110	82.7	149	86.6	188
78.9	111	82.8	150	86.7	189
79.0	112	82.9	151	86.8	190
79.1	113	83.0	152	86.9	191
79.2	114	83.1	153	87.0	192
79.3	115	83.2	154	87.1	193
79.4	116	83.3	155	87.2	194
79.5	117	83.4	156	87.3	195
79.6	118	83.5	157	87.4	196
79.7	119	83.6	158	87.5	197
79.8	120	83.7	159	87.6	198
79.9	121	83.8	160	87.7	199

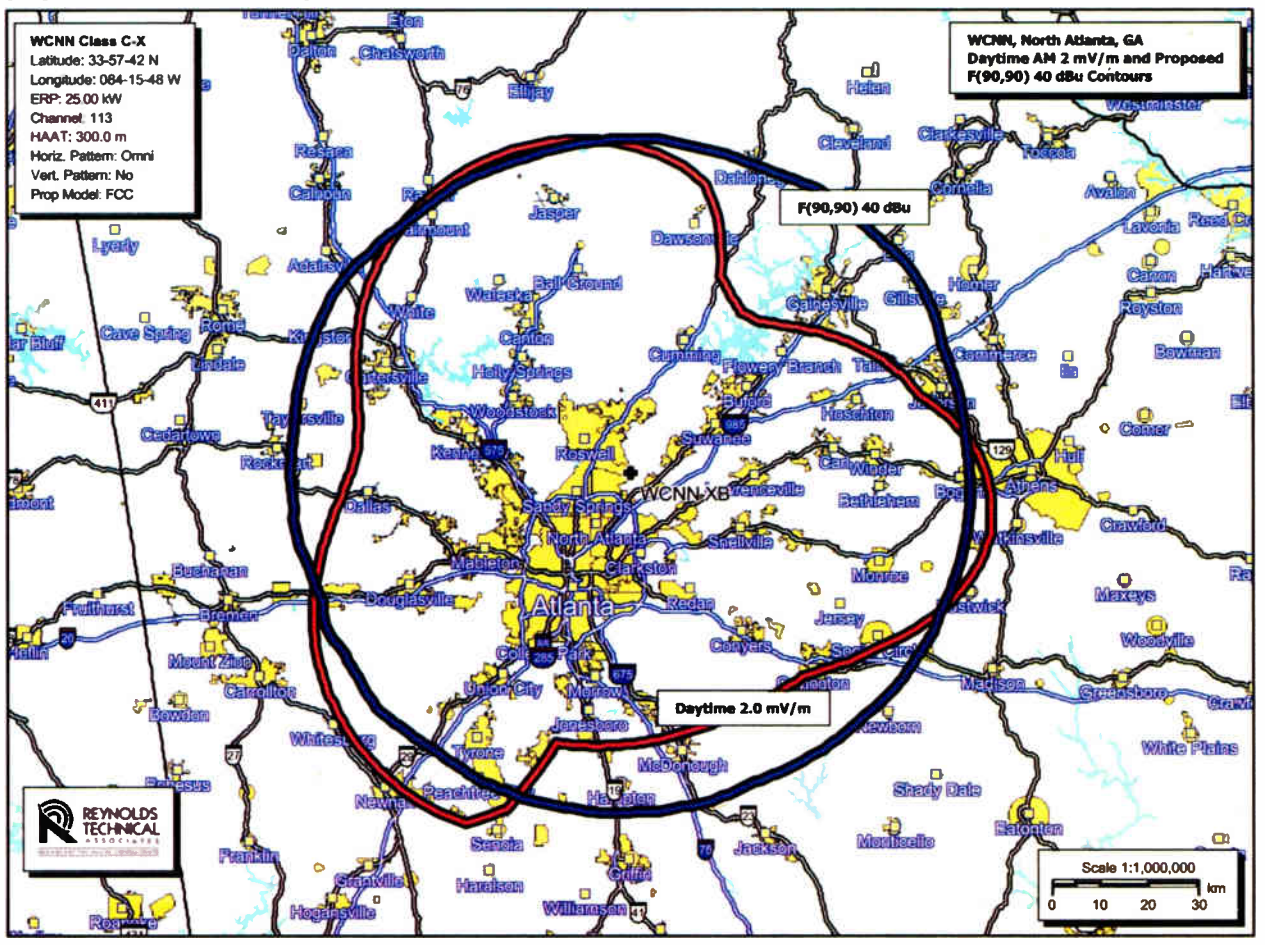
Allocation plan for new spectrum with 100 new channels

And now we are already facing the prospect of doubling or even tripling the total inventory of FM program offerings with the new HD2 and HD3 channels.

The radio industry is a complicated mix of both large- and small-market interests as well as both private and publicly owned stewardship. Certainly the smaller markets and more marginal facilities in terms of coverage, including LPFM, will enthusiastically welcome the BMC proposals. The larger groups and major-market stake-holders with successful AM stations may not be so enthusiastic.

Bert Goldman of the BMC anticipates that and realizes those players will need to be lobbied hard to become convinced of the long-term benefits. He thinks 90 percent of existing FMs will support the plan and perhaps 60 percent of the Class A AMs would be willing to relocate to the EXB. That would leave the remaining AM stations a much cleaner band with much better fringe and skywave coverage.

See REMAP, page 14 ▶



Coverage map shows comparison between existing AM station WCNN 2 mV/meter contour in red and proposed Class C-X digital contour in blue.

Omnia 6EXi is:

AND EVERYTHING IN BETWEEN

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Remap

▶ Continued from page 12

The NAB traditionally has lined up behind its larger and more influential group members when faced with making tough and controversial choices. It tends to follow the money, or at least the interests of the largest audiences being served.

So far, the NAB has been on record as saying it opposes any plan that would force DTV off Channels 5 and 6.

Sorry, no vacancy

Perhaps the most compelling part of the BMC proposal is that it presents a very real solution to the overcrowding and interference quagmire the FCC has unwittingly created for both AM and FM over the years.

Nobody disagrees that the AM band has become virtually useless at night, except for the 50 kW powerhouses. And the ever-increasing noise levels make it tough to hear even good signals in many locales during the day.

All of the dockets that have created more opportunities for more stations, all within the same original band limits and channel bandwidths, have essentially filled up all the available rooms at the inn. Yet there is still a ton of pressure for more stations every time a new NCE, translator or LPFM application window has opened.

And the pressure is unrelenting. The LPFM service has yet to fulfill the promise of its original goals or intentions. Most large population centers that would benefit the most have no LPFMs because of present spacing rules. We are now facing the possible elimination of third-adjacent and relaxation of second-adjacent protections on FM as a way to solve that problem.

But with the advent of HD, relaxing interference protections increases the prospects of even more interference. Clearly this madness of doing "business as usual" must stop or the FCC itself may become *the* primary contributor to the continued erosion and eventual demise of broadcast radio.

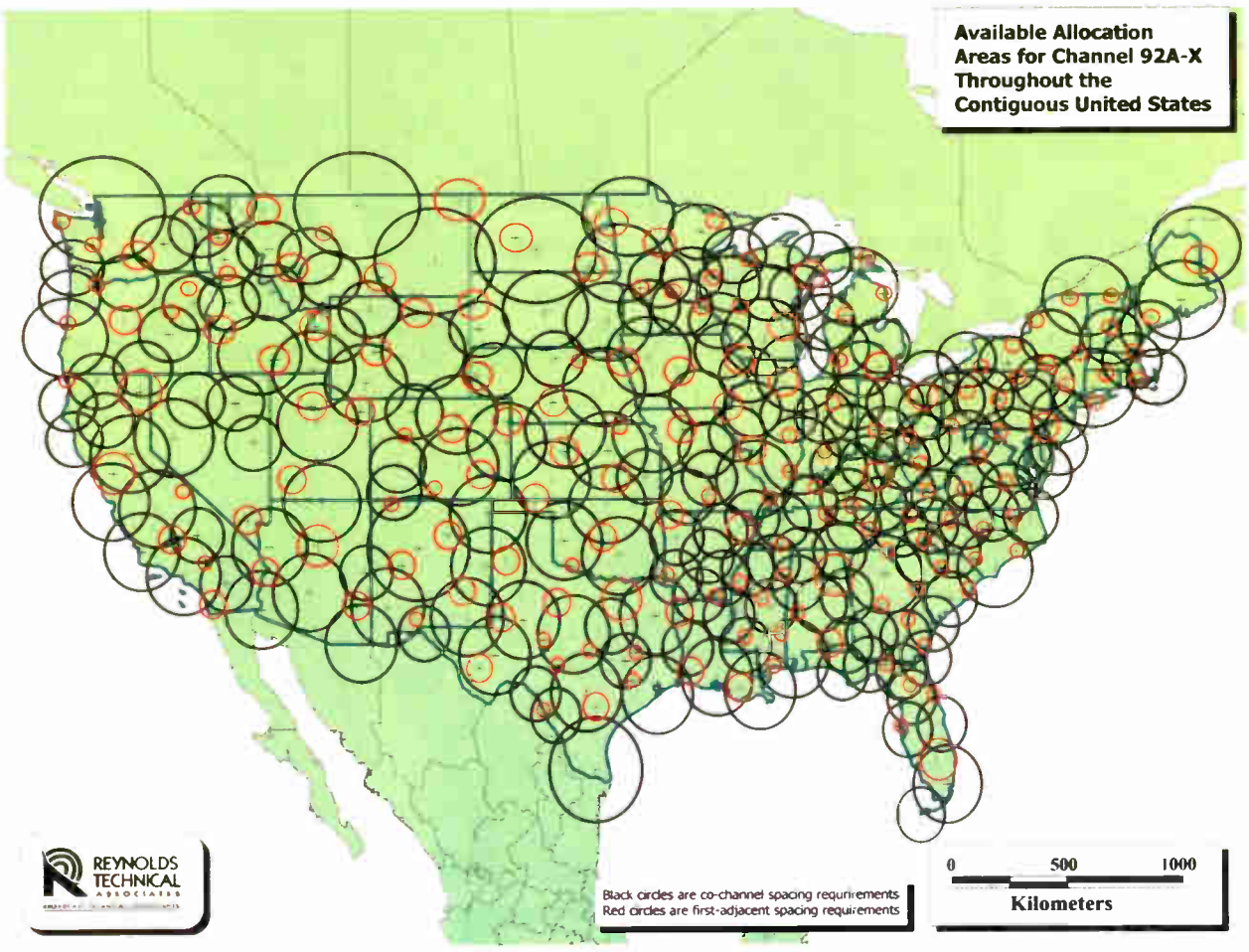
Broadcast radio may be best choice

There is a silver lining for radio in the DTV cloud hovering over Channels 5 and 6.

The BMC points out in its filing that low-band VHF does not work all that well for DTV channels compared to high-band VHF and UHF. Impulse and other noise, as well as skip propagation, degrade DTV performance. Several key studies back that up. Most savvy TV engineers knew that, and as a result most low-band TV stations opted to switch to their UHF assignments for DTV.

These same characteristics, along with the longer wavelengths of 76 to 88 MHz, also make this spectrum less suited as a place to put wireless Internet technologies intended to serve small handheld devices. These channels are thus less attractive and less valuable for such applications if they were to go to auction.

If an acceptable plan to compensate those existing 24 DTV stations for moving to UHF substitutes can be struck, broadcast radio could be the only serious contender for this spectrum. It's entirely possible some of the 24 might opt to vacate Channel 5 and 6 on their own after they get a full-time opportunity to evaluate DTV performance starting in February.



Map showing spacing requirements for new spectrum channel allocations

On the benefit side, the BMC proposal offers a solution to a problem that is likely to cause more angst and get a lot more attention in the next year or two. Simply put, radio's digital transition needs a better chance of succeeding. Despite iBiquity's and HD Digital Radio Alliance's recent proclamations that HD Radio is doing well, there is almost no demand for HD Radio in the consumer marketplace. A lot of work and creative thinking remains if radio is to have a successful digital future.

Moving AM stations to the new EXB with digital performance along with all LPFMs would give those stations a *huge* shot in the arm, although it would take perhaps up to 10 years for radios with the new band capability to reach any kind of useful critical mass for consumers.

An immediate benefit for NCE operators would be the removal of the restrictions on NCE channels operating in TV-6 areas. These have greatly limited NCE station coverage potentials. After Channel 6 is vacated by TV, hundreds of upgrades and new stations could be accommodated in the existing NCE band by itself, in addition to those in the eight additional new channels proposed.

All existing FM stations would be able to reclaim real fringe coverage lost to translators and LPFMs that have been shoehorned in. That's going to become even more important if and when the 10 dB digital power increase is approved.

One large unknown in the BMC proposal is what kind of digital modulation standard would ultimately be used. The BMC wants to create 100 kHz channels to be able to accommodate the entire AM inventory for migration, saying that 100 kHz is adequate and more efficient to serve that purpose. Nothing is being said about supplemental channel capacity or if iBiquity would be receptive to such a fundamental change.

We wonder if the AM service can remain viable long enough to be in any position to be lobbying for an entire new home for every occupant. Increasingly, more AM formats are being migrated to HD2 and HD3 channels on sister FM stations to achieve an easy "digital upgrade." That might diminish the need for the AM part of the BMC plan.

The prevailing NRSC-5 HD Radio standard still uses the 200 kHz FM channel and mask. IBiquity has staked its future and success of HD on the present standard. Changing it to work in half the bandwidth for the EXB could create early obsolescence for all of the HD receivers in use at the time this proposal might be adopted. The BMC does mention the compatibility of the DRM system for VHF use with 100 kHz channels in its filing. As of this writing, they are saying it would be best to let the FCC decide this issue when the time comes.

See REMAP, page 16 ▶

Can do.

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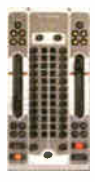

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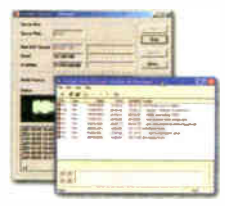

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What About Cell Phone Safety?

by Richard Strickland

Radio World offers a recurring series of Q&As with Richard Strickland of RF Safety Solutions, who has presented numerous public and private seminars on RF radiation safety and has written widely on the topic. The series is archived at radioworld.com.

Question: The safety of cell phones is being called into question again with the head of a prominent cancer research institute issuing a warning. Can you offer any information regarding cell phone safety?

Answer: The well-publicized recent warning to limit cell phone use from Dr. Ronald Herberman, director of the University of Pittsburgh Cancer Institute, has a great deal of merit.

The safety of cellular phones has been debated for years. Dr. Herberman is taking the position that it is better to be safe and take action now because it takes years to get answers from science.

The following covers well-known facts about cellular phones and the effects of radio frequency (RF) energy on the body.

RF exposure limits

The major worldwide whole-body RF exposure limits are similar and are all based on a common set of biological data. The human body functions as an antenna. The better the antenna is, the more energy is absorbed. Your height is the main factor that determines how effective an antenna you are at a given frequency.

In most cases, we are concerned with the total amount of energy absorbed by the body, which is referred to as whole-body heating. In some cases, we are concerned with certain parts of the body being heated.

This is what happens when a cell phone is held close to your head: It causes the head (and brain) to heat. RF exposure is quantified in terms of Specific Absorption Rate (SAR), which is measured in Watts per kilogram of body mass (your weight).

This approach allows us to assess the exposure of all people, research animals and even parts of the human body. Your total weight is used when considering whole-body heating, while only grams of brain matter are considered when looking at the heating effects of a cell phone.

The whole-body limit for all the major standards, such as the Federal Communications Commission's limit for Occupational/Controlled exposure, is 0.4 Watts per kilogram. The FCC's exposure limit for General Population/Uncontrolled exposure, often cited as the public limit when referring to such things as cell sites, is only one-fifth of that limit, or 0.08 Watts per kilogram. As with all standards, a safety factor is built in. For RF energy, the established upper limit of tolerance is 10 times higher than the occupational limit.

Cell phone exposure limits

The SAR limit for cell phones is 1.6 Watts per kilogram. This limit for the head is four times higher than the occupational limit for the whole body and 20 times higher than the public limit for the whole body.

