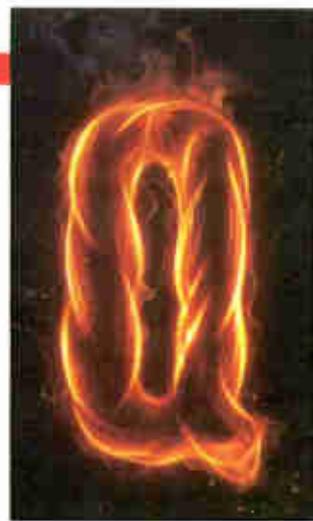


Let's Buy Sirius XM
Dave Wilson says the idea might seem crazy, but do the math.

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Resonant State
Are we tuning for maximum smoke?

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Radio World

\$2.50

The Newspaper for Radio Managers and Engineers

January 1, 2009

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Act Now or Wait? IBOC Power Is the Question

Backers of Separate Studies Explore a 'More Thoughtful Approach,' Plan Further Testing

Comments are in on the issue of whether and how to allow stations to increase FM IBOC power level in order to match their analog coverage areas. Federal Communications Commission employees are now studying the comments.

Experts meanwhile predict it will take several months for a decision to be reached, enough time to allow additional testing.

As of Dec. 5, the main comment deadline, more than 65 comments had been filed with the agency to MM Docket 99-325. Here is a selection. Reply comments are due Jan. 12, 2009.

The Joint Parties strongly urge the commission to increase the maximum digital power at which FM stations are permitted to operate from the current level of 1 percent (-20 dBc) to 10 percent (-10 dBc) of a station's authorized analog power. ...

Approximately 1,800 radio stations have already initiated digital operation with more than 930 additional multicast channels available nationwide.

See POWER, page 5 ▶

Surprise: Cap-Ex Will Be Taut in 2009

Broadcast Capital Engineering Budgets Slashed; Manufacturers Predict Project Deferrals

by Randy J. Stine

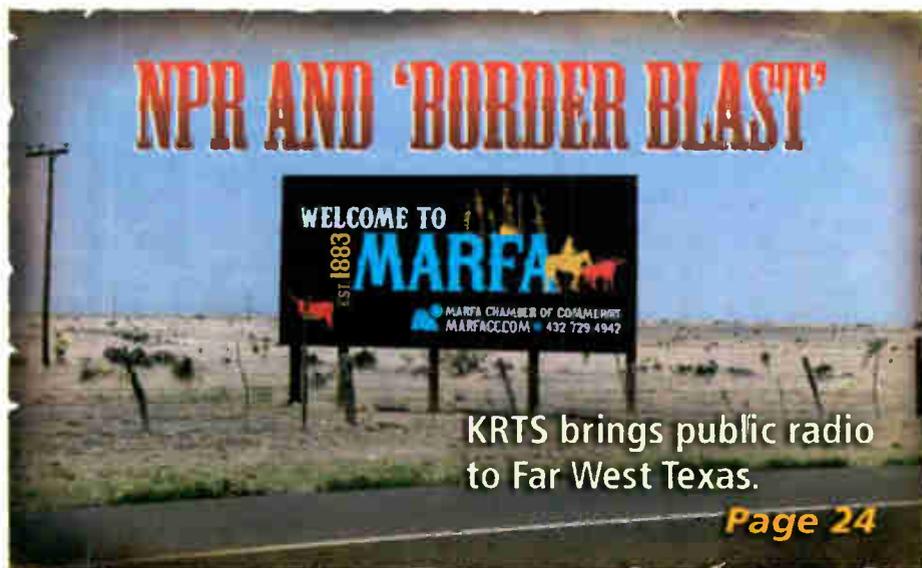
Corporate radio engineering managers acknowledge that this fall's capital budgeting process for 2009 was especially tough as revenue and cash flow dip and as credit for projects and purchases has become more difficult to obtain.

Faced with another year of economic uncertainty and now, officially, a full-blown recession, broadcasters are being

forced to prioritize capital spending on equipment and facility buildouts, industry insiders say.

Even broadcast equipment manufacturers and suppliers — who as a group tend to use optimistic language whenever describing the state of their business — believe spending by stations is likely to be very conservative in 2009. The impact will be felt in HD Radio deployment.

See CAP-EX, page 8 ▶



KRTS brings public radio to Far West Texas.

Page 24

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NEWSWATCH

Clear Channel Gets National HD2 Sponsor

SAN ANTONIO, Texas Verizon Wireless is sponsoring HD Radio multicasts on Clear Channel Radio stations — the first national client to do so, according to the broadcaster.

“Verizon New Music” features blocks of songs and interviews with artists on 21 Clear Channel multicast and Web stations. Stations airing the content include the multicasts of WHTZ(FM), New York,

KIIS(FM), Los Angeles, WKSC(FM) Chicago and 18 other FMs.

Clear Channel, an early adopter of IBOC, said it has coded all its primary and HD2 stations to be iTunes tagging-compliant.

FCC Told To Focus on DTV

WASHINGTON The FCC cancelled its Dec. 18 open meeting and the status of the January meeting was unclear.

The soon-to-depart chairman of the Federal Communications Commission

was trying to cram several complex policies through in his remaining weeks. However, in December two key lawmakers and the Bush administration told him to put on the brakes and just focus on one issue — the digital television transition.

Sen. Jay Rockefeller, D-W.Va. and Rep. Henry Waxman, D-Calif., who are set to take over their respective Commerce Committees in January, sent a letter to Martin telling him that the FCC should pay closer attention to the digital transition as questions remain about the readiness of Americans for the switch.

“It would be counterproductive for the FCC to consider unrelated items, especially complex and controversial items that the

new Congress and new administration will have an interest in reviewing,” Rockefeller and Waxman wrote in the letter.

The lawmakers did not say which items should be delayed; but spectrum and cable items are the most controversial on the FCC’s schedule. Also on the agenda was a plan to establish interference protection procedures for SDARS and wireless communications users and a request for an STA from Sirius Satellite Radio to operate terrestrial repeaters in Alaska and Hawaii.

An FCC spokesman said the items would remain on circulation and the commissioners could still vote on them.

News Roundup

RADAR: Arbitron says its RADAR 99 National Radio Listening Report indicates radio reached more than 234 million people age 12+ in the course of a typical week in 2008. That’s up from 232 million in 2007, though the total was down from earlier in 2008, when Arbitron placed the number at 235 million. Radio reaches more than 92 percent of persons 12+ each week, “despite the adoption of MP3 players and the growth of Internet-only stations,” Arbitron said. “Even 90 percent of the youngest radio audience, teens ages 12–17, most accustomed to using new technologies and forms of media, continue to tune in each week.”

LISTENING: People are listening less than they used to all audio sources, according to the Consumer Electronics Association, although the results of a study find that most consumers do view music and other audio content as a vital component of daily life. It found that 67 percent of consumers believe audio is an important part of their life and 48 percent are always listening to some form of audio content. The percentage of consumers reporting daily consumption of music has fallen to 73 percent from 91 percent while TV show audio listening has dropped to 68 percent from 81 percent since 2005. Only audio from playing games has

See NEWSWATCH, page 3 ▶

WINNING THE RATINGS WAR VORSIS: THE TECHNICAL STUFF

The loudness wars are over. The winner? Nobody. Why? Because when everyone became as loud as possible, using the same limited tools, the personality of every station got lost. We call it “the sameness syndrome.”

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Imagine, then, scanning a radio dial and finding an aural oasis — sound that’s breathtaking in its natural quality, but loud and still retaining a sense of dynamic range. Impossible? If you think so, you haven’t heard Vorsis.

Vorsis is the first line of air-chain processors designed for today’s 21st century radio listener. It’s a complete ground-up rethinking of the tired and traditional approach that is inescapable with those well-known processors. Here we talk about a few of the innovations that make the flagship AP-2000 Spectral Dynamics Processor the incredible tool that it is. Many of these advances are shared among the entire range of Vorsis solutions.

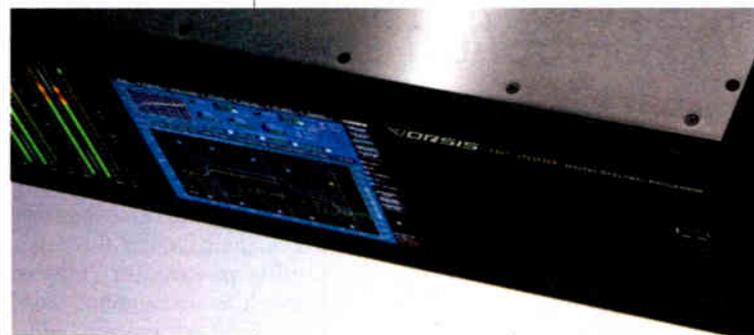
Intuitive Interface and Operation

No processor can meet its full potential if it’s not something that’s easy to use or if the full

Think about having the full engineering control you’ve always dreamed of — being able to find the whispers as well as the screams in your station’s sound, crafting an aural signature that’s so good, so transparent, you will have people calling to find out how you do it.

Vorsis Dynamics Control
Vorsis completely rethought dynamics control — AGC and compression — and came up with a design that’s intelligent AND amazingly flexible to control and shape your station’s “sound.”

Five-band AGC (four-band in the VP-8) ensures a consistent spectral balance. Vorsis’ exclusive SST™ Sweet Spot Technology manages the behavior of the AGC in real-time so that



what the incoming level or era of the music.

Powerful Bass, Incredibly Clean Voice

Vorsis Bass Management System extracts and reveals the nuances in the program that are simply not heard in any

and use L+R to L-R signal ganging to prevent the image from wandering uncontrolled. It’s already field-proven to manage wide discrepancies between the recording techniques of various eras (oldies to the over-mastered music of today) and even reduce multipath interference.

Surgical Limiting and Clipping

To some the idea of 31 bands is scary. Not to us. It’s simply amazing what can be done with it. Limiting and clipping’s primary purpose is peak control to increase loudness; the less audible in its action, the better. 31 bands allow surgical limiting — its dynamic operation is nearly inaudible to the ear so the resulting sound is louder AND cleaner. It also provides unprecedented opportunity to further fine-tune the sound. FM and HD/DAB have entirely different transmission characteristics, so Vorsis processors have completely separate limiting and final peak control sections for analog and digital broadcast.

Welcome to the 21st Century

Vorsis is the first processor designed for the needs of a modern radio station and its listeners. Visit the web to learn more and read our application notes and white papers. Call us to set up a demo today.

It’ll make a HUGE difference in your station’s sound AND your bottom line.

other radio processor. It puts deep pristine bass on the air without the distortions of common bass clipper technologies. VoiceMaster is a special Vorsis clipper management tool that has its own automatic processing chain dedicated to detecting and specially processing live speech signals, giving you the loudest and cleanest on-air voices ever.

Superior Stereo Enhancement

In rethinking Vorsis, it became clear that stereo enhancement HAS to be integral to the processing. It is, after all, a manipulation of the amplitude of the L/R difference signal that creates the perception of a wider sound field. With Vorsis, you’ll get smear-free enhancement of the stereo image that can be as wide as you desire. But that’s only the beginning — you can also control the stereo image width on a frequency-conscious basis



palette of controls are not accessible. The Vorsis GUI is designed for intuitive operation, from the front panel or remotely on your PC. No control is more than two clicks of the mouse away. The screens offer a logical layout with a virtual control surface above and monitoring graphs and meters below. You can see and hear the results instantly. Nothing is easier.

it always operates in its “sweet spot.” The multi-band compressor, operating in concert with the AGC, provides unprecedented dynamics control. All operate in sum and difference — the highest signal controls the amount of processing. This is a completely new way to manage multiband dynamics to maximize the consistency of your station’s on-air presentation — no matter

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• 31-band limiter/clipper
- FM-2000**
AP-2000 without HD/DAB section
- AM-10HD**
Digital Audio Processor for AM analog and HD
• 5-band dynamics controller
• 10-band limiter/clipper
- FM-10HD**
Digital Audio Processor for FM analog and HD/DAB
• 5-band dynamics controller
• 10-band limiter/clipper
- VP-8**
Multi-Mode Processor for FM, AM, FM-HD/DAB, AM-HD, MP3/AAC
• 4-band dynamics controller
• 8-band limiter/clipper
- HD-P3**
Production, HD, STL Processor
• 3-band AGC
- M-1**
Digital Mic Processor



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NPR Goes Into New Year Leaner

by Leslie Stimson

WASHINGTON The economic downturn has affected powerhouse pubcaster National Public Radio and its employees.

NPR has 26.4 million people listening to its programs each week and 8 million people visiting NPR.org each month; but because of the uncertain economy and a sharp decline in current and projected revenues from corporate underwriting, it is reducing its workforce by 7 percent and trimming expenses.

Some of the staff cuts have become effective already; most will take place in the first quarter.

NPR West in Culver City, Calif., will remain open and NPR Labs will continue its research initiatives.

Staff and expense reductions are being made in reporting, editorial and production areas; station services; digital media; research; communications and administrative support. A total of 64 filled positions have been eliminated out of NPR's staff of 889; also, 21 open positions will not be filled, and travel and discretionary expenses have been cut.

Of the 64 eliminated positions, six were in engineering, Radio World confirmed. Of the six, three were bureau recording broadcast recording technicians at NPR West related to two cancelled programs; one was the same posi-

tion in the New York Bureau and the other two were engineering management positions.

The majority of the personnel cuts result from the upcoming cancellation of two NPR produced programs "Day to Day" and "News & Notes." The programs, produced out of NPR West, will

porting with grant revenue, said Rehm, estimating the cost of running the lab at \$1.2 million a year.

"It doesn't generate net revenue but it does cover its own costs," she said. With grants, it costs NPR about \$400,000 to \$500,000 a year to run the labs.

The labs has been successful in secur-

A total of 64 filled positions have been eliminated out of NPR's staff of 889; 21 open positions will not be filled, and travel and discretionary expenses have been cut.

remain on the air through March 20. The network said the shows had not garnered the corporate underwriting necessary to remain viable.

Some 30 employees will remain at NPR West, which opened in 2002. The facility remains a part of NPR's future, according to Dana Davis Rehm, the network's senior vice president of strategy and partnerships.

"If we had closed NPR West, we would still need to place people in another

ing grants; however that may become more difficult in the tough economic environment, she said, though she was confident the lab's accessible radio and HD Radio data-associated projects would continue.

Indeed, NPR recently told the FCC it's in discussions with CPB, iBiquity and others about alternative approaches to increasing IBOC power and has begun planning to conduct additional tests.

The network could see the economy

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Newswatch

► Continued from page 2

remained stable at 34 percent, according to CEA. Planned purchases in the coming 12 months are led by headphones/earbuds, portable MP3/digital audio players and home-theater-in-a-box systems. On average consumers plan to spend \$242 on audio devices in 2009.

SHAREHOLDER SUIT: A California judge dismissed the lawsuit filed by satellite radio shareholders calling themselves Save Sirius. But U.S. District Court Judge Cormac Carney gave Michael Hartleib, a California real estate broker and leader of Save Sirius, time to amend and re-file the suit. Hartleib said he intended to do so. In the suit, shareholders claim Sirius XM management, in particular, chief executive Mel Karmazin violated the federal Racketeering and Corrupt Organizations Act and breached their fiduciary duty to the shareholders by agreeing to onerous financial conditions in order to close the merger of the two satellite companies, claims that Sirius XM refutes. In the decision, the judge cautioned Hartleib to back up his claims with specifics.

er facility," said Rehm, asked by Radio World to respond to rumors that NPR West was going to be shuttered.

Workers remaining at the facility include the support team for the "Morning Edition" co-host Renee Montagne, as well as staff involved in reporting, engineering, IT and development.

NPR West remains a big part of NPR's disaster recovery plan, the back-up facility in the event of a disaster affecting the network's ability to transmit out of Washington, Rehm confirmed, while Minnesota Public Radio in St. Paul is the back-up operations center for the Public Radio Satellite System.

Mike Starling, NPR vice president of engineering, chief technology officer and executive director of NPR Labs, reports to Rehm. NPR Labs lost one full-time technical position and filled a different full-time technical position that had been vacant. It also lost one temporary position. As of Jan. 12 it will have three full-time staffers, two temps and one contractor.

Other part-timers work for the labs on an occasional basis; the figure varies quite a bit because the nature of the labs work is highly grant dependent.

The network did not name the people affected by the changes.

NPR Labs has been relatively self-sup-

porting awhile ago and that, in part, drove its decision to turn over running the annual Public Radio Engineering Conference to the Association of Public Radio Engineers, Rehm said. NPR Labs had previously planned and executed that event on its own, which was a time-consuming process for its small staff. Now the lab supports APRE's efforts to run that event.

In announcing the cuts in December, NPR's interim President and Chief Executive Dennis Haarsager said that in July, NPR had projected a \$2 million deficit for fiscal 2009. However with the rapid downturn in the economy, corporate sponsorships — its second-largest source of funding after fees paid by stations — declined and projections dropped, raising the projected deficit to \$23 million and prompting the need for cuts.

NPR said it would draw down its reserves by up to 30 percent. Legal restrictions constrain what it can withdraw from the separate NPR endowment, which includes a \$200 million gift from the late Joan Kroc.

Not affected by the cuts are NPR's equipment and technical plans for its new headquarters building, said Rehm. No one has yet been named to be in charge of new equipment for the building.

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Paul J. McLane

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Joe Talbot, Tom Taggart, Michael Tarsia, Jim Taszarek, Rolf Taylor, Roger Taylor, John Terhar, Barry Thomas, Gary Timm, Paul Tinkle, Goio Torrontegui, Paul Trama, Conrad Trautmann, Joe Trofimczuk, Mike Troje, Dale Tucker, Dick Tyler, Mike Uhl, Ed Valentine, Stewart Vanderwilt, Tom Vernon, James Viele, Doug Vernier, John Voci, Art Vuolo.

