

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

Page **37**

Resonant State
Are we tuning for maximum smoke?

Page **12**



Radio World

\$2.50

The Newspaper for Radio Managers and Engineers

January 1, 2009

INSIDE

NEWS

- ▼ Staff reductions hit NPR. **Page 3**
- ▼ Their words brought you our pages. **Page 4**

ENGINEERING

- ▼ NHPR opens its new studios. **Page 12**



Page 12

- ▼ Learning the language of 'green building.' **Page 18**

STUDIO SESSIONS

- ▼ The Road Warrior ponders a number of microphone thoughts. **Page 20**
- ▼ Axia and DAVID are among key parts of a large networked system in Italy. **Page 22**

GM JOURNAL

- ▼ Death of a showman: George Putnam remembered. **Page 26**



Are you in Leslie's loop?
Sign up for
The Leslie Report at
www.rwonline.com/subscribe



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

Radio Automation Reinvented

9 Ways To Save Time And Money in 2009



To view the all-new, fully customizable Google Radio Automation rich in features that can improve your bottom line in 2009, visit www.google.com/radioautomation.

Or call us at (866) 876-4022.



© Copyright 2008. All rights reserved. Google is a registered trademark of Google Inc.

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.”

We hate the sameness syndrome and believe it’s a good part of the reason ears are turning to alternate sources. They are just plain tired. Fatigued.

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.

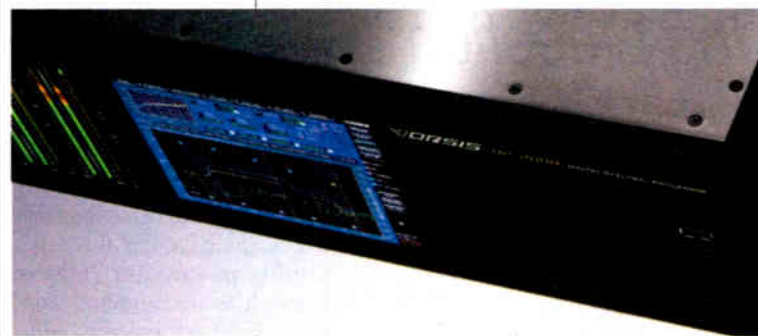
Intuitive Interface and Operation

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

The Vorsis Lineup

- AP-2000**
Digital Spectral Processor for FM analog and HD/DAB
• 5-band dynamics controller
• 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



Radio has evolved. Your sound should too.™

phone 1.252.638-7000 | www.vorsis.com | sales@wheatstone.com

Index	
NEWS	
Act Now or Wait? IBOC Power Is the Question	1
Surprise: Cap-Ex Will Be Taut in 2009	1
NewsWatch	2
NPR Goes Into New Year Leaner	3
RW, One Page and Letter at a Time	4
FEATURES	
Workbench: Imaginative New Uses for an Old Plug	10
Are We Tuning for Maximum Smoke?	12
NHPR Inaugurates Digital Facility	12
The Story of Bootleg 1610	14
Systems Green: Conserving in New Facilities	18
STUDIO SESSIONS	
Mics Make the News Stand Out	20
Funkhaus Gem Sparkles in the Alps	22
GM JOURNAL	
KRTS(FM) Opens West Texas Frontier	24
George Putnam, Silenced at Age 94	26
People News	28
The Next Generation & You, Perfect Together	30
Canadians Like Their Radio Drama	32
OPINION	
Reader’s Forum	36–38
We Should Buy Sirius XM Radio	37
A Tale of Two Studies	38

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

broadcast gear from people you trust



Lowest Prices and Largest Inventory on EVERYTHING For Broadcast

BSWUSA.COM 800-426-8434

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.

31,618 products in stock at press time!

Complete Telos TalkShow System with Assistant Producer Software Only \$1899!



- Everything you need for talk show programming
- Six phone line system with digital hybrid
- BSW exclusive package adds Telos Assistant Producer software that lets talent and producers manage callers from their PC computer
- Save hundreds with this BSW exclusive offer! While supplies last.

1X6PKG List \$3,157.00

Lowest Price only \$1,899!

FREE Distribution Amp (a \$540 value) with the Audioarts Air 2+ Console



AUDIOARTS' ENGINEERING

Audioarts breaks the price barrier with this 12-channel analog console. The Air 2+ provides superb performance with basic functions such as machine control, mix minus, and cue and talkback all included. The dedicated telephone channel is ready...just add a hybrid. It's perfect for smaller stations looking to upgrade as well as larger facilities in need of an aux studio or newsroom console. Right now, get a FREE Audioarts SDA8400 DA with your purchase of the Air 2+, only at BSW. Supplies are limited.

AIR2PLUS 12-Channel Console List \$2,995.00

Call BSW For Lowest Price: 800-426-8434



Special Sale on Mic Booms!
Save Nearly \$20 on OC White's Most Popular Mic Booms!

The OC White Elite 61900 mic boom provides a wire channel through the riser which is prewired to a built-in XLR female jack with 3 feet of pigtail. Premium music wire springs are used, for silent use. The 51900 is

an affordable boom for daily broadcast use. Heavy-duty springs and 12" riser. While supplies last.

61900BG Black with XLR riser
List \$199.00 ~~\$169.00~~ NOW \$149.99!
51900BLK Black, 29" arm/riser
List \$149.00 ~~\$129.00~~ NOW \$119.99!

Lowest Price from \$119.99!

broadcast gear from people you trust



Broadcast Supply Worldwide

Same Day Shipping

BSW stocks a huge warehouse in Ohio for faster delivery to you. Stock items ship the same day. Just order by 5:00 PM Eastern Time.

Experienced Sales Staff

BSW's sales professionals have decades of real-world broadcast and recording experience to offer expert help with your purchase.

From the Editor



Paul J. McLane

These are the people who made up the Radio World editorial "community" in 2008. Taken together, their work, words and opinions created our coverage.

By subscribing to Radio World, you are signing in to one heck of a community of industry leaders. I marvel at how many people touch, and are touched by, the opportunity to contribute to Radio World. The ongoing nourishment of this community is one of the aspects of our work of which I'm most proud.

These are columnists, reporters, letter writers, *Workbench* contributors, photographers, interview subjects, *Buyer's Guide* authors, critics, agitators, friends and companions. In conjunction with our valued advertisers — and the largely unheralded NewBay/Radio World staff — they literally make Radio World possible.

If I missed you, my apologies. If your name does not appear here and you would like to see your opinions or work in our pages, let me know. I'm at pmclane@nbmedia.com.

Jacinda Abcarian, Penny Abshire, Bobby Adams, Tom Adams, Mike Agovino, Mark Aitken, Stu Albert, James Alburger, W.C. "Cris" Alexander, Amanda Alexander, Tom Ammons, Tim Anderson, Bruce Anderson, Paul Anderson, Doug Apple, Chris Arnaud, Jerry Arnold, Dave Arnold, Bill Ashley, Andrew Ashwood, Brett Atkinson.

Mike Babbitt, Don Backus, Bud Bailey, Chris Bailey, Mitch Bainwol, Craig Baker, Michael Baldauf, Talmage Ball, Robert Ballou, Bob Band, Michael Barnes, Thomas Barnett, John Bartol, Mark Battersby, Hundley Batts Sr., Fred

RW, One Page and Letter at a Time

By Subscribing to Radio World, You Sign In to One Heck of a Community of Industry Leaders

Baumgartner, Frank Beacham, Tim Bealor, Caroline Beasley, Phil Beckman, Gary Begin, Lawrence Behr, Rodney Belizaire, Ray Benedict, Mick Bennett, Bob Bergen, Sam Berkow, Oliver Berliner, Clarence Beverage, Jim Bezak, David Bialik, Harry Bingaman, Michael Binns, John Bisset, Paul Black, Bruce Blanchard, Barry Blesser, Jon Blomstrand, Peter Bloomfield, Andrew Blumberg, Art Botterell, Wes Boyd, Randall "Bear" Bradley, Zach Braiker, Ivan Braiker, Bob Brandt, Dave Brawdy, Paul Brenner, Ben Brintzer, Kelly Brooks, Dan Brown, Leanne Brown, Eric Brown, Margaret Bryant, Chuck Bullett, Read Burgan, Nathan Burk, Dave Burns, Alan Buterbaugh, Tony Butler, Clyde Butter, Tom Butts.