Exposure from use of cell phones

The amount of RF energy that you absorb depends on several factors. The two most important factors are:

- The intensity of the RF field to which you (or parts of your body) are exposed;
- How efficient an antenna you (or parts of your body) are at that frequency

From a whole-body exposure point of view, adults make the best antennas in the frequency range of about 50 MHz to 108 MHz, depending on how tall they are. These frequencies are used for TV Channels 2 to 6 and FM radio.

Your head, which is much smaller, makes a very good antenna in the frequency range of about 800 to 900 MHz. This is the same frequency band used by cellular phones.

The other two bands commonly used for personal phones — PCS and GSM — operate from roughly 1,800 to 2,000 GHz, where a person's head is a somewhat less efficient antenna.

The two most important factors that determine how much energy your head absorbs when using a cellular phone are:

- How close the phone is to your head;
- How much power the cell phone is transmitting

If a person is holding the phone away from his or her body such as when texting or when using a headphone (wired or Bluetooth), the amount of energy absorbed is immeasurably small.

When the phone is held about an inch from your head, the SAR levels begin to get significant. The difference between holding the phone an inch away from your head and holding it tight against your head, as you might when reception is poor, is an increase in SAR of 5 to 10 times more. In other words, when you pull the phone only an inch away from your head, you reduce the amount of energy that you absorb by 80 to 90 percent.

The amount of power that a cell phone transmits is determined by how close you are to a cell site. When you are receiving a very strong signal (lots of bars), the output power of the cell phone is reduced by about 90 percent to conserve battery life. In contrast, when you are barely able to make a connection, the cell phone is transmitting at full power. Of course, this is exactly when there is a tendency to hold the phone tight to your head.

Thus, the difference in the amount of energy that your head absorbs from a cell phone varies dramatically. Under worst-case conditions, when held tight to the head with the cell phone transmitting at full power because you are far from a cell site, the level is 50 to 100 times more than when you hold the phone away from your head by only an inch when close to a cell site.

Many of the cell phones come very close to the SAR limit of 1.6 Watts per kilogram when tested under worst-case conditions.

Exposure of others

Dr. Herberman's caution regarding use of a cell phone near other people is unwarranted.

The energy from a cell phone drops off rapidly with distance because it spreads out in two dimensions. The intensity of the RF field two feet from a cell phone is much less than 1 percent of what is next to the cell phone. So, unlike secondhand smoke from cigarettes, the use of cell phones by others does not present a threat to people nearby.

Remap

▶ Continued from page 14

Even before the FCC commissioners and staff will give serious consideration to the BMC proposal, it seems likely that the NAB and the major group owners would have to mostly buy into it as a worthy idea. Beyond the need to relocate those 24 DTV stations, undoubtedly this will be the biggest challenge of all.

Buy in

To get more solid support and momentum moving for their idea, the BMC needs to enlist the services of additional high-profile industry experts who have close connections with the NAB, major group and FCC decision-makers. Effective lobbying is still the best grease to lubricate the wheels in Washington, and it is how most FCC initiatives find their way to ultimate adoption.

The initial BMC proposal is by far the most comprehensive and persuasive plan yet presented that would give the broadcast radio infrastructure a much needed booster shot to remain a strong and vibrant part of the American cultural experience. It's a brilliant effort for getting the conversation started.

Repurposing 76 to 88 MHz for radio would certainly go a long way to resolve band crowding and AM interference issues and make it easier for radio's digital transition to succeed. But those arguments may not be as compelling or persuasive for the commission as selling those channels to support some other promising new technology initiative. It will be up to a concerted BMC effort, with support from the overall industry and the NAB, to convince the commission that broadcast radio is the best use of this spectrum for the foreseeable future.

Guy Wire is the pseudonym of a veteran broadcast engineer whose columns are featured regularly in Radio World Engineering Extra.

Comment on this or any article. Write to radioworld@nbmedia.com.

Can a radio console be over-engineered?

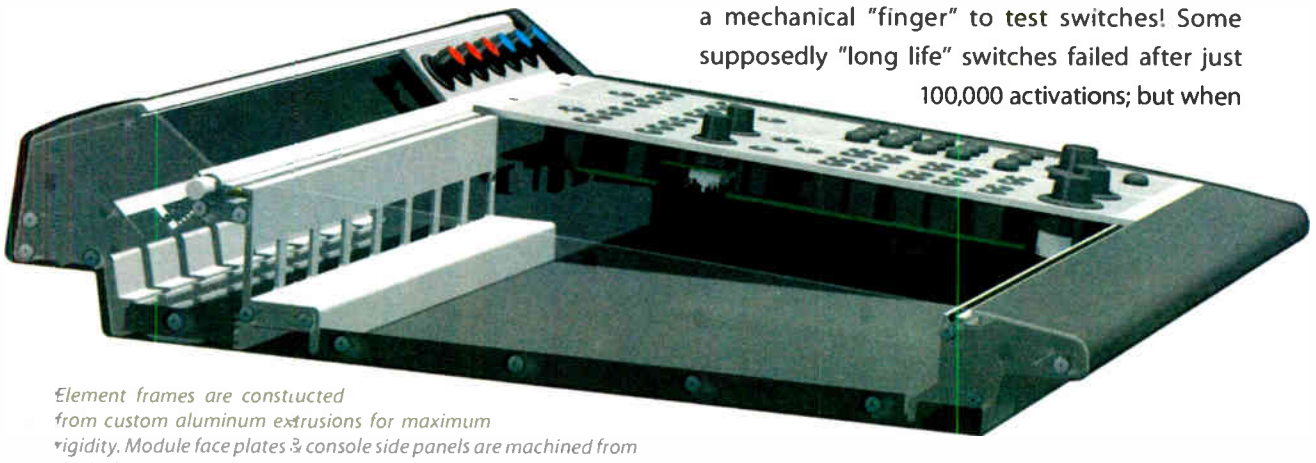
(Only if you think "good enough" really is good enough.)

The radio console, redefined.

Building a great console is more than punching holes in sheet metal and stuffing a few switches in them. Building a great console takes time, brain-power and determination. That's why Axia has hired brilliant engineers who are certified "OCD": **Obsessive Console Designers,** driven to create the most useful, powerful, hardest-working consoles in the world.

Beneath the surface

There's more to a great board than just features. **Consoles have to be rugged,** to perform flawlessly 24/7, 365 days-a-year, for years at a time. So we literally scoured the globe for the absolute best parts — hardware that will take the torture that jocks dish out on a daily basis.



Element frames are constructed from custom aluminum extrusions for maximum rigidity. Module face plates & console side panels are machined from thick plate aluminum. Even the hand rest is a beefy extrusion. All this heavy metal means even the most ham-handed jock can't dent it..

First, Element is fabricated from thick, **machined aluminum extrusions** for rigidity and RF immunity. The result: a board that will stand up to nearly anything.

With so many devices in the studio these days, the last thing anyone needs is gear with a noisy cooling fan. That's why Element's **power-supply is fanless**, for perfectly silent operation inside the studio.

Element modules are **hot-swappable**, of course, and quickly removable. They connect to the frame via CAT-5, so pulling one is as simple as removing two screws and unplugging an RJ — no motherboard or edge connectors here.

Faders take massive abuse. The ones used in other consoles have a big slot on top that sucks in dirt, crumbs and liquid like the government sucks in taxes. By contrast, our silky-smooth conductive-plastic faders actuate from the side, so that **grunge can't get in.** And our rotary controls are high-end optical encoders, rated for more than **five million rotations**. No wipers to clean or wear out — they'll last so long, they'll outlive your mother-in-law (and that's saying something).

Element's **avionics-grade switches** are cut from the same cloth. Our design team was so obsessed with finding the perfect long-life components that they actually built a mechanical "finger" to test switches! Some supposedly "long life" switches failed after just 100,000 activations; but when our guys found the switches used in Element, they shut off the machine after **2 million operations** and declared a winner. (The losers got an all-expense-paid trip to the landfill.)

Element's individual components are **easy to service.** Faders come out after removing just two screws. Switches and rotary volume controls are likewise simple to access. And all lamps are LEDs, so you'll likely **never need to replace them.**

Engineers have said for years that console finishes don't stand up to day-to-day use. Silk-screened graphics wear off; plastic overlays last longer, but they crack and chip — especially around switches and fader slots, where fingers can easily get cut on the sharp, splintered edges. We decided that we could do better.

There's a reason these board-ops are smiling. Axia consoles are in more than 1000 studios worldwide.

Element uses high-impact Lexan overlays with color and printing on the back, where it **can't rub off.** And instead of just sticking the Lexan to the top of the module like some folks do, our overlays are **inlaid on the milled aluminum module faces** to keep the edges from cracking and peeling — expensive to make, but worth it. For extra protection, there are **custom bezels** around faders, switches and buttons to guard those edges, too. Which means that Element modules will **look great for years.**

By the way, those on/off keys, fader knobs and bezels are our own design, custom-molded to give **positive tactile feedback.** The switch is flush with the top of the bezel, so it's easy to find by touch. But if something gets dropped on it, the bezel keeps the switch from being accidentally activated.

More than just products

Even the best products are nothing without **great support.** So Axia employs an amazing network of people to provide the best support possible: Application Engineers with **years of experience** in mapping out radio studios... the most knowledgeable, **friendly** sales people in the biz... Support Engineers who were formerly broadcast engineers. Plus a genius design team, software authors who dream code... one of the **largest R&D teams** in broadcast.

And now Axia has become radio's **first console company to offer 24/7 support**, 365 days a year. Chances are you'll never need that assistance, but if you do, we'll be ready for you. Our 'round-the-clock help line is +1-216-622-0247.

Proudly Over-Engineered

Are Axia consoles over-engineered? **You bet.** If you're looking for a cheap, disposable console, there are plenty out there — but this ain't it. Not everyone appreciates this kind of attention to detail, but if you're one who seeks out and appreciates excellence wherever you may find it... Axia consoles are built **just for you.**

AXIA
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www.AxiaAudio.com

NAB Radio Show New Product Wrapup

Here's a sampling of new and recent products for radio broadcasters from the floor of the fall NAB Radio Show.

Mayah Intros C11 Codec Family

Mayah announced a new generation of petite products, the C11 audio codec family for IP, ISDN, POTS and ASI specs. The C11 fits within half of a 19-inch single-rack-unit form factor.

Photo by Jim Peck

The company emphasizes the C11's range of redundancy and monitoring/control concepts, with models supporting logging of outgoing and incoming signals and offering additional storage as well as optional POTS and 3G/UMTS.

Additionally, the company told attendees about the Sporty Mobile Reporter Codec and Flashman II portable recorder/codec, capable of simultaneous transmission and recording. The Sporty now sports compatibility with MPEG 4 HE-AAC v2 and MPEG 4 AAC ELD.

Sporty also supports WLAN, UMT/3G wireless connection options. As part of its basic functions, Sporty operates as a codec (G.711, G.722, Layer II, Layer III) and offers the option to also record to USB thumb drives or SD cards. It also offers Ethernet, ISDN and PCMCIA card interfaces.

Mayah devices support Audio-over-IP Ethernet or mobile 3G networks per EBU Standard. Traditional and advanced coding algorithms are included: linear, G.722, Layer II/Layer III, HE/AACv2, AAC/ELD and apt-X/Eapt-X.

Shown: Daniel Loeffler works the booth.

Info: *www.mayah.com.*

ENCO Has a New DAD

ENCO Systems rolled out Version 8.1d of its DAD automation platform.

The latest version incorporates several new features, such as LiveList, which enables multiple editing and voice-tracking on an individual playlist or log. LiveList also allows monitoring of a number of playback machines from a single studio.

Several enhancements to the DAD command language have been added, as well as

support for a number of newer professional sound cards and IP audio devices. The ability to stream as many as 16 audio outputs at the same time from a single workstation makes DAD an asset for multiple HD Radio program channels and Web radio with ad substitution, the company said.

ENCO also exhibited RAMA for the first time in its release form. The Remote Administered Metadata Appliance is a turnkey solution to managing and manipulating metadata for multiple destinations like RDS, HD Radio and Web sites. RAMA supports now-playing data, scheduled messagecasting and iTunes tagging for HD Radio, plus store and forward metadata with selected radio network program feeds.

Both DAD Version 8.1d and RAMA are shipping.

Info: *www.enco.com.*

APT Offers More WorldNet Oslo Modules

APT North America has several new modules for its professional-grade IP-based audio codecs, including its WorldNet Oslo audio multiplexer.


Photo by Jim Peck

"Core to APT's product line is the WorldNet Oslo Audio Multiplexer, which offers a modular platform for the delivery of multiple channels of audio, voice and data over both IP and T1 networks," a company spokeswoman said.

New for the WorldNet Oslo is voice transport capability, including a wideband voice module, four-wire E&M and two-wire FXO and FXS modules for the creation of off-premises extensions and PBX links.

Also new: external AES/EBU external synchronization input to the IP transport module, enabling the use of a common audio reference clock throughout the units on an IP network; and support for SIP/SDP for WorldNet Oslo and throughout the IP-based product range.

APT also announced that its IP codecs — the Horizon, Meridian, Eclipse and Oslo lines — support SIP/SDP protocols.

This will allow APT's IP codecs to communicate with codecs made by other manufacturers. It assures operation through firewalls and over external networks. It is also designed to be operated by nontechnical operators.

Shown: Rolf Taylor of APT and Doug Nelson of Nelson Multimedia in Plano, Ill.

Info: *www.aptx.com.*

Burk: Easy Monitoring Via Ethernet

Burk Technology continued to expand its ARC Plus-compatible product family by introducing the Plus-X 300.

The Plus-X 300 is an Ethernet-based I/O interface that Burk says is designed to broaden the scope of broadcast remote control. Plant equipment connected to the Plus-X 300


Photo by Jim Peck

is linked via IP to the ARC Plus for monitoring and control. Ethernet-based I/O allows easy distribution of remote control throughout the facility by utilizing the existing network infrastructure.

Unattended studios and sites benefit because no new wiring or infrastructure to a central control point is needed.

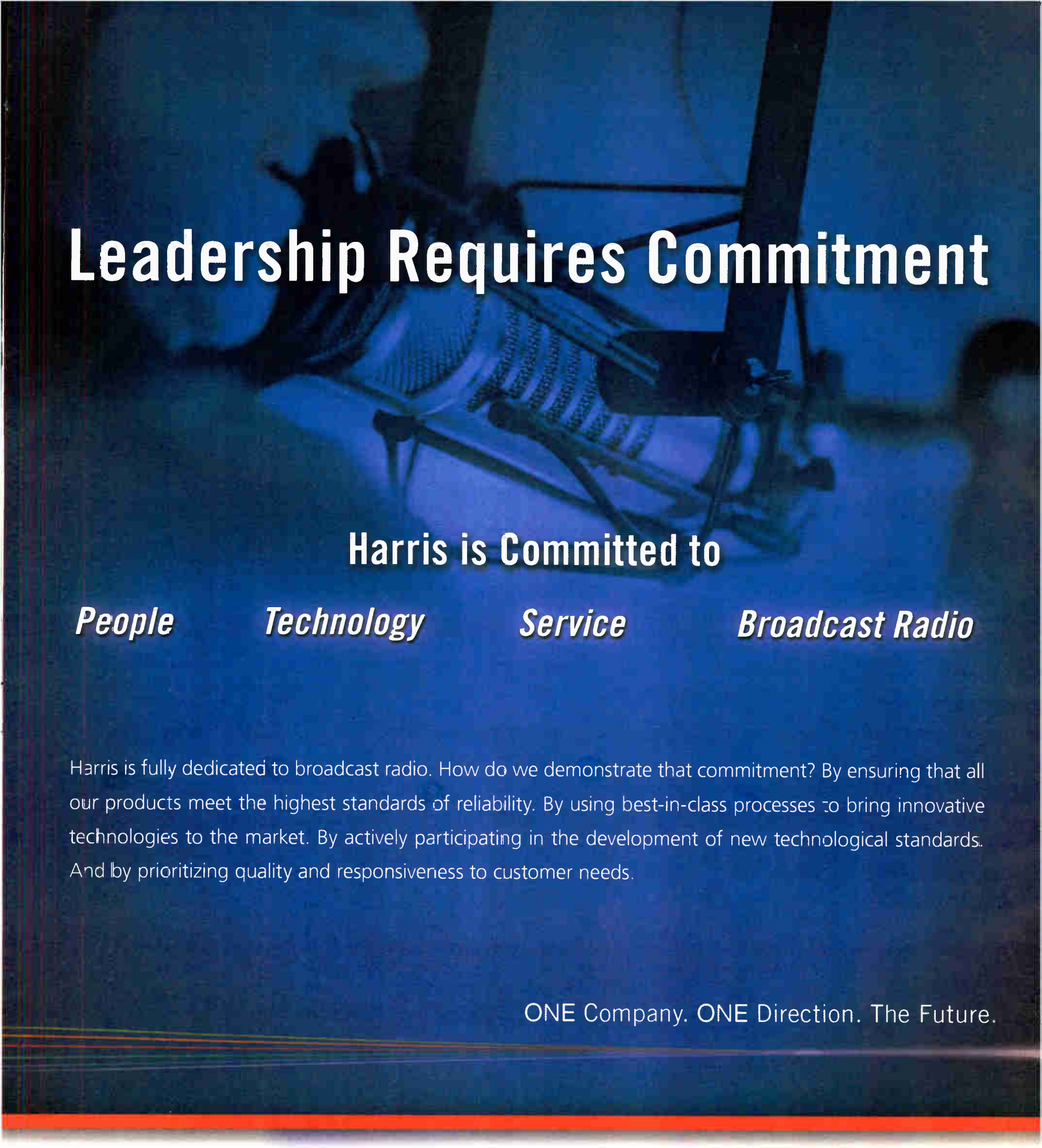
The Plus-X 300 facilitates eight analog and status inputs, as well as eight independent relays for control. The unit is compatible with any ARC Plus system.