And Glynn Walden, Matt Wallace, Marge Wardrop, Diane Warren, Doug Watson, James Webb, Debbie Webber, Bill Weeks, Fred Weinberg, Jeffery Weinberg, Peter Weitzel, Dennis Wharton, Lisa Wheeler, Jeff White, Tim White, Scott White, Bill Whitt, John Whyte, Hal Widsten, Chuck Wilder, Eric Wiler, Kelly Williams, Big Jim Williams, Ira Wilner, Dave Wilson, Larry Wilson, Bice Wilson, Stephen Winzenburg, Guy Wire, Bernie Wise, Jim Withers, Bill Wolfenbarger, Jim Wood, George Woodard, Simon Woolard, Emma Woods, Stu Wright, Stephen Yasko, Jeff Yates, Curt Yengst, Jon Yinger, Forrest Yingling, Bob Young, Mark Young, Tom Zachman, Doug Zanger, R.V. Zeigler, Jeff Ziesmann, Alexander Zink, Sue Zizza, Mark Zoradi, Karl Zuk.

My thanks and best wishes for a gentle holiday season. 🌐



Mechanick, Mary Ann Melody, Geoff Mendenhall, John Merli, Don Messer, Tom Michael, Lawrence Miller, Adil Mina, Jay Mitchell, Laura

Power

▶ Continued from page 1

However, the effectiveness of many HD Radio stations remains hampered by their inability to replicate their analog coverage areas. This abbreviated digital audience reach is a function of the very conservative power levels at which FM digital stations initially have been permitted to operate. The requested power increase would directly address this problem.

The power increase request is based on extensive real-world studies conducted by several broadcasters and iBiquity Digital Corp. that were designed to determine: (i) whether the digital power increase would enhance the performance of FM HD Radio, both in terms of increased digital service areas so as to essentially replicate analog coverage, and with respect to enhanced building penetration; and (ii) the effect of the requested power increase on digital/analog compatibility — specifically, the impact of increased digital power operation on first adjacent analog operations. ...

The Joint Parties have reviewed the digital interference study prepared by NPR Labs and note that it included multiple laboratory predictions and utilized a worst-case scenario; namely, that in predicting interference to each analog station, NPR assumed that all adjacent stations were operating digital at the full 10 percent increased power level. ...

NPR has publicly stated that it is not fundamentally opposed to — and sees the need for — a substantial digital power increase. Thus, the Joint Parties hope to work with iBiquity and NPR Labs to identify those circumstances in which a particular FM station's digital operations may need to be conditioned to avoid unacceptable levels of harmful interference.

— The above was signed by Backyard Broadcasting, Beasley Broadcast Group, Black Crow Media Group, Bonneville

International, Broadcast Electronics, CBS Radio, Clear Channel Communications, Commonwealth Broadcasting, Commonwealth Public Broadcasting, Continental Electronics, Cox Radio, Emmis Communications, Entercom Communications, Greater Media, Harris, Journal Broadcast, Lincoln Financial Media, Nassau Broadcasting Partners, Nautel Maine, NRG Media and Sacred Heart University

NPR is committed to HD Radio and improving HD Radio coverage by increasing authorized digital sideband power. Where we differ with the Joint Parties is on the approach. An across-the-board 10 decibel (“dB”) power increase fails to account for a significant increase in interference to the protected analog service of a number of stations. Based on extensive testing by NPR Labs, a managed power increase can significantly improve HD Radio coverage without sacrificing analog service. ...

That the proposed power increase of up to 10 times the present level is voluntary does not solve the problem because the stations suffering interference will have had no choice in the matter. ...

Given the importance of improving HD Radio coverage, NPR, CPB, iBiquity and others committed to the future of over-the-air radio broadcasting and the HD Radio transition are already discussing alternative approaches to increasing IBOC power without causing undue analog interference. NPR recognizes that any method must be manageable from a regulatory standpoint, meaning generally applicable, simple to apply, and producing predictable results. We have already developed an interference protection approach for stations in the non-reserved portion of the FM band based on distance separation and facility class. ...

For stations in the NCE reserved portion of the FM band, we believe a prohibited contour overlap protection methodology similar to that prescribed in the commission's rules would effectively

address the issue. The prohibited overlap method to regulate IBOC power may also apply to short-spaced stations in the non-reserved portion of the FM band and,

eventually, stations that wish to employ directional IBOC transmitting antennas or transmission with asymmetrical IBOC
See POWER, page 6 ▶

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Power

► Continued from page 5

sideband techniques to operate at greater IBOC power than would otherwise be authorized. ...

NPR Labs has already begun intensive technical planning to carry out additional testing ... We expect the necessary testing will be conducted and completed in the next several months so that we may recommend a consensus approach for increasing IBOC transmission power while more effectively avoiding interference by the spring.

— NPR

For CEA and its members, concerns about service reliability present marketing challenges. Consumers purchasing CEA member products may become dissatisfied with their purchases if the receiver repeatedly loses digital reception or is not able to receive digital signals indoors in areas with good analog reception. Returns or warranty claims based on inadequate signal level rather than product malfunction create problematic costs for CEA member companies.

CEA anticipates these concerns will multiply as new classes of HD Radio receivers reach the marketplace. For example, portable products remain one of the most

The Joint Parties have reviewed the digital interference study prepared by NPR Labs and note that it included multiple laboratory predictions and utilized a worst-case scenario.

— Broadcast coalition favoring the increase

important and growing segments of the audio marketplace, but they also present some of the most challenging environments for radio reception. ...

CEA supports increasing digital power levels subject to one important condition: digital broadcasts should not be permitted to cause harmful interference to existing analog receivers. Examples of harmful interference may include (but may not be limited to): 1) an increase in the number of unwanted analog FM receiver "seek stops" on digital side bands (already an issue at existing HD Radio power levels); 2) an increase in the amount of 200 kHz adjacent channel digital interference onto analog FM receivers; and 3) decreased performance of the analog FM Radio Broadcast Data System. ...

CEA understands that NPR and the commercial broadcasters that worked with iBiquity to prepare the iBiquity report each intend to conduct additional field testing and analysis to determine with greater precision whether a digital increase will create harmful interference and if so, what restrictions need to be adopted to minimize interference. CEA supports these ongoing activities and recommends that the commission consider requiring additional testing and analyses by independent organizations as well.

*James W. Hedlund
Vice President, Regulatory Affairs
Consumer Electronics Association*

The justification for the +10 dB increase in digital power is justified under the premise that such an increase is needed in order for digital radio to achieve building penetration and this is needed in order for this new service to be competitive. However, when initially applying to create this new digital radio service, had the petitioners indicated that a digital facility operating at 1 percent of the analog power (authorized by subsequently adopted rules) was insufficient as now being argued and

that a 10 percent digital power would be needed, it is likely that petitioner would not have been successful in creating its sole source digital system.

At this higher digital power level the adjacent interference caused is significantly larger to the point of being unacceptable to analog FM stations (see NPR study). Now many years later, they come before the commission under the premise that this sole source digital technology service offered by iBiquity is somehow "too important to fail."

This sounds just like the arguments being offered by many financial institutions and manufacturers in their weak justification of why Congress must bail them out of the mess that in some instances they were responsible for creating. iBiquity has nobody to blame for its problems but itself. ...

In 1989, when adopting the power increase from 3 to 6 kW for Class A FM stations, the commission declined to make a blanket across-the-board authorization. The FCC felt that a +3 dB increase had the potential to cause just too much interference if the new spacings were not met.

However, here the FCC is asked to provide a +10 dB increase to digital radio facilities without regard to increased interference to analog FM stations. While this interference is extremely harmful to full-service FM facilities, it will be simply devastating to the many low-power FM stations the commission hopes to use to promote localism.

*John J. Mullaney
President
Mullaney Engineering Inc.*

BMW of North America LLC was the first to offer HD Radio as an option in our vehicles and it is now available as an option in every model. It is our plan to include HD Radio as a standard feature in our future models.

In BMW of North America's experience with the technology, HD Radio technology can offer important benefits to consumers in terms of upgraded audio and new services. ...

BMW of North America remains concerned, however, that these benefits of HD Radio technology will not be accepted by the public unless HD Radio technology is able to replicate analog coverage in a greater number of cases. Although there are many stations that enjoy excellent digital coverage, there are a number of stations that are not able to replicate their analog coverage with the current configuration of the HD Radio system.

These coverage problems are particularly problematic in a vehicle environment. Mobile reception is inherently more susceptible to multipath interference and other impairments that can vary considerable in very short time frames as a vehicle goes in and out of areas of interference.

*Francis J. Dance
Telematics Business Development Manager
BMW of North America*

[The National Translator Association] does not object in principle to an increase in the IBOC signal, so long as both the input signals and output signals — and hence the effective service areas — of FM translators are accorded appropriate interference protection. ...

If the commission determines it is in the public interest to allow increases in the strength of the IBOC signals we believe such increases should each require an application and a granted construction permit and that each application should include the results of an engineering study demonstrating that no significant interference to other stations will result. Both the input signal and the service areas of FM translators should be included in the protected service.

*B.W. St. Clair
President
National Translator Association*

WNYC Radio, New York City, N.Y. (93.9 MHz and 820 KHz) is a committed AM and FM HD Radio broadcaster very much interested in furthering developments in HD Radio technology, yet after reviewing the studies available to us to date we must stand opposed to an across-the-board 10 percent FM HD power level increase.

WNYC Radio's AM and FM stations were both early adopters of HD Radio and, on our FM station, of multi-cast broadcasting. WNYC(FM) is currently broadcasting

three HD Radio channels including a 24/7 classical music service and a simulcast of our AM programming to serve listeners who cannot otherwise receive our AM signal when we switch to lower nighttime parameters.

We oppose the proposed power increase on the basis of the increased first adjacent interference to WNYC(FM)'s analog coverage and to the interference

After reviewing the studies available to us to date we must stand opposed to an across-the-board 10 percent FM HD power level increase.

— WNYC Radio

we will cause to our first adjacent neighbors. The [NPR] study specifically demonstrates for us that approx. 20 percent of WNYC(FM) analog listeners would experience this interference; a signal degradation that is wholly unacceptable to the service we expect to provide our listeners and members. ...

In summary, WNYC Radio believes that the FCC should reject an across-the-board approach to an FM HD Radio power increase and should instead seek a solution that permits improved digital coverage without sacrificing analog service.

*Stephen Shultz
Chief Technology Officer
James Stagnitto
Director of Engineering
WNYC Radio, New York*

Due to the relatively low number of FM stations operating with IBOC transmissions so far, the playing field has not yet been set where the full impact of potential interference has been or can even be experienced. Also, the proponents of the increase ... have not demonstrated that further receiver improvements would not yield more satisfactory results.

Certainly, it has been proven that drastic improvements have been attained in the reliability of reception for digital television from the first-generation DTV tuners to the present sixth-generation tuners.

Finally, the "band-aid" approach should be avoided. If iBiquity developed and presented the system using 1 percent power as a means to provide equivalent coverage, there should be a greater emphasis for improvement of FM receivers and not just the easy way out of increasing transmitter power.

*Craig L. Fox
President
WOLF(FM), Oswego, N.Y.*

Many of the [Association of Public Radio Engineers] members are chief engineers of public radio stations intimately involved with the significant financial, programmatic and personnel investments made in activating IBOC operations in their local communities. ...

By this filing, APRE supports the need for a managed increase of IBOC digital sideband power — carefully balancing the twin objectives of improving digital coverage of the HD Radio system and safeguarding adjacent channel analog FM stations from adverse interference.

The Association's analysis of the filings of iBiquity Digital/Joint Parties and those of National Public Radio (the results of the CPB-funded ... study) finds that both present a persuasive case for an HD Radio power increase, particularly to improve indoor coverage — a need our members have noted after extensive first-hand operating experience with IBOC. ...

The Association believes that a balanced regulatory approach is warranted: allowing a significant baseline digital power increase for all stations at a level chosen to minimize interference, while allowing stations to operate at power levels up to -10 dBc with an administratively simple mileage- or contour-based showing to demonstrate adjacent

See POWER, page 8 ►

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Photo: Jonathan Tichler/Metropolitan Opera



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—Matthew Galek, Broadcast Engineer for The Metropolitan Opera

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ACCESS

Cap-Ex

► Continued from page 1
ments and large RF projects, some experts believe.

Engineering directors tell Radio World they have been forced to delay some construction projects in the new year in light of economic conditions. In many cases, managers are preparing for a year of getting by with less.

"We have tightened the amount of capital tentatively approved for 2009 by approximately 30 percent," said Sterling Davis, vice president of engineering for Cox Broadcasting. "We are going forward with necessary projects and deferring the balance."

Cox's policy is to "defer what we can, but to also make sure we don't do something that we'll regret later," Davis said.

The Atlanta-based broadcaster, which owns 67 FM and 13 AM stations in a total of 18 markets, is delaying at least one major studio upgrade it had hoped to complete in 2009, he said.

'Hard look' at proposals

Dave Remund, vice president of engineering for Regent Communications, said, "We are taking a hard look at all proposals to be sure the benefit is worth the expense. We are being a bit more critical than we might be in a better economy."

Regent, which owns and operates 62 radio stations, evaluates each capital expenditure or cap-ex project with an eye on return on investment, Remund said.

"There are some projects that you just don't realize the potential return on until you see the numbers in black and white. If the return is substantial we may, in fact, expedite a project. We did expedite a couple of smaller projects last year."

Greater Media will continue to pursue a "conservative approach" to any capital spending this year, said Milford Smith, vice president of engineering for the

Necessary maintenance or other work essential to the proper, reliable and legal functioning of our plants is never deferred.

— Milford Smith

radio group, which owns and operates 23 radio stations.

However, Smith doesn't believe that caution during extraordinary times implies significant harm on the operations of the company and in fact it can contribute to the long-term health of the company.

"Any projects that are compliance, reliability or coverage improvement-related will still likely be funded," Smith said. "Necessary maintenance or other work essential to the proper, reliable and legal functioning of our plants is never deferred."

Clear Channel Communications had yet to complete its 2009 capital budgeting process by mid-December.

"However, Clear Channel remains committed to investing in projects that will grow or strengthen our business," said Steve Davis, senior vice president of engineering and capital management for Clear Channel Radio.

Small-market broadcasters are especially vulnerable to the current economic pressures, said Ed De La Hunt, president and chief executive officer of De La Hunt

fairly steady, but actually it is analog that is doing better. I think broadcasters are getting by with analog where they can."

Harris, which makes and sells transmission equipment and other broadcast gear for radio and TV, has found radio customers are taking more of a "modular approach" to purchasing equipment these days.

"They seem to be buying things in stages. They are spreading out purchases over several years to complete projects that can wait," Redmond said. "Customers are being very judicious with their spending right now."

Large RF projects are particularly susceptible to delays, with broadcasters looking for ways to save large chunks of cash during the economic downturn, some observers said. However, there are still cost benefits associated with moving forward during what might be seen as a buyer's market.

"Deals can be made right now due to the reduced numbers of projects being implemented and the need for manufacturers to keep a sufficient amount of work in their production line to avoid layoffs," said Tom King, president of Kintronic Labs Inc.

His company continues to work on radio projects that are being implemented as a result of moves dictated by termination of lease agreements and construction permits for power increases.

"Obviously, some of the major broadcast groups are in serious belt-tightening mode right now as they either seek to cut costs and downsize to maintain profit margins or just adjust to new ownership reorganization," King said.

Regular maintenance issues will continue to demand attention from broadcasters no matter what the economic outlook is, said Tom Silliman, president of Electronics Research Inc.

"We feel that there will continue to be capital projects in radio both for maintenance of existing facilities as well as new transmission plants," Silliman said. "These projects will go forward, but they may be somewhat reduced in scale in these difficult economic times."

However, major projects are much more likely to be pushed back a year or two, Silliman said.

"We expect to see many projects pushed from 2009 to 2010," he said. ●

Broadcasting, which owns eight stations in rural areas of Minnesota, including Brainerd and Thief River Falls.

"We are not in position to spend money on anything right now. Spending is up on so many other things when it comes to operating in the radio business, whether it is fees to BMI, ASCAP or spectrum fees," said De La Hunt.

Available bank credit

The broadcaster completed its most recent cap-ex project in 2008, putting a new FM on the air in Bemidji, Minn., a city of 10,000 in the northwestern part of the state.

"We certainly are not thinking about [installing] HD Radio right now; far from it. It's all about having the money you need for emergencies to stay on the air in our markets."

Equipment manufacturers and vendors contacted by Radio World said they expect to see a serious reduction in spending by broadcasters as investment in U.S. radio properties is affected by the reduction in bank credit availability.

"Radio stations are very conscious of getting value for their purchases right now," said Richard Redmond, director of strategic marketing for Harris Broadcast.

Specifically, he said HD Radio deployment in this country "will take a hit" in 2009.

"Our transmission business has been

Power

► Continued from page 6
channel station protection.

Where needed, higher power levels that would not meet the requisite protection criteria could be accommodated with asymmetrical digital sidebands, limiting the amount of radiation increase on the short-spaced adjacent sideband while allowing a higher power level on the other, fully-spaced sideband. ... In some cases, increasing the power of only one sideband may be sufficient to overcome building penetration losses and improve service to stationary indoor receivers without the significant capital and operational costs of operating two symmetrical high-power sidebands. ...

Protection of adjacent channel stations could also be accommodated by traditional means such as directional IBOC emission (limiting digital radiation toward the shortspaced station), or by deploying new and promising techniques such as single-frequency networks of dig-

ital-only boosters in localized areas needing additional RF reinforcement. ...