Steve Callahan, Thom Callahan, Tom Calococci, Kevin Campbell, John Caracciolo, James Careless, Fabio Carera, James Carney, Chuck Carr, Tom Carten, Stan Carter, Tony Caruso, Dave Case, John Casey, Joe Cassara, Richard Cassidy, Bernie Celek, the late Larry Cervon, Ralph Chambers, Harold Chambers III, Kirk Chestnut, Steve Church, Megan Clappe, Marguerite Clark, Terry Cockerill, Harry Cole, Nick Colleran, Marvin Collins, Dave Compton, Tom Connolly, Joyce Conroy, Holland Cooke, Chantal Cooke, Brian Cooley, John Corbin, Paul Courson, Bernie Courtney, Lance Craver, John Crigler, Chris Crump, Bob Culkeen, Bob Culver, Neil Currie.

Mike D'Antonio, Peter Dahl, Doug Daigle, Jim Dalke, Simon Daniels, Ray Davis, Sterling Davis, Steve Davis, Ben Dawson, Bill DeFelice, Ed De La Hunt, Steve Densmore, Jeff Detweiler, Ken Deutsch, John Devecka, Anil Dewan, Russ DiBello, Dan Dickey, Joshua Dirks, Todd Dixon, JC Douglas, Mike Dorrough, Charles Dubé, Rick Ducey, Roger DuFault, Ed Dulaney, Terrence Dupuis, Mark Durenberger.

Bruce Earle, Xavier Edward, Cindy Edwards, Mike Eiland, Andy Eliason, Gary Ellingson, Stu Engelke, Dane Ericksen, Deb Esayian, Omar Essack,

Holly Essex, Brother Duke Evans.

Richard Factor, Rick Feinblatt, Bob Felmy, Kevin Fennessy, Lee Ferraro, Peter Finch, Howard Fine, Charles "Buc" Fitch, John Fitzgerald, Reid Fletcher, Steve Fluker, Larry Foltran, Doug Ford, Ty Ford, Frank Foti, Jon Frank, Mark Fratrik, Ken Freed, Dave Freelan, J.D. Freeman, Clay Freinwald, David Frerichs, Scott Fybush.

Anne Gabriel, Steven Gallagher, Guy Gampell, John Garziglia, Paul Gathard, John Gatski, Dale Gehman, Valerie Geller, Karina Gerardi, Jay Gerber, Sue Gerber, M.J. Gilhooley, Carl Ginsburg, Marc Girolimetti, Fred Gleason, Chuk Gleason, Rob Goldberg, Bert Goldman, Bruce Goldsen, Steve Goldstein, Jim Graham, Lee Granlund, Iain Grant, Marc Graue, Fred Greaves, Robbie Green, Martyn Gregory, Steve Griesbach, Dave Groth, Blazo Guzina.

Josh Hadden, Steve Hafen, Jeff Haley, Lawrie Hallett, Harold Hallikainen, Billy Hallisky, Donna Halper, Dan Halyburton, Mark Haney, Terry Hanley, Tom Hartnett, Gavin Haverstick, Winston Hawkins, John Hayes, Ben Haylock, Michael Hedges, Mark Heller, Kurt Heminger, Bob Henry, Cheryl Heppner, Steven Herman, Dave Hershberger, Tom Hicks, Mario Hieb, Elmer Hildebrand, Jer Hill, Rich Hill, Dave Hines, Ed Histed, Dave Hodges, David Holland, Tim Holt, Mike Horn, Scott Horner, John Howard, Randal Howard, Don Hughes, Deb Huttenburg, Nikolai Ianchovichin, Chris Imlay.

Dennis Jackson, Charlie Jacobson, Mike Jansen, Joe Jarjoura, Jim Jenkins, Keith Jentoft, James Johnson, Matt Johnson, Nels Johnson, Eric Johnson, Craig Johnston, Adam Jones, Bart Jones, Elaine Jones, Linda Jones, Jeff Jury.

Paul Kafasis, Kevin Kahn, Justin Kaiser, Paul Kaminski, Chris Karb, Roger Karwoski, Bill Kaufman, Steve Kawasaki, John Kean, Gary Keener, Robert Kegerreis, Chuck Kelly, Herb Kent, Jim Kerr, Tim Kimble, Letitia King, Peter

King, Tom King, Glen Kippel, Sheila Kirby, Alan Kirschner, Gary Kline, Joe Klinger, Hal Kneller, Gabriel Koerner, Walt Konetsco, Bob Kovacs, Joseph Kraemer, Erwin Krasnow, Fred Krock, Wayne Kube, Steve Kuhn, Warren Kurtzman, Elizabeth Kutz.

Robert LaFore, Chuck Lakaytis, James Lakely, Steve Lampen, Hank Landsberg, Larry Langford, R. Langison, Mike Langner, Jeremy Lansman, Mark Lapidus, Matthew Lasar, Alberto La Valle, Michael Lawton, David Layer, Chuck Leavens, Michael LeClair, Jerry Lee, Karen Lee, Michael Lee, Nick Leggett, Nickolaus Leggett, Jack Leverich, Steve Levine, Rick Levy, Zackary Lewis, Lourdes Lilly, Gregg Lindahl, Carl Lindemann, Andy Lindenaue, James Linthicum, Jeff Littlejohn, Paul Lotsof, Steve Lovelady, John Lowe, Steven Ludwig, Jeffrey Lunger, Heather Lusignan, John Lyons.

Dave Mackenzie, Deanna Mackey, Marc Maes, Mike Manley, Marc Mann, Daniel Mansergh, Paco Marin Galindo, John Marino, Dave Marthouse, Kevin



Your Single Source for Broadcast Solutions



ERI is your single source for the broadcast industry's best antennas, filter and combining systems, transmission line and RF components, and towers and structural products. Our professional team of engineers, designers, fabricators, project managers, and installers take pride in contributing to your success by delivering products and services to meet all of your RF and structural needs.

ELECTRONICS RESEARCH, INC. **ERI**

Call Toll-free at 877 ERI-LINE • Visit Online at www.eriinc.com

Martin, Sue Matters, David Matthews, David Maxson, Bob May, Bob Mayben, Mike McCarthy, Tom McGinley, Karen Solomon McGinley, Gary McIntyre, John McMellen, Marian McPartland, Maury

Mizrahi, Grady Moates, Todd Mohr, Matt Monin, Edd Monskie, Francisco Montero, Ed Montgomery, James Moody, Thom Moon, Bill Moore, Tim Moore, Art Morris, Darren Morton, Brett Moss, Mark Motl, Gary Mott, Dave Moulton, Mark Mueller, Greg Muir, Martina Müller, Howard Mullinack, John Mullinix, Russ Mundschenk, Russell Munson, Rick Murphy, Dean Mutter.