John Ross, CE of BMP Radio in McAllen, Texas, learns about the ARC Plus from Steve Dinkel of Burk.

Info: *www.burk.com.*

BE Shows a Range Of New Offerings

Broadcast Electronics said its new FXi 60/250esp digital exciter has RF and audio synchronous features to overcome technical



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challenges that have prohibited FMs from establishing booster sites.

BE says noise in the "overlap" zone where main and booster signals of equal strength essentially interfere with one another can be a deal-breaker.

The exciter includes an internal GPS receiver for locking carriers and pilot frequencies in reference to GPS 10 MHz and 1 PPS, plus dynamic audio and modulation synchronization for reducing distortion artifacts in interference zones.

RF sites that were marginal before because of these issues become viable options as a result, the company said.

The GPS receiver and audio delay eliminate the need for external equivalents, which BE says saves more than $5,000 per site. Audio phase alignment, dynamically adjustable in 1 µsec resolution, provides reception continuity.

BE also addressed options for HD Radio broadcasters. "Multicasting additional program channels, adding personalized data services and leasing band space to content providers are a few of the options available to HD Radio broadcasters, who have 50 percent more available digital capacity compared to last year at this time," it stated, thanks to the 2007 approval of "extended" HD Radio hybrid operation.

The IDi 20 Data Importer unit enables broadcasters to reallocate HD Radio bits for new services. Broadcasters can set it for as many channels as desired, and can allocate bits on the fly in order to reassign more bits to one channel over another during certain dayparts. Units in the field require a setting change to add a second or third program channel or to create "audio-plus" opportunities such as leasing bandwidth for traffic and mapping.

Not to be left out, the AudioVault automation platform has new goodies that BE says address operational challenges presented by multicasting, voice tracking and Web streaming.

Features include an advanced segue editor for handling voice-tracks and localizing station content; improvements in asset management; and a multithreaded core engine for accelerating interaction between workgroups.

Personalized studio "mashups" combine tools and applications from more than one source into a single workspace. Announcers and producers can profile workspaces unique to each show or work style or for operational continuity. V Flex will let users choose task icons from a palette of operating functions, and define the number of decks, types of navigational lists, pane sizes, layout of functions and personalized "skins" of background and color scheme preferences.

Info: *www.bdcast.com.*

Wheatstone Expands Processor Line

The Wheatstone E^2 is an audio-over-IP I/O interface offers mixing, routing and profanity delay as well as an easy Web interface and front-panel metering.

The Vorsis AP2000 broadcast audio processor for FM and HD 31-band processor offers VoiceMaster technology to separately optimize the processing of voice, SST Sweet Spot Technology to maximize consistency and VBMS Vorsis Bass Management System for bass that doesn't muddy the sound,

Photo by Jim Peck

according to the company.

The Vorsis VP8 multimode audio processor for FM, AM, MPEG3, HE-AAC, HDC and wideband VoIP applications is a 1 RU, four-band AGC and eight-band limiter.

Shown, Phil Owens, right, talks with Kerry Plackmeyer of Hearst Radio Baltimore about the Audioarts AIR-1 console, also part of the Wheatstone exhibit.

Info: *www.wheatstone.com.*

Henry Options MonitorMix

Henry Engineering announced a "MonitorMix" option for its SixMix USB Console.

The compact console often is used for doing remote broadcasts, the company says, where the talent may need to hear a mix of local program audio and the "return cue" audio sent from the main studio back to the remote site. This enables the remote talent to hear what's being aired.

"The MonitorMix option does exactly that,"

Henry states. "Return cue audio that's sent via POTS, IP, ISDN, etc. can be mixed with the SixMix Program bus, so the remote-site talent can hear both in his headphones. A mix-level control allows the return cue audio level to match that of the SixMix Program bus audio."

The option can be ordered with any SixMix console and added to SixMix units already purchased. The cost for the option is $125.

Info: *www.henryeng.com.*

Comrex Access Now Thick With BRIC

Codec manufacturer Comrex is releasing an Access 2.5 firmware upgrade for its Access IP codecs, making them compatible with the upcoming BRIC Traversal Server (TS) service.

The BRIC TS is designed to ease operation of Access codecs; it will seek to introduce simplified point-and-click destinations, address sharing and other features for eliminating complex codec terminology and practices. The BRIC TS will be a free, easily

Go do what you want and deliver it in any compatible format.

Portable Reporter Codec

Extremely small & light, the Sporty Portable Reporter Codec can transmit from anywhere, to anywhere, while simultaneously recording to USB sticks or SD cards. Sporty is a robust, portable 4 channel studio with the most modern MPEG-4 HE AACv2 and AAC ELD audio formats: providing "High Quality" & "Low Latency" at the touch of one button with high capacity battery life.

Thanks to MAYAH's unique FlashCast™ technology and full support of the EBU Audio-over-IP standard, Sporty is able to automatically connect to almost any audio codec. Ideal for situations where the destination codec is unknown.

While offering both, traditional POTS and ISDN, Sporty also opens the way to a whole new world of network connectivity by adding WLAN, UMTS/3G and Ethernet. Now you really can transmit your reports home from almost anywhere in the world!
Say Hello to Sporty and Good-bye to your OB Van!

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Daniel Loeffler
North American Business Development
Bellingham, WA 98225
dloeffler@mayah.com
DIRECT: (360) 618 1474
CELL: (408) 429 5177
FAX: (408) 907 2020
www.mayah.com

MAYAH COMMUNICATIONS

accessed Web site, the manufacturer said.

According to Tom Hartnett, technical director for Comrex: "We knew from the beginning of BRIC development that the traversal server was a key ingredient. If this technology is to be successful, IP audio must

BRIC TS TRAVERSAL SERVER

be as easy to use as a telephone. By providing a way to seamlessly bridge routers and to find other users, BRIC TS removes the requirement that the user learn all the details of IP networks to take advantage of the benefits it can offer."

Also part of the firmware upgrade will be an AAC-ELD option for upgrading codec compression performance.

In other Comrex news, the company announced that the Access codec has been tested and certified as compatible with Inmarsat's BGAN system.

The Broadband Global Area Network is an international broadband Internet network utilizing Inmarsat satellites as link points.

Director of Sales and Marketing Chris Crump said the invitation to be part of Inmarsat's Connect Partners program "provides us with vital tools for co-marketing two very strong brands in their respective fields."

He said the program also gives Comrex the opportunity to participate in worldwide events and raise awareness of its codec lineup.

Info: *www.comrex.com.*

Radiolicious Offers iPhone Radio Treat

Newcomer MySimBook, a sister of radio industry company Alert FM, introduced Radiolicious, an application designed to stream broadcasts to wireless phones.

Photo by Jim Peck

Radiolicious works with EDGE and 3G cellphone networks to deliver content to iPhones. It is compatible with HD Radio.

Company officials believe the mobile phone will "fundamentally change the way people listen to the radio when they're in their cars or otherwise on the go." Radiolicious is intended to help broadcasters embrace that change.

Users can search for stations via geo-locations data or a more generic search. They can place stations in a favorites section for easy access.

Shown: Doug Daigle of MySimBook, Bobby Adams of Global Security Systems and Brad Dubow of Regent Communications in El Paso.

Info: *www.mysimbook.com.*

Logitek Flows With the JetStream

Logitek Electronic Systems used the NAB Radio Show to announce a big commitment to IP audio and a new routing platform, the JetStream series. First in the line is the JetStream Mini.

Photo by Jim Peck

"The JetStream represents the next generation of IP-based audio routing systems," said Logitek President Tag Borland. "These products take advantage of the latest network protocols and are therefore extremely easy to set up, administer and use."

The JetStream features a variety of inputs, outputs and controllers. Eight input/output card slots on the backplane can facilitate any combination of analog, digital (AES or S/PDIF) or 48 V microphone preamp. Cards are interfaced with StudioHub+ RJ-45 connectors.

Also available are four control surface interface ports, two USB ports, an external sync interface, a DVI monitor output for use with vScreen and two Gigabit Ethernet ports. Silent operation is facilitated by fanless convection cooling.

One JetStream Mini can talk to four control surfaces. The external sync can control all JetStreams in a network. "Just enter the names of the channels and the JetStream will do everything else. It acquires addresses, advertises its shared channels and makes a list of sources offered by other JetStream units on the network," said Borland.

A single-studio operation with a Remora control surface costs less than $8,000; a networked studio is about $10,000, Borland said.

Separately, Logitek said it has chosen the Radio Systems StudioHub+ system as an input/output form factor.

According to Borland, "The StudioHub+ system has become the wiring standard in radio installations over the past several years. ... It allows good wiring density and ultrafast connections with the convenience of premade cables." Radio Systems President Dan Braverman stated, "The 'plug and play' concept of the Jetstream Mini not only applies to the unit's IP audio configuration, but to the entire installation."

Shown, Logitek's Frank Grundstein and Jason Cooper of Amerilisten Networks in Nashville.

Info: *www.logitekaudio.com.*

Harris Announces HPX Transmitters

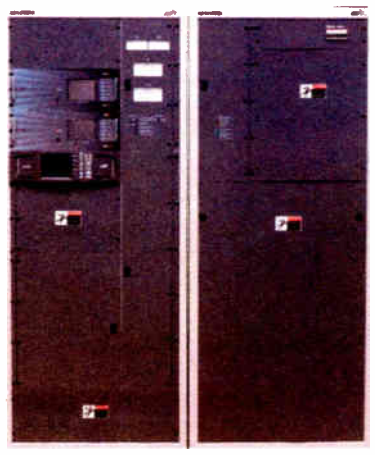
The HPX series, announced by Harris, is a family of high-power tube transmitters. The HPX family offers analog FM-only and HD Radio versions.

The HPX family's dual output modes allow the transmitters to be used as upgrade paths. Furthermore, they can be modified from –20 dB to –10 dB when needed. HPX transmitters ship with Harris' FlexStar HDX-100 exciter.

Harris also announced two upgrades to the RMXdigital line of on-air consoles. Utilizing the new Dual Selector upgrade kit, standard dual fader modules can be transformed into Harris 16 x 2 MicroRouter controllers.

The gist is that the fader can then entertain 16 inputs, whether digital or analog. Source names can be programmed into the 10-character display.

Also new is an optional "heads up" display style for the RMXSdigital console.



Harris also announced the installation of a turnkey HD Radio transmission and multicasting equipment and service package to WTMD(FM), an NPR member station in the Baltimore region on the campus of Towson University. It was installed by Comm-Struction and Services LLC, a systems integration firm and Harris Channel Partner. Stephen Yasko is station general manager.

Info: *www.harris.com.*

V-Soft Polishes Product Line

V-Soft Communications offered a group of upgrades for several of its programs. The Probe 3 radio frequency propagation software added an updatable census database module.

Photo by Jim Peck

Census data down to block-level can be utilized along with "Landmark" data.

An Internet mapping feature has been added to the FMCommander FM allocations program. Also added is an FCC rule 73.215-compatible short space mapping function for visualizing transmitter locations.

The big brother AM allocation and mapping program, AM-Pro 2, has added an improved contour function and a "Detailed Report" for AM daytime radiation limit generation.

The Conductivity AM field strength and ground conductivity measurement program has added a correction values filter and an export function for use with AM-Pro.

In a new offering, V-Soft is tackling security for products that require the use of keys and licenses. The HASP service will enable, disable and copy keys and licenses for hardware through an Internet interface. It is said to be especially useful for personnel in the field.

A built-in feature allows for use by those with intermittent Internet connectivity and for grace periods. Backup servers have been initiated by V-Soft for additional security and reliability.

Shown: The company's Doug Vernier raises a point from the audience during a session about FM boosters.

Info: *www.v-soft.com.*

Audemat Expands Navigator HD Into HD Radio AM

The Audemat Navigator HD mobile meter now offers HD Radio AM coverage capability. The unit includes a GPS receiver and enables automatic overlay of FM and AM IBOC reception on Google Earth or other mapping software.

Also new is the Relio transmitter remote control system with a new version of Scripteasy V2 software.

Relio has 64 digital inputs, 64 digital outputs and 24 analog inputs for telemetry. It includes Web connectivity and a PSTN modem with DTMF/Voice interface. The Scripteasy V2 software includes new features such as SNMP GET/SET commands and PING commands. Also new is an API for the Harris Z series transmitters, which enables the monitoring and control of transmitters with a serial connection.

Audemat also exhibited an FM backup package that includes an Ecreso Next FM and a 500 W or 1 kW Ecreso FM transmitter.

The Next FM features a two- or four-band FM digital audio processor with RDS and stereo generator as well as a 20 W FM exciter. It includes a hard drive for audio storage and the capability to stream the audio via IP. The package integrates a 3G CDMA/GSM modem for remote control. The 500 W version with Next FM fits in a 6U fly case while the 1 kW needs a 9U fly case.

Info: *www.audemat.com.*

Nautel Powers Up

According to Nautel Ltd., its NV40 offers the highest single-cabinet power output of any FM transmitter, with a maximum analog power output of 44 kW.

The HD-ready solid-state FM transmitter offers three modes of operation: HD, hybrid and analog. It has an integral digital exciter that supports adaptive pre-correction, and offers a plug-in upgrade to the HD Radio Exgine.

Nautel said it designed the NV40 to occupy a footprint as much as 60 percent smaller than comparable solid-state and tube transmitters, and it provides advanced instrumentation and management tools. HD Power Boost technology is offered as an option for more IBOC power. The NV40's maximum power outputs are 44 kW in analog mode, 32 kW in hybrid mode and 12 kW in HD mode.