APRE has become aware that NPR, iBiquity, members of the Joint Parties and other industry stakeholders are working together to develop a more thoughtful approach to increasing power without causing undue interference to analog service. Association members stand ready to assist the additional test programs of the parties and to support the development of an industry consensus standard for a blanket digital power increase that minimizes interference to existing stations. ...

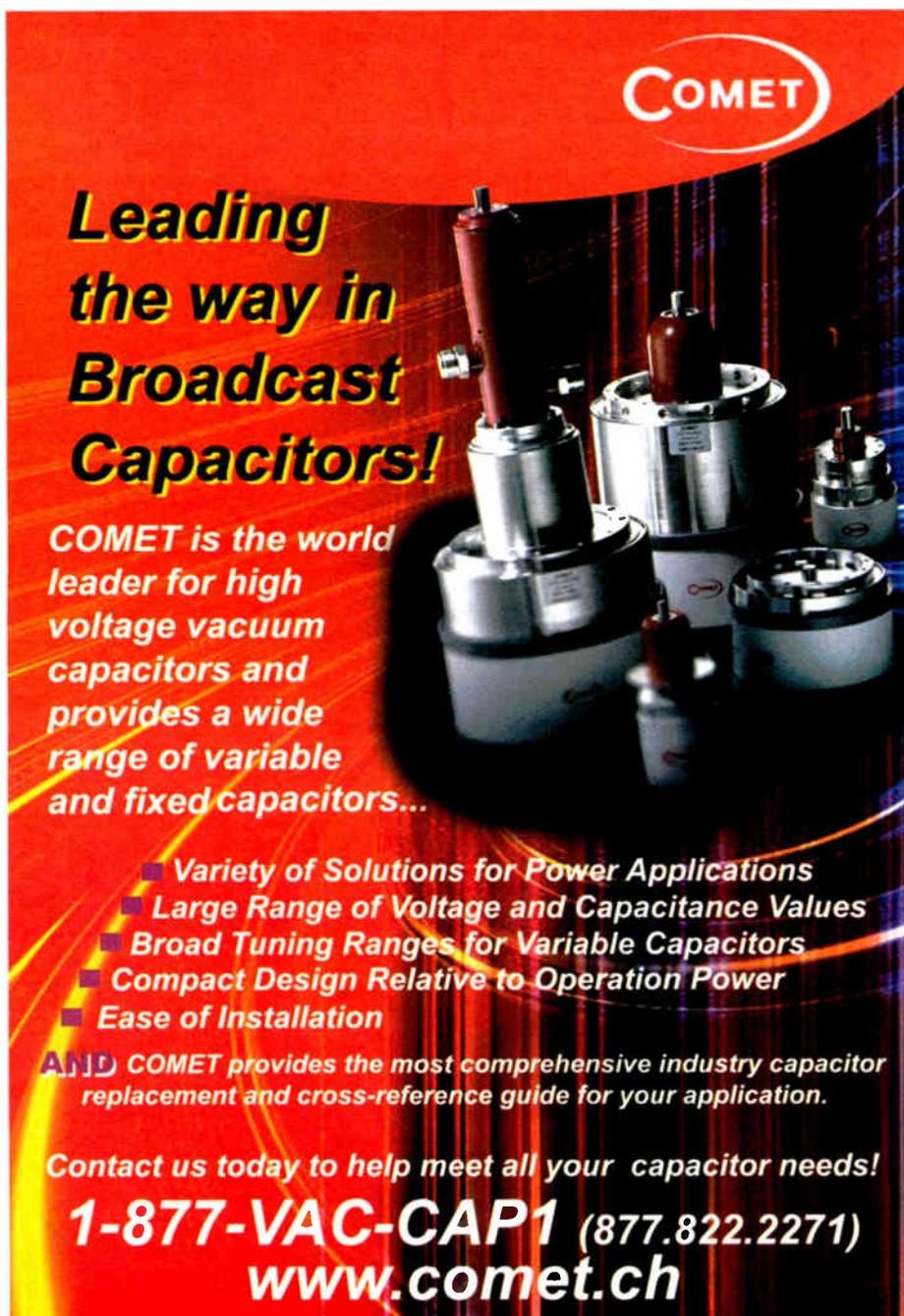
We encourage the FCC to await the outcome of these efforts rather than approving last summer's Joint Parties -10 dBc blanket power increase request based on encouraging, but limited field work.

Ralph Hogan
President

Daniel Mansergh
Vice President

Association of Public Radio
Engineers Inc.

Comment on this or any article to
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Workbench

Radio World, January 1, 2009

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Imaginative New Uses for an Old Plug

Also: Creative Ways to Make Your New Labeler Pay for Itself

by John Bisset

I had to laugh at one of the numerous suggestions that continue to arrive about the picture we published in the Nov. 5 column.

One reader suggests that maybe the device is a new "10 dB increase" mod to boost HD Radio power!

We explained in the Dec. 17 issue that it actually is a poor man's power failure detector. Interestingly, we learn that the rig also was used by radio amateurs and folks in the radio paging business. Plugged into an outlet, the relay would trigger an alarm panel when power failed.

Craig Baker of WKVQ(AM)/WYTH (AM) in Georgia writes that he's seen so many of these devices over the years, they ought to have a part number! He inherited two when he purchased a station. Here's a twist: Craig

saw one in use plugged into a hardware store light timer, being used to control the power cutback of an AM station from 1 kW to 250 W.

Alan Shea of the HCJB Technology Center added that the relay is energized until the power fails — or someone

pulls out the plug, which I could really relate to. Years ago I got a trouble call from an automated station that was losing its satellite feed every evening about 7 p.m. The feed would reappear mysteriously after about 10 minutes. You guessed it: The



Fig. 1 Put a professional labeler to work around your station.

That's as bad as coiling a two-foot length of bus wire around a core of solder.

cleaning folks were pulling the plug to the satellite receiver to plug in the vacuum.

Paul Black of PointBlank Services Co. of Pleasant Hill, Calif., says that in addition to a power loss indicator, this relay could be used as a generator "run" status for a remote control. Plugged into the AC

power feeding the tower lights, it could signal a tower light power failure.

WA3VJB, Paul Courson, initially thought the picture showed a variation on an engineering gag he saw handed to a rookie technician years ago, an AC line cord terminated in an XLR. The tech was told to never lose the cable — in case there was a power failure!

That's as bad as coiling a two-foot length of bus wire around a core of solder.

Craig Baker can be reached at starstation@bellsouth.net. Alan Shea is at ashea@hcjbtech.org. Paul Black is paulblack@comcast.net. Paul Courson is wa3vjb@gmail.com.

Did you get a labeler for the holidays? If not, treat yourself to the after-holiday sales and pick one up. You'll find plenty of uses, as seen in Fig. 1. If you're looking for a quick way to get organized, these personal labeling machines work well on parts containers (Fig. 2) and to identify power plugs in a rack (Fig. 3).

You probably have found other uses.



Fig. 2: Labels on containers helps you spot parts quickly.

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Signal strength and multipath readouts simplify antenna alignment and help validate all measurements. Rear-panel appointments include balanced audio out, composite in/out, and both antenna and high-level RF inputs. Alarm tallies are provided for overmod, audio loss, carrier loss and excessive multipath.

"Other guys imitate us...
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— Billy Page THE IN CROWD

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Signal strength and multipath readouts



Fig. 3: Don't pull the wrong plug. Label it!

Drop me a line; if you have one, attach a high-resolution photo.

★★★

Pursuing an earlier topic, broadcast consultant Alan Kirschner, principal of Kirschner Broadcast Services, writes that there are quite a few brands of "egg crate" sound proofing foam that are listed as not being flammable. You can find these by Googling "foam sound proofing."

In fact, he adds, many cities require the use of flame-retardant materials on walls. Beware of using carpet; most is not flame-retardant and will not pass the vertical flammability tests.

Not only could carpet violate local building codes, he reminds us, but the installation of anything flammable on the walls could void insurance coverage should there ever be a fire. Thanks, Al, for sharing some things you've encountered in the last 15 years or so.

★★★

Bob Culver of the PE firm Lohnes and Culver adds to Al's comments, writing that acoustical foam intended for wide-area application on walls and overhead must be "fire proof." It is not so much that the material will not burn, but it does not propagate fire quickly like normal polyurethane foam.

Bob's recommendation is Sonex, www.sonex-online.com. Not cheap, but it won't burn.

John Bisset has worked as a chief engineer and contract engineer for 40 years. He recently joined Nautel as regional sales manager for Europe and Southern Africa. Reach him at johnbisset@verizon.net.

Workbench
by John Bisset

Every Issue
Radio World

MARKET PLACE

Switchcraft Splits the Audio

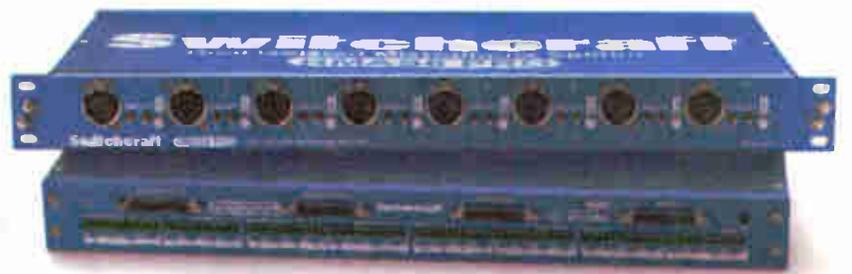
Interconnector manufacturer Switchcraft has two new microphone/audio splitters, RMAS8 and RMAS8Pro.

The basics are eight inputs, 24 outputs in three different eight-channel groups. Both units feature a 40 dB pad per input and dual ground lifts per output. Each output also has dual transformers.

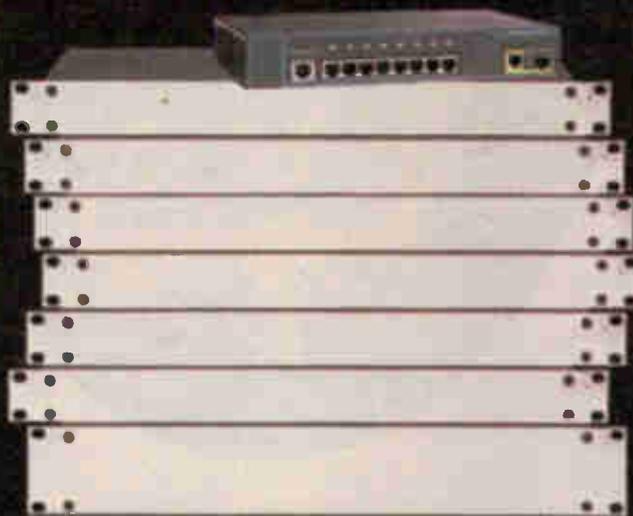
Front-panel input connections are XLR while back-panel connections, input and three outputs, are 25-pin D-sub (TASCAM pin-out).

The RMAS8Pro also offers MU Metal magnetic shielding, Jensen transformers and Euroblock additional mirrored inputs and outputs.

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Are We Tuning for Maximum Smoke?

We Risk Instability When We Optimize Any Process for a Single Variable, and The Radio Business Is No Exception

A mentor of mine, Neil Muncy, frequently used the phrase, "Tune for maximum smoke," referring to the adjustment of any parameter with a bell-curve characteristic.

In other words, optimal results occur when just the right amount is applied — too much or too little both cause a drop in performance. (Back then, setting the bias on an analog tape recorder was a perfect example of this.)

As any engineer knows, the tuning of a resonant circuit follows a similar process, with maximum output occurring when the circuit is in resonance at a specific frequency — reduced output occurring when the circuit operates either above or below that frequency.

The steepness of the curve, or the "touchiness" (sensitivity) of the adjustment, is called the *Q* of the circuit, with a "high-*Q*" circuit exhibiting a very sharp bell-curve characteristic, and a "low-*Q*" circuit being broad and forgiving.

Thus the higher the *Q*, the greater difference a small change in a single variable makes. Such highly resonant circuits may also be prone to uncontrolled resonance (destructive feedback or oscillation), and thus overload or failure.

Keep these fundamental engineering tenets in mind as we explore some other, non-electronic but similar situations.

Dialing for dollars

Back in the day, most food was produced on "family farms," which typically included a variety of crops and livestock. A well-run farm was a highly symbiotic affair, with some of the crops used for feeding the livestock, and the livestock's manure in turn used to fertilize the crops.

Today, however, this process has been broken into component parts, and each has been optimized for maximum cost-effectiveness. Crops are each produced in isolation on mega-industrial farms, and livestock are managed in "feed lots." The outputs of each are massive, and result in the relatively low costs for food that we

currently enjoy (not to mention profitability for the operations' owners).

But each has problems: The feed lots have extremely challenging waste-management problems (to which anyone with a functioning olfactory system who has driven within a few miles of one can attest — even in the dead of winter). Meanwhile, the mega-farms use large amounts of chemical fertilizers, the runoff from which can produce serious side effects to the local water supply.

So tweaking these processes purely for economic performance has created potential sustainability and environmental issues, making the whole set of enterprises highly susceptible to a single point of failure. These "high-*Q*" systems have little agility to adapt to contextual changes around them.

The conditional shifts provoking such collapses are also not unheard of. Consider another, lesser-known example, off the Namibian coast in the South Atlantic, west of southern Africa. Years of overfishing in the area have produced an excess of plankton, which would normally have been consumed by fish. The large amounts of unconsumed plankton eventually die and accumulate on the ocean floor, where natural decomposition produces large amounts of hydrogen sulfide (H_2S) gas, which forms bubbles in the water.

When storms come to the area, the localized reduction in atmospheric (barometric) pressure also reduces the under-

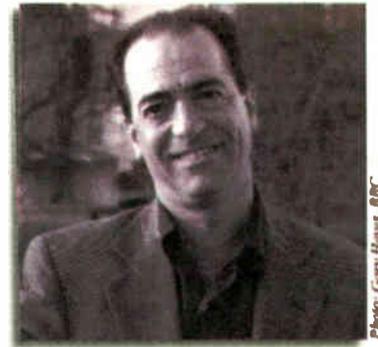


water pressure, causing the

H_2S bubbles to aggregate and float toward the surface, whereupon lightning strikes on the ocean surface explode the bubbles. This in turn further reduces underwater pressure, and does so in a precipitous fashion. These sudden drops in pressure at the ocean floor cause volcanic eruptions to occur there (geological conditions make the area particularly prone to such activity).

The eruptions further reduce pressure over an even wider area, sending shock waves outward, causing a chain reaction of similar eruptions across hundreds of square miles of the ocean floor — areas so large they are clearly visible to satel-

The Big Picture



by Skip Pizzi

lites orbiting overhead.

The large amounts of H_2S and methane gas released cause massive fish kills (not to mention the noxious odor for humans on nearby shores), further reducing fish populations in the area and worsening the root cause of the problem.

Meanwhile, the gasses released into the atmosphere increase the greenhouse effect, potentially causing more storms in the area from atmospheric heating, further exacerbating the problem by triggering more pressure reductions, explosions and eruptions.

This shows how a high-*Q* system can be devastated by a single, peripheral event. These fragile processes are rendered unstable by imbalances in the system, thereby reducing their ability to adapt even small subsequent environmental changes. The high *Q* can also act as an accelerant, making the rate of such change faster than anyone could have predicted from previous models.

If this sounds familiar, it should. The same process can explain what has befallen the world's economic system in the last few months, as a result of the development of high-*Q* instruments and behaviors in the "financial engineering" sector.

Bringing it home

What does this have to do with radio, you ask? Well, if you haven't made the connection yet, this industry has built its own highly resonant circuit, tuned for maximum dollar-generation from a single process, as well.

Radio groups have grown very large, and are just that: *radio* (only) groups, with little diversification and therefore not much ability to accommodate rapid change in their environment.

The addition of large debt loads has further narrowed the *Q* in this equation, acting as a global-warming like accelerant. Any agility to compensate for change that might exist is limited by the simultaneous occurrence of tightened credit and reduced advertising revenues.

The fact that the radio industry is still controlled by a multiplicity of owners (albeit far fewer than in the past) is one saving grace, since it could be argued that some groups will have better luck than others in returning their systems to stability. Any randomization ("noise") in the circuit is a good thing here. In this respect, perhaps satellite radio is the poster child for the current crisis, having built itself the highest-*Q* tank circuit in the radio business sector.

Nevertheless, terrestrial radio remains in its own highly resonant state, and is at some risk of descent into oscillation. Recalling Muncy's rule, let's hope that the industry's current tuning process doesn't send its own fortunes up in smoke.

Skip Pizzi is contributing editor of *Radio World*.

NHPR Inaugurates Digital Facility

A broadcast of "The Exchange" inaugurated New Hampshire Public Radio's new broadcast center at 2 Pillsbury Street in Concord in December.

The station said it was within \$530,000 of its \$6.5 million capital campaign goal. It must raise the target amount by April 1 to qualify for a \$250,000 Kresge Foundation challenge grant.

The production and broadcast center will be home for up to 75 reporters, producers, hosts and administrative staff.

"It will be a venue where live call-in programs, in-depth interviews, and sound-rich feature stories can be easily produced," the organization stated.

"A state-of-the-art technological operations center will facilitate the distribution of programs to and beyond the network of transmitters and satellite uplinks. It will also allow NHPR to create a 'sound bank' of programs for on-demand and online distribution. Fully digital studios will improve the sound quality of NHPR's broadcasts



and create more parity between local and national broadcasts."

Construction was performed by North Branch Construction. The facility was designed by C.S. Carley Associates, an architecture firm, in association with Russ Berger Construction Group, specialists in architectural acoustics. Construction broke ground in June.