Ted Nahil, Bob Naismith, Tim Nelson, Sean Neumayer, Fred Newman, Dave Noble, Tom Norman, Clark Novak, Vincent Nowicki, Ronald Nutter, James O'Neal, Marcos O'Rourke, Rogelio Ocampo, Greg Ogonowski, Nick Olguin, Tom Osenkowsky, David Oxenford, Dr. J. Parcfolllu IV, Dan Parker, Rich Parker, Darryl Parker, Bill Parris, Bill Pasco, Larry Paulausky, Emmanuelle Pautler, John Pavlica, Jim Peck, RJ Perkins, Mark Pescatore, Adrian Peterson, Sharon Rae Pettigrew, Scott Pfeifer, Skip Pizzi, Kevin Plumb, David Pogue, Burt Poley, Stephen Poole, John Poray, Barry Potter, Ruth Prestlaff, Richard Price, David Priestler, Craig Pringle, the late George Putnam, QuadBob, Jack Quinn.

John Ragsdale, Martha Rainville, Claudio Rampazzo, John Ramsey, Rich Rarey, Tom Ray, Ken Ray, Aaron Read, David Reaves, Chris Redgrave, Rich Redmond, Harv Rees, David Rehr, Gary

Reid, Art Reis, David Remund, Howard Reynolds, Michael Richards, Van Richards-Smith, Ed Ritchie, Joe Roark, Dave Robbins, Clayton Roberts, Bruce Robertson, Sam Roffe, Chris Rolando, Jeffrey Rosenberg, T. Carter Ross, Bruno Rost, Paul Roy, Ned Rubin, Tom Rucktenwald, Ed Rusch, J.R. Russ, Bill Ryall, Rosy Ryan.

Gary Saber, Bill Sacks, Kim Sacks, Michael Saffell, Paul Sagi, Paul Sakrison, Stanley Salek, Denny Sanders, Jim Sanders, Kim SangHun, Yúsef Arikat Sanz, Al Sargent, Bob Savage, Steve Scarborough, Pete Schartel, Philipp Schmid, John Schneider, Walter Schoenknecht, Bob Schroeder, Dan Schroeder, Steve Schuh, Bill Schulz, Bill Schurk, Tim Schwieger, Tom Scott, Kevin Scott, Nandini Sen, Glenn Serafin, Tim Shamble, Charlie Shapiro, Bob Sharkey, Alan Shea, Ellyn Sheffield, Glenda Shrader Bos, Paul Shulins, Sid Shumate, Alex Shvarts, Laverne Siemens, Tom Silliman, Pete Simon, Sammy Simpson, Will Sims, John Sims, Gregg Skall, Paul Ski, Karen Slade, Ken Sleeman, Dan Slentz, Eric Small, Sandy Smallens, Alan Smith, Brian Smith, Jason Smith, Milford Smith, Jacob Smullyan, Gary Snow, John Soller, Henry Solomon, Dean Spooner, Jobie Sprinkle, Joe Stack, Mike Starling, Ted Staros, Vicki Stearn, Kevin Sterne, Roy Stewart, David Barnes Still, Leslie

Stimson, Randy Stine, John Storyk, Rick Stout, Matt Straeb, Richard Strickland, David Strode, Bob Struble, Bob Surette.

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 ▶



Made in the USA

BUILDS AND SERVICES THE MOST RELIABLE SOLID STATE FM TRANSMITTERS

Simplifying Broadcast Transmitters



Expect

World Class Service
Cutting-Edge Technology
High Performance



888-889-2958

www.ptekpower.com

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 ►

The Metropolitan Opera sets the standard for great sound. And it's chosen ACCESS to let the world listen in.



Photo: Jonathan Tichler/Metropolitan Opera



"Opera is one of the most challenging musical genres to do complete justice to in a broadcast, but ACCESS makes it easy."

—Matthew Galek, Broadcast Engineer for The Metropolitan Opera

The Met's Matthew Galek is a Real-World Super Hero

Not content to rest on its laurels, the most renowned and respected opera company in the world is determined to connect with the widest possible audience—in the highest audio fidelity. With engineer Matthew Galek at the transmission helm, the Metropolitan Opera broadcasts its Saturday matinee to an ever growing number of affiliates using ACCESS

(and the optional AAC suite) in multistreaming mode. With ACCESS, the Met's broadcasts offer all the sonic richness it's famous for—over the most challenging IP networks.

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

Contact Comrex today and find out how ACCESS can help you become a Real-World Super Hero—wherever you are!



Put Comrex On The Line.

COMREX

19 Pine Road, Devens, MA 01434 USA Tel: 978-784-1776 • Fax: 978-784-1717 • Toll Free: 800-237-1776 • www.comrex.com • e-mail: info@comrex.com

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
radioworld@nbmedia.com. ●



COMET

Leading the way in Broadcast Capacitors!

COMET is the world leader for high voltage vacuum capacitors and provides a wide range of variable and fixed capacitors...

- Variety of Solutions for Power Applications
- Large Range of Voltage and Capacitance Values
- Broad Tuning Ranges for Variable Capacitors
- Compact Design Relative to Operation Power
- Ease of Installation

AND COMET provides the most comprehensive industry capacitor replacement and cross-reference guide for your application.

Contact us today to help meet all your capacitor needs!

1-877-VAC-CAP1 (877.822.2271)
www.comet.ch

PSST... NEED A CONSOLE? BGS HAS ALL KINDS!



AXIA ELEMENT

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

RADIO SYSTEMS MILLENIUM DIGITAL

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



HARRIS NETWAVE

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



ARRAKIS ARC-15

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



BGS ALSO CARRIES

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

Whatever you need - BGS has it!



DISTRIBUTED BY

**Broadcasters
General Store**

World Radio History

www.bgs.cc

352-622-7700

Workbench

Radio World, January 1, 2009

Past columns are archived at radioworld.com

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.

TOP VALUE FM Monitor

This Easy-to-Use FM Mod-Monitor Gives Accurate Off-Air Measurements



A wealth of features makes Inovonics' second-generation 531 the undisputed value leader in FM Monitoring. In addition to the high-resolution total-mod display, the 531 also shows stereo audio levels, SCA and RDS subcarrier injection, plus a relative indication of incidental AM noise. A digitally-tuned pre-selector with programmable presets lets you quickly compare your station's parameters with those of market companions.

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...
But the original's still the greatest."
— Billy Page THE IN CROWD

www.inovon.com

i Inovonics
1305 Fair Ave. • Santa Cruz, CA 95060
TEL: (831) 458-0552 • FAX: (831) 458-0554
www.inovon.com • e-mail: info@inovon.com

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

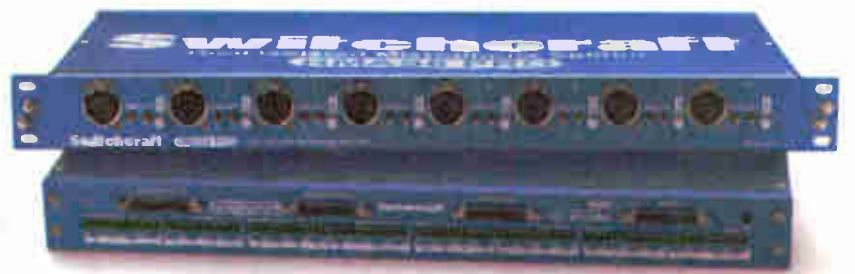
Interconnector manufacturer Switchcraft has two new microphone/audio splitters, RMAS8 and RMAS8Pro.

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.

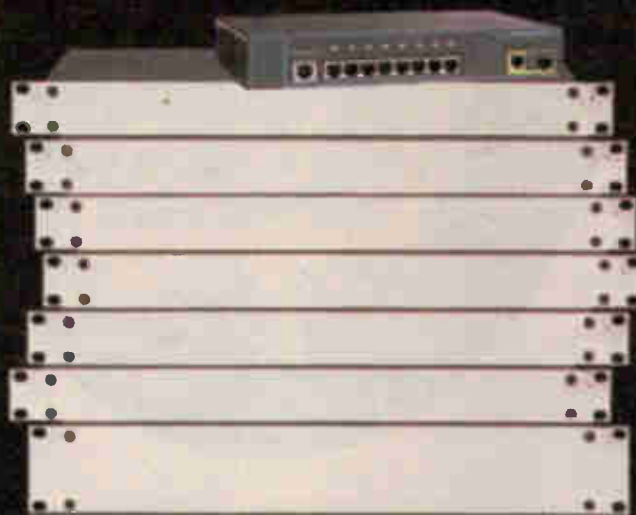
Front-panel input connections are XLR while back-panel connections, input and three outputs, are 25-pin D-sub (TASCAM pin-out).