For high-power AM broadcasting, the NX50 is the next generation of Nautel's 50 kW transmitter. It supports HD Radio or DRM modes with an internal DRM or Exgine IBOC generator, and provides adaptive pre-correction, 2.7 MHz Direct Digital Modulation

Broadcast Software

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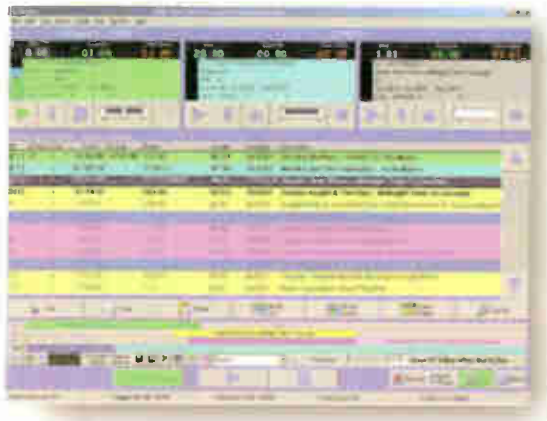
Radio Automation

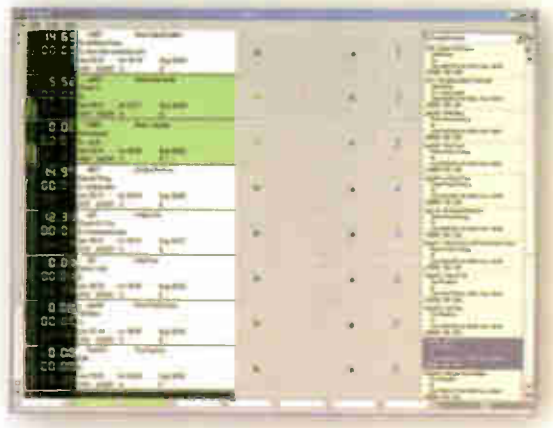


Simian - radio automation and digital playout system.

Instant Audio

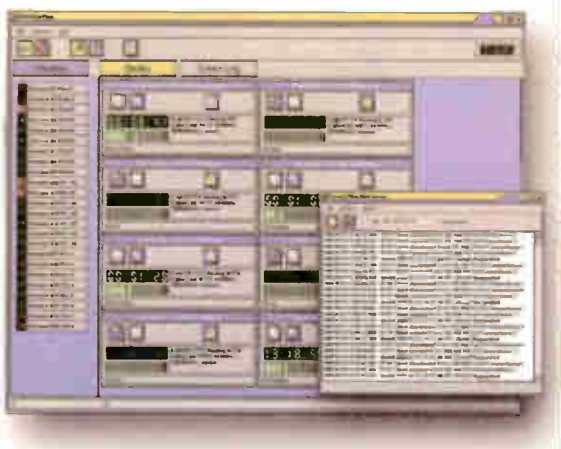
Stinger - Instant Access to 288 'rapid-fire' audio files.

Digital Cart Player



WaveCart - the original on-screen cart machine replacement.

Audio Logging



SkimmerPlus - skimming and audio logging with web playback.

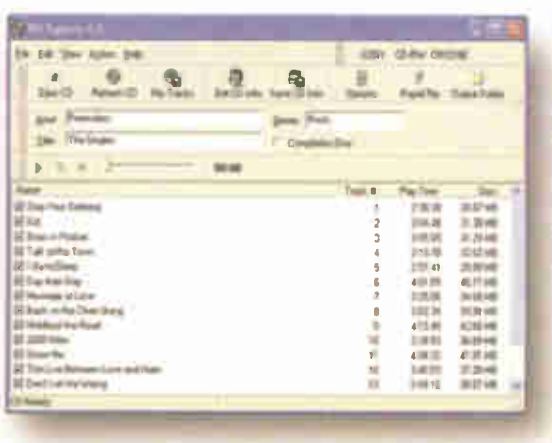
Complete Systems

Systems - fully configured with hardware, software and music.

Music Library

MusicStore - select from over 48,000 ready-to-play songs.

CD Ripping



Speedy - fast CD ripping with automatic file tagging.

Sound Cards

AudioScience - professional sound cards built for broadcast.

Remote Control

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NEW CAP (Common Alerting Protocol) to EAS Compliant – "The system actively polls a CAP server every few seconds for new emergency messages and pushes the message out to your FM listening audience.

NEW Uses CAP to deliver Presidential Alert and National Weather Service messages via Digital Emergency Alert System (DEAS).

NEW Partnered with Northrop-Grumman® to deploy National Alert System on Commercial Mobile Alert Devices.

PLUS Alert FM is a surefire way to build brand and listener appeal with song and artist tagging. Alert FM is your earning partner for non-traditional revenues, such as iTunes®, with special relationship packages using industry-leading mobile commerce technology. Alert FM is an exclusive information channel for monitoring via car radio, and FM-enabled devices, music players, cell phones and our own mobile and USB receivers.

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and 88 percent efficiency.

Both products feature Nautel's Advanced User Interface, a 17-inch color LCD screen with a range of configurable displays. It includes real-time locus measurement; an instrument-grade spectrum analyzer; an IBOC modulation analyzer; module-level monitoring; and control and logging of functions. The AUI can be controlled by touchscreen or via a mouse and keyboard. In addition, users have remote access to transmitters via a Web browser.

Info: *www.natel.com.*

Jampro Antennas Jam in Austin

Antenna manufacturer Jampro Antennas/RF Systems displayed several antennas and other products.

The JCPB-DA is a directional version of the company's Penetrator-based JCPB side-mount broadband antenna. The horizontal directionality is increased by a horizontal reflecting element.

The latest in the JTS Test Section line was on view. Available in packages for television and FM radio, the section, shown, has fixed bullets for input and output, an O ring, hardware set, pass-through connection and test turn.

Jampro's RCPU is a low-effort, quick-release patch panel for redirecting RF signal paths. It is designed for feeding emergency antennas, transmitters along with master station combiner reroutes, filter bypass and test insertion points.

Also at the show were Jampro HD Radio antennas.

Info: *www.jampro.com.*

Redesigned DaySequerra M3 HD Radio Monitor

DaySequerra showed a redesigned M3 HD Radio Monitor. The M3 now includes front-panel display of the Apple UFID "Buy Button" data, bit error rate (BER) and block error rate

(BLER) test results, real-time audio signal-to-noise and carrier-to-noise measurements, and HD Radio transmission attributes such as MPA codec and transmitter service mode.

The M3 will also provide improved AM frequency response with the addition of a defeatable IBOC AM audio filter.

It contains three AM and FM HD Radio tuners in a single 2RU enclosure, providing a compact unit for HD stations to monitor and alarm their analog, HD-1 and HD-2 through HD-8 Multicast signals and data. Each tuner's vacuum florescent display shows station frequency, HD-1 through HD-8 PAD data and analog RBDS/RDS data.

D-to-A converters are oversampled, and Class-A amplification is used. Each of the M3's three tuners has balanced analog XLR outputs and a transformer balanced AES3 digital audio output. The digital audio output remains present even when the M3 is tuned to an analog station, providing continuous output for monitoring or recording in the digital environment. An integrated front-panel keyboard lock prevents unauthorized changes to the unit's settings.

Suited to Arbitron PPM watermark monitoring, the M3 is also the first DaySequerra tuner that can be used worldwide; it offers 100 kHz FM tuning steps, 50 µsec FM de-emphasis and 9 kHz AM tuning steps. With a new network port and serial port, the M3's module and unit firmware can be upgraded in the field.

Info: *www.daysequerra.com.*

Tieline Drives Mobile Device Broadcasting

Use of the Internet is a growing and constantly changing practice for radio broadcasters. Porting radio over to mobile devices such as cell phones is even more of a novelty. Yet these practices are likely to comprise a large

Photo by Jim Peck

segment of any profitable future for radio.

Tieline Technology, a manufacturer of codecs, showed its QoS Performance Engine technology. Latest editions include improved packet retention over IP and wireless 3G networks.

"The QoS Performance Engine responds to variable IP network conditions and significantly improves connection reliability over lossy 3G cell phone networks and the Internet," said Darren Levy, international marketing manager.

"This is extremely useful because broadcasters are usually unable to buy quality of service over 3G networks, and it is difficult to obtain at most remote locations."

The QoS engine also includes forward error correction and automated jitter buffering.

Sean Kawatsy of KLRC(FM) in Siloam Springs, Ark., right, learns about the Tieline Commander G3 field codec from Kevin Webb.

Info: *www.tieline.com.*

Radio-Assist Suite Is Enhanced

Netia had a full plate of upgrades for its Radio-Assist 7.5 digital automation suite. Top of the menu are several networking enhancements.

Local users will have easier access to a station's database when searching for and using audio clips. On a greater scale, a new audio switcher module allows improved management of switching between national and regional broadcast feeds.

An IP version of the Feed-in mode is aimed at automating the recording of external programs and alleviating the need for a sound card.

Attendees were also offered demonstrations of upgrades to Netia's U-Share network management system.

Info: *www.netia.com.*

Sage Alerting Endec Goes Digital

Sage Alerting Systems showed a CAP-compliant EAS processor, the Digital Endec.

Upgrades include text-to-speech functionality, Internet operation and flash memory. The new model is compatible with previous Endecs. The menu structure should be familiar to previous Endec users.

Photo by Jim Peck

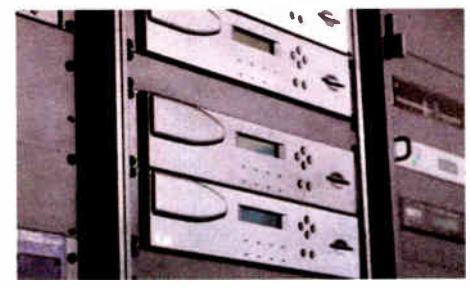
Sage cofounder Jerry LeBow said: "After 12 years of EAS, we are pleased that the FCC and FEMA will be upgrading the system. As a leader in EAS we took our experience and built all of it into the Digital Endec, which will meet or exceed all CAP and EAS requirements."

Jim Kampschroer of KTEA(FM) in Cambria, Calif., is seen talking shop with Jerry Lebow of Sage, who reprised his role as "Dr. Endec."

Info: *www.sagealertingsystems.com.*

Wegener Compels Custom Affiliate Broadcasts

Wegener Corp. talked about how networks like the BBC World Services and Jones Media are using Wegener's COMPEL-enabled systems to customize affiliate broadcasts. The company provides equipment for radio, television, audio and data distribution networks.



Wegener said its offerings combine efficiencies of large network operations with personalized listening experiences at the local level. The architecture integrates file-based program distribution with live programming, blending audio outputs through the use of audio fades, mixes and prepositioned station liners.

The company also displayed the Wegener iPump 6420 Media Server.

Info: *www.wegener.com.*

OMT Promotes V3 of iMediaTouch

OMT Technologies has upgraded two of its pillar products, iMediaTouch and iMediaLogger. Both are now available in

Version 3 editions.

Radio automation suite iMediaTouch has added an automated backup for system configuration and data base entries, automated sports broadcast log, automatic hooks builder, optional cart-style on-air interface, enhanced phone excerpt recorder, enhanced dual screen options and drag-and-drop audio library functions.

Upgrades to iMediaLogger include new mic skim pause features, adjustable delay skimmer for off-air on the digital chain, Cart Chunk metadata encoding, ID3 metadata and the ability to export XML code for podcasts.

A new offering is WebSecure+, a Linux-based content distribution program. WebSecure+ can encrypt programs for distribution to core recipients such as a cluster or distribute unencrypted productions such as podcasts.

Continental Excited About HD Radio

The Continental Electronics 802E^{X} aims to be a "one-box" HD Radio solution for stations with collocated studio and transmitter facilities or that prefer to keep audio processing at the transmitter site. It includes an embedded exporter; fully adaptive, real-time forward precorrection; selectable HD Radio

power levels of –20 dB, –10 dB or levels in between; a stereo generator; up to 16.4 seconds of audio delay and synchronization using the GPS 10 MHz signal.

The front panel features a high-resolution LCD screen and USB port while the back panel has AES3, standard composite and baseband SCA inputs.

Continental also showed its legacy HDe Exporter and new 800E^{XP} Embedded Exporter, a next-generation HD Radio exporter based on embedded DSP technology.

But while things digital might have been a dominant topic of the NAB Radio Show, Continental Electronics also offered something for analog fans, the 816R-7C transmitter.

The 816R-7C is a pure analog version of the 816HD-25, an analog/HD Radio model.

Mike Troje, sales manager for Continental Electronics, said: "This has been an interesting development in reverse engineering, as we normally migrate from analog to analog/HD systems. In this case, we already had a very successful HD system in the 816HD-25 transmitter, we just needed to modify it to analog-only operation and HD upgradability."

The 816R-7C offers 44 kW, powered by a single Eimac 4CX20,000E tetrode; it can be upgraded to also transmit an HD Radio signal.

Info: *www.contelec.com.*

MicroMAC From Davicom Targets Smaller Budgets

After selling many rack-mounted MAC remote monitoring units, Davicom decided to bring out a smaller model that could fit onto a desktop.

The MicroMAC doesn't have every feature of its bigger siblings nor does it remote monitor as many distant sites. It targets smaller applications, with, say, a single transmitter or tower site. I/O capability includes eight meter-

ing, eight status and eight relays. Communications is over dial-up or IP networks.

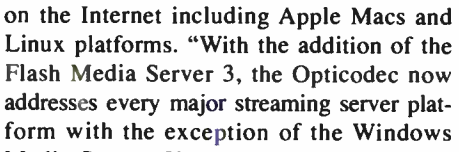
The battery-operable MicroMAC carries the company's familiar condition and event-driven program reactions and offers voice/DTMF, PC, FAX, e-mail, pager, text message and Web browser communication protocols. It is compatible with Blackberries and smartphones. The GUI is identical to that used on other MACs.

Info: *www.davicom.com.*

Larcan Features IBOC Equipment

Larcan has a new family of IBOC FM products, the Encore Series.

The Encore IBOC FM Translator Series is designed for FM stations implementing IBOC



digital radio rebroadcast operation. The DRT-01 is an IBOC FM translator with a beefed-up circuitry based on designs used in television. IF filter schemes are based on custom designs.

The Encore series also offers amplifiers (25 W to 250 W) that are optimized to work with the DRT-01.

Features include fully regulated power supplies and integrated cooling system designed for extreme conditions.

Info: *www.larcan.com.*

Orban Flashes Version 3 Of Opticodec

Orban showed attendees Version 3 of its streaming and file software encoders, Opticodec 1010 and Opticodec 1020.

The heart of the upgrade is RTMP (Real Time Messaging Protocol) support that allows the Opticodec platforms to work with Adobe Flash Media Server.

The company notes that the Adobe Flash Player is on approximately 95 percent of PCs on the Internet including Apple Macs and Linux platforms. "With the addition of the Flash Media Server 3, the Opticodec now addresses every major streaming server platform with the exception of the Windows Media Server. Shoutcast, Icecast, Darwin, Real and now Flash are all supported, which gives Opticodec users the ability to get to more devices than any other codec with the exception of the dated and inefficient MP3 format," the company stated.

Optimod PC 1100 owners can request a free demo of the v3 software with RTMP.

Info: *www.orban.com.*

Inovonics Shows RDS/RBDS Encoder

Inovonics wheeled out a new RDS/RBDS encoder.

The Model 730 is a TCP/IP-capable encoder that builds on the company's Model 713. Features include a front-panel knob that


Photo by Carl Mayer

allows virtually every setting to be viewed and modified. This includes settings like PI (Program Identification), PTY (Program Type), PS (Program Service name), TP (Traffic Program), TA (Travel Announcement), AF (Alternative Frequency), RT (Radio Text), CT (Clock Time and date) and more.

RDS injection level is controllable. Clock and dates can be automatically adjusted via the Internet.

A built-in dynamic DNS client service allows a "static IP-name" while being behind a dynamic IP address. The unit has improved RAW command with FIFO buffer, which incorporates flexible Free-Format Group redundancy (for example: RT+ and TMC).

It supports DHCP and manual IP; either is configurable from the knob and LCD. The MAC address is visible from the front-panel LCD as well.

Inputs and outputs USB, Ethernet and RS-232 (nine-pin D-sub).

The Model 730 is compatible with any FM exciter and does not require a dedicated 19 kHz pilot sync lock.

Info: *www.inovon.com.*

Staco Offers Bigger UPS

Staco Energy Products new UniStar P is a single-phase uninterruptible power supply that uses double-conversion power conditioning technology for clean power. It is available in 6, 8 and 10 kVA models.

UniStars can be installed in parallel for

additional protection. The battery backup is monitored constantly. Overall performance and control can be handled remotely by Windows-compatible software.