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World Radio History

FIRST PERSON

The Story of Bootleg Radio 1610

My Adventure With AM Radio and Encounter With the FCC 48 Years Ago

by Robert R. Kegerreis

My interest in radio began in 1948 when my brother hooked up a long piece of copper wire to the antenna terminal of our family's 6-S-229 Zenith radio. He began turning the dial on the shortwave band. I was five but I remember how suddenly the speaker began making strange sounds of squeals and whistles, and then we heard the chimes of Big Ben from London's BBC and English transmissions from Radio Moscow. Shortwave station HCJB came blasting through from Quito, Ecuador, and I tried to envision their station setting high atop the Andes Mountains.

When I entered junior high school in 1956, I purchased a NC-109 National shortwave radio. I would sit with headphones over my ears for hours, listening to ham operators talking back and forth and relaying messages for the Armed Forces Radio Network. I would set my wristwatch to the change in tone broadcast from the National Bureau of Standards WWV. I began collecting QSL cards by the hundreds.

Four years later I was in senior high school taking my required second semester of physics. Mr. Stanley, my physics teacher, told us we could earn extra credit if we completed a physics project. We were studying elementary electronics, magnetism and radio. That is when I came up with the idea of building an AM radio transmitter.

Knightstown, Ind., with a population of a couple thousand in 1960, did not have a station, and in my opinion, it needed one. The "cool" station at that time was WIBC, the

My plan was to run a lead wire from the phone oscillator out of the bedroom window up to a long wire attached to the very top of the church steeple.

50,000 watt giant — 1070 in Indianapolis. Knightstown was about 40 miles from Indianapolis and the radio station's signal would dominate every other one on the dial.

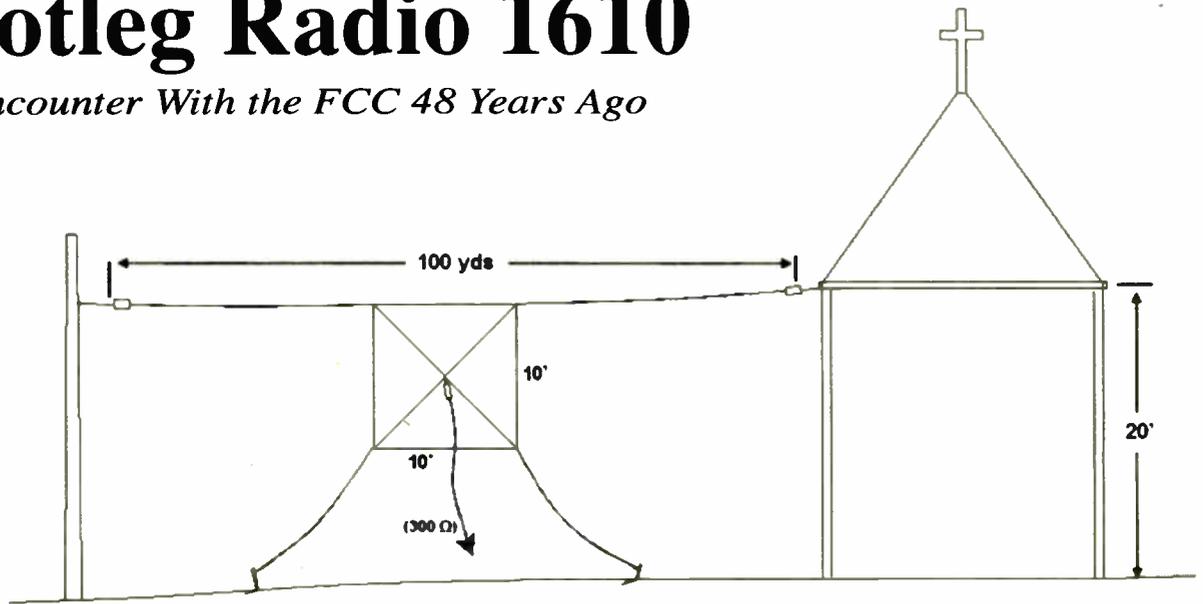
Disc jockey Dick Summer would play the newest rock-and-roll hits from his WIBC radio booth high atop Merrill's Hi Decker drive-in restaurant on 38th Street. His show would include what he called the "make it or break it game." He would spin new 45 rpm releases and ask patrons parked in their cars at Merrill's to vote on whether to allow the record to continue to be played on future shows or if he should break it. Patrons would sound their car horns when asked for their vote. Horns could clearly be heard over the air. If they wanted the record broken, he would break it over his microphone.

To my high school buddies and me, disc jockeys such as Dick Summer and rock-and-roll music of the '60s were the ultimate form of radio entertainment. Why not put a radio station on the air in Knightstown where we could play the entire top 20 hits for everyone in our local high school?

You-build-it

With a mail order kit from Allied Radio that had been designed for electronic experiments, I began building a low-power radio transmitter. Technically the experiment was titled "how to build a phone oscillator." The kit contained one vacuum tube, a small electrical transformer, several resistors and capacitors, and a tuning coil. My job was to follow the schematic, place the components in the right place and solder them together. Then according to the instructions, by attaching a ground wire, antenna and microphone, I would be "on the air."

My dad was the pastor of the local Methodist Church;



A line sketch of the 'bootleg radio' setup described by the author

we lived in the parsonage and my bedroom faced the church. It had a very high steeple and would provide a fantastic opportunity to gain height for my radio station antenna.

I knew from my physics course that placing an antenna high up would provide better range for the signal. I also knew that a long length of wire attached to my shortwave radio brought in more signals than a short wire. Therefore it made good sense to use a long wire for my transmitter antenna. My plan was to run a lead wire from the phone oscillator out of the bedroom window up to a long wire attached to the very top of the church steeple.

I called my buddies John and Barry and asked them to come over and help me put up the antenna. As we were talking about how we would program music and each become disc jockeys, Barry asked a question. "Don't we need a license to run a radio station?"

"No, because we are going to use only a phone oscillator, not a radio transmitter, and it doesn't generate much power. They are legal. Our antenna height will make up for the power loss and that is why we need to get it as high as possible. If we hook the antenna to the top of the steeple we'll probably be able to reach the outskirts of town, but not much further." I thought we might be able to get about a one-mile radius.

John asked, "Uh guys, how do you plan to attach the antenna to the top of the steeple?"

"We'll have to climb up inside of the steeple and drill a little hole through the wall. Then we'll feed the antenna wire out through the hole and isolate it from the wall using a rubber tube. Next we'll attach the antenna wire to an insulator on the inside. That should work fine."

Unsure if we could get inside the steeple, the three of us proceeded into the church and climbed the stairs to the second floor. The ceilings of the church were high. Straight up about 16 feet directly over the top of the staircase was a small door to the steeple. There was no way we could get inside without erecting a very high ladder or scaffolding. We had to rethink our antenna installation.

Warm glow

John came up with the next idea. "Why don't we tie one end of the antenna to the top of the window ledge of this window? We're pretty high up and we can run the wire from here over to the electric pole behind the police station. That's about a hundred yards. Then we can connect your lead wire to the center of the antenna wire. Won't that work just about as well?"

"OK, that's a good idea," I said. "In fact, what I can do is attach another section to the top wire and make us a directional antenna. We'll make a box-type antenna like they use for shortwave radio stations. That may get us more distance."

By early afternoon the new antenna was in place. It turned out different than originally planned and now included a bare copper wire that ran from an insulator nailed to a telephone pole directly behind the city police department all the way to the window on the second floor of the church, about 100 yards.

I formed a 10 foot rectangular box out of household electrical wire and attached it at the center of the long wire. Next I took additional copper wire and made an "X" within the box. Then I took a 300 ohm lead wire and attached it to the center of the "X." The antenna was now in place and appeared similar to one I had seen in a picture of a QSL card that I had received from a foreign shortwave station. With the length and design, that should do the trick.

Next we attached the lead wire from the antenna to the phone oscillator. The microphone was attached where the schematic indicated and the unit was plugged into the wall socket. The filaments of the little one-tube phone oscillator began to glow. We were ready to give it a test.

I turned my bedroom AM radio and dialed it to the top of the band. Then very carefully I began turning the variable capacitor of the phone oscillator, turning it ever so slowly and listening to the radio for a signal.

Then, just like magic, it was there. All of the noise at the top of the band disappeared and we could hear a small humming. The excitement was intense.

"I think it works! Let's try the microphone."

John picked up the microphone, threw the mic switch and began talking: "Hello, can you hear me? Testing, one, two, three."

It was working. We were on the air, though the little unit was humming, and every time John would move the microphone closer to the oscillator the humming would become louder.

"I think I know how we can fix that humming noise," I said. "I have a capacitor that I took out of a florescent lamp and if I place it between the antenna output and the ground, it may get rid of that noise. I think this is what they use to keep florescent lamps from humming on radios. Let's try it."

I unplugged the phone oscillator and the AM radio began again to produce static noise. John and Barry watched intensely. I wired in the capacitor and plugged the unit back into the wall socket. As the little phone oscillator tube began to glow the AM radio immediately went quiet — and this time it was very quiet. The signal seemed to be far more powerful. No humming.

I picked up the microphone. "This is K-town Radio, 1610 on your AM dial!" The bedroom radio began to squeal from microphone feedback.

"Guys, I think we've got ourselves a radio station!"

The summer of 1959 was lots of fun. Every Thursday afternoon and Saturday morning, K-town Radio: WKPB—1610K was on the air. Music of the late '50s was played; all of the latest high school gossip and town news was broadcast to the community.

It wasn't long before the local Knightstown newspaper carried a piece about the station. Many high school students would listen when the station was operating. That little phone oscillator and giant antenna became a genuine bootleg radio station. The only thing it didn't do was sell commercials.

In August, I received my driver's license and decided to see how far out of town I could drive before the radio

See BOOTLEG, page 16 ►

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World Radio History

Systems Green: Conserving in New Facilities

How to Get Hip to the Language of Energy and Environmental Design

by Tom Vernon

Variable energy costs and an interest in "going green" are making many broadcasters think about the environment when planning renovations or construction of new facilities.

Yet most managers and engineers are unfamiliar with the terminology, technologies and standards involved in green building. Radio World asked two industry experts to comment on building conservation in new broadcast facilities.

As broadcasters approach a green building project or renovation, "Leadership in Energy and Environmental Design" or LEED certification may become an area of interest.

Tom Hicks, vice president for international programs at the U.S. Green Building Council, which developed the LEED standards, said, "Initially LEED was intended for new commercial construction, but now standards have now been developed for existing structures, residences and schools."

Getting LEED certification has several advantages. LEED-certified buildings use key resources more efficiently than conventional buildings. They are also healthier work environments, as demonstrated by higher employee productivity and less absenteeism. Among other advantages of LEED certification are reduced environmental impact on the construction site, improved air and water quality, and reduced solid waste.

LEED certification comprises requirements and credits. All builders must meet requirements, credits are "bonus points" in six categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental qual-



Green buildings aren't all high tech. Plants act as the lungs of a building and remove dangerous toxins, as well as replenishing oxygen.

ity and innovation and design process.

In LEED v2.2 for new construction, there are 69 possible points, allowing for four levels of certification: certified, 26–32 points; silver, 33–38 points; gold, 39–51 points and platinum, 52–69 points.

LEED certification may be obtained by submitting an electronic application form that documents compliance with requirements of the rating system, along with registration and certification fees. LEED project submissions are reviewed by the USGBC with the support of independently contracted reviewers.

Stay current

Hicks said continuing education is key to understanding the terminology associated with green buildings.

There are several options, depending on interest and area of focus. Workshops and webinars are offered through the USGBC. More advanced educational opportunities are also available. "Folks who are serious about working with green building programs may wish to take the LEED Accredited Professional exam, which demonstrates a baseline knowledge of green building technology." Individuals who pass the exam may use the LEED Accredited Professional (AP) acronym after their name.

"A good reference book is also essential to understanding the terminology. Which guide you purchase depends on your area of focus," said Hicks. For broadcasters, he recommends "LEED New Construction v2.2 Reference Guide" and "LEED Core and Shell v2.0 Reference Guide," both available for purchase through the USGBC Web site.

Which technologies are applied and how depends on the location, type and size of building. For example, solar, geothermal and wind power may reduce a building's energy footprint, but not all are applicable in most locations. Hicks adds that equipment installed during construction frequently is oversized. Often this is a function of unclear objectives and designers protecting themselves. This drives up capital costs and often results in equipment not running efficiently.

When planning sites, the emphasis should be on doing less harm. Prefabricated buildings, for example, generate less waste and have a lower impact on the local environment. Permeable paving reduces runoff into streams by allowing water to return to the water table through a filtration system.

Finally, Hicks emphasizes that green construction takes an integrated approach and should be a team effort.

"The team should include architects, developers, contractors and the ultimate tenants. It is important to get different points of view early on. It results in a more environmentally responsible building."

Green buildings aren't all about under-



standing new technology. Getting back to nature with indoor plants can also yield enormous benefits.

Natural filters

M.J. Gilhooley, program coordinator for Green Plants for Green Buildings, said, "Plants act as the lungs of an interior space. They pull in toxins through transpiration and give off oxygen. Different plants absorb different types of building toxins." The course "Authentically Green Interiors: Maximizing Nature's Design" may be taken for continuing ed credits from the USGBC and American Institute of Architects.

Many toxins can be detected as much as a year after a building is completed. The FDA has identified formaldehyde and benzene as two of the most damaging of these indoor toxins. She said bamboo palm and peace lily are effective at reducing the levels of these toxins.

Gilhooley notes that research demonstrates a 23 percent reduction in health complaints in buildings with plants, along with a 14 percent reduction in absenteeism.

The benefits of plants extend beyond improved physical health of a building's occupants. Other surveys demonstrate reduced stress levels and enhanced creative problem solving and productivity when green plants are present.

Radio World articles in the "Green Radio" series are posted at radioworld.com under the Columns tab.

MARKET PLACE

Dashboard To Drive Dalet Suites

Dashboard is a new control module designed to integrate and control/monitor Dalet Enterprise Edition, Dalet News Suite, Dalet Media Library and Dalet Radio Suite.

Dashboard aims to give system managers, business-side managers and IT managers broadcast industry-oriented tools to use.

Features include simplified logs and data reporting, IT metrics, system health reports, performance tools, selective live system analysis and views.

"The Dalet Dashboard offers that added layer of management and system-wide control that broadcasters are looking for in mission-critical, 7 x 24 environments. Broadcasters and content producers will have more confidence that their productions are operating at maximum efficiency."

For more information, contact Dalet at (212) 269-6700 or visit www.dalet.com.

Top 10 Technologies for Green Building

Green roofs, both reflective and vegetative, help reduce the urban "heat island" effect by minimizing a building's absorption of solar radiation.

Gray water systems recycle water from sinks and water fountains to be used in toilets and other non-drinking applications. Captured rainwater may also be used.

Geothermal heat pumps transfer heat from the ground to buildings in the winter and reverse direction to provide cooling in the summer. They may be built anywhere in the United States.

Tubular skylights are less costly than conventional skylights, distribute light evenly, are energy efficient and don't cause ultraviolet damage to carpets and furniture.

Eco Machines treat wastewater in natural processes that combine microorganisms, plants, snails and fish to clean water, which can then be used for irrigation.

Daylighting uses exterior light to illuminate a building's interior, reducing electricity demand during the day. Taller floors and light shelves permit natural light to penetrate further into the building. Daylight sensors turn off artificial lighting when daylight is sufficient.

Right-sized HVAC guidelines enable more accurate estimates of heating and cooling loads. A right-sized system will operate for long periods of time, rather than cycling on and off, resulting in longer equipment life and better control of the indoor environment.

Wireless controls and sensors for heat, lighting and security require less installation time than their wired counterparts and add flexibility. To control multiple pieces of equipment or temperature from multiple locations, just wall-mount additional wireless thermostats or controls.

High-performance windows have triple-pane glass and double-skin windows that reduce heating and cooling loads as well as draftiness and moisture condensation. On some double-skin windows, the inner windows can be opened to increase ventilation.

Concentrator photovoltaic (CPV) technology achieves greater efficiency than flat panel photovoltaics by using mirrors or lenses to concentrate solar energy onto smaller areas of PV material. Prototypes deliver twice the output of conventional solar panels at half the cost. CPVs need trackers to maintain optimum orientation towards the sun.



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STAC
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Available in six (STAC 6) and twelve (STAC 12) line versions, STAC lets you connect up to four control surfaces using standard CAT5 cable — no custom cabling required. For on-screen control, just log onto the internet using a standard web browser, go to your STAC IP address, and you are there! You can even control STAC IP from multiple networked computers. STAC's 'Busy-All' function makes starting contests a breeze. There's even an Auto-Attendant that answers, plays your message and puts callers on hold. And STAC now features 'Line Clustering' to allow sharing of multiple phone lines between up to 12 STAC Mainframes. Whether replacing an antiquated legacy key telephone system or looking to add functionality to your studio phones, STAC makes configuring your studio lines fast and simple. There's no better recipe for successful call-ins than STAC!



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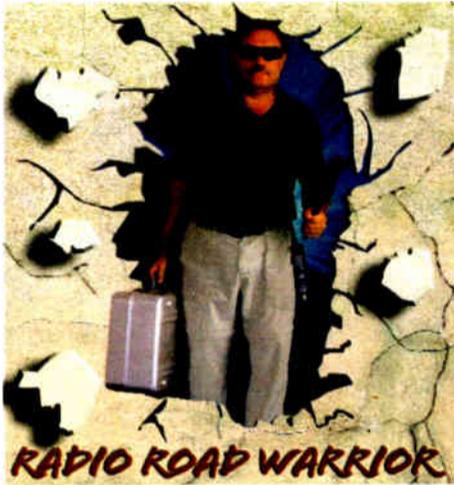


Studio Sessions

Radio World

Resource for Radio On-Air, Production and Recording

January 1, 2009



by Paul Kaminski

In the picture of NASCAR's most popular driver Dale Earnhardt Jr., taken at Pocono Raceway in August, you find him besieged by microphones, talking with a gaggle of reporters from print and broadcast outlets. In that situation, radio reporters have but one chance to get the sound they need: radio news gathering in its simplest and most intense form. Welcome to my world.