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

For more information, contact Switchcraft at (773) 792-2700 or visit www.switchcraft.com.



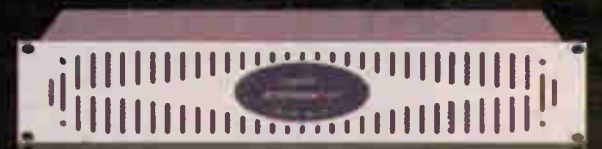
Antiquated IP Audio



Unfriendly & Expensive at \$18,468*

The Choice is Simple

Next Generation IP Audio



Plug & Play & Auto-Configuring at \$6,000

*System Specs: 8 Analog Inputs, 8 AES I/O, 8 Mic Level Inputs, 16 Outputs, One Channel 48kHz/192kHz

A new benchmark for IP audio has arrived... the Logitek JetStream.

Everything about IP implementation has been getting less expensive and more user friendly. It's time for the Radio market to catch up with this trend. The Logitek JetStream represents the next generation of IP routing and networking and, unlike the older stuff on the market, the JetStream is easy to set up and use. Name a source and every JetStream on the network knows the configuration. (Stow your computer after setup – JetStream doesn't need it.) Save space in your already crowded racks – our two rack units accomplish the same functions as the competition's eight units. Even better, JetStream is easy on your budget – a single 10 fader networked studio costs less than \$10,000 and a standalone studio is less than \$8,000. You can mix analog and digital sources in a 32 x 32 router for under \$6,000, and network units for larger routing needs. The JetStream has vLan capability for back-up STL, remote studio applications and long distance snakes.



It's time for the next generation.

The JetStream has the features you want in an IP system:

- Internal codec
- Fanless convection cooling
- Up to 32 audio inputs and outputs — stereo, mono or 5.1, analog or digital, in a 2 RU package
- Integral GPIOs
- Dual Gb network ports for easy, lowest latency redundant networking
- Audio confidence indicators
- 24 faders of mixing, assignable to up to 4 control surfaces
- Profanity delay, silence alarms, input metering and mic processing
- Automation protocols (nc, you don't need some cards)
- Auto configuring mix: VLAN tagging, DHCP, DNS, MADCAP, AutoIP, MDNS, DIFF-SERV, SIP, SDP StudioHub+ compatible for easy installation
- ...and more!



Call 800-231-5870 today for more information or to schedule a demo.

www.logitekaudio.com

©2008 Logitek Electronic Systems, Inc.

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



Photo: Gary Hayes, ABC

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.

Can do.

CODECS

HYBRIDS



Zephyr/IP (Rackmount)



Zephyr/IP (Mixer)



Nx12

Featuring ACT™ – Agile Connection Technology, which continuously monitors the connection and adjusts the buffer and bit rate to compensate dynamically for network conditions. The Zephyr/IP does this automatically without audible artifacts and with very little delay while producing high-quality audio over a rock solid connection. Also available in a mobile mixer version.

The Nx12 is our most powerful performer, setting new standards for studio telephone interface systems in today's environment. It gives you the latest hybrid technology and audio processing by Omnia for the cleanest, most consistent call quality ever; even over VoIP and cell phone calls.

Xstream

The Best Way To Hear From There™



Xport

The "Go Anywhere" Zephyr



ONE x Six

Six Lines No Waiting



Telos One

Ideal Interface Solution



Telos Two

Advanced ISDN Hybrid



2101

Whole-Plant Solution for Large Studio Complexes



CONTROL

SOFTWARE

Desktop Director

Caller Management Simplified



Call Controller

Easy, Cost Effective Screening



Switch Console

Control As You Like It



Console Director

Smooth Integration with Nx12 and 2101 systems for Axia Element Owners



ProFiler

Multi Channel, Multi Streaming
Audio Archiving



NeoScreener

Advanced Call Screener Software



Telos

AUDIO | NETWORKS

www.Telos-Systems.com

© 2008 TLS Corp. Telos, Axia, One-x-Six, TWOx12, Series 2101, Nx12, Zephyr/IP, Call Controller, Desktop Director, Console Director, Livewire and Element TM TL: Corp. All rights reserved.

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.

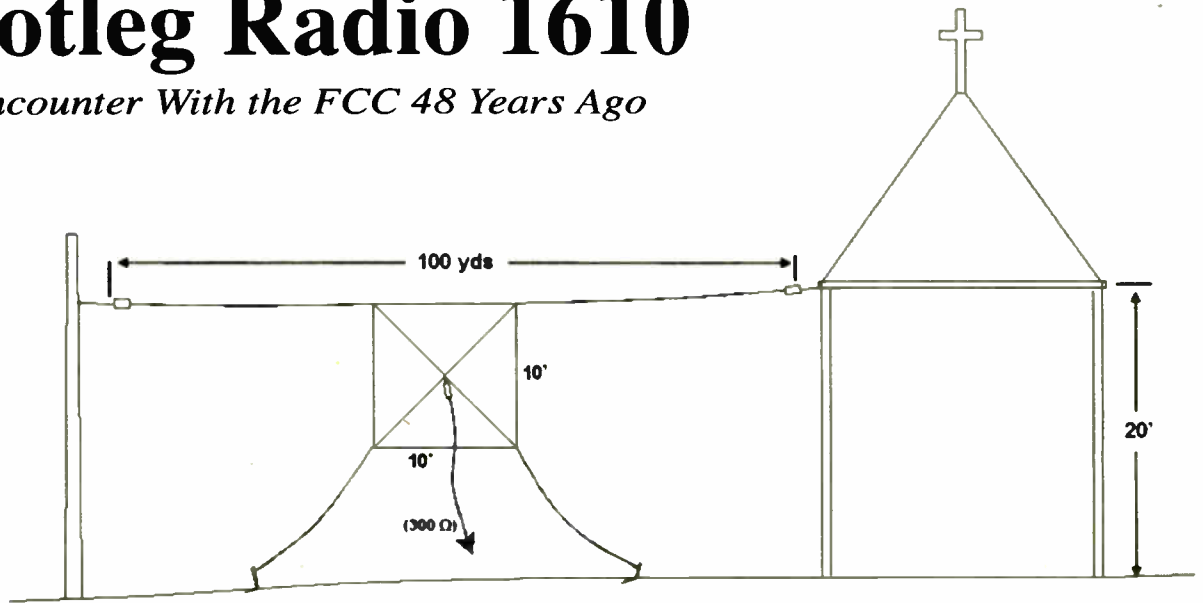
Disc jockey Dick Summer would play the newest rock-and-roll hits from his WIBC radio booth high atop Merrill's Hi Decker drive-in restaurant on 38th Street. His show would include what he called the "make it or break it game." He would spin new 45 rpm releases and ask patrons parked in their cars at 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 ►

Axia consoles come with 24/7 support.

(Because radio is a 24/7 business.)



Broadcasting doesn't take time off for holidays and weekends. So why do all the other console companies only provide support from 9-to-5? This doesn't make much sense to us.

That's why Axia clients get **24/7 support**, 365 days a year (366 days in leap years, wise guy).

Axia consoles are engineered to deliver years of trouble-free use. They're so reliable, they carry a **5-year warranty** (the industry's best). Chances are, you'll never need assistance, but if you do, we'll be ready for you.