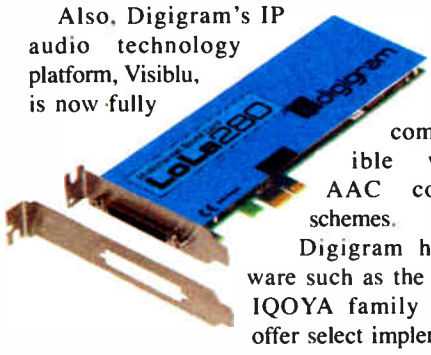
Staco Energy Products Vice President of Sales & Marketing Dave Kendall said, "The ability to run in parallel for redundancy or extra capacity is huge and a unique customer benefit."

Also from Staco are StacoSine Active Harmonic Filters. StacoSine filters changes power from AC to DC and then back to AC while monitoring and correcting every harmonic from second to 31st.

Info: *www.stacoenergy.com.*

Digigram Has New Hardware, Partners

Audio interface and network developer Digigram has partnered with MPEG developer Fraunhofer IIS. The result is that Digigram products may utilize Fraunhofer's MPEG-4 technology, notably MPEG-4 AAC, MPEG-4 AAC-LD, MPEG-4 HE-AAC v2 and MPEG-4 AAC-ELD.



Also, Digigram's IP audio technology platform, Visiblu, is now fully compatible with AAC codec schemes.

Digigram hardware such as the new IQOYA family will offer select implementations of the AAC codec.

In other news, Digigram debuted at IBC and the NAB Radio Show a family of PCI Express cards, LoLa (for LOw, LAtency). The family is aimed at the broadcast logging market amongst planned applications.

First available is the LoLa280, shown, a low-profile, full-length card with eight line-level inputs and two line-level outputs. An eight-channel rackmounted outboard mic preamp box is optional. An onboard software mix controls the unit. Onboard converters are high-def 24-bit, 192 kHz.

The LoLa280 is fully compatible with Digigram's Visiblu broadcast IP technology. WDM DirectSound and ASIO drivers are provided.

The company said legal, surveillance and broadcast logging applications can benefit from the audio platform, which gives Digigram's development partners whose business is monitoring, archiving or security a new enabling technology.

Info: *www.digigram.com.*

Media Monitors Receives Accreditation

The Media Monitors broadcast monitoring and verification service announced at the show that it has received accreditation from the Media Rating Council for Media Monitors' Radio Spot Service.

Executive Director of the Media Rating Council George Ivie, said, "MRC accreditation provides subscribers with confidence that Media Monitors is identifying and reporting radio advertising occurrences in accordance with MRC standards."

The Media Rating Council is an industry association of radio, TV, print and Internet companies along with advertising agencies, advertisers and trade associations. Media Monitors is a subsidiary of broadcast software company RCS.

Info: *www.mediamonitors.com.*

Apex Orders Tx From SCMS

SCMS said Apex Broadcasting of Charleston, N.C., placed an order for a new Harris HPX40CD transmitter. This is a high-power tube transmitter model for FM analog and HD Radio.

The HPX is said to provide extreme high-power transmission and value at a lower price point than other transmitters in its class.

Photo courtesy SCMS

"In terms of dollars per watt, the HPX tube-based transmitter outperforms solid-state transmitters by nearly 25 percent with regard to cost of ownership over the lifetime of the transmitter, including regular tube replacement," SCMS stated.

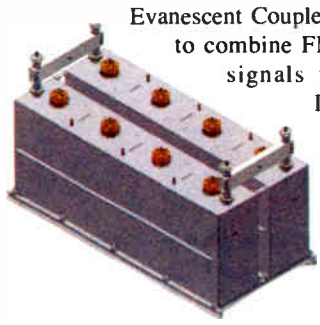
The company is a Harris Channel Partner. Shown: Mark Goins of Harris and Bob Cauthen of SCMS.

Info: www.scmsinc.com.

Myat Improves IBOC Transmission

Myat's "Lo-Loss Solution" promises to do what "others said couldn't be done." The Lo-Loss Solution improves FM-IBOC combining and produces a more robust and efficient use of valuable RF spectrum.

The Lo-Loss Solution uses Myat's Evanescent Coupled Technology to combine FM and digital signals for efficient IBOC transmission. The more efficient system saves energy and saves money.



It is compatible with current –20 dB standards and future –10 dB specifications.

The Lo-Loss Solution has a small form factor to accommodate floor or ceiling mounting.

Myat President Phil Cindrich said, "Its unmatched digital path efficiency allows broadcasters to rethink their transmission facilities, power budgets and the capital expenditures associated with a build. It may also provide those who have already built a –20 dB facility a path to –10 dB, without having to break the bank ... or costly rework of their existing electrical service and cooling systems."

Info: *www.myat.com.*

Axia Explores the Elements

Axia Audio showed the latest in its Element console line in several booths in the NAB Radio Show exhibition hall.

The modular Element and Axia's Ethernet-based networking system were seen operating alongside Google, Broadcast Software International, AudioScience and RCS products among others.

Photo by Jim Peck

Axia personnel also told attendees about the latest Elements in the Broadcasters General Store booth.

The company this spring announced around-the-clock tech support for clients with Axia consoles and IP-Audio networking gear.

Shown, Mike Uhl demonstrates features of the Zephyr/IP family of products, made by Axia's sister company Telos Systems, to Rychard Withers of KFCF Sacramento.

Info: www.axiaaudio.com

BSI Sneaks a Peek at Op-X

Broadcast Software International offered NAB Radio Show attendees a sneak peek at Op-X, a new radio automation suite. Currently, Op-X is finishing up testing with a major client. It is scheduled for a 2009 public launch.

Though details are being kept sketchy, it is known that the Op-X radio automation suite offers automation, live assist, satellite clock builder, voice-tracking modules that will work with clusters or single stations. It is designed to work with touchscreens, keyboards or a mouse.

Info: *www.bsiusa.com.*

Moseley Links Big

The Event 5800 from Moseley Associates is a fully digital microwave-based STL/TSL with a capacity of up to nine bidirectional T1 or eight bidirectional E1 paths. It is compatible with HD Radio multicasts in its ability to pass 32 kHz or 44.1 kHz signals and Ethernet data. It can handle up to nine Moseley Starlink transmitter link interfaces.

Photo by Jim Peck

The system consists of two units, an indoor unit and outdoor unit. Transmissions are in the unlicensed U-NII 5.3 GHz and ISM 5.8 GHz bands.

On the software side the Event 5800 is Internet-operable with a dedicated Web server and SNMP program. A restrictive system security scheme can be instituted. Error correction is based on Reed-Solomon codes. Logging and accounting features are included.

At a recent installation in Missoula, Mont., a single Event 5800 replaced equipment for three collocated FMs and an AM.

Chuck Ince, marketing manager for Gap West Broadcasting, told the company: "In total I shut off six transmitters' STL, RPU and TRL when I turned up my Event 5800."

Shown, Lamar Smith, left, DOE of Entercom Austin, talks with Bill Gould of Moseley Associates.

Info: *www.moseleysb.com.*

ERI Makes Hanging Easy

Electronics Research Inc. has introduced a new member of the Universal Rigid Line Bracket family.

The new bracket handles 3-1/8-inch, 4-1/16-inch and 6-1/8-inch rigid transmission line hangers. It acts as an interface to adapt lightweight hangers and vertical spring hangers to round horizontal tower members from 0.75 inches to 3 inches in diameter.

Ideally the flexible bracket will eliminate the need for customized brackets.

Info: *www.eriinc.com.*

Shively Covers the Spectrum

Shively Labs promoted its line of FM antennas, filters, combiners, coax components and related transmission products.

Photo by Jim Peck

Shively offers FM transmission gear for HD Radio implementation, including interleaved antennas, dual antennas, dual feed multi-station systems and special filtering and combining techniques.

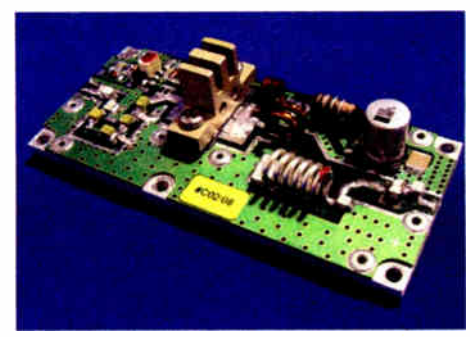
Shown: Edd Forke and Angela Gillespie of Shively speak with Lenworth Samuels of Kommercial Suites in Kingston, Jamaica, about a challenging signal coverage plan.

Info: www.shively.com.

New FM Amp Module From Richardson

The FM310-108 pallet amplifier module distributed by Richardson Electronics is aimed at manufacturers of FM and FM HD Radio transmitters, translators and exciters.

Made by RES-Ingenium of Italy, the solid-



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AXIA ELEMENT

You want IP-Audio done right? Go with the company that invented it! Modular board built from heavy aluminum extrusions with tons of features like fully-automatic mix-minus on every fader, Omnia voice processing, onboard EQ, instant recall of user settings, direct control of Telos hybrids and lots more. 4 main mix buses plus stereo Aux sends/returns make Element perfect for on-air or production. Multiple frame sizes from 2 to 40 faders; backed by Axia's 5-year warranty and 24/7 support - the best in the business!

RADIO SYSTEMS MILLENIUM DIGITAL

Millenium Digital gives you fantastic "bang for the buck!" Available in 6-, 12- and 18-fader sizes, Millenium Digital gives you analog and AES/EBU inputs (with built-in sample rate conversion) on every channel, 3 mixing buses with analog or digital outputs, and up to 10 fully-programmable mix-minus outputs. Choose the new Millenium Digital Network model for easy connection to Axia IP-Audio networks!

HARRIS NETWAVE

The newest console from Harris is at home in any facility! With four mixing buses, two mix-minus channels, easy-to-use talkback and telco interfaces and universal input modules for analog and digital sources, NetWave is perfect for stations in smaller markets that still want the power of a Harris console. Comes in 8-, 16- and 24-input sizes with optional networking capability and a "heads up" meter display!

ARRAKIS ARC-15

On a budget but don't want a "budget console"? Check out the new Arrakis ARC-15, with five selectable high-performance mic channels with Phantom power, dedicated phone input channel, direct PC audio input, built-in talkback capabilities and an optional 16x3 stereo switcher to help handle even the biggest jobs. Two stereo buses with mono mixdowns and both balanced and unbalanced I/O make ARC-15 a versatile, cost-effective performer!

BGS ALSO CARRIES

...mixing consoles from AEQ, Yamaha, Soundcraft, Spirit, Behringer, Mackie, Sandies, Allen & Heath, Logitek, Broadcast Tools, Henry, Dixon, Tascam, Alesis, Crest, Intelix, Presonus, Samson and Phonic.

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www.bgs.cc

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state FM310 has a 300 W output with 78 percent efficiency. The design is intended to minimize gain stages and lower manufacturing costs. Versions with customized connector schemes can be produced.

Info: *broadcast.rell.com.*

Dielectric Launches Engineering Development Program

Dielectric Communications announced shortly after the convention that it created an Engineering Development Program and added three engineers to work on the development and refinement of its transmission systems.

The company also boosted its customer service center with new staff. The announcement was made by President Garrett VanAtta.

Photo by Jim Peck

Dielectric added Jim Chadwick and Gary Hazard, who will contribute to the design, development and testing of antennas, transmission line and RF combiner systems. Chadwick also will work with sales on the development of pattern analysis and other technical data for customer applications.

Mohammad Adeel joined the company in the role of EDP engineer.

The Engineering Development Program offers a 24-month rotational position through which new engineering graduates enrich their skills, either in the engineering aspects of lean manufacturing, product design, application engineering and product development, or a manufacturing program with emphasis on manufacturing engineering, materials acquisition and scheduling, quality control/customer service and design engineering.

Robert Lothrop Jr. and Ruby Phillips joined the customer service staff.

Shown: Jose Luis Gonzales of Digital Milenio and Roger Cote and Mike Johnson of Dielectric with the company's HDR Interleaved FM HD Radio Antenna.

25-Seven Systems Manages Program Delay

The Program Delay Manager from 25-Seven Systems has a wrinkle or two. Besides being a standard digital delay (cough, dump, etc) it offers PD-Alert, a feature that e-mails a time-stamped audio file

of dumped material to a list of targeted recipients such as the GM or PD. It also automatically logs the activity.

Program Delay Manager is available in a version compatible with IP audio networks and works with Axia Livewire networks. A Web browser allows remote control with a PC. Available delay/storage time is 90 seconds.

Info: *www.25-seven.com.*

Abacast Delivers Rod Ryan Show

Internet media streamer Abacast announced that it is now the Internet delivery vehicle for the Houston-based "Rod Ryan Show." Budweiser is sponsoring the Internet delivery.

Viewers using the Internet see a customized Budweiser-sponsored player, complete with banner ads, video windows for watching the show from several different angles along with other windows providing news, contest promos and a station logo.

Abacast also recently announced a deal with the 27-station NextMedia Radio Group to provide Abacast's Hybrid CDN services for hosting, unicasting, streaming, ad management and insertion, audience analytics and user experience presentation.

The company says it helps online stations become profitable business models through development of custom universal media players (shown). The players feature ways to help push station promotions and advertising and are a way to create an online station presence.

Info: *www.abacast.com.*

WideOrbit, Google Cooperate

WideOrbit, an ad traffic software developer, and Google, the search engine and radio automation provider, announced compatibility between WideOrbit's WO Traffic and Google's modular Radio Automation system.

Features brought into Google Radio Automation by WideOrbit include commercial copy handling efficiencies, real-time reconciliations and improved commercial log handling.

Info: *www.google.com/radioautomation* and *www.wideorbit.com.*

MusicMaster Upgraded

A-Ware software announced an upgrade to its MusicMaster scheduling software.

Service Release 12 provides a new hot key for easing song scheduling, rotation and swapping. Also, a search-by-date feature has been added along with improvements in communications between the Format Clocks, Schedule Editor and the automation system.

Also announced was a partnership with Triton Media for bartering the use of MusicMaster.

Info: *www.mmwin.com.*

ESPN Radio Delivers More HD Options

ESPN Radio is giving clients additional options when it comes to HD Radio multicasting.

The new options include possible 24/7 and on-demand packages. Client stations will use

Photo by Jim Peck

an Internet portal to choose what particular programs they wish to use and when to use them; the system is independent of central network scheduling. The service will also provide special datacasting features such as clock times and scores.

The menu available to clients will include content like "ESPNews," "SportsCenter," "Baseball Today" and Indy car racing.

Initial markets include Dallas, Houston and Seattle. ESPN Radio is working with Cumulus Broadcasting, Bonneville International and Red Zebra Broadcasting.

Mo Davenport, senior vice president of ESPN Radio, said: "FM-HD2 and 3 multicast is clearly the largest technology innovation in FM radio since the first FM radio station went on the air in 1937. ESPN has a longstanding passion for using new technology to reach sports fans wherever they are, and FM HD Radio is part of our overall strategy."

Info: *www.espnradio.espn.go.com/espnradio/index.*

Arbitron Releases ROI Marketing Kit

Media and market research firm Arbitron released a 10-piece marketing piece for use by radio executives in markets where the Portable People Meter is being used. The kit is an aid for explaining to advertisers and others radio's effectiveness in reaching consumers.

According to Pierre Bouvard, president of sales and marketing for Arbitron, "We wanted

to provide radio sales teams with a set of tools that drive a message home: radio understands the need for 'return on investment' better than any other medium.

"In fact," he quipped, "you can't spell 'radio' without 'r-o-i.'"

The kit includes fact sheets and brochures, PPM guide, explanations of changes in data specs with use of the PPM, sales training aids, testimonial, surveys and a poster.

Info: *www.arbitron.com.*

HD Radio University On the Internet

In an effort to further promote HD Radio, iBiquity Digital Corp. has launched HD Radio University for Broadcasters on the Internet at *www.hdradiouniversity.com.*

The "virtual campus" has how-tos, FAQs, courses, resources and other relevant information including info about HD Radio receivers.