Microphones used for radio news work are necessarily different than those used by my fellow contributor Ty Ford to work his magic on voice-overs in a studio setting.

In more than 30 years in the field, I've seen just about every type of microphone used to record voice tracks, actualities and natural sound; from the onboard electrets built into cassette machines (which usually happens when a mic

Mics Make the News Stand Out

Wherein the Warrior Ponders a Number of Microphone Thoughts; and an Important Request for Reader Input

and/or cable is forgotten); to an Electro-Voice RE20 brought by a star-struck country music DJ from Scranton, Pa., who shall remain nameless; to a NASCAR Sprint Cup event at Pocono.

In most cases, using a separate microphone improves the sonic quality of the recording. Some of the new miniature digital handheld recorders have better-than-average microphones built in — the Olympus LS-10 comes immediately to mind — which makes for a nice backup to a separate microphone if you're so inclined.

Microphonic ramblings

Microphones for news work usually are used handheld (for reporter voice work, interviews and miking speakers in case a mult box is not available or full), or on a portable stand.

If you use a microphone that's prone to handling noise, a portable stand will eliminate that particular barrier to good sound. I have a folding stand that I've used since 1980, the AKG LM 231-1.

Condenser microphones for news work



Dale Earnhardt Jr. faces a sea of microphones (and handheld recorders) at the Pocono Raceway.

and steady the microphone so potential handling noise is reduced or eliminated.

Handling noise even prompted some action by one of the smartest guys in the audio industry.

Bob Heil of Heil Sound was one of the people managers of bands like The Who and The Grateful Dead called, back in the day, when concert sound moved into the modern era. Bob now makes microphones for radio applications (used by Tom Joyner and Art Bell among others), and for us in the field, handheld microphones. He's an amateur radio operator (K9EID) so you might get your question answered next time you are DXing.

His association with Joe Walsh was the genesis for the PR 20 vocal microphone. The PR 22 is the next generation of that vocal microphone, with the same flat 50 Hz–18 kHz frequency response and drastically reduced handling noise.

Bob says the PR 20 had some handling noise because of the extended frequency response.

"It's not a problem when [the microphone is] used on a stand, as we do for so many artists and in studios." Bob studied the handling noise problem and after 18 months, hit upon a fix. He calls it an "Iso-Band," which consists of a suspension mount (for the mic element) made of silicone and Sorbothane rubber.

"It isolates the 60 Hz to 100 Hz frequencies (generated by movement of the mic) from reaching the element." When in a scrum as illustrated in the picture, that isolation can make the difference between just getting the sound, and getting better quality sound.



Small but always useful: Don't leave

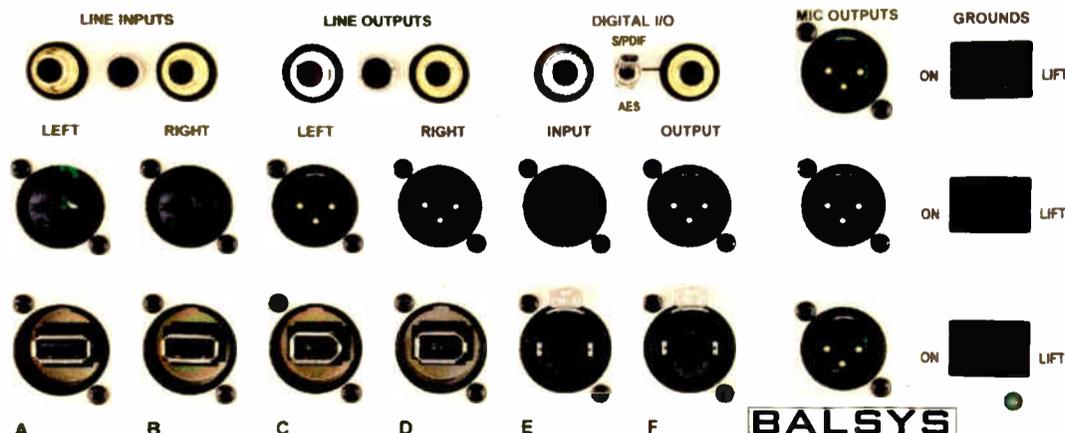
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Why is this important? When reporters fed most of their submissions by POTS dial-up phone lines, the low frequencies would naturally roll off. Now, with FTP and e-mailed file distribution and POTS/ISDN/IP codecs, extended frequency response is the norm; too much handling noise could pose a distraction for listeners.

Preparing this column, I put aside the microphones I use normally — Audio-Technica AT897 shotgun, Shure SM63, Shure SM77 — and got to play with Heil's PR 22, Handi Mic Pro Plus and a prototype of the yet-to-be-released PR 60.

The Handi Mic Pro Plus is a go-anywhere cardioid microphone. Those assembling a road kit may look at this as a backup mic that takes up little to no space (4.5 inches in length; seven ounces in weight), and it has a frequency response of 80 Hz–15 kHz. The PR 60 is a work in progress; Bob says the unit was developed in response to a request from a TV station in Chicago.

Another mic that comes to mind is the Sennheiser MD46, reviewed here back in 2001. Steve Richards from Performance Racing Network swears by the MD46, whether he's recording sound in a group setting, or cutting a voice track for PRN's

"Garage Pass" program.

One can see a variety of microphones — from Electro-Voice's "Buchanan Hammer," the 635A, to Shure's SM58 and other units that have solved problems for their users on the road. I will explore the topic of microphones for newsgathering further in a future column. Your input as to suitable angles to explore is appreciated.

Hang weight

When microphone cords are being fabricated or considered for audio recorders with 3.5 mm (1/8-inch) TRS connectors, the concept of hang weight needs to be addressed.

If a mic cord is constructed with a standard microphone cable that one might use for XLR connections, the weight of the cord (hang weight) will, over time, act like a lever on the end of

the plug. That has the effect of opening the microphone jack inside the recorder to the point that proper contact with the 3.5 mm TRS plug cannot be maintained. The longer the cord and heavier the wire, the more likely and sooner this will happen.

I learned about this the hard way with a Marantz PMD201 cassette recorder a number of years back.

The way to combat this is to construct mic cords for the 3.5 mm TRS jacks with light and strong microphone cable, which I began to do out of economy's sake. If constructing such cords, do the user a favor: For the XLR connector do not use connectors that have set screws to locate the insert inside the shell; those set screws come loose over time and they do so at most inconvenient times. Most reporters don't carry a "greenie" to tight-

en up those little screws.

Next time I will discuss power options for road warriors — alkaline, lithium or rechargeable NiMH batteries. If there's a radio newsgathering operational or equipment topic you'd like to have us look at in a future column, you can send those suggestions by e-mail to me or to radioworld@nbmedia.com.

Just a reminder: If I mention the brand name of an item used by another news organization in these columns, that mention is not, nor should it be considered as, an endorsement by the news organization.

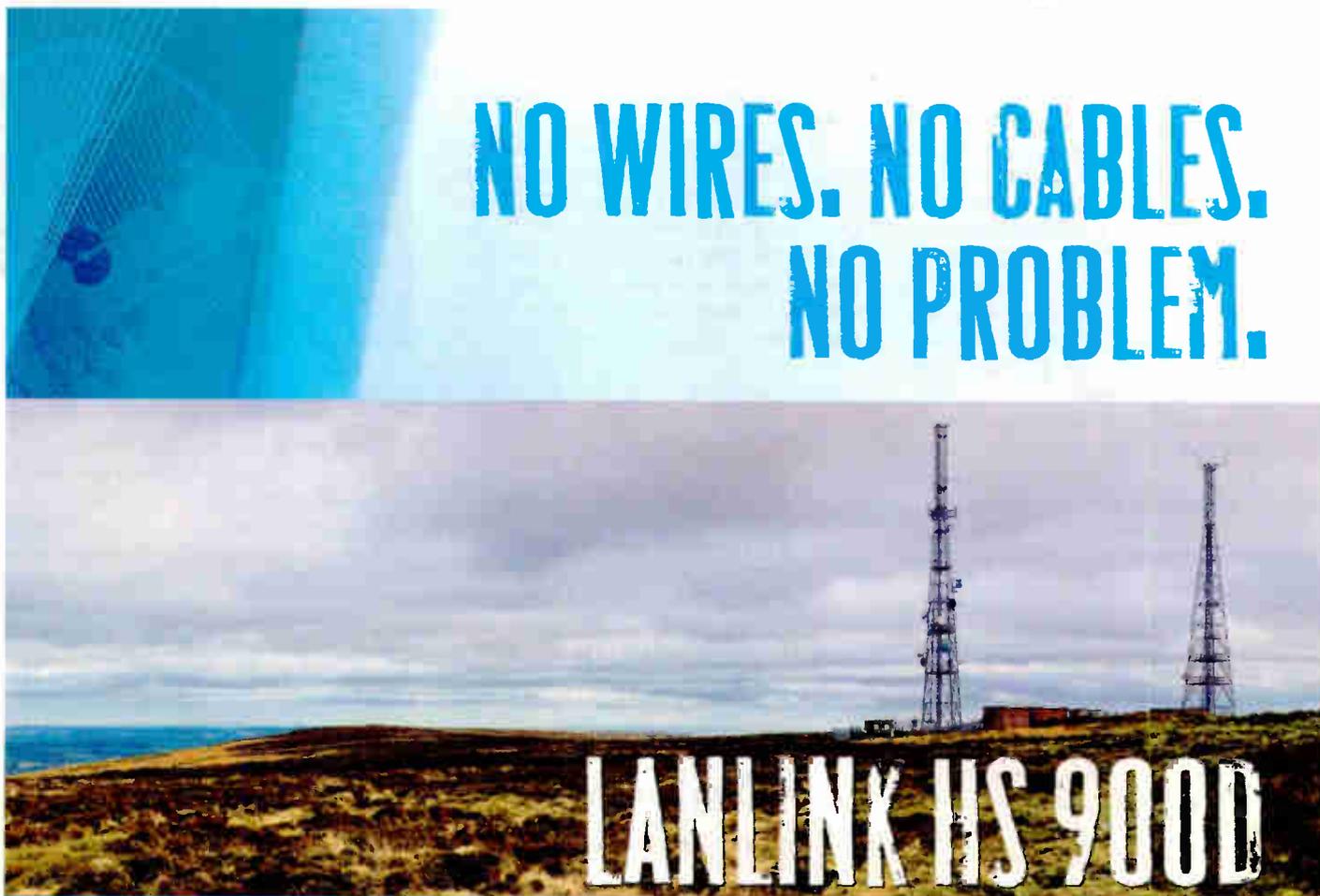
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Funkhaus Gem Sparkles in the Alps

Axia, DAVID Are Among Key Parts of A Large Networked System in Italy

by **Alberto La Valle**

The Alto Adige/South Tyrol region of northern Italy now boasts one of the most advanced radio facilities in Europe.

The new Funkhaus studios occupy the top two floors of a modern building overlooking the river Isarco in Bolzano. Transmissions originating from the complex reach 80 percent of listeners in the region.

Funkhaus hosts two of the main regional broadcasters, Südtirol and Radio Tirol, plus the RMI news agency, which provides German-language news to all radio stations operating in the region.

About three years ago, following the acquisition of two radio stations, it became necessary to gather RMI, Südtirol and Radio Tirol into a single location that was modern, functional and efficient.

The choice fell on a long-time acquaintance, Feel Communications in Padova, Italy. I am a product specialist for the company.

Having found the right building, Feel contributed to the planning phase, working with Funkhaus and Bolzano-based architects Planwerkstadt.

"The most critical aspect in achieving a very good costs-to-efficiency ratio," said Funkhaus Partner and Artistic Director Heiner Feuer, "was creating a single working structure supported by reliable, flexible technologies able to meet current and future requirements.

"At the same time we very much wanted to create a workplace that was both highly technological and a pleasant to work in, one that was conducive to communications and interaction, contact among the various departments."

The creation of Funkhaus proceeded through soundproofing, the installation of technical equipment, wiring, systems planning and training to the handing over of the keys to this gem of modern technology.

Choosing the right technological platform was no easy task. Traditional wiring or audio over the Ethernet IT network? There were legitimate doubts over the use in a professional context of a platform considered by all involved to be a PC-type solution.

Digital matrix

Given such doubts, a delegation — Marino Vanuzzo from Feel and Karl Kleinrubatscher, Heiner Feuer and Markus Steiner Ender from Funkhaus — traveled to the United States to see some of the Axia Audio IP-based solutions adopted by stations in New York and Houston.

The basic requirements were clear and simple: a modern system, flexible, easily expandable and good value for money. In operational terms, the three radio operations at Funkhaus, despite being independent, would have to work together.

RMI wanted to minimize production times and to deliver high-quality, broadcast-ready content in almost real time, without having to compress files for transmission across the Internet.

The Axia Audio system was able to assure the desired flexibility and powerful structure, while simultaneously capable of handling 500 uncompressed digital stereo streams with latency of less than 3

ms over an Ethernet network.

The flexibility of the digital matrix allowed Funkhaus to make changes to the structure and initial project during the installation.

Trouble-free operation

The result was the biggest, most complex Axia Livewire system in Europe — and one of the biggest in the world — with 18 Element mixers, 34 workstations without sound cards and linked directly to the Axia network via Livewire, 25 microphone nodes and three 12-line Telos Nx12 hybrids with "only" nine I/O audio nodes for the entire system.

The setup has been in trouble-free operation at the Funkhaus for many months.

"What makes the Funkhaus installation different from the bigger U.S. installations we visited," said Funkhaus Technical Director Markus Steiner Ender, "is that ours is the first to be totally networked, with all the sources instantaneously available everywhere and audio source sharing programs throughout the studios."

The control rooms of both the radio stations and RMI are networked and simultaneously share about 480 audio sources, using Cat-7 cabling for the rack room and Cat-6 for the links.

"The other big systems," said Steiner Ender, "are configured as lots of local studios sharing some sources through a central matrix, but not all of them."

The control rooms of both the radio stations and RMI are networked and simultaneously share about 480 audio sources, using Cat-7 cabling for the rack room and Cat-6 for the links.

The successful result: six on-air studios, two production studios, two speaker booths, a conference studio with six microphones and six headphones, 12 reporter workstations, two rack rooms and two management offices with full monitoring capabilities, working around the clock in harmony.

Drastic reduction

Conducting this "orchestra" is Axia Livewire, a seemingly clean and stylish way of moving audio via an Ethernet network. Livewire is based on three IP strategies, well-tested by large IT networks.

First, there is the use of Ethernet Layer 3 and multicasting. Packets converge in critical-application Cisco switching units to be forwarded only to devices enabled for the specific stream. This streamlines network traffic, prevents packet colli-

sions and optimizes bandwidth usage.

Second, prioritization gives audio packets precedence over other types of information that share the same network.

Third, the drastic reduction in packet size, with clock data ensuring precise timing, makes it possible to limit the buffer within individual nodes and achieve latency of 3 ms anywhere in the network.



Marino Vanuzzo of Feel Communications, Kirk Harnack of Axia Audio and Markus Steiner Ender and Heiner Feuer of Funkhaus.

Axia has not reinvented the wheel, but it has simply kept things as simple as possible and integrated technologies already well proven in non-audio environments.

The system, thanks to the programmability of GPIOs, manages external signals for the on-air/microphone-live LEDs on the mic stand and a light that shows green for a phone call: red for on air; yellow for a traffic announcement; blue for an emergency message.

PCs are located in a rack room with an Avocet keyboard-video-mouse (KVM) switching system, while each studio has a PMC audio monitor, three or four 37-inch TV LCD monitors and up to seven PC monitors.

On the subject of telephone hybrids, Funkhaus was the first broadcast facility to connect Telos Nx12 hybrids directly via Livewire, thus fully integrating them with the Axia system.

From any mixer, by pushing the "phone" key on the mixer channel to get a line, the user can dial any number directly on the monitor.

At Funkhaus, all mixers can access all audio sources. There are, however, some subsystems that have access limited to individual PCs, microphones, tuners of the three Funkhaus operations and the telephone hybrids. The on-air mixers can only access the audio channels of their own specific entity.

Other sources, however, are fully shared — the conference room is available to more than one studio and the three Telos Nx12s make 36 telephone channels available to all the mixers.

Management offices

The on-air studios have 12 faders: four for the DAVID automation, one for the presenter mic, one for the speaker mic, two for the hybrids and four for the shared sources.

Monitoring in the on-air studios is by means of innovative PMC Wafer Series installation speakers, while the production studios use PMC AML1 powered speakers.

All of the audio channels of the Funkhaus are accessible from the management offices and the rack rooms, where Axia Audio Router Selector Nodes enable monitoring of everything available on the Livewire network.

Working along with the Axia System to keep things working smoothly at the Funkhouse is a DAVID Systems automation solution.

"Choosing the automation system was not easy either," said Steiner Ender. "The

criteria were again obvious and simple, but not easy to find in a single software application."

According to Steiner Ender, Funkhaus needed system stability, versatility, scalability, simplicity of use and a great capability for interfacing with other software.

Workflow environments

"There were a lot of solutions available, some of them really valid, but none of them, except for the DAVID system, able to meet the criteria 100 percent," said Steiner Ender.

The DigaSystem Database Manager, central to the DAVID system, allows users to view, prelisten, organize, rename and edit the elements stored in the system. It is thus possible to manage all of the content — music, ads and so on — in a single database.