Our 'round-the-clock help line is **+1-216-622-0247**. Call anytime; our support engineers will be happy to help you.

Extraordinary support. Yet another reason why Axia is the **fastest-growing console company** in broadcasting.



www.AxiaAudio.com

Bootleg

► Continued from page 14

signal would fade away. I discovered that the range was just over three miles.

What I did not know were the physical principals of radio harmonics and resonated frequencies in relationship to length and height of antennas. That is where a little knowledge of radio physics can become big trouble.

Robert ...!

One Saturday morning during late fall of 1960, my father answered the doorbell to our home. A man was standing at the doorway; he presented my father with his Federal Communications Commission field engineer's credentials.

"Reverend Kegerreis, do you have an unlicensed radio transmitter in this house or in the church?"

Dad was shocked. "No, not that I am aware of."

"I have pinpointed an illegal radio signal coming from this house or the church, and it has been causing severe interference on an Indianapolis station's assigned frequency for many months."

Dad looked at the man and responded, "My son and some of his friends have built a phone oscillator and have been playing with it from time to time, but surely it cannot produce interference like you are suggesting."

"May I talk with your son, is he here," asked the officer.

"ROBERT, come down here!"

Dad introduced me to the engineer, who repeated his statement. I explained that I had built a phone oscillator for extra credit in my physics class and had been using it to broadcast music within

the community; I thought it was perfectly legal.

The field engineer said he had been tracking the signal on and off for several weeks and that it was far too powerful to be coming from a simple phone oscillator. It was causing interference on the Indianapolis station's frequency that was being received in Cincinnati.

"Cincinnati, Ohio!" I responded. "That is incredible!" To me it was really exciting that my phone oscillator had such powerful range. (If Mr. Stanley knew about this he would probably give me an A!)

Dad and I did not have a clue as to what the agent had said, but we could tell from his voice and expression that this was not a good situation. I asked, 'What is a secondary harmonic?'

"It may be incredible, son, but what you are doing is a direct violation of federal communications laws. You are broadcasting without a station license. This is a violation of FCC laws and could result in fines of \$10,000 and jail time."

Whups

The field officer asked if he could see the phone oscillator. I took him upstairs to my bedroom, followed close behind by my dad.

A card table was set up next to the window overlooking the church. The phone oscillator, turntable and microphone were sitting on top of the table; the antenna wire and ground lead ran in through the window. The 45 rpm record player was cycling as we approached and

had just finished playing "Rockin' Robin." Another 45 dropped down onto the turntable and the needle arm automatically positioned itself over the record and began playing "Chantilly Lace."

"This is it?"

"Yes sir. This is it."

The record player was spinning and the little one-tube phone oscillator was glowing under full power with its reddish-orange color. The field engineer looked over all of the equipment, puzzled.

"This is impossible," he said. "What are you using for an antenna?"

"Oh, we've got a directional antenna out back. I made it. I modeled it from an antenna I saw on a QSL card. Here, this is the picture I used." I showed the officer the picture of the antenna on the QSL card from HCJB.

"No way," he said. "Can you show it to me?"

"Sure, come on outside, I'll show you." I was now proud of my work because it was apparent that the field engineer could not believe his eyes. I apparently had created something unique. My little radio station was reaching Cincinnati! But I also knew I could be in real trouble.

The three of us walked to the backyard. The antenna stretched across the yard from the top of the telephone pole behind the police station to the window

on the second floor of the church. The rectangle box was swinging lightly in the breeze with the phone oscillator lead wire attached to the center of the "X."

Dad and the field officer looked up at the antenna, following it with their eyes from the telephone pole to the church window. The field officer's mouth dropped.

"My God," he blurted. "This is unbelievable. Do you have any idea what you have here? It appears you have stumbled into creating an antenna that is just the right size and shape to generate incredible gain and effective radiation. The secondary harmonics must be riding right on top of Indianapolis's carrier — all 50,000 watts of it."

Dad and I did not have a clue as to what he had said, but we could tell from his voice and expression that this was not a good situation.

I asked, "What is a secondary harmonic?"

The officer looked at me in puzzlement, then at the full antenna configuration again and shook his head. He looked at me and asked, "How old are you, son?"

"Sixteen," I answered.

"Stay right here. I'm going to get a meter from my truck." He went to the van he had parked in front of the parsonage and opened the back set of doors. I noticed that a circular antenna was attached to the roof of the van. I'll never forget the color of that van or the Federal Communication Field Engineering logo on the front door.

The field engineer returned with a meter and began to attach probes carefully to different sections of the antenna. Then he pushed a copper rod into the ground and began taking readings.

"Unbelievable," he said. "You're radiating about 20 watts of power."

Then he disconnected all of the probes and tucked the meter under his arm. He looked at my dad.

"Mr. Kegerreis, your son has built an illegal broadcast station and is in violation of FCC rules and regulations. I have no idea how he could possibly have done all of this — how he built this antenna or how he has put all of this together. I cannot believe that the one-tube oscillator he has attached to this antenna could possibly be doing what it is doing. But I can assure you that your son is operating a radio station without a license and it is interfering with a major Indianapolis radio station."

Then he looked at me and said, "Son, you need to shut down your transmitter and give it to me. According to the law you are in violation and I must take it with me. You must never do this again or you will be arrested."

On that warm fall day in 1960, the FCC pulled the plug on K-town Radio. No more bootleg radio with its rock and roll music for Knightstown high school students. I will never forget watching the white van with its circular antenna and logo driving away, with my phone oscillator inside.

Later that day the antenna came down; on that same day my driving privileges came to a halt for the next two months.

For the next two years, about every three months thereafter, I received a first class letter from the FCC with a simple one-page flyer enclosed. No letter, just the flyer. It described the rules and regulations of FCC Part 15 and how operating an unlicensed radio station could result in severe fines and penalties.

E-mail Robert R. Kegerreis at rrkchpc@aol.com.

MARKET PLACE

BIA Enhances Media Access Pro

BIA Advisory Services has issued an enhanced edition of Media Access Pro, its market and ownership information software.

MAPro Version 4.3 includes details on individual multicast/digital stations, Arbitron Portable People Meter data for available markets, and detailed band ID information. Also new is the ability to export counties per market and across various media.

The research company said the enhancements let station owners and operators efficiently track the competitive outlook in PPM markets and view detailed digital radio information.

The addition of PPM data in MAPro will provide the ratings information that Arbitron is publishing on Internet streaming and various HD signals, in addition to offering a PPM 12 month history.

Users can choose from different criteria to display data so they are viewing the information (i.e., PPM or Diary ratings) most interesting to them.

Currently, PPM audience estimates are provided for 10 markets, all included in MAPro 4.3. As further markets become available, they will be included.

Enhancements also include the addition of detailed information for low-power FMs and their programming. Users can single out these stations via a special search criterion. MAPro 4.3 also includes information on additional station programming (i.e., HD2 & HD3) such as formats being provided and detailed contact information at each multicast program stream. It has an enhanced way of viewing multiple markets simultaneously via new saved searches, making it easy to view information across markets.

For information or a demo, call (800) 331-5086 or e-mail info@bia.com.