HD Radio University is intended as a resource for broadcasters, retailers, advertisers and salesfolk.

Bob Struble, president of iBiquity, said, "HD Radio University has the tools and information to illuminate HD Radio technology's benefits from broadcasters to retailers, seeking to heighten the consumer's experience from a 360-degree perspective."

The iBiquity/HD Radio booth was also the showcase for the latest in HD Radio receivers.

Info: *www.hdradiouniversity.com.*

HD Radio Program Guide Prototypes Offered

The NAB's technology promotion program, NAB FASTROAD, working with BIAfn Financial Network, demonstrated a prototype electronic program guide for HD Radio.

The EPG is designed to be an interactive on-screen guide to programming available.

The program is combined with the release of an NAB-commissioned report examining business requirements and consumer-use scenarios for prospective final HD Radio EPG

system designs. Four possible architectures are presented in the report, each designed to meet differing station needs.

Unlike television program guides that address a consistent consumer interface, an HD Radio programming guide has to take into account varying radio display types.

The prototype was developed by BIAfn, Broadcast Signal Labs, Unique Interactive and iBiquity.

Info: *www.bia.com* and *www.nab.org.*

Studio Sessions

Inside Journal Broadcast Page 34

Radio World | Resource for Radio On-Air, Production and Recording | November 5, 2008

If the Walls — and Ceilings — Could Talk

Studio Acoustics and Treatment Can Have a Strong Influence on Your Sound

by Ty Ford

Somewhere between the shower stall and an anechoic chamber.

Acoustically, that's what an air studio, production studio or voiceover booth should sound like. If you really do the job right, your listeners may be able to tell they are listening to your station by its sonic signature even if they don't know the announcer or aren't clued in by the content.

Sure, mics and processing play a part in that signature, but the sound of the studios also leave an impression. In the face of ever-narrowing ratings points, creating a unique identity becomes increasingly important, but there's more to it than that.

The key word is design. If you don't design, you get what you get and there's not a lot you can do.

Radio World talked to a designer and several companies that make acoustical treatment and offer support for its application. Here's what we heard.

What can a radio or voice studio planner expect to accomplish with ceiling tiles and foam?

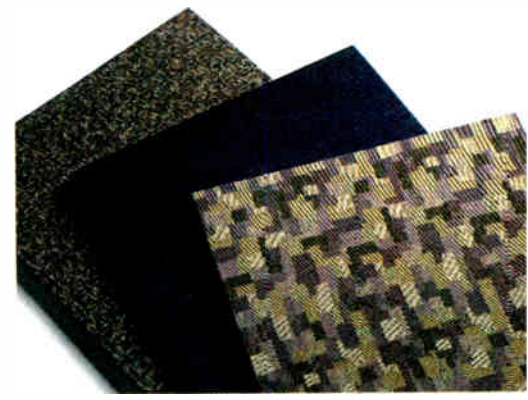
According to designer Tony Grimani at MSR Inc. in Fairfax, Calif. (*www.msr-inc.com*), "If you're a station manager, work efficiency is important. You can get more from your staff with a good design. A room that has bad acoustics fatigues the ear and brain. In one project we did, the staff's comment was that in the acoustically engineered room they could now work eight hours or more without getting a headache."

Grimani says that where to put ceiling tiles and wall panels requires knowledge of acoustics and experience. "I've heard rooms 'designed' so badly that, if they were airplanes, they'd never get off the ground."

"Using the right amount of the right material in the right place," he said, "makes a big difference. There are a lot of different types of ceiling tiles and they come in different thicknesses. There are 1/2-inch pressed fiber materials that are about 50 percent absorptive. There's also dense fiberglass in 1-inch or 2-inch thicknesses. If you line a ceiling with that, the room will be too dead.

"Although the figures vary depending on the specific space or its use, 25 percent to 30 percent of the walls and ceiling need to be absorptive. For example, I like a combination of real fiberglass ceiling tiles along with a hard tile."

An excellent sound-absorbing scheme — panels on the walls, corner traps and diffusion blocks on the ceiling.



Effective sound panels can be quite stylish.

What should they not expect to achieve?

Gavin Haverstick is lead acoustical engineer at Auralex Acoustics, Inc. (*www.auralex.com*) in Indianapolis. According to him, when moving studios into a new space where you aren't building from scratch, choosing the right room can be equally important as acoustical treatment. A typically symmetrical room measuring 8 feet x 16 feet x 8 feet, while aesthetically pleasing, is a good example of a bad room.

"You cannot expect acoustic wall panels and ceiling tiles to completely solve extreme room geometry problems if you have rooms with dimensions that are evenly divisible by each other." A better option would be 7 feet x 15 feet x 8 feet because its uneven geometry prevents the development of unwanted sound reflections.

Built-in or freestanding shelving for CD and other materials can act as diffusers to mitigate bad acoustics to some degree, but there's only so much that simple acoustical tricks can overcome in the face of bad room geometry. Haverstick says even adding splayed walls may or may not help.

"You need at least 10 degrees of combined angle between two opposing walls, however if angling the walls creates acute angles in the corners (less than 90 degrees), low-frequency issues can become more problematic."

What are common errors users make?

Eric Johnson is in charge of East Coast sales for Pinta Acoustic, formerly Illbruck Acoustic, makers of Sonex. According to Johnson, "We see situations in which too much or too little absorption has been applied. For this application, I like 0.7 to 0.8 seconds of RT60 reverb (decay) time. A reverb time of 0.3 seconds is too short .... It makes the talent push harder, tires them out and strains their voices. As you get more than a second or so, intelligibility falls off because of early reflections. It's also fatiguing to listen to. Your listener may just get tired and tune out without even knowing why."

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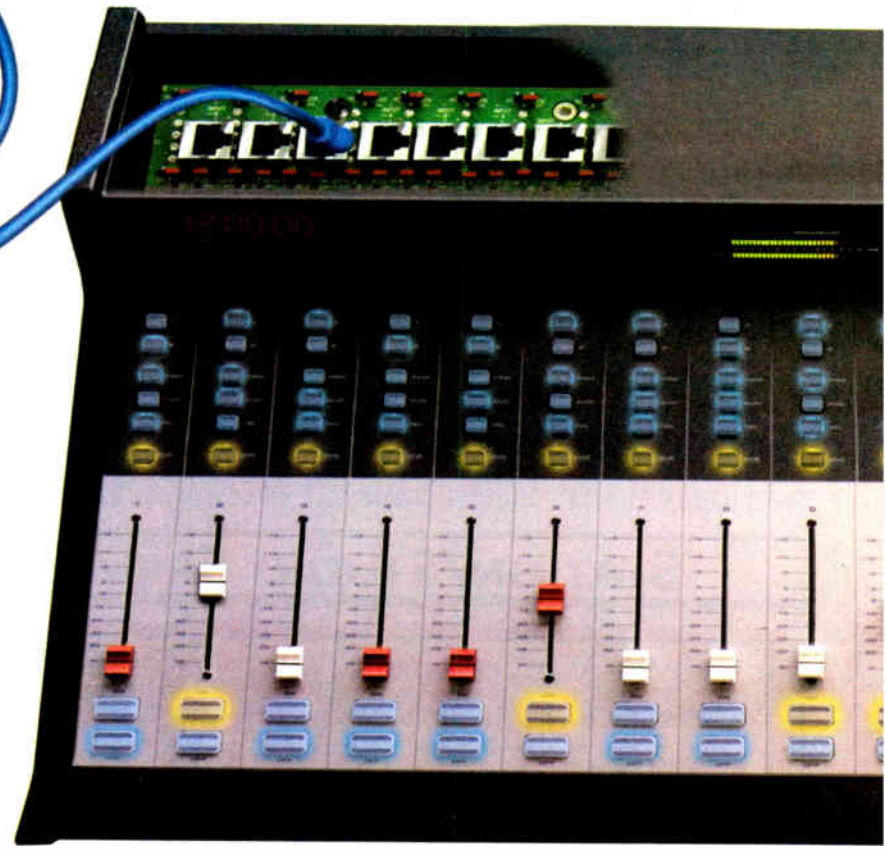

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TOP STUDIO BUILDOUTS

INSIDE Journal Broadcast Group

Scott Pfeifer, Kent Aschenbrenner and Team Install New Studios in Milwaukee

by Tom Vernon

Building a new facility is a daunting experience. But it is doubly so when your new facility occupies the same space as your old facility.

This was the challenge facing Journal Broadcast Group's Milwaukee operation. The site is home to WTMJ(AM), WKTI(FM) and the Journal Radio Networks, which covers the Green Bay Packers, Milwaukee Brewers, Milwaukee Bucks and Wisconsin Badgers.

There were a number of reasons for the renovation, as broadcast engineer Scott Pfeifer explains:

"The existing infrastructure built around PR&E analog consoles was challenged by the increasing demands of complex mix-minuses and IFBs that our

WTMJ(AM) studios following renovations.

Journal Broadcast engineering rack following installation of Axia nodes.

talk and sports-intensive formats require. The Pacifics had served us well, but they were also starting to wear out, and needed more maintenance." He adds the spaces looked old and were in need of a cosmetic makeover.

Pfeifer, along with DOE for Milwaukee Radio & TV Operations Kent Aschenbrenner, began to map out system requirements. They talked to three vendors and developed a comparison spreadsheet describing how each might best meet the requirements of Journal Broadcast's Milwaukee operations. Axia was chosen to provide the console/router infrastructure.

At the same time, design of the physical space was underway. The renovations involved four AM and four FM studios, as well as a radio news production area.

Pfeifer had an innovative solution. "I designed a full-size mock-up of the studios. Tape outlines of the studio space were laid out on the cafeteria floor, representative furniture was placed in it and propagated with fully functional Axia Element consoles and all necessary flat-panel monitors. The talent looked it over, and worked through placement, sightlines and dimensions." Studio furniture was custom built by Ron Mitchell of RAM Systems.

Pfeifer did most of the construction work himself, while maintaining the existing facilities. During overnights as the studios were switched over one by one, he had assistance from Aschenbrenner, Glenn Bowman and Ryan Elliott.

Several design challenges had to be overcome. "One of the requirements was that no computers or fan-cooled devices were allowed in the studios. This meant all PCs required remote control through KVMs, which resulted in some interesting splits, extensions and switching." A compromise was made where a few computers were left close to studio spaces to allow for more convenient CD ripping.

The Axia installation consists of an

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Axia Element Control Surface with M-Audio speakers

Acoustics

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What special needs do radio broadcasters have?

According to Michael Binns, president of Acoustical Solutions in Richmond, Va. (*www.acousticalsolutions.com*), the needs of broadcasters basically are the same as other studio owners.

Heavy foam on the walls, acoustic ceiling tiles, foam mini-gobo behind the mic and even acoustic treatment for the curtains. This room has it all.

"To work well, all studios need to be isolated and have the proper amount of acoustical treatment for the individual space to perform properly. Studios with a lot of cables need to think about pass-though conduit stuffed with acoustical putty. You remove the putty, run cables and then restuff the putty."

Binns says that how a studio is used can make a significant difference in the acoustical treatment. If you are recording live music from a studio, or mixing music in a studio, you would want the studio to be a little more live than a voiceover booth.

What tips can help users get better performance out of the products?

"This may sound a bit too basic and

A Pleasing Installation of Absorbent Panels on a Reflective Wall

I'm not trying to sound insulting, but read and understand the specs of the materials you're buying."

That's according to Nick Colleran, co-owner of Acoustics First Corp. in Richmond, Va. (*www.acousticsfirst.com*).

"If they indicate you need 2 inches of a product for the wall, you can probably use just 1 inch if you put a 1 inch space between the panel and the wall. Angling wall or ceiling treatment will broaden the range of frequencies affected, but you need a very steep angle to deal with frequencies below 1000 Hertz. The wily low end takes a lot of cyphering."

Colleran says using tones and a spectrum analyzer to measure rooms is helpful; but for music rooms, how music sounds in those rooms is even more important. "The best solution is not always about how much absorbtion per square foot you have. Mood is also very important. If you put a window in and it makes the talent more comfortable, they'll perform better."

How should a user determine what thickness, shape and style to buy?

All of our expert respondents answered similarly. The exact pattern doesn't matter. Thickness is determined by the frequencies you are trying to control. Use 2-inch foam or 1-inch fiberglass for frequencies of 1 kHz and up.

For a normal listening room, budget to cover 25 percent of the ceiling and wall space. For a studio, 35 to 40 percent coverage. Spread the treatment evenly around the room. One-inch foam is useless below 500 Hz. Use at least 2 inches of fiberglass or rock wool, at least 3 to 4 inches of foam for low frequencies. The rest is aesthetics. Shape and style has more to do with budget and what you want to look at.

Ty Ford has been writing for Radio World since 1986. Contact him via www.tyford.com.

Journal

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Element control surface in each studio, along with GPIO, mic, analog and digital nodes. All audio sources and destinations were inventoried, and 13 nodes were installed in the TOC, allowing for more than 100 audio sources. At the core are three Cisco Ethernet switches.

The Axia installation was integrated with an existing Dalet automation system, which handles the stations' on-air audio recording, play-out and storage requirements.

Some of Journal Broadcast's GPIO and IFB switching requirements were outside the standard Axia protocol. Axia sent technician Milos Nemcik to Milwaukee to do custom programming with Axia's Pathfinder software to meet the requirements.

An added bonus to the Axia installation that Pfeifer liked was the DSP built into the consoles. "It's a simple system that works very well, so no external mic processors are required."

From discussions until site completion took Journal Broadcast three years.

The installation was a lot of work for Pfeifer, but there were no insurmountable surprises. Now that it's all over, he's glad to get back to the routine of equipment maintenance and engineering all of the Green Bay Packers radio broadcasts.

GM Journal

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BROADCAST LAW REVIEW

Should the FCC Allow License Mortgaging?

Local Banks Are Not Actively Participating In a Sector Where They Are Needed the Most

by Francisco Montero

For decades the Federal Communications Commission has refused, as a matter of policy, to allow lenders and equity investors to take security interests in the FCC licenses that permit spectrum users — broadcasters, wireless operators and all the rest — to use the spectrum.

While this may not seem like a big deal to some, many lenders disagree: They claim that the FCC's policy significantly impedes the flow of communications-related investment funding.

While debates over the wisdom of the FCC's policy have flared up periodically over the years, the FCC has not budged and its policy has remained unchanged.

But the current credit crunch has brought this issue into focus for renewed reevaluation. With the availability of capital drying up for small- and medium-size broadcasters and telecommunications companies, it is important to examine any kinks in the financial pipeline that might unnecessarily slow, or block, the flow of capital.

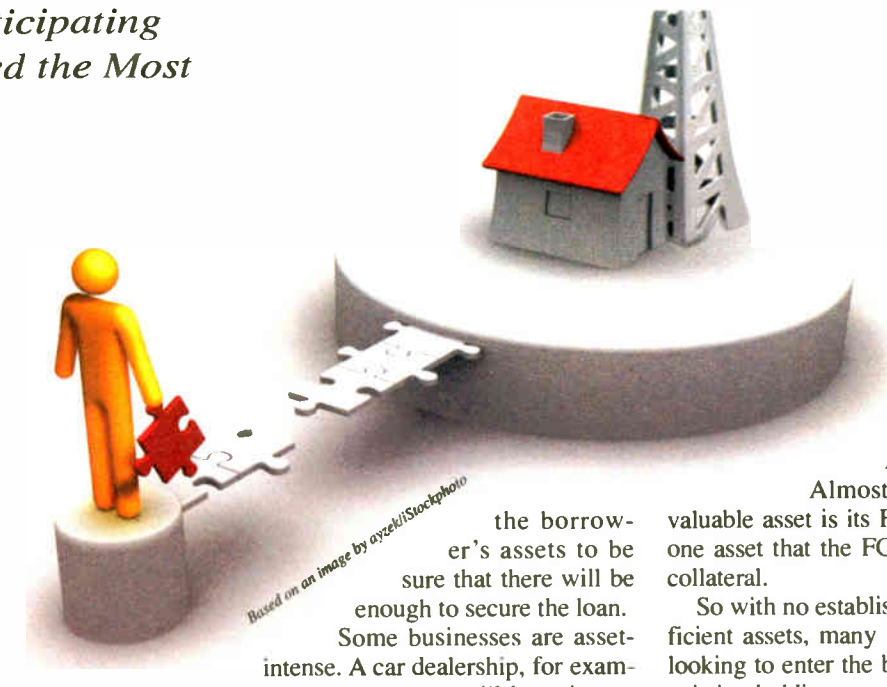
Security

To understand how the "securability" of FCC licenses affects lending practices, it is helpful to understand how lenders evaluate whether to make broadcast loans.