Additionally, even though it is an open system, security is not a problem. The DAVID solution is built from independent, interfaced components, making the structure scalable while allowing for sharing of data.

DigaSystem modules can fit into modern workflow environments — from handhelds used for remote recording to fully equipped newsrooms; from editing local workstations to broadcasting groups with offices worldwide.

The DAVID strongpoint, like that of the Axia system, is its configurability. There are no default limits. All users can set up their own screen and functions, and create a profile containing access rights for each specific function, area or database content.

A moral of this story is certainly that the success of a broadcast network relies on system versatility, the maximization of return on investment and, above all, a willingness to embrace new ideas while also ensuring the type of security that is often hard to find in the IT world.

RW welcomes suggestions for projects and facilities to profile. Write to radioworld@nbmedia.com.

PRODUCT GUIDE

Inovonics Ships Its New RDS/RBDS Encoder

The Inovonics Model 730 RDS/RBDS Encoder is now shipping.

Building off of the company's Model 713, this TCP/IP-capable encoder features a front-panel knob that allows virtually every setting to be viewed and modified. These include 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 has been tested with the Microsoft Zune music player and is compatible with any FM exciter and does not require a dedicated 19 kHz pilot sync lock.

For more information, contact Inovonics at (800) 733-0552 or visit www.inovon.com.

Swe-Dish Adds to Suitcase Line

Stockholm-based Swe-Dish Satellite Systems has added to its Suitcase line of portable satellite systems with the CCT 120. The CCT120 is a 1.2-meter antenna system.

The CCT120 utilizes Swe-Dish's portable, modular CommuniCase Technology. Field-replaceable features include a plug-in modem, antenna system, controller and transceiver.

Different power ratings, frequency bands and modem types are available through separate, swappable modules. Transmission rates are up to 10 Mbps. Meets military specifications.

In other Swe-Dish news, the little sister to the CCT120, the 0.9-meter CCT 90, has received its FCC license for use in the United States. Lars Jehlander, CEO of Swe-Dish, said: "For a new product such as our Suitcase CCT90, which addresses the needs of government and commercial users in the U.S. market, this is very good news."

For more information, contact Swe-Dish Satellite Systems at (703) 476-1826 or visit www.swe-dish.com.



Broadcast Bionics Names BSW Phonebox Solo Dealer

Broadcast Bionics appointed Broadcast Supply Worldwide as a dealer for the Phonebox Solo broadcast telephone system.

The company describes Phonebox Solo as a PC-based phone system that integrates the hybrid, call director control panel and call screener with database and phone editor. It uses POTS, ISDN, T1 and VoIP phone lines and can connect to studios with analog, digital or Livewire facilities.

Features include integrated call recording; multi-track call editing and playback; visual talk back; database logging; caller ID; and persistent caller and prizewinner management.



Broadcast Bionics staff at the NAB show in 2007. Simeon Johnson, Duncan Smith and Dan McQuillin celebrated a 'Cool Stuff' Award from Radio World.

"We are very pleased to have been chosen by Broadcast Bionics to help launch Phonebox Solo in the United States," said BSW Vice President Steve Kawasaki. "This is terrific technology for talk show caller management for stations considering VoIP business phone service, as well as traditional analog service."

"The fact that Phonebox Solo is a software product enables it to offer some very interesting features such as integrated call recording and editing, and caller history. This level of functionality just isn't available in traditional hardware solutions," he said.

For more information, visit www.phonebox.com.

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SINCE 1963

KRTS(FM) Opens West Texas Frontier

Marfa Brings Public Radio to a Giant Swath of the Big State

by Carl Lindemann

According to most historians, the western frontier closed down more than a century ago. But until last year, a huge swath of West Texas remained relatively untamed by local terrestrial radio. Now, KRTS(FM) in Marfa has brought one of the trappings of civilization to this territory by providing public radio coverage.

"Our signal covers about 15,000 square miles, with a population of about one person for each of those miles. Like the country here, these individuals are rugged and interesting," said Tom Michael, KRTS' general manager.

KRTS launched in September 2007 following five years' work to bring it into being. With just three full-time employees, the station depends largely on volunteers.

Tapping the tales and talents of a "rugged and interesting" audience is key to Michael's strategy for building and sustaining the new station. Except for the NPR staples including "Morning Edition," "Talk of the Nation" and "All Things Considered," programming is produced in-house, ranging from a daily interview show "Talk at Ten" to music shows.

"Two-thirds of our programming is local, and though we're small compared to other Texas NPR affiliates, we have more original programming than most," said Michael. "KRTS does not use any satellite services for our music. It is all hand-picked by our volunteers."

Finding the support — both creative



and financial — necessary for bringing a largely self-programmed public broadcaster into such a remote area sounds problematic.

Michael's previous work in consulting and grant writing for public media pioneer Tom Livingston gives him the requisite background. Another asset is Marfa's unique cultural heritage and history, like the time in 1955 when James Dean, Rock Hudson, Elizabeth Taylor and a massive production entourage descended on the town to film "Giant."

Today, it is home to a vibrant art scene started by the arrival of Donald Judd in the 1970s. The celebrated artist rediscov-

ered the town and opened the door for other creative spirits to follow. Now the connection between Marfa and the New York art scene is significant, extending listening and support from far beyond the reach of the 50 kW ERP signal.

Rival as ally

Seed money for the station came from private funding as well as from a Public Telecommunications Facilities Program grant for \$433,000 in 2005. But initial planning for the station seemed a loss when organizers lost out on the bid for the license that year.

Austin-based Matinee Media won, but



GM Tom Michael

then turned around and offered the 93.5 dial position on an LMA basis. It has been a major funder throughout the start-up; last December it donated the frequency to the fledgling community licensee.

"With Matinee's financial backing, we've been able to build the station from scratch without being burdened by huge debt," said Michael. "They've made an extraordinary gift to the community."

Start-up engineering work was done by Greg Shapiro and Ben Rippy of Austin; recent assistance has been provided by Jim Reese of KUT(FM), the Austin NPR affiliate, which has been supportive.

Initial equipment purchases include a
See MARFA, page 28 ▶

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George Putnam, Silenced at Age 94

He Was Described as the Longest Continuously-Aired Talk Host in Radio

by Ken Deutsch

Some people are larger than life. Think of Mae West, Ronald Reagan and Ted Baxter, the bombastic newsman from "The Mary Tyler Moore Show."

Well, George Putnam, who until recently hosted CRN Digital Talk Radio's syndicated "Talk Back," dated Mae West, interviewed Ronald Reagan and was the inspiration for Ted Baxter. And to his listeners, Putnam was as big and legendary a character as any of them.

He died Sept. 12 at age 94.

Putnam started his career in radio in 1934 at WDGY(AM), Minneapolis, and after a few stops landed in 1951 in Los Angeles, where he crashed the gates of television as an anchor at KTTV, KTLA, KCOP and KHJ (now KCAL).

According to a bio from CRN Digital Talk Radio, Putnam at one time reportedly was the highest-rated and highest-paid TV news anchor in Los Angeles. Former President Richard M. Nixon said in the 1980s that Putnam had been "one of the most influential commentators of our times."

More than 20 years ago, he returned to his radio roots with "Talk Back," a local

show that was picked up for syndication in 1997. He did the show until last May from a studio at his ranch in Chino, Calif. "Talk Back" is still heard in Boston, Pittsburgh, Philadelphia, Chicago and several stations in southern California, now hosted by Putnam's producer, Chuck Wilder.

Shortly before his death, Putnam talked to Radio World about new media and whether he considered them a threat to terrestrial radio.

"It all depends on the broadcasters and their content," he said. "I say to be yourself, let it all hang out! If they like it, great. If they don't, let 'em kick your ass out!"

As is now apparent to even the most casual reader, Putnam was never shy about his opinions. Because he spent so many years on the air, we asked him if he had any "stupidest decisions I've ever seen in radio" stories. He did.

"A station used my show to get ratings, then sold the station," he said. The new owners "flipped it to a foreign language news format, fired me and it failed!"

Twinkle

Putnam influenced a lot of people throughout his career, including a few

that later worked with him.

"I used to watch him on TV as a kid," said Mike Horn, president/CEO of CRN Digital Talk Radio, which also syndicates

during World War II. He also served in the Army as well as in the Marine Corps. Too many awards and honors have been bestowed upon him to list here (more than 300), but they include Emmys and citations for his news coverage.

George Putnam bred 400 horses, one of which ran in the Kentucky Derby. His Hollywood friends included Jack Benny,



Putnam celebrated a birthday in 2007 with CRN Digital Talk Radio's Jill Garnseki, left, and Erin Farrell.

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"The Robert Conrad Show" (he of "Wild, Wild West" TV fame), "The What's Cookin' Show" and many others. "He was an icon here in Los Angeles. George and I worked together for about 11 years."

During his 57-year career in L.A., Putnam built a reputation as a showman.

"He was always on, even when you were having lunch with him," Horn said. "He had a twinkle in his eye and that great voice. I admired his energy."

But why did he never wear out his radio welcome, as so many other talents have done?

"It was his warmth and his connection with the audience," said Horn. "You felt like you could have him over to coffee. A lot of guys have big voices, but George had a certain likability so people weren't afraid to call him."

In his final months Putnam had health problems, so his long-time producer/co-host/substitute host Wilder filled in on the air. ("Talk Back" is streamed at www.crn.net.)

"It was a privilege to work with him," said Wilder. "It's not that I was star-struck by him; it's more like I respected his credentials."

Before the show was picked up for national distribution, the issue of local vs. national topics wasn't a problem. But later Wilder and Putnam addressed whether to broaden their focus.

"The situation with syndication is that some program director in another market will say, 'Don't talk about someone in Chino having a Christmas Tree sale,' but I disagree," Wilder said.

"Whatever is important in California is important to the rest of the nation. George believed that an interesting story would be interesting all over the U.S. Many programmers didn't know who George Putnam was because he was primarily a local talk host up until the last 10 years. They saw his resumé but didn't know how great he was."

Old school

And Putnam's resumé was pretty impressive. He and Lowell Thomas shared duties as the voices of Movietone News

Red Skelton, Martin & Lewis, George and Gracie Burns, all of whom he appeared with on TV. Doris Day called him on the air when he returned last July for his 94th birthday. CRN Digital Talk Radio claims that Putnam was the longest continuously-aired talk show host in radio, with more years of service than even Paul Harvey. His op-end column "One Reporter's Opinion" put his views before yet more audiences via the Internet.

"George was a little dramatic, a little flamboyant," said Wilder. "But it was those qualities that made him stand out. He could read the Wall Street Journal out loud and make it interesting, because he was really an actor at heart. A local Indian tribe gave him the nickname, 'Chief Thunder Voice,' and that fit. But I'll tell you this, there are probably 1,000 producers across the country that would have loved to work with the man."

Putnam was seen as some as a conservative. He told one interviewer he didn't think of himself that way: "I detest labels. I've been called many things in my career: right-wing extremist, super-patriot, goose-stepping nationalist, jingoistic SOB. And those are some of the nice things! But those people have never bothered to determine my background: Farmer-Labor Party, Socialist Party, lifelong member of the NAACP, member of the Urban League. I went through the Depression, and my father was reduced to selling peanuts door-to-door." He described himself as a lifelong, conservative Democrat.

After Putnam's death, Mike Horn issued this statement: "George was an icon and true legend in the television and radio business. George was truly the last of an era. He was a character whose story-telling abilities could not be beat, a patriot whose love for America influenced everything he did, and a friend who brought insight and laughter to everyone."

Our final thought comes from Putnam, who spoke with Radio World days before his death. We asked him what he got excited about at age 94.

"My next breath; and my crusade for the people and a better, stronger America."

WEB POWER TOOLS



WVRC-8 WEB and Voice Dial-up Remote Control

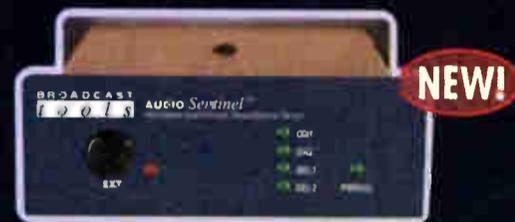
The WVRC-8 provides a cost-effective, one rack-unit solution for web based and/or recordable voice response dial-up transmitter site control. The WVRC-8 was designed from a user's point of view, so all of the basic functionality you need is included to control your site equipment, while including the accessories other manufacturers consider optional. Each analog, status, silence sensor,

temperature sensor and power failure input can be configured to dial-out and/or email up to four individual email addresses, allowing different input alarms to be routed to different email recipients. The WVRC-8 is equipped with a browser based 100-event program scheduler for relay control and alarm muting, along with an 8192 FIFO event alarm logger.



WVRC-4 WEB and Voice Dial-up Remote Control

The WVRC-4 provides a cost-effective, half-rack solution for web based and/or recordable voice response dial-up transmitter site control. The WVRC-4 was designed from a user's point of view, so all of the basic functionality you need is included to control your site equipment, while including the accessories other manufacturers consider optional. Each analog, status, silence sensor, temperature sensor and power failure input can be configured to dial-out and/or email up to four individual email addresses, allowing different input alarms to be routed to different email recipients. The WVRC-4 is equipped with a browser based 100-event program scheduler for relay control and alarm muting, along with an FIFO 8192-event alarm logger.



Audio Sentinel™ Web-based Dual Channel Stereo Silence Sensor

The Broadcast Tools® Audio Sentinel is a web based dual channel stereo silence monitor with an integrated transparent audio switcher. The Audio Sentinel is designed to monitor two balanced or unbalanced independent stereo analog audio sources and transparently switch to a back-up analog audio source when silence is detected. The Audio Sentinel can be controlled and/or monitored via the Internet using a web browser.

Available February, 2009 or sooner



Relay Sentinel™ Web-based Three-relay Module

The Relay Sentinel is an least expensive and reliable way to remotely control equipment over the Internet using a web browser. The Relay Sentinel has three low-signal SPDT relays that can individually switch up to 1 Amp at 28V. Each relay can be turned on, off, pulsed or timed latched using the built in web pages.

Available January, 2009 or sooner

Schedule Sentinel™ Web-based Event Scheduler

The Schedule Sentinel is a web-enabled event scheduler that can store and control up to 100 unique events using any available NTP timeserver as a time base. Events may be programmed with Hour/Minutes/Seconds and Day/Month/Year or Day of Week. Each event can store up to 32 ASCII or HEX value strings, along with control characters. Events may also be executed manually. Configuration and events are programmed using a standard web browser.

Available January, 2009 or sooner

Status Sentinel™ Web-based Three Input Module

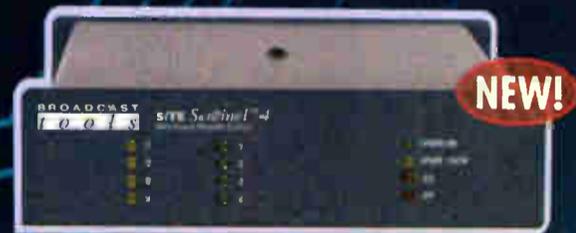
The Status Sentinel is a robust, full-featured, Ethernet based data acquisition device with three optically isolated status (digital) inputs. The Status Sentinel may be monitored over the Internet using a web browser.

Available January, 2009 or sooner

Temperature Sentinel™ Web-based Quad Temperature Module

The Temperature Sentinel is an industrial grade, Ethernet data acquisition product for monitoring temperature within the range of -67°F to +25.7°F (-55°C to +125°C) and equipped with one SPDT electro-mechanical relay and the ability to communicate with up to four digital temperature sensors and one optically isolated contact closure input. It can be controlled and/or monitored over the Internet.

Available January, 2009 or sooner



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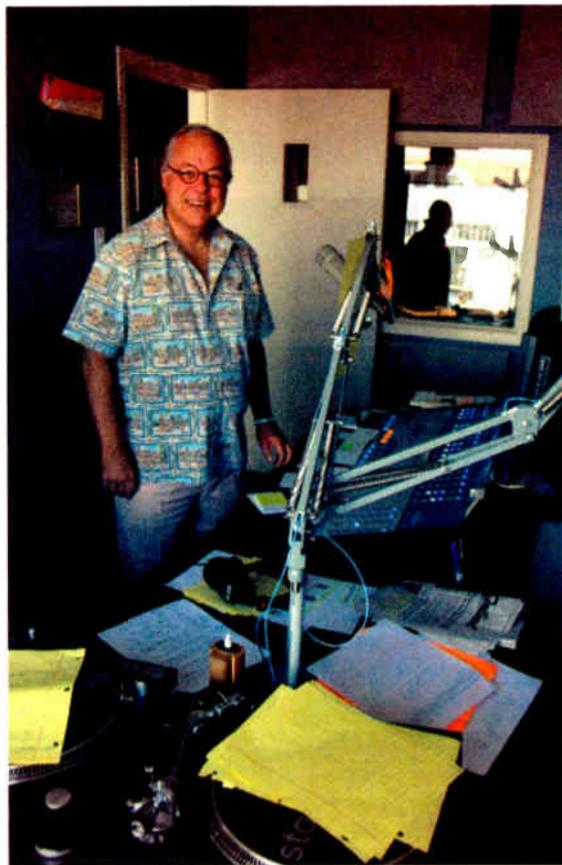
Marfa

► Continued from page 24

Broadcast Electronics solid-state transmitter and an ERI antenna and self-supporting tower located on nearly Brown Mountain, part of the Davis Mountains. At the station, on-air studio and production include a live-assist/automation system from Google. The studios, named for donor Kay Burnett, have matching Radio Systems Millennium Digital consoles. A Marantz PMD-660 solid-state field recorder is used for ENG as well as various recording tasks in the station.