Market	Station	Format	Power	Class	Market	City	State	Lat	Long
101.1	WYBB	FM	100.1	FM	Philadelphia, PA	Philadelphia, PA	PA	39.95	-75.16
102.1	WYBB	FM	100.1	FM	Philadelphia, PA	Philadelphia, PA	PA	39.95	-75.16
103.1	WYBB	FM	100.1	FM	Philadelphia, PA	Philadelphia, PA	PA	39.95	-75.16
104.1	WYBB	FM	100.1	FM	Philadelphia, PA	Philadelphia, PA	PA	39.95	-75.16
105.1	WYBB	FM	100.1	FM	Philadelphia, PA	Philadelphia, PA	PA	39.95	-75.16
106.1	WYBB	FM	100.1	FM	Philadelphia, PA	Philadelphia, PA	PA	39.95	-75.16
107.1	WYBB	FM	100.1	FM	Philadelphia, PA	Philadelphia, PA	PA	39.95	-75.16
108.1	WYBB	FM	100.1	FM	Philadelphia, PA	Philadelphia, PA	PA	39.95	-75.16
109.1	WYBB	FM	100.1	FM	Philadelphia, PA	Philadelphia, PA	PA	39.95	-75.16
110.1	WYBB	FM	100.1	FM	Philadelphia, PA	Philadelphia, PA	PA	39.95	-75.16

Ecreso Next FM Now Shipping

The Ecreso Next FM system is now shipping.

This is an FM exciter that can be delivered in three power ranges up to 100 W. It also integrates digital sound processing FM/HD-R/DAB 2/4 band stereo encoding, RDS encoding, embedded audio backup and the capability to manage a 1+1 installation and perform preventive maintenance with embedded broadcast remote control functions and diagnostics.

The exciter can be packaged with RF amplifiers to create an "all-in-one" transmitter ranging from 250 W to 10 kW.

The company's Christophe Poulain said the product combines Ecreso experience in FM transmitters with Audemat's expertise in RDS, audio over IP, remote control, FM broadcasting and processing.

For information contact Audemat in Florida at 305-249-3110 or visit www.ecreso.com.



THE BOSS HAS AN OFFER YOU CAN'T REFUSE.

BUY AN OMNIA 6EX OR 6EXi AND GET A FREE OMNIA ONE!
CALL YOUR LOCAL OMNIA DEALER TODAY IF YOU KNOW WHAT'S GOOD FOR YOU.



OmniaAudio.com

Omnia, ONE and 6EXi are registered trademarks of TLS Ccnp. ©2008-09. All Rights Reserved.

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.



Half STAC or Full STAC.

Got Interesting Callers? Make Your Show Sizzle – STAC 'em!

When your talk show is really cooking, it pays to have a system that keeps you in control. STAC (Studio Telephone Access Center) does just that. Incorporating a pair of Comrex high-performance digital hybrids, STAC provides the most natural sounding telephone audio — even when conferencing up to four callers.

STAC
STUDIO TELEPHONE ACCESS CENTER

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!



half STAC | full STAC



COMREX
www.comrex.com

19 Pine Road, Devens, MA 01434 USA • Tel: +1-978-784-1776

Fax: +1-978-784-1717 • Toll Free: 800-237-1776 • e-mail: info@comrex.com

World Radio History

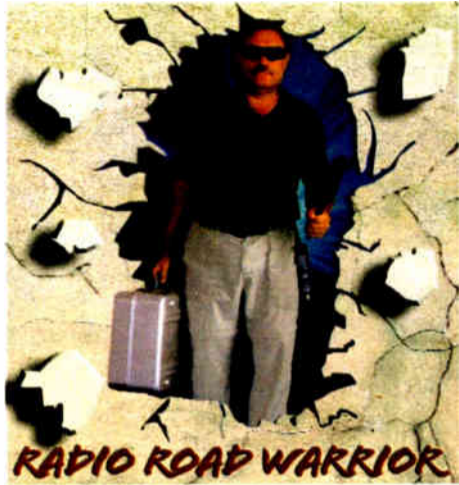


Studio Sessions

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

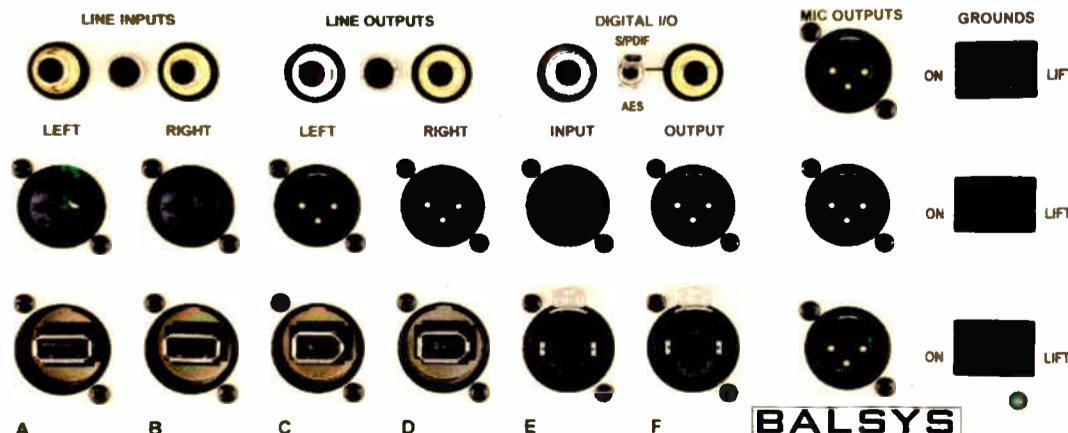
Universal Studio Connectivity

Don't Build A Studio Without One!

The Global Distribution Portal provides convenient two way interface between any Studio / Central Audio System and external equipment. Active circuitry supports both Analog & Digital Stereo I/O in both Professional & Consumer formats, utilizing the most commonly encountered audio connectors.

3 Mono Summed Output Feeds at Mic Level. Independent Ground Lifts. Spaced to permit use of Wireless "Butt Plug" Transmitters.

Global Distribution Portal



6 Utility Feedthrough Connectors.

Standard configuration is 2 each USB, Fire Wire, and RJ-45, but all are interchangeable and can easily be field configured as desired.

3RU High - Rackmount Adapters optionally available.

SYSTEMS STORE .com

SystemsStore

890 Carter Road #150
Winter Garden, FL 34787
Tel: 407-656-3719
Fax: 407-656-5474

www.SystemsStore.com
Sales@SystemsStore.com

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.

Paul Kaminski is news director for the Motor Sports Radio Network and a contributor for CBS News Radio; he has been a Radio World contributor since 1997. E-mail to motorsportsradio@msrpk.com.



Heil Sound PR 22



...ve home without this little stand.

NO WIRES. NO CABLES. NO PROBLEM.

LANLINK HS 9000

License-Free data link delivers LAN/WAN network and control where no wires or cables exist.

Create your own data link to the transmitter site with Moseley LanLink HS 9000.

RDS, transmitter remote control, off-premises servers, surveillance video and IP phones can be implemented quickly and cost effectively. In addition, email and Internet can now be accessed on-site. Saving time and valuable resources.

LanLink operates in the 900 MHz ISM band requiring no license or frequency coordination. Duplexing into your existing STL antenna system eliminates additional antennas, tower leases and loading issues.

With LanLink, the explosion of innovative and money saving IP based applications and hardware can be easily networked into your transmitter site today.

Contact us to learn more!

Moseley

Your link to wireless solutions.
moseleysb.com

Dave Chancey: (805) 968 9621
Bill Gould: (978) 373 6303

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 Jehrlander, 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.

AM Antenna Solutions

LBA Technology - your trusted supplier of digital engineered AM antenna systems. LBA customized products include **Directional Antenna Systems, ATU's, Multiplexers, Combiners, Cellular/PCS Colocation Isolators, and RF Components** for all power levels. We offer complete RF project design, management, procurement and installation services.

LBA enables thousands of broadcasters in the US and worldwide to -

Reach Farther, Sound Better!



Directional Antenna Systems



Diplexer/Triplexer Systems



High-Power Antenna Tuning Units



RF Components

Factory Dealer For:



LBA TECHNOLOGY, INC.