As a general rule, of course, lenders like to have some assurance that they will be able to get their money back. If a borrower's business is successful, repayments are made from cash flow. But if the business stumbles or fails, the lender may not be able to rely on cash flow.

With that in mind, lenders normally require borrowers to provide, in addition to a promise to repay, a commitment of other assets as security for the loan. If the borrower's business fails, the lender gets its money back by laying claim to the secured assets.

In deciding whether (and if so, how much) money to lend to a prospective borrower, a lender generally reviews



the borrower's assets to be sure that there will be enough to secure the loan.

Some businesses are asset-intense. A car dealership, for example, or a jewelry store will have inventory the dollar value of which can be easily calculated. Determining how much an inventory-based business is good for can be reasonably simple.

The trouble with broadcasting is that it is *not* an inventory-based business. There is no warehouse full of appliances or parking lot full of automobiles that a lender can look to as collateral for a loan. In fact, there is rarely even any owned real estate.

The broadcaster's only real assets (other than the microphones, antenna and transmitter) are its FCC license and the airtime that the broadcaster can program and sell as a result of that license.

Another measure of the credit-worthiness of a business is its cash flow. However, many new or growing broadcasters have little cash flow. This is especially true if the prospective borrower plans to change the programming on the radio or TV station being acquired.

In that instance the borrower's business is more like a start-up with no cash flow at the outset. As a result, in many broadcast-related deals, cash flow valuation is not available as a practical matter. Instead, lenders are forced back to asset-based security.

But again, with broadcasting, there is no inventory in which to take a security interest.

Hands off

And therein is the dilemma.

Almost invariably, the broadcaster's most valuable asset is its FCC license. But that is precisely the one asset that the FCC will *not* permit lenders to take as collateral.

So with no established and reliable cash flow and insufficient assets, many small- and medium-sized companies looking to enter the broadcasting business or expand their existing holdings are having trouble finding funding.

That raises the obvious question: If an FCC license could be used for security, wouldn't that encourage lenders to provide funding which is not now available? If so, doesn't that mean that the FCC's "no securitization" policy is impeding the flow of capital into broadcast markets?

Because of the FCC's policy, lenders — many of whom are known for the "belts and suspenders" approach to doing any kind of business — are often hesitant to lend to broadcasters, particularly new entrants to the field.

Consequently, the pool of senior lenders familiar with broadcast and telecom valuations is relatively small, and the pool of those willing to finance transactions below $10 million is even smaller.

The source of senior debt financing for broadcasters is generally limited to a small group of national lending

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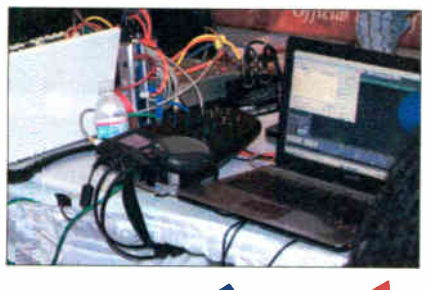

Conventions' Journalists are Real-World Super Heroes

Once every four years, the two major US political parties roll out the red carpet and prepare to officially nominate their party's candidates for the Presidency of the United States. Journalists from all over the world are in attendance, grabbing interviews as well as offering coverage and commentary. It's exceptionally fast paced, dense with opportunities to grab passing dignitaries or pundits and put them on the air. The best possible way to be ready is to have ACCESS and a huge number of them did.

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Interactive Can Create Connections

by Carl Lindemann

It's been more than a decade since the so-called new media was brand-new.

Now as online communications continue to mature, stations have opportunities to create revenue streams while adding value to their brands.

However, participants in a panel at the fall NAB Radio Show said radio's missed opportunities potentially give ground to upstarts in the increasingly competitive audio entertainment market.

Competition or opportunity?

Brett Atkinson, director of online products and strategy for Bonneville Salt Lake City, brought the hands-on, daily experience of combining radio with the Web at *www.ksl.com*, *www.fm100.com* and *www.1035thearrow.com*. He mapped out the challenges that radio faces.

"What do you call the industry that we're in? Traditionally, it's been the radio broadcast industry, but now it's so much more than that; [some call it] the audio entertainment industry.

"There's huge competition for audio entertainment consumption. These range from MP3 players, satellite radio, pure-play radio sites, musicians' Web sites and MySpace. End users have a tremendous number of choices as to where to consume their audio entertainment. How do we differentiate ourselves and make it important for end users to come to our Web sites?"

New concepts

Zach Braiker, president and founder of Refine+Focus, an online marketing and communications agency, said radio managers would do well to see how new media is succeeding.

"It's all about *now*. The Web sites that are successful offer fresh content constantly. There's something new every second. It's exciting. When you go to many radio station Web sites, the same doesn't always happen."

Marc Girolimetti, founder of Green Grotto Studios, an interactive strategy firm, observed that radio professionals need to see themselves in terms of the larger media business to best take advantage of opportunities.

> **It's all about now. The Web sites that are successful offer fresh content constantly. There's something new every second.**
>
> — Zach Braiker

"The common ground is content. Radio is a content provider. People consume content, that's why people go to the Internet, turn on the TV or radio.

"Before streaming, what I really loved about the radio is how it was very regionalized. You couldn't tune in from beyond a certain range," said Girolimetti. How best to leverage localism? Get listeners to participate by providing online content.

"Empowering listeners to upload pictures [from cellphone cameras] that tie in with a station or event can turn into an ad campaign ... maybe have a scavenger hunt," Girolimetti said by way of example.

Revenue

Making a go of an online initiative takes more than creating content.

A station's integrated media identity must involve an end-to-end proposition reaching across research, programming and sales. Session moderator Jim Kerr, vice president of digital development for Pollack Media Group, a media consultancy, said getting the sales staff aboard is make-or-break. As they reach out to existing and potential clients, they must communicate effectively about the new online opportunities. They may be surprised by how savvy customers are.

"Having an educated sales staff is key. They need to know more [about online media] than the people they are selling to," said Kerr.

Another crucial element for ongoing success is developing a method for staying on top of fast-changing trends.

Braiker suggested that program directors get connected with their station's core Web audience and pointed to London-based Virgin Radio, now Absolute Radio, as an example of creating a "learning culture" to stay on top of the audience.

"They meet [with listeners] for offline events, offer interactivity to connect with presenters. Stations become a conduit of connection. It's easy to ask listeners to show what they're using [on station sites and elsewhere]. This is a learning culture; listen to them to see what you need to do more of and what to do less. Creating a learning culture is the best way to stay on top of their needs."

The upshot of the session: Opportunities abound for radio to gain ground in the audio entertainment space; but if radio doesn't take advantage of these, others will.

Kerr reminded the audience of how the music industry missed when file-sharing of MP3 audio first attracted vast consumer interest.

Napster, he said, taught a crucial lesson. If you don't provide solutions to their needs, consumers will go elsewhere.

Mortgage

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and financial institutions that possess more sophisticated media lending groups. These lenders frequently will attempt to mitigate their risk by requiring the borrower to set up separate "license subsidiaries," which are entities that are created for the sole purpose of holding the FCC license (all other assets of the company are held by an operating or tangible asset subsidiary). The lender can then take a security interest in the equity of the license subsidiary as a means of getting as close as possible to obtaining something akin to a lien on the FCC license.

While such gambits may be attractive (or at least acceptable) to a relatively small universe of lenders, it is clear that the burdens these extra hurdles impose tend to shrink the pool of available capital sources and force the borrower to incur additional costs for the loan (by, e.g., forcing the creation of a multi-subsidiary structure).

As a result, many smaller local and regional banking institutions are reluctant to make broadcast loans. Such bankers are already constrained by leverage and loan-to-value ratio limitations. Add to that the fact that the balance sheet compositions and income statements of media companies tend to be (a) different from those of traditional companies and, therefore, (b) unfamiliar to local and regional banks.

Limitation

What the banks end up seeing is a heavily regulated business where the ability to secure the loan is limited. Moreover,

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Mortgage

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they see an enterprise that is difficult to appraise on anything but an asset basis.

For this reason, they usually will not loan beyond the value of any tangible collateral the broadcasters may have — such as real estate that may be owned at a tower or studio site — or beyond any SBA guaranty, where such a guaranties is available.

This is ironic because in most other businesses and industries, local and regional banking institutions are the greatest sources of small- and medium-sized business loans.

It is especially ironic because regional banks frequently have a longstanding relationship with the community and the businesses that operate in their regions, just as local broadcasters do.

However, broadcasters (and other FCC-regulated companies) are often unable to take advantage of these financing sources because those banks are unfamiliar with the methods of valuating broadcast properties and the loan structures and leverage granted in such loans.

The unfortunate bottom line: Local banks are not actively participating in a sector where they are needed the most.

Because local and regional financing options tend to be few and far between, broadcasters are forced to rely on an ever-dwindling group of large national media lenders — but those lenders are usually subject to floors that will not allow them to finance transactions below the $15 to $20 million level.

Aggravating the increasing shortage of willing and knowledgeable lenders is the fact that significant consolidation in the banking industry has reduced both the number of players with media expertise and the number of players actively participating in syndicated financing.

As a result, there are fewer players in general and specifically fewer players making loans below the $10 million and $15 million threshold.

Impediment?

This problem possibly could be addressed through a concerted effort to familiarize smaller regional banks with mechanisms to effectively secure broadcast loans.

For example, through a series of programs or seminars, local banks could be introduced to industry valuation methods and exit multiples.

A similar approach could be taken with state and federal banking regulators, to demonstrate to them the sometimes subtle distinctions between, on the one hand, most broadcast and communications loans and, on the other, highly-leveraged transactions based solely on the asset value of the collateral.

Confusion between those two types of transaction can lead to mischaracterization of broadcast loans as undesirable or worse. Such educational programs could be presented by, or in cooperation with, state and regional banking associations, as well as through national organizations.

The second, far more controversial, method of addressing the problem involves reevaluating the FCC's ban on security interests in FCC licenses.

The FCC's justification for the policy has been that FCC licenses are not property that can be pledged. Instead, a license is, in the FCC's view, merely a permissive entitlement that allows the broadcaster or wireless company to use the public's airwaves for limited periods, subject to renewal.

Broadcasters themselves have often embraced this rule because it provides them with protection against unscrupulous predatory lenders looking to snatch away FCC licenses.

These are all valid points. However, they do not diminish the fact that, in the eyes of many, the FCC's ban on license liens acts as a significant impediment to the flow of capital into the market.

Over and above the problems mentioned above, the security interest ban adds additional risk for foreign banks (a potentially significant source of capital for broadcasters) that are already disincentivized by strict, federally-imposed limits on foreign ownership or control of FCC broadcast licenses.

Moreover, the ban on security interests prevents lenders from being able to bundle broadcast or telecom loans for sale on the secondary market as is done with mortgage-backed securities in the housing market.

Many lenders legitimately note that no one would expect to obtain a home loan without first providing the protection of a mortgage to the lender. Moreover, the theoretical basis of the FCC's concerns runs counter to the practice of other regulatory agencies, which routinely permit liens on licenses (such as liquor and casino licenses).

At the federal level, the Federal Energy Regulatory Commission has permitted liens on certain types of authorizations for energy generation and distribution. The ability to create such liens facilitates the project financing of these business endeavors.

Notwithstanding the cloud that has recently been cast over the lending industry in the wake to the subprime mortgage melt-down, mortgage-backed securities — and the ability to sell them on the secondary market to institutional buyers such as Fannie Mae and Freddie Mac — have been a major engine behind the U.S. housing market and the ability of many to obtain loans to purchase homes.

A change in the FCC's policy would free up not only capital at the national level but also, most importantly, capital from local and regional lending sources that are intimidated from making loans to broadcasters and other telecom companies.

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PROMO POWER
BY MARK LAPIDUS

Five Great Cash and Prize Giveaways

When Wall Street fails ... when unemployment spikes ... when skepticism about America's financial future prevails ... what should you do? Give away money!

But wait. Doesn't having a blast and flaunting great prizes seem callous while the economy heads south? Nope; it's important to remember that we are in the entertainment business. One of our functions is to provide an escape mechanism during trying times, so paint on your smile and see if these cash and prize giveaways can help you generate happiness and ratings for your radio station.

After all, it's your job to make sure your station is a winner.

1. *Put You on the Payroll:* This is a great catchy title, perfect for our times. It's played a number of ways.

My favorite is having listeners register on the station Web site or by sending an e-mail with their name and phone number. Call out a name every hour of the day from 6 a.m. to 11 p.m. Give listeners a short window — perhaps five minutes — to call in and bump the current person off the payroll. If the next announced person doesn't call within the allotted time, the current winner remains on the payroll, earning whatever you want to pay per hour.

You don't want to be too cheap, but it's not necessary to go too high — somewhere between $15 to 25 an hour is enough to keep things interesting. If you're working with a small budget, condense the hours of the contest from 9 a.m. to 5 p.m. weekdays.

2. *Workman's Compensation:* A wonderful moniker that can be utilized for a variety of contests. This doesn't even have to be about winning cash.

The compensation can vary every hour if you want. One hour it could be a fill-up at a gas station; the next hour it could be an iTunes giftcard; the next could be the winner's weight in candy. One of the cool things about different prizes is that it's fun to keep listening to find out what's next. You can continue the contest over the weekend, or create promos that tease your prize for the following week: "Country 97.7's Worksman's Compensation is getting interesting next week! You could win 97 dollars in cash ... a lawnmower from Home Depot ... Kenny Chesney concert tickets, or a 25-gallon fish tank with exotic fish from Lucy's Fish House. You deserve Workman's Compensation! Just listen 9 to 5 to Country 97.7."

You'll notice I worked in a couple of client mentions for those sold into the contest, or for those who require mentions for their prizes.

3. *Name That Noise*: Record a noise. No, not an easy noise! Find a noise that takes repeated listening to decipher. Every time someone can't "name that noise," the jackpot increases by 10 bucks. Play the game a lot. When it gets boring, give clues, or put the sound up on your Web site so people can listen to it over and over. If you're lucky, they'll have their friends try to guess it when they can't. Toss in a human voice once in awhile and have people *"Name That Knucklehead."*

4. *Green Web Site:* Your Web site has gone green! The other green — the kind you can spend. Hide dollar bills on pages. Tell people to find them. When they find one, they click on it and it takes them to a registration page where they're entered in a daily drawing for whatever your frequency may be — like $105 for stations at 105.1.

5. *A Dollar a Holler:* Give away a dollar a minute from 9 to 5. One winner each hour gets 60 bucks.

"K94 is giving away a dollar a minute, every hour, from 9 to 5 today. It may not be a $300 billion bailout, but then again, we're not using your tax dollars to pay for this stupid contest. To win, listen every minute for this sound (ding). We may play it during songs and even commercials. Tell us how many we play in the hour, and the chump change is yours from K94." It may seem like you're giving away a ton of money, but any math genius can figure out that it's really $480 a day.

If you don't like any of these ideas, call your team together and brainstorm a bunch more.

When your friend asks you what you did at work, you get to tell them you tried to figure out how to give away money. It could be worse — you could be a stockbroker!

The author is president of Lapidus Media. Contact him at marklapidus@verizon.net.

Mortgage

▶ Continued from page 39

This is not a new debate.

In the 1990s a consortium of lenders filed a petition with the FCC requesting a relaxation of the security interest policy in order to free up the credit crunch that preceded the 1996 Telecommunication Act. However, the petition lay largely ignored by the FCC.

Thereafter, following a series of court cases addressing the issue, the FCC began to allow security interests in the "proceeds" of FCC licenses, but would not go farther than that.