Community support for KRTS has exceeded expectations. An initial fundraiser was expected to raise \$25,000; instead, it brought in over \$60,000. According to Michael, that's a good sign for sustaining the annual \$225,000 budget. In addition, the search for grants and federal funding is underway, and Marfa recently secured a Corporation for Public Broadcasting grant.

Another key outreach is for programming contributions. Several volunteers bring a professional radio background into the



Harry Hudson, volunteer DJ, hosts the 'Rock Til One' oldies music show on Fridays.

The trick is recruiting and training the audience to gather stories and features to send. Building a base of support in nearby Fort Davis and Alpine is a given. Fort Davis is home to University of Texas McDonald Observatory, home of one of the premier astronomical research facilities in the world and source of the longest-running daily science program on public radio, "Star Date" (Michael says it's "a treat to be able to broadcast 'Star Date' to its originators finally"). Alpine has Sul Ross State

With Matinee's financial backing, we've been able to build the station from scratch without being burdened by huge debt. They've made an extraordinary gift to the community.

— Tom Michael

mix. This includes Dallas Baxter, a voiceover artist who hosts "Nature Notes," a weekly feature on environmental stories from the region. Veteran KERA(FM) broadcaster Harry Hudson is at the helm midday with his "Rock Til One" oldies show.

Tapping into such pre-existing talent is the tip of an iceberg. Training and education in basic skills is a core part of KRTS' mission and will grow the talent roster. Michael is exploring various strategies for gathering audio contributions from residents. Already, they can FTP audio files to the station. This technical infrastructure is a start.

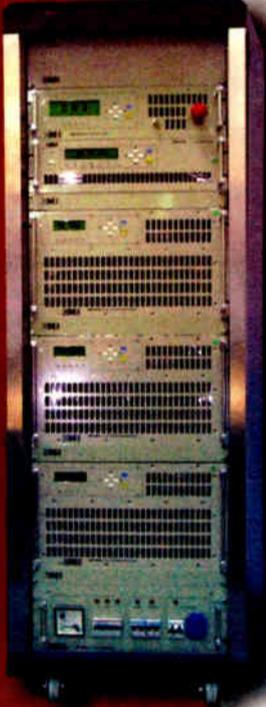
University, part of the Texas State University System, a natural recruiting ground for finding those interested in a hands-on media experience.

For Michael, this adds up to realizing the power of radio to give voice to a community that hearkens to the Golden Age for the medium.

"We play a unique role here because of the lack of other real-time, regional media outlets. Besides satellite radio, we're all you can get continuously across the region — and you can't get local from them," Michael said. ●

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People News

E-mail People News to radioworld@nbmedia.com.

Greater Media named **Dave Brown** chief engineer at WMTR(AM)/WDHA(FM) and WWTR(AM) in New Jersey. Brown previously worked at Lechard Marine Contracting, a division of Nassau Holdings, where he "built everything from marine bulkheads to broadcast facilities for the past 12 years," the company said.



Dave Brown

A native of Canada, Brown began his career in broadcast engineering working for Standard Broadcasting and Rogers Communications. In addition, he built recording studios for Canadian performing artists. Milford Smith made the announcement.

Broadcast Electronics named **Brian Lindemann** as vice president of engineering. He will oversee RF engineering activity for the manufacturer. He has held



Brian Lindemann

technical positions with Rockwell Collins and Honeywell. He holds six patents and specializes in waveform generation with an emphasis on hardware/software co-design. He replaced Richard Hinkle.

BE also announced that **Rick Dorfner** and **Josh Timmons** joined as software development engineers.

Rey Lark passed away, according to the Pavak Museum of Broadcasting newsletter. He was a veteran radio engineer and founder of WXCE(AM) in Amery, Wis. He was 84. He engineered for several Twin Cities stations including WMIN, WYOO and WAVN, and spent nearly 15 years with KDWB(AM). In addition to WXCE, he built stations in Alaska, Missouri and South Dakota.

Paraclete Mission Group named **Glen Volkhardt** as CEO of the Phoenix-based organization. He comes to Paraclete after a 29-year career with HCJB Global of Colorado Springs. He replaces **Don Parrott**, who is stepping down to become CEO of The Finishers Project Inc.

Dave Scott Companies said **Scott Kerr**, **Kelli Pate** and **Steve Knoll** joined RadioTraffic.com, RadioTextMessages.com and RadioWeather.com.

Kerr has been with American Media Services Interactive, an ad sales rep with Citadel and Clear Channel stations, and former national programming consultant for Drake-Chenault.

Pate was an account executive and radio analyst with KMA Direct Communications of Dallas, a direct response fundraising and marketing agency for faith-based and nonprofit organizations. She also handled affiliate relations and sales for The Branson Radio Network. She has radio station management and sales experience as well.

Knoll was an affiliate relations manager for TM Studios, TM Jones and Thompson Creative Productions, all of Dallas, as well as a program director, air personality and webmaster for several Dallas radio stations.

Pam Jahnke is the new president of the **National Association of Farm Broadcasting**. According to Wisconsin Ag Connection, Jahnke, who works as farm director at **WTDY(AM)/WWQM(FM)** in Madison, Wis., was named to the post. She's the first NAFB president from Wisconsin, according to the publication. The NAFB was founded in 1944 as the National Association of Radio Farm Directors.

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The Next Generation & You, Perfect Together

If We Don't Encourage the Talent of Tomorrow to Participate, Who Will?

by Mark Lapidus

The moment I picked up the guitar I felt uncoordinated. My fingers behaved as if they were made out of wood and refused to make the chords described in the instruction book. Up to this point, I'm not sure I had ever felt physically awkward — but there's a first time for everything, damn it.

After several sessions over a week, I put the guitar down and admitted defeat. I desperately wanted to be involved in making music, but what could I do?

That night, I couldn't fall asleep, so I turned on the radio. After a few minutes, it hit me. I could do that! I was 15 years old.

That week, I called several radio stations and finally found a station at Georgetown University, WGTB(FM), where the GM said I was welcome to visit.

For the first month, I sorted the mail and took out the trash. Before I was 16, someone didn't show up for an air shift and I discovered something I was passionate about.

You may have a similar story about your entry into the business. Unfortunately, it probably took place prior to 1996, when the country had thousands of sole proprietors and also had hundreds of non-commercial radio stations staffed by volunteers.

How does a 15-year-old kid — or even a college student — become passionate about radio today? I know this still happens in a few cool places because of organizations like CBI (College Broadcasters Inc.). And I would be remiss if I didn't credit low-power, carrier current and streaming stations, which certainly play a role in offering opportunities for training.

Still, I'd like suggest a few ways in which we as an industry can provide greater opportunities.

Investment

With the launch of HD Radio, the larger broadcast groups often have a full complement of HD channels in the major markets.

Although many of these HD channels are now over three years old, the vast majority are automated brand extensions of a main channel. If the main channel is rock, the HD channels are often alterna-



tive and classic. If the main channel is country, the HD channels are classic and young.

So far what we've seen is a collective yawn from the listening public. The rest of this article could be about the radical-

ly new formats we could try, but I'd like to suggest something even more revolutionary.

Take one channel in each market and "lease" it for \$1 to a university or high school. Make the leasing process com-



PROMO POWER
BY MARK LAPIDUS

petitive to assure that the institution that obtains the channel will provide at least one full-time professional with experience to mentor the students.

Hang onto the commercial inventory and if by chance your new college station eventually generates a rating, you may actually generate a few bucks. Maybe you allow the college to sell some of the inventory and split the money. Find a corporate sponsor for the channel. Every hour could begin with "Faber College Radio is brought to you by a generous grant from the Blutarsky

Why not take one channel in each market and 'lease' it for \$1 to a university or high school?

Bank. Blutarsky ... serving St. Louis since 1962." Run announcements with the sponsor on your main channel to promote the new HD service.

Here's an alternative for larger companies to consider. AM radio stations that have ceased to be profit centers can be gifted to educational or community institutions.

Giftng a station certainly has a tax advantage. It may make sense to keep the land where the towers reside and give the institution enough time to see if housing the towers on their grounds is possible.

One caveat in gifting a radio station: Make sure the institution is somehow "disincentivised" to re-sell the station in the years to come. Too often, short-sighted boards of directors realize they can make a quick buck by re-selling their stations.

Think it can't happen? Take my old stomping ground, WGTB. Georgetown sold it to the University of the District of Columbia at the drop of a hat for just about nothing. When the market was ripe, UDC re-sold it to C-SPAN for millions.

For those who have been around the block a few times, please consider being a mentor to young people who are trying to find their way. If we don't remember where we came from and encourage the talent of tomorrow, who will?

E-mail the author at marklapidus@verizon.net. Comment on this or any story at radioworld@nbmedia.com.

STATION SERVICES

Big Talk Stations Find Podcasting Attractive

Podcasting is a tool being used by prominent news and talk radio stations.

That's a finding of a survey by News Generation Inc., a public relations services firm specializing in radio.

It said it surveyed news and talk radio stations in the top 25 markets and found that all of the stations it talked to stream content online. "Only one of these stations did not use podcasting as a way to further their audience reach, meaning that 96 percent of them are currently offering podcast downloads of their broadcast programming," the company stated.

WCBS(AM) in New York, WBZ(AM) in Boston, KTRH(AM) in Houston, KXL(AM) in Portland and KMOX(AM) in St. Louis were interviewed further about how their stations use podcasting.

"These sample stations launched podcasting on their Web sites about one and a half to two years ago, making 75 to 100 percent of all programs available in podcast format," News Generation reported. "And the turnaround time from when a program airs to when it is available as a podcast is almost instantaneous. These stations see podcasting as an important business investment."

The firm said that "captive and interactive" radio listeners-turned-site users appeal to advertisers who place their ads preceding podcasts.

"For example, WCBS offers 50 to 70 podcast clips every day, which translates into 700,000 to 800,000 downloads a month, creating tremendous ad revenue."

Station Web execs told the PR firm that podcasting offers a good return on investment because the cost is low and they can show clients downloads and subscription statistics.

One called it an opportunity to honor a station's unique and loyal listenership, giving them "an opportunity to share special segments with friends who might have something they deem worthy of attention. Those are values to the listener, and a value to the listener is always a value to the station."

STATION SERVICES

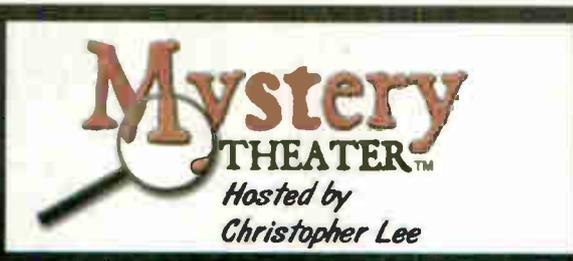
'Mystery Theater' Features Christopher Lee

Horror film actor and corrupt Middle Earth wizard Christopher Lee is on tap as host of a new series of old shows, "Mystery Theater," premiering in March.

Bringing back actual recordings of classic radio mysteries from the "Golden Era" (and others), Lee and Syndication Networks are inviting stations and their listeners to return to yesterday.

Suspenseful selections include "The Shadow," "Dragnet," "Nero Wolfe," "Sam Spade," "Detective," "Sherlock Holmes," "Johnny Dollar," "Gangbusters" and others.

Programs are offered as a barter deal. Mystery Theater is a daily two-hour program and comes MP3 down-



- Each weeknight, host Christopher Lee invites you into the Mystery Theater for a thrilling journey into the macabre.

- Mystery Theater features the greatest mystery, detective and science-fiction programming that radio has to offer. The episodes are digitally remastered for superb sound quality.

- Mystery Theater's line up includes: *Suspense, The Shadow, The Green Hornet, Dragnet, Lights Out, Nero Wolfe, Ellery Queen, X Minus One, The Black Museum, Phillip Marlowe, Inner Sanctum Mysteries, Sam Spade, The Third Man, I Love a Mystery, Boston Blackie, The Mysterious Traveler, The Saint, Escape,*



load. The supplier produces five two-hour programs per week. You can schedule it in a two-hour block each Monday through Friday, or on the weekends, or both. Affiliates get seven minutes of local time and six minutes of national time within each hour plus one minute of national time outside each hour Monday through Friday 6 a.m. to midnight. The station also receives five minutes at the top of each hour for news and/or local time.

The program is exclusive per market.

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Canadians Like Their Radio Drama

by James Careless

The heyday of radio drama and comedy may have passed with the advent of television, but original and old-time broadcasts have managed to retain a share of the Canadian audience.

Like the BBC that inspired its creation more than 70 years ago, CBC Radio remains dedicated to producing new and original radio drama and comedy.

It is an expensive commitment.

"Compared to other forms of programming, original drama and comedy is probably the costliest content we produce," said CBC Radio Programming Director Chris Boyce.

Sound wizards

The expense is due to CBC Radio using scriptwriters to produce original scripts, hiring actors to voice it and employing in-house sound effects people.

Sometimes, the latter create effects using pre-recorded clips but, more often than not, the CBC Radio sound wizards rely on old-fashioned doors, horns and other implements to create authentic sounds on the fly, just as in the 1930s and 1940s.

In fact, some of the CBC Radio sound effects equipment dates back to the Golden Age of radio.

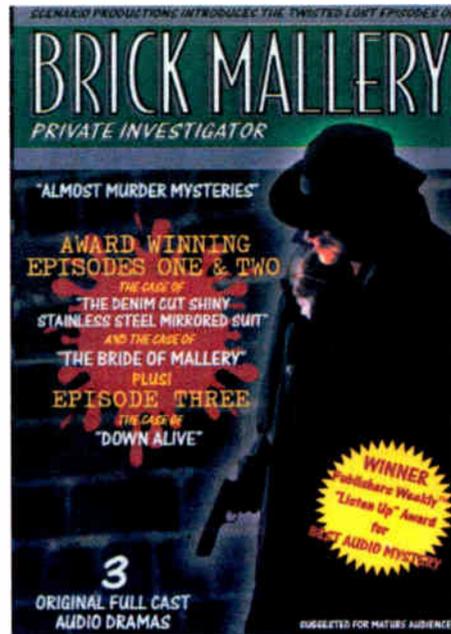
To maximize the listenership for its dramas and comedies — shows like "Afghanada," inspired by Canadian sol-

diers serving in Afghanistan, and "The Debaters," where two comedians debate positions in front of a live studio audience — the CBC conducted a survey a few years ago.

Based on what it heard from its listeners, said Boyce, CBC Radio decided to replace one-off hour-long dramas with serialized half-hour dramas. "These kinds of shows are easier for listeners to relate



Matt Watts



Compared to other forms of programming, original drama and comedy is probably the costliest content we produce.

— Chris Boyce

to because they come to know the characters that return each week," he said.

"We also make the shows relevant — 'Afghanada' is literally ripped from the day's headlines — and accessible," said Boyce. "For instance, our prime listening times are 11:30 weekdays, in terms of where the biggest audiences are — in the past, our radio dramas were aired late nights on weekends, when far fewer people are tuning in."

Original content

CBC Radio has amassed a huge archive of material over the years — material that is rarely ever heard.

"The problem is the performance rights," said Boyce. "It would cost us nearly as much to pay the rights to air older programming as it does for us to produce new material."

According to Boyce, since part of the CBC Radio mandate is to stimulate Canadian talent through new production, it makes more sense to spend budgets on original content rather than repeats.

"But if we could afford to," said Boyce, "I think that there would be a solid audience for our older shows — not on primetime broadcasting, perhaps, but definitely online."

Matt Watts, the writer of "Canadia 2056," a satirical sci-fi space opera that has run on CBC Radio for two years, appreciates CBC Radio's role in producing original drama/comedy.

At press time, Watts did not know if "Canadia 2056" would be renewed for a third season. "It is a struggle here for any writer working in any medium but, as someone who has been working predominantly in radio the last couple years, the main challenge is that there is only so much work to go around," Watts said.

Easier time

According to Watts, there is usually only room for one radio drama series to be on the air at a time, and it cannot

always be the same series. "So, you are either working or you are not."

Since CBC Radio is effectively the only game in town, not working here means not working at all ... at least in radio drama/comedy.

Watts has had an easier time than Mark Bornstein, owner of Scenario Productions in Toronto. Bornstein is the writer/director of "Brick Mallery, Private Investigator," a series of film noir audio satires that have aired on satellite radio in the United States and are now sold in audiobook form.

Billboard magazine praised "Brick Mallery" as being a "fun spoof" of the detective radio shows of the 1940s.

Unfortunately, praise does not pay the bills. To get "Brick Mallery" produced, Bornstein said he had to hire actors, take them into a studio and pay to record/edit the shows himself.

Bornstein has since expanded his portfolio by licensing vintage CBC radio dramas and comedies — the same ones referred to by Boyce. But trying to get

stations to pay to air them is, he said, like "bashing my head against a wall."

Loyal following

While Watts and Bornstein labor away at producing new drama and comedy, old-time radio shows are finding space on Canadian airwaves.

These are audio transcriptions from the Golden Age featuring stars like Jack Benny, Bob Hope, Burns and Allen, and many other greats of the 1930s and 1940s.

Stations tend to air the shows in the wee small hours, when listenership is low. Still, they do have a loyal following, said Dave Mitchell, program director of Ottawa-based AM station CFRA.

"As a station that signed on in 1947, we have an extensive library of old radio shows," said Mitchell. "They have been recorded into a digital format for ease in playing. I also have a former employee whose hobby is collecting old shows, so he keeps an eye out for them."

"We have been airing them at 3 to 4 a.m. for over 30 years!" said Mitchell. "The radio dramas have become a large staple of the overnight shift worker, to the point where I had tried three times to take them off the overnight show, and the number of protests was amazing."