3400 Tupper Drive, Greenville, NC 27834
800-522-4464 / 252-757-0279 Fax: 252-752-9155
Contact John George at jgeorge@LBAGroup.com

www.LBAGroup.com



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 Rippey 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 ▶

DEVA[®]
BROADCAST

EVERY RADIO STATION NEEDS ONE!

www.devabroadcast.com
sales@devabroadcast.com

Band Scanner Pro

FM MODULATION MONITOR & RDS ANALYZER

This is a tool to evaluate FM broadcast band congestion and to log station identification parameters. The "Band Scanner Pro" can measure RF level, MPX deviation, Left & Right Audio levels, RDS and Pilot injection levels. The system is powered by the USB port of any Windows PC. Supplied free of charge Windows software sweeps the receiver across the FM band, logging every carrier and generating a spectrum display of carrier level vs. frequency. It then analyzes each carrier and creates a station list. Its interface is like a portable radio: It may be tuned manually through the receiver screen or by double-clicking a point on the spectrum plot or an entry on the station list. Spectrum plots may be saved as JPG file. The RDS data error level is graphed in a separate window on the receiver screen. The program can be monitored with headphones plugged into a standard 1/8" jack.

World Radio History

Your Hosts



Paul McLane
U.S. Editor in Chief
Radio World



Skip Pizzi
Contributing Editor
Radio World

What to Watch for in 2009

Where We Are ...

A Radio World TechCast:

360°

Industry Roundtable

... Where We're Going



Featured Guests

David H. Layer

Director, Advanced Engineering
NAB Science &
Technology Department



Milford Smith

Vice President
of Radio Engineering
Greater Media



Mike Starling

Vice President/CTO of
NPR & Executive Director of
NPR Labs

Join the editors of Radio World and three forward-thinking industry guests for a special free 50-minute online roundtable discussion of the most important technical trends that will affect radio broadcast engineers, managers and owners in 2009.

HD Radio. Mobile. Connectivity. Online streaming. Radio and new apps for consumer devices. Regulatory changes under a new administration. What topics will we hear about in '09? Listen to radio's top engineers, hosted as only radio's best journalists can.



WHEN: Right Now! We missed you, but you didn't miss out!

WHERE: Your computer via Internet browser

FREE Archived Webinar — simply click on the link below and fill out the registration form

<http://www.radioworld.com/webinars/4>

Radio World

Sponsored By:

COMREX

DAVID
World Radio History
systems

Wheatstone

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.

STATION/STUDIO SERVICES

Get Your Copy Today!
FREE 2009 PROMOTIONAL CALENDAR
 Our helpful single-page calendar contains nearly 50 holiday promotions, seasonal celebrations, and special sales opportunities in 2009!
 Call Toll-free: 1-888-472-2388 -or-
 Email: calendar@gracebroadcast.com
 and we'll send you a copy by reply email or regular mail.

GRACE BROADCAST SALES Questions? Call us toll-free (888) 472-2388
www.gracebroadcast.com

February is
Black History Month 2009
 Twenty-one sixty-second vignettes you can sell, available now.
 Details, free demo:
GRACEBROADCAST.COM

Feb. 21-28 is FFA WEEK
 Give your advertisers a chance to salute your local FFA members all month long!
SELL our fully produced :30-sec. featurettes!
FREE DEMO! Full Details
 visit GraceBroadcast.com
 OR CALL (888) 472-2388 JUST TAG, SELL, AND RUN!

Let's Ride!

10 :30-SECOND FEATURETTES \$89 COMPLETE!
 JUST TAG, SELL & RUN!
FREE DEMOS & INFO
www.gracebroadcast.com

WISHFUL THINKING WON'T INCREASE YOUR BILLING....
 ...but market-exclusive **GRACE SALES BOOSTERS WILL!**
 Winter Safety Tips • Black History Month
 Don't Drink & Drive • Valentine's Day • MORE!
 Featurettes for Holidays/Seasonal Celebrations
CALL TOLL-FREE 1-888-472-2388
FREE DEMOS/INFO at gracebroadcast.com

ATTENTION PROVIDERS!

Promote your services to **Radio World's** readers. For information on affordable advertising call **David at 615-776-1359** or email carson@nbmedia.com.

"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

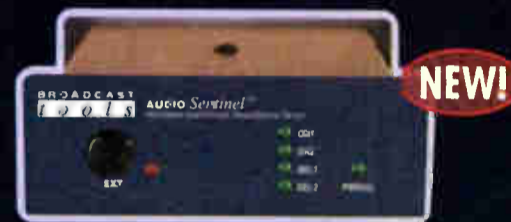
The WVRC-8 provides a cost-effective, one rack-unit solution for web based and/or recordable voice response dial-up transmitter site control. The WVRC-8 was designed from a user's point of view, so all of the basic functionality you need is included to control your site equipment, while including the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

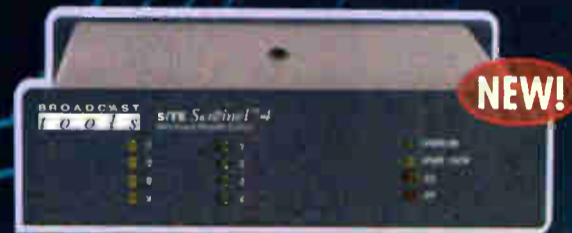
The Status Sentinel is a robust, full-featured, Ethernet based data acquisition device with three optically isolated status (digital) inputs. The Status Sentinel may be monitored over the Internet using a web browser.

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



Site Sentinel™ 4

Web-based Remote Control

The Site Sentinel 4 is a fresh approach to remote site monitoring and control, or can provide an inexpensive solution to Internet enabling your present remote control system.

Available February, 2009 or sooner



USA Proud

BROADCAST
t o o l s

www.broadcasttools.com

INNOVATIVE PROBLEM SOLVING TOOLS FOR BROADCAST

World Radio History

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. ●


OMB FM TRANSMITTERS

All transmitter powers with the best quality price ratio



NEW EM 5000 S

- Solid-state FM 5 kW transmitter.
- Improved design with three independent 2 kW power amplifiers, exciter and control unit in one 19" rack cabinet.
- Redundant design.
- Record in memory of events and alarms.
- Programmable automatic power control as energy saving feature.
- Fold back SWR protection system.



MT/MR PLATINUM

- Studio to transmitter link system.
- Link transmitter with 20 W power output.
- Available in frequencies from 200 to 960 MHz supplied in 20 MHz bands.
- High stability oscillator.
- LCD screen display for parameter selection and readings as follows:
 - frequency (6 digits).
 - forward / reflected power.
 - modulation level.
 - pilot signal (19 KHz) sampling while in transmission.
- Audio inputs: mono balanced, stereo (MPX), and 3 SCA.
- Fold back SWR protection.

OMB, the future of Communication

www.omb.com

OMB AMERICA
telephone (305) 477-0973
(305) 477-0974
fax (305) 477-0611
3100 NW 72nd Ave. Unit 112
MIAMI, Florida 33122 USA
http://www.omb.com
usa@omb.com

OMB EUROPA
sales and customer service
telephone 976-504 696
fax 976-463 170
Avda. San Antonio, 41
CUARTE DE HUERVA
50410 Zaragoza, ESPAÑA
http://www.omb.es

factory
telephone 976-503 580
fax 976-503 855
Camino de los Albares, 14
CUARTE DE HUERVA
50410 Zaragoza, ESPAÑA
europa@omb.com

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.

where we work
together
 to extend your
REACH
 through **media**



"This is a must attend if you are in any form of Christian Media. This is where you stay informed, get encouraged and learn cutting edge technology for future growth and reaching more people." –Attendee

"Relationships are important to the success of any media ministry or business. There are few places where networking can happen on the level as an NRB convention." – Attendee



"NRB brings a multitude of our US clients to the same place at the same time allowing for us to conduct face-to-face meetings with them" – Attendee



February 7-10, 2009
www.nrbconvention.org
 Gaylord Opryland Resort
 & Convention Center
 Nashville, TN



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

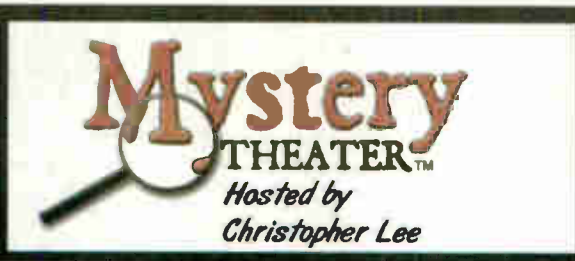
'Mystery Theater' Features Christopher Lee

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.