More recently, in 2004, the FCC's Federal Advisory Committee for Diversity in the Digital Age — formed by former FCC Chairman Powell to investigate ways to free up capital and create business opportunities for minority-owned media and telecom companies — made a number of formal recommendations.

Specifically, the committee urged: (i) a policy change to allow private lenders to take security interests in FCC licenses; and (ii) the creation of a Freddie Mac-like entity to purchase bundled broadcast and telecom loans on the secondary market.

Although such an FCC policy change (along with rule changes that would relax the foreign ownership limits by institutional lenders seeking to make domestic broadcast and wireless loans) could assist in freeing up the flow of capital, it would be a mistake to think that these FCC prohibitions are the sole cause of the mid-market gap or the credit crunch suffered by small- and medium-sized broadcast businesses.

The rapidly changing media and telecom landscape is equally at fault, as are the ever-growing competition faced by traditional broadcasters from podcasts, satellite radio, Internet video and Internet streaming, and generally falling valuations.

Still, the credit problems have naturally been exacerbated by the country's current financial downturn and corresponding mortgage and credit crises that have infected most financial institutions.

So serious has the situation become that in July, the FCC hosted an *en banc* hearing on barriers to communication financing in New York to probe the causes and possible solutions to the credit crunch in the telecom and media markets.

Again, it would be a mistake to say that a single silver bullet — be it educational programs for local or regional banks or a loosening of the FCC's regulatory choke chain — exists that will magically free up needed capital to the broadcasting or telecom sectors.

However, in order to address the problem, the FCC must probe and understand the methods used by banks and lending institutions to evaluate prospective financings and work with those institutions to address the problems faced.

While many possible solutions are beyond the control of the FCC, the limits on the ability of lenders to secure broadcast loans is one that should be studied and evaluated.

Francisco Montero is a managing member of the law firm of Fletcher, Heald & Hildreth P.L.C. He focuses on media-related finance and commercial transactions. He can be reached at montero@fhhlaw.com.

RW welcomes other points of view. Comment on this or any article. Write to radioworld@nbmedia.com.

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TUBES & COMPONENTS

GUEST COMMENTARY

Our Problem Isn't The Technology

by Ed Dulaney

Is there something wrong with HD Radio? Perhaps, but I don't believe minor technical issues are the problem.

Yes, there are some. For instance, I'm not sure whether I agree with the idea of authorizing a 10 dB increase in the level of the HD Radio carriers for FM broadcast. Will it extend the coverage? Undoubtedly; but will it cause more damaging interference to other stations in the market? That remains to be seen. I'm willing to take a wait-and-see attitude on it.

Another technical issue is the interference to local broadcasters by AM skywave signals related to adjacent-channel HD Radio carriers. Personally, I haven't heard any objectionable interference. Still, there are some areas where this has become a real problem.

The solution is to study it objectively and determine whether the interference would have been there if the interfering station had been broadcasting a full 20 kHz wide analog AM signal. If so, then the interference has, in essence, always been there and therefore the perceived interference to the local station is a moot point.

However, the real problems are lack of good programming available to the HD Radio listener and the nearly nonexistent quality control exercised by radio stations.

QP and QC

For years radio has been plagued by a severe lack of quality programming in most markets. Back in the '70s radio began a slow decay cycle, as the programming department's budget was cut and PDs had to look for alternative means of programming their stations. Automation came upon the scene and canned music formats were being broadcast on many stations. You could drive across this great land and hear "Sunny 98," "Sunny 101" and "Sunny 106" — all airing the same format. You'd hear the same announcers giving the time and temperature in each market. And, if you were lucky, there might be a brief news segment at the top of the hour.

As we descended into the 1980s and '90s the computer took over the broadcast. Now radio stations had the ability to voice-track! You could turn to three different stations in a town and hear the same announcer on each — often at the same time! As the voice-track technology matured that same announcer could be heard in other markets as well.

Now we have this glorious new tool called HD Radio. According to the proponents, this gives radio stations a chance to compete with satellite radio. But why do we need to even think about that? If radio stations would have followed a working model that carried us through the first two-thirds of the 20th century, competing with satellite radio would have been unnecessary. Radio would have still been the shining star and satellite would have been a service that would be completely secondary, similar to CDs or MP3 players.

Radio needs to be relevant to the listening audience; just playing music isn't enough. There needs to be a sense that the station is important to the community. Without that connection, radio will become a secondary service.

My second point is the lack of quality control.

There are a large number of HD Radio signals in the Denver and Fort Collins market; roughly half of them have some sort of problem with their HD Radio broadcast. Some have time-alignment problems. Nothing will frustrate a listener more than tuning into an HD Radio broadcast and hearing a delay when it transitions from analog to digital.

If you are in a strong signal area, the problem is relatively minor. But in the fringes, where transitions can happen every few seconds, the station becomes unlistenable.

Nothing will frustrate a listener more than hearing a delay when it transitions to digital.

Still other stations are not broadcasting text information with their programming. I can understand that many stations don't have the infrastructure in place yet to send the title and artist of every song to their HD Radio exciter. However, within the exciter is a provision to send out a custom text message. Therefore, any radio station broadcasting in HD could send its station slogan, a short message to the listeners or even contact information. Yet all I see when I tune to these stations on my receiver is the infamous "*NO TEXT*" message.

Finally, FM stations that are broadcasting HD2 and HD3 streams need to start exercising better quality control.

Some of them are being fed a satellite or Internet stream from a programming service. And sometimes those streams go silent for extended periods. More than once I've tuned into an HD2 stream to be greeted by nothing but silence.

If the main carrier goes silent you'd better believe people are running around in a panic trying to get it back on the air! The "secondary services" don't seem to deserve the same consideration. Of course, if the stations had decided to program something "unique" and "relevant" on the HD2 or HD3 channels, perhaps there'd have been a valid reason to monitor them more closely.

We, the people who believe in and support HD Radio, will be the ones who will make or break this great new tool we've been given. Personally, I'd love to see every station in this country become a quality HD Radio station. What a great medium that would be. But until we get our act together as broadcasters and start taking radio seriously again, not even HD Radio will get us out of this hole we've dug.

The author is director of engineering for Rocky Mountain Radio Network and owner of Broadcast Technical Consultants of Colorado.

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Things Splinter

An Intelligent Outsider Puts New Media in Perspective

New consumer technologies don't replace old ones; they add on.

That was a takeaway for radio in remarks by David Pogue, who delivered one of the better keynote speeches we've heard when he spoke at the fall NAB Radio Show. (We wrap up coverage of the convention with product news elsewhere in this issue.)

The technology columnist for the New York Times offered an animated, entertaining overview of trends in new consumer media: VoIP over cell phones. Google Mobile. Voice-to-text.

The future is all about delivering content on demand, Pogue said, and the rising generation of consumers expects products to include fast forward/rewind as a matter of course, to allow access to the content when the *user* wants it, as seen for example in the free online video service Hulu.com.


© NAB

Similarly, in the world of Web 2.0, users are accustomed to defining the content, as in blogs, Facebook and so forth. And wireless functionality, he said, will be ubiquitous.

Rather than run frightened from such changes, Pogue implied, radio managers should incorporate them better into their thinking.

He pulled up a Facebook page on his big video screen and pointed out the many customized links and applications the user had chosen. "Why isn't a radio station on that page?" he asked. "There's no technical reason."

He held up a Microsoft Zune player, noting that it at least offered FM reception, unlike many devices, but lamented, "Find out why none of these things have AM in them!"

He urged radio executives, "Tell Apple to put radio in iPods. Put pressure on them! Don't you have a lobbying arm?" He said it with a smile, but the nervous chuckles in the room were telling. And Pogue drew applause when he mused that perhaps the name of the industry association should be not the National Association of Broadcasters but the National Association of Suppliers of Audio.

It was a fun, sprightly presentation from an intelligent outsider's perspective. "Things splinter, they don't replace," he said. "They add on. Overcome the little obstacles in your way." It was a welcome reminder that new consumer technologies can be met with enthusiasm rather than our industry's habitual gloom.

— Radio World

◆READER'S FORUM◆

Nothing New in This Paradigm

Regarding Steven Ludwig's piece in the Sept. 1 edition ("A New Paradigm for Small-Market Success"), I wish he actually did have something new to tell us, but instead it's the same old business plan that has failed in small markets for players like Clear Channel and CBS.

They've been forced to run back to big markets where they can just own the ratings with big clusters and then sit around waiting for advertising agencies to place all those buys.

Small-market radio has never been like that, and never will be. But Steve doesn't get it. I quote: "We believe in centralization of administration and programming strategy." And how about this: "Roughly 80 percent of all music-based radio stations fall into eight primary formats, with some regional variations."

My prediction: The smaller fish that are gobbling up the cast-offs from the big groups will continue to mimick their business plan because it looks safe and easy, and they will in turn fail and be forced to sell to even smaller fish, and this process will continue until we get back to about where we were in roughly 1975 or so.

Almost no big players will want terrestrial radio except in the very largest markets, and medium and small markets will be owned by small corporations, or ma and pa.

I also predicted that satellite radio would have to be a single-provider service, and now it is. I further predicted that it would have to be a cooperative venture between private capital and the government, due to the incredible overhead of all those satellites. I continue to predict that Sirius XM will be going, hat in hand, to Washington asking for some kind of bailout. Since I've been correct several times now, one shouldn't take these predictions lightly.

The truth is that radio slowly is getting back to where it used to be and still should be: a totally local, unique form of aural communications that is owned, programmed and sold locally. Now it will just have the ability to distribute programming on other platforms that aren't necessarily limited to being local, but will mostly be used that way by the public, because local programming is what they really want the most. It just has to be good ... unlike what we're experiencing at the moment in many cases.

Gary O. Keener
Keener Technical Services
San Antonio, Texas


GUEST COMMENTARY

A New Paradigm for Small-Market Success

Learn From Successful Companies; Focus on Localism, Centralized Sales Strategy

by Steven Ludwig

The author is CEO of Debut Broadcasting Corp. in Nashville

Since consolidation began in the late '90s, radio has been evolving into two completely different businesses: large markets dominated by large corporate players, and smaller markets that remain largely a "mom and pop" industry.

For radio entrepreneurs seeking to become growth companies amidst the new realities of our industry, re-defining the small market paradigm is the billion dollar idea waiting to propel a company to the next level. The challenge: Small markets don't work like large markets, so the roll up strategy has to be different.

Companies are now on the hunt for a "category killer" model for small-market radio, and breaking new ground in that effort, Mine is one of them. Here's a snapshot of what we're doing at Debut Broadcasting so far and why I think we're really on to something.

Share the wealth

For just more than a decade, we've been a syndication company providing everything from content to suites of revenue, production and Web site tools to more than 1,400 radio stations in the United States and Canada. Our sweet spot has been medium and small markets, where we've focused on the need to increase revenue in a low staff environment.

tent product or service over and over again all over the world.

In short, look at what "best in class" companies are doing and apply their formulas for success to radio.

Super-Regional Clusters

We now believe the new small market paradigm requires building Super-Regional Clusters.

Everyone understands the idea of a market cluster. A Super Regional Cluster takes that a step further, chaining together multiple clusters within a tight geography with a regional management structure (one general manager, one engineer, etc.) for three to five clusters.

We also believe in centralization of administration and programming strategy, another synergy from our syndication experience. We've become accustomed to moving things back and forth with a large number of radio stations simultaneously. So we've been able to centralize functions like traffic and billing, human resources and more.

We now believe the new small-market paradigm requires building Super-Regional Clusters.

Wireless Mics

The Federal Communications Commission is justified in regulating wireless microphones when the analog frequencies open up more fully with the advent of universal digital television next year. But the FCC would do well to pull back on its onerous licensing rules.

The opening of so-called "white spaces" in the broadcast spectrum offers opportunities for advancement in communications technology. It could, for instance, greatly increase wireless broadband services. And the FCC is right to preserve some space for the communications needs of firefighters, police and emergency personnel.

But the FCC currently requires those who use wireless microphones — everyone from Broadway performers to preachers at the pulpit — to obtain a license to use the devices. That requirement, though lightly enforced, should go.

A sensible policy doesn't treat a speaker in a lecture hall who uses a relatively weak wireless microphone like a business that employs a frequency full-time.

James G. Lakely
The Heartland Institute
Chicago

Write to RW

Send e-mail to *radioworld@nbmedia.com* with "Letter to the Editor" in the subject field; fax to (703) 852-4585; or mail to Reader's Forum, Radio World, 5285 Shawnee Road, Suite 100, Alexandria, VA 22312-2334.

E² Ethernet Audio Done Right

MEET THE SQUARE

The Wheatstone E² (E SQUARE) gives you the convenience of Ethernet audio without all the IP hassle. It just *knows*. The built-in Setup Wizard lets you configure an entire system with just your browser and a laptop. Unplug it when you're done and there's no PC between you and system reliability.

SQUAREs are totally scalable: use one as a standalone 8x8 studio or transmitter site router, with browser access from anywhere. Plug two together and have a standalone digital snake. Add a fanfree mix engine and build yourself a studio using analog and digital I/O SQUAREs.

All the power is *in* the SQUARE. Distributed intelligence replicates all configuration data to every unit. Profanity delay and silence detection are done *in* the SQUARE. Even virtual mixing (w/automation protocol) —it's *in* there; all with real front panel meters, 32 character status indicators and SNMP capability.

88E DIGITAL ENGINE: Just plug an E-SERIES control surface or GLASS E computer interface into this engine and get all the mixes, mic and signal processing you need. Fanfree, so it can stay in the studio where it belongs.

Because the E² system doesn't rely on a third party GUI, tech support is straightforward (and 24/7). Likewise, system operation doesn't require external PCs for continued full functionality. Best of all, 1 Gigabit protocol eliminates the latency and channel capacity restrictions associated with older technology.

E-SQUARE is Ethernet audio done RIGHT!

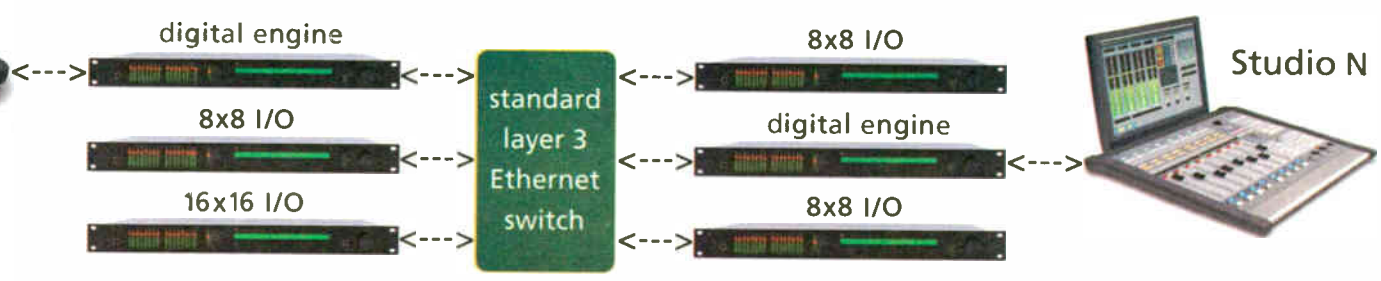
88D I/O: 8 digital inputs and outputs. You can headphone monitor and meter any of the SQUARE's inputs or outputs in real time. The 32 character display gives you all the information you need about your audio and system configuration. And because you can operate in either 8-channel stereo or 16-channel mono mode, 16 channels of metering are provided.

88A I/O: 8 analog inputs and outputs. You can bring a new SQUARE up in seconds and of course use the front panel encoder for your X-Y control. Front panel status LEDs give you continuous link, status, and bit rate information as well as confirmation of any GPIO activation.

88AD I/O: 4 analog plus 4 digital inputs and outputs—perfect for small studios or standalone routing.

88 I/O CONNECTIONS: E² has both DB-25s for punchblock interface and RJ-45s for point-to-point interface. All SQUAREs have 12 individually configurable opto-isolated logic ports that can be either inputs or outputs.

STUDIOS DONE EASY!



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