Mitchell has also been airing the old shows on Sunday evenings from 11 p.m. to midnight for close to 10 years — "to let people wind down from a busy weekend, before starting another hectic week," he said.

The ongoing commitment of CBC Radio to producing new drama and comedies means that this art form appears likely to survive in Canada.

But do not expect such shows to turn up on private radio. There just is not the budget, or facilities, to actually produce such programming in the commercial sector, despite the fact that there is apparently an appetite for radio drama and comedy in Canada, be it new or old. 🎧

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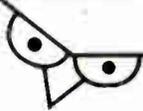
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◆ READER'S FORUM ◆

A Robust Digital Broadcast System

The Radio World articles on expanding aural broadcasting into the spectrum of TV Channels 5 and 6, immediately below the FM band, raise a few comments.

You state that new entrants into that spectrum are proposed to be some AMs, some non-commercial FMs, LPFMs and etc. Then you talk about the delivery and modulation choices, opening this topic to other suggestions. I guess I must suggest the EU-147 model of wide-band COFDM modulation. Why? Let me count the reasons.

Spectrum efficiency, reliability, cost ...

Assuming an EU-147 type multiplex, which is 1.5 MHz wide, carrying about 1.4 Mbps data, the 12 MHz total spectrum carries eight such multiplexes.

Current audio codec advances allow far more than six audio programs per multiplex. How many? Easy. What audio quality do you want? That is the *only* parameter affected by digital data rate with the EU-147 system. System reliability efforts, like redundant data, etc. are not needed in EU-147; that is taken care of in the wide-band multiplex COFDM and data interleaving (spectrum spreading).

It is a simple task to conceptualize a national digital broadcast system carrying 100+ audio channels that is very robust.

Let's just assume a factor of three, about 18 channels per multiplex, some wide-band and some narrow, yielding a gross of total channels (gross as in quantity, 144, not quality).

Spectrum efficiency will come from avoiding any of the current FM required separation distances necessary for Desired/Undesired courtour overlap avoidance. EU-147 COFDM modulation with its time guard interval (together with RF D/U protection) is designed from the start to allow a Single-Frequency Network (SFN) to be built and carry the same data on the same frequency from many transmitters to cover an area. As long as *either* of the guard interval *or* the RF D/U ratio is satisfied, there is no interference.

At the frequencies involved there is a well-defined and rather comfortable guard interval. It could be modified, with trade-offs, to meet a specific system design. If the ERP and antenna height are kept below a critical value, interference-free operation can be assured. The guard interval supplies interference protection between SFN nodes while D/U ratio is violated. Then the D/U ratio protection comes into play when moving from one SFN node to another, slightly before and then for all points after the guard interval is violated. You can build a mesh of SFN nodes covering as much area as desired.

What happens when you want to change programming from one area to another? Simple, just change data into that

part of the multiplex and the new programming appears in the nodes with the new data.

But as the designers of EU-147 warned me years ago, the data and RF must be synchronized between SFN nodes to avoid interference, with new data there will be an interference area between nodes.

As I told them, so what? That somewhat fuzzy interference area will define the boundary between program areas, just like today the falling RF defines the limits of coverage.

And as they then said, "Ja, dis could work."

Think about it. It is a relatively simple task to conceptualize a national digital broadcast system carrying 100+ audio channels that is very robust. Losing one node just pokes a small hole in coverage. If the nodes are conservatively designed, there may actually be *no* lost coverage.

Actually building it needs digital data to each node (optical fiber); a conservative (big) guard interval (a characteristic of VHF EU-147); and avoiding the temptation to cover large areas from any node (use low ERP and especially HAAT), which yields lower cost and easier authorization for each node.

*Bob Culver
Lohnes & Culver
Consulting Communications Engineers
Laurel, Md.*

A Vote for DRM, Not FM

I chose to stay put on Channel 5. Why? Lower multipath, better propagation around mountains and trees, less Doppler effect, less cost for transmission (as VHF needs less ERP, all other things being equal), and the reality that it would be impossible to replicate analog 100 kW coverage in UHF with one transmitter without unlimited ERP and a nuclear power plant to power the thing.

Feb. 18 we will find out how right or wrong I am.

If I were dictator, I would allow sound broadcasting in all "low V" TV Channels 2-6 using Digital Radio Mondiale, not FM.

DRM is COFDM, which allows much better coverage if you use a multiple-transmitter single-frequency network. If the standard called for 100 kHz channel width and, let's say, 20 kHz guard bands, the number of sound broadcast stations possible would explode, 60 per TV channel. And at, let's say, 3 bits per Hertz, each station would get 300 kilobits per second to play with allowing for far more services than IBOC. FM is antique.

And, by the way, you should hear the sound quality I can get on the DTV using 320 kbps Dolby. Which raises another question: Why am I the only one broadcasting sound-only channels on DTV?

Finally, DTV and other services can coexist in low V if properly allocated. We won't know for sure how good low band VHF is for 8VSB television broadcasting until some maximum power (45 kW DTV average ERP) signals get on the air.

*Jeremy Lansman
Owner
KYES(TV) Channel 5
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GUEST COMMENTARY

We Should Buy Sirius XM Radio

Seriously.

by Dave Wilson

Beginning in this issue, Dave Wilson's commentaries will be a recurring feature in Radio World, appearing several times a year.

Wilson is the owner of WHDX(FM) and WHDZ(FM) on Hatteras Island, N.C. He is also senior director, technology & standards at the Consumer Electronics Association. His views are his own and do not necessarily represent the views of CEA or its member companies.

According to Yahoo Finance, Sirius XM's enterprise value at this writing is less than \$4 billion. This means free local radio broadcasters might be able to buy all of the stock of Sirius XM, buy out those with minority ownership interests, and pay off Sirius XM's debt for about \$4 billion.

Imagine this — our satellite company uses 100 satellite channels to broadcast radio programming nationwide. National spots are sold by our satellite company and we all share in the profits. Local spots would be sold by each of us in our local markets.

If \$4 billion sounds like a lot of money to you well, you're right. But consider this: In 2008 the FCC collectively charged free local radio \$22,439,275 in regulatory fees to fund all of the wonderful things it did for us.

Dividing \$4 billion by \$22.44 million yields a ratio of 178. So, if you want to know how much it would cost a station to participate in a local radio buyout of Sirius XM, simply take that station's 2008 regulatory fee and multiply it by 178. For a small-market Class A FM station it would be \$106,800. For the highest-powered FM in the largest market it would be \$1.8 million.

I'm not suggesting we all start buying stock individually and hope to achieve our goal, I'm suggesting we get together and collectively form a corporation, commit the funds, then make an offer to the Sirius XM board of directors.

Attributable

The economy is weak, auto sales are down and Sirius XM's stock price is well off its highs. The time to buy is 2009, while Sirius XM is on sale.

You may think I'm a nutcase, for the government would never approve the sort

of transaction I'm proposing.

I think it can be convinced, so please hear me out.

First of all, I think we could design an ownership structure that would not raise any concerns under the FCC's rules regarding ownership of multiple broadcast licenses. The key is "attributable interest," which the FCC defines as 5 percent or more. Thus, there should be no regulatory concerns about any particular AM or FM licensee owning any amount of Sirius XM stock up to 4.99 percent.

Let's do the math.

The stations that would have the largest ownership stake in our corporation would be FM Class B, C, C0, C1 and C2 stations serving populations greater than 3 million people. Each of these stations would have an ownership stake equal to their \$10,200 regulatory fee divided by the \$22,439,275 in total regulatory fees for free local radio. This comes to roughly 45 hundredths of a per-

cent, and it means that a single licensee could own up to 109 high-powered FM stations serving populations of 3 million or more and still have a small enough ownership stake in our corporation to not have an "attributable interest" in the satellite license.

Obviously there are many different combinations of stations that a single owner can own, but this example of 109 high-powered FM signals in major markets gives you an idea of the sort of numbers that could work.

While very large operators like Clear Channel and Cumulus might have to scale back some of their holdings for this to work, the vast majority of owners would not have to make any changes to their holdings.

Despite our corporate structure that avoids attributable interests, people might still raise other concerns, so let's address the most likely ones.

Making the case

First, the Sirius XM merger set a precedent regarding the scope of the market in which we compete. I think we could easily make the case that even if we owned Sirius XM we would still face tough competition for local advertising revenue from the likes of AT&T, Sprint, Verizon, Google and Yahoo, not to mention the plethora of old-school competitors out there like free local TV, cable TV and newspapers. So there is really no legitimate argument that we could control too much of the market.

The second most likely concern I can imagine hearing is that there would be

too few radio "voices" in each of our markets if free local radio controlled Sirius XM.

I think the answer to this is simple. We should model the business of the satellite operation after that of a cable company, except that we should forgo subscription revenue in favor of the advertiser-based model that has proven very successful not only for radio but for TV, Internet search, etc.

The key component of the cable industry business model that's important for us to emphasize when seeking government approval is that cable companies, themselves, are generally not "voices" in their communities except to a very limited extent. The vast majority of programming carried by a cable company is produced by other "voices."

If we commit to lease a portion of the satellite radio channels in a non-discriminatory manner to others who want to program them, we would have a strong case for there being a sufficient number of different voices. I can imagine an auction system that would let potential lessees bid on annual leases to program these channels.

It's also worth repeating that the plan I'm proposing would have us providing satellite radio for free, instead of on a pay-to-listen basis. What a great selling point and promotional opportunity, free local radio expanding satellite radio's reach from the privileged few to the masses.

Think big

The real beauty of bringing free local radio and satellite radio together would be the increased value it would bring to consumers, and thus to us as licensees.

Imagine this — our satellite company uses 100 satellite channels to broadcast radio programming nationwide. National spots are sold by our satellite company and we all share in the profits. Local spots would be sold by each of us in our local markets.

And, because we would already be serving consumers' radio programming needs with 100 channels of music, talk and information, plus let's say 50 chan-

nels leased to other "voices," and another 50 channels allocated for things like sporting events and concerts, we really don't need to carry real-time audio programming on our local signals. Our local signals could be all-digital and used to send advertisements and all sorts of other non-real time content to receivers 24 hours a day, seven days a week.

**Let's get together
and collectively form
a corporation,
commit the funds,
then make an offer
to the Sirius XM
board of directors.**

This non-real time content could be used for many different applications. For example, it could be stored in the receiver and automatically inserted into the appropriate satellite program(s) just like local spots are inserted into national programming now, except that it would be done in the receiver instead of at the broadcast studio.

This would be beneficial to everyone because it would mean there could be multiple spots available for any given time slot, allowing news, traffic and weather reports, and commercials, to be targeted to specific listeners of a specific channel if listeners program some demographic information into their receivers. Listeners would get a more personalized and therefore more enjoyable experience, and advertisers would be able to more effectively target specific demographics, making their ads more effective. More effective ads are more valuable, which would be the benefit for broadcasters.

While at first the idea of buying out Sirius XM may sound crazy to many, so did the concept of merging both satellite companies two years ago. The times are changing and we need to change with them. Let's get moving.

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Correction

In the Dec. 17 issue, a story listed Mega Media Group as licensee of WNYZ(LP), New York, N.Y. Mega leases the channel from Island Broadcasting Co., the licensee.

Radio World

Vol. 33, No. 1

January 1, 2009

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Next Issue of Radio World January 14, 2009

Next Issue of Engineering Extra February 18, 2009

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Radio World Founded by Stevan B. Dana

Radio World (ISSN: 0274-8541) is published bi-weekly with additional issues in February, April, June, August, October and December by NewBay Media, LLC, 810 Seventh Avenue, 27th Floor, New York, NY 10019. Phone: (703) 852-4600, Fax: (703) 852-4582. Periodicals postage rates are paid at New York, NY 10079 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 282, Lowell, MA 01853. REPRINTS: For reprints call or write Caroline Freeland, 5285 Shawnee Rd., Ste. 100, Alexandria, VA 22312-2334; (703) 852-4600; Fax: (703) 852-4583, Copyright 2009 by NewBay Media, LLC. All rights reserved.

—Printed in the USA—



A Tale of Two Studies

Pragmatism Is Called for in the Digital Power Increase Debate

Perhaps it was inevitable. The proposal to allow a large increase in digital power for FM IBOC has spawned two reports, both of which have been discussed in recent issues of Radio World — and the conclusions of which appear almost diametrically opposed.

On the one hand, the iBiquity-sponsored study empirically measured interference caused by an increase in average digital carrier power to 10 percent of analog. Power was raised under Special Temporary Authority and audio samples recorded in predicted maximum interference locations. Subjective listening tests were used to evaluate the impact.

Apart from grandfathered "super power" allocations and short-spaced stations, little difference in reception was apparent. No complaints surfaced. Score one for unrestricted increases in FM IBOC.

On the other hand an NPR Labs study, using predictive reception models developed from the organization's extensive testing of receivers, found there would be substantial interference to analog reception. Unfortunately the interference resembles well-known multipath distortion so it is not easy for the average listener to identify. For some stations interference could affect as much as 50 percent of their analog audience if all neighboring stations were to operate at 10 percent digital power. That's a scary number for broadcasters, especially given the tiny numbers of digital receivers actually sold to consumers. Maybe we should reconsider this high-power idea after all.

Yet a careful reading of both of these studies reveals as many similarities as differences.

Both showed that interference severe enough to cause listeners to turn away from their radios does occur in some cases, such as short-spaced first-adjacent stations. Both showed that in many — even the majority of — typical allocations, the interference would be relatively small. And both studies also revealed the great improvement in digital reception that

high power would provide.

Perhaps one study was a bit too enthusiastic in its endorsement. Perhaps the other was a bit too conservative in its warnings. Is there a way to find a middle ground?

We have long supported IBOC digital broadcasting as a technology that, while imperfect, allows radio to make the transition to digital with the least disruption. The evidence of just how much improvement higher digital power can provide is too compelling to ignore. If these benefits can be realized without completely undermining analog reception, the industry should try to find a way that allows this to happen soon. Receiver manufacturers have said they see a widespread adoption of low-cost digital tuners beginning in perhaps 2011 or 2012 (though obviously the recession could play into that). Broadcasters need to be ready by that time.

However, unrestricted permission to increase power isn't the right approach. Most would agree that 1 percent average digital power has worked with little problem in FM IBOC. But it is clear that 10 percent average digital power will be a problem for at least some stations.

We need a method that can reliably and consistently predict unacceptable levels of interference, as well as general agreement to provide adequate but not overly restrictive protections. There should also be a procedure in place that's clear about what happens in the case of interference.

The reception modeling work done by NPR Labs provides the groundwork. Using these results it should be possible to design easily understood policies that allow us to move forward with our badly needed digital transition, protecting stations where needed and permitting maximum digital power where it will not cause harm to analog neighbors.

We urge the various interested parties in this issue to work together to resolve their differences. The benefits are worth it.

— Radio World

◆ READER'S FORUM ◆

Factory Support Lacking

Thank you for the article by Paul McLane regarding manufacturers behavior ("Products That Work, Out of the Box," Sept. 24).

We have had a particularly rough month dealing with multiple television equipment manufacturers and startup and service issues. There are a couple things we have noticed, some in line with what Paul wrote about. The issue of poor documentation is really a big one that cuts across a number of areas of broadcast equipment. From our recent experiences the video manufacturers aren't any better than the transmitter firm he mentioned.

Equipment is far more sophisticated and has so many parameters now that it is time-consuming and frustrating to get things started up without proper instructions. And if things don't come up the way one expects, it's hard to tell if you don't know how to make it work or if something is really wrong with the product.

We also have noticed poorer quality control, sparse attention to detail and a scarcity of replacements even when under warranty. Twice in the last month we have had to wait for a vendor to supply warranty replacements; they didn't have any in hand. And then in some cases we got them and they were not configured properly (PAL instead of NTSC). One issue I think will have to be resolved by a site visit from their field engineer, as the tech

support people really don't seem to be able to understand the problem remotely.

They and others seem to have a disconnect between tech support and the engineers who, hopefully, really understand the workings of the product.

Another thing to which we are now paying close attention is the long-term cost of ownership of new equipment.

I, and I know I'm not alone, am really unhappy about manufacturers of sophisticated, software-dependent equipment

Thankfully some people get it right, and those we will go back to later with our business.

extorting software and hardware license and/or maintenance fees if you want any after-sale support.

One package I was recently pitched by a large broadcast manufacturer was so expensive I could buy a whole new unit with the same money in four or five years. And I look at a lifespan of 10 years plus. So that's a big question we are now asking and requiring in proposals. We recently bought an audio/video router and the final decision was made on long-term cost of ownership.

So as not to be completely discouraging, we have had some good experiences lately too. We have some issues with our

FM exciter. Not surprising; it's got some age on it and needs attention. We were quoted a price to repair and update ours; part of the deal was an interim rental of a like unit. The rental came in set up exactly as we had specified, properly tuned and the power set as we had specified. The change-out took all of a few minutes.

Thankfully some people get it right, and those we will go back to later with our business. Keep up the good advocacy for us all.

David E. Priester, CPBE
 Director, Technical Operations
 Roy H. Park School of
 Communications/WICB(FM)
 Ithaca College

Put Spectrum to Good Use

Guy Wire, thank you very much for the positive article on the Broadcast Maximization Committee proposal for Channels 5/6 ("The BMC Plan to Remap and Revamp Radio," Nov. 5). As a member of the committee, it is heartening to see some positive spin from a respected source.

We are hopeful that many others with influence in the industry will see the benefits to be had by employing this, or a composite, plan which will put this newly available spectrum to good use.

Laura M. Mizrahi
 Communications Technologies Inc.
 Marlton, N.J.

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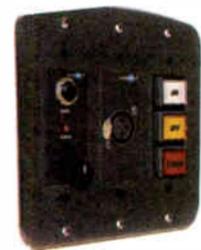


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