For information call Carl Amari at Syndication Networks at (800) 743-1988 ext. 207 e-mail info@syndication.net.

Products & Services
SHOWCASE

WEATHER RADIO
Model CRW-S



Price \$590.00

Sensitivity .28 microvolts for 12 dB quieting. All seven frequencies. SAME decoding demutes receiver, closes relay and gates audio to 600 ohm rear terminals. Another set of rear terminals has continuous 600 ohm audio output. Double conversion crystal controlled, crystal filter in first I.F., ceramic filter in second I.F. Dual gate MOS FET front end. 50 ohm coaxial input. Adjacent channel (± 25 kHz) down to 70 dB. 19" rack mount, 1.75" H, all metal enclosure. In stock — available for immediate delivery.

GORMAN REDLICH MFG. CO
257 W. Union St. • Athens, Ohio 45701
Phone 740-593-3150 • FAX 740-592-3898
www.gorman-redlich.com/jimg@gormanredlich.com

Meet our **NEW BABY!**

The **Davicom MicroMAC Remote Control System**



Just as intelligent as other MAC units, but half the size!

davicom

Intelligence & Innovation
t. 1.418.682.3380 | f. 1.418.682.8996
www.davicom.com

Reach Broadcast Professionals!

For more information, including rates & deadlines, call David at 615-776-1359.

Advertise today!



BUTTER SPINS A TEXAS RADIO TALE. Page 4

Small-Market Paradigm
New Leading Networks in "New Regional Channel" Page 44

Radio Head Start
Matters to Managers
Introducing the ultimate in radio management Page 4

All About Connect
Kamini Sen
an IT outfit work

Eke More Power Out Of Your Tx?

September

World Radio History

FPI
Federal Products, Inc.
Since 1942

COMMUNICATIONS
SCIENCE
INDUSTRIAL
MEDICAL

NEED A QUALITY HEAVY DUTY TUBE OR A DIODE? Many in stock! Ready to ship

Triode
Tetrode
Ceriodok
Thomson
Kyostron
Miscellaneous Tube Types

Call today 800.624.7626
Check out our prices online
www.freelandproducts.com

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.

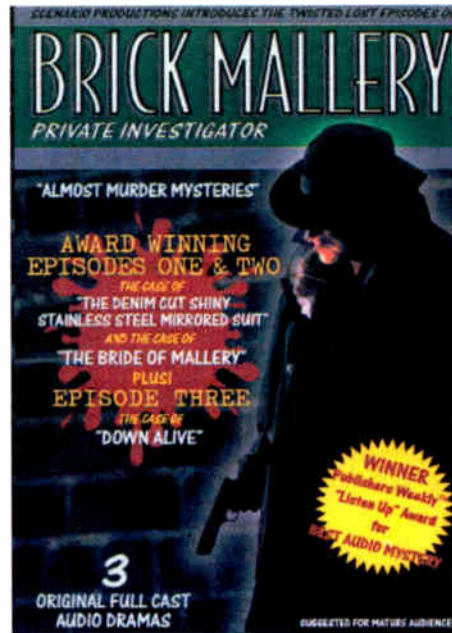
To maximize the listenership for its dramas and comedies — shows like "Afghanada," inspired by Canadian sol-

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. 🌐

PASSIONATE ABOUT RADIO?
...so are we

Sign up for a **FREE**
Digital Subscription
to **Radio World**.

Visit:
www.myrwmag.com

Experience the benefits and extra
features that digital has to offer!

- No more waiting for your issues to arrive in the mail!
- Interactive content and reader experience
- Keyword search of current and archived issues
- No software to download
- Access issues from any computer via internet
- A **green** alternative to the printed version

Consultants



OWL ENGINEERING, INC.
 Consulting Communications Engineers
 5844 Hamline Ave. N., Shoreview, MN 55126
651-784-7445

- AM/FM/NCE Applications
- Allocation and Upgrade Studies
- Field Engineering
- Pre-Purchase Inspections
- ANSI and NRSC Measurements
- AM Detuning
- Intermodulation Studies
- Radiation Hazard Evaluation and Measurements
- AM Directional Array Design, Tuning and Proof

Fax (651) 784-7541 E-mail: info@owleng.com "Member AFCCCE"



MEDA TECH INC. 704-799-2245
jpierce@mediatechusa.com

High-quality Internet Streaming
 For Broadcasters!
 Give us a call to "hear" the difference!
 Streaming Equipment available

RADIOTECHNIQUES
www.radiotechniques.com 856-546-8008 sales@radiotechniques.com

Ted Schober, P.E. James Pollock, P.E.
 Member AFCCCE Member AFCCCE

Excellence in Radio Broadcast Engineering since 1979
 402 Tenth Ave PO Box 367 Haddon Heights NJ 08035

AM Ground Systems

Reliable, On-time Installation
 Quality Workmanship
 Ground System
 Evaluation and Repair

www.amgroundsystems.com
1-877-766-2999

Buying Or Selling
 Used Equipment?
 You're in
 the right place!

Radio World
 Broadcast Equipment Exchange

COMMUNICATIONS TECHNOLOGIES, INC.

- AM, FM, TV coverage & Upgrades
- Broadcast transmission facility design
- FCC applications preparation - construction permit and license engineering

Clarence M. Beverage • Laura M. Mizrahi
 P.O. Box 1130 Tel: (856) 985-0077
 Marlton, NJ 08053 Fax: (856) 985-8124
www.commtechrf.com

R. MORGAN BURROW, P.E. & ASSOCIATES, P.C.

ALLOCATION STUDIES
 Site location, FM upgrade, digital site relocation, FM upgrade, digital

FIELD WORK & SPECIALTY

- AM Directional antenna adjustment, measurements & proof
- FM & TV field strength & other measurements
- FACILITY INSPECTIONS for purchase/insurance purposes
- CAIV Leakage Testing
- HAZARD measurements
- EARTHQUAKE OSHA measurements

rmburrow@comcast.net
 304-288-7901 • Cell: 301-928-8995

GRAHAM BROCK, INC.

BROADCAST TECHNICAL CONSULTANTS
 Full Service From Allocation to Operation AM/FM/TV/AUX Services:
 Field Work: Antenna and Facilities Design

Over 45 years engineering and consulting experience
912-638-8028
202-393-5133
www.grahambrock.com

Doug Vernier
 Telecommunication Consultants

Broadcast Engineering Consulting
 AM/FM/TV/LPTV/DTV
 Custom mapping service
 Frequency searches
 Propagation prediction
 FCC application preparation

Soft
 Software for your PC

(800) 743-3684
www.v-soft.com

Serving Broadcasters Since 1948

Mullany Engineering, Inc.
 Member AFCCCE

9849 Shady Grove Court
 Gaithersburg, MD 20877
 (301) 921-0115
 Fax (301) 590-9757
mullanyengineering.com

FASTER... MORE ACCURATE RADIO COVERAGE

- Real Time 3-D Displays
- Interference calculations
- Cost effective mapping
- Fully integrated databases
- Used by the FCC
- Latest standards built-in

RADIO SOFT

8117 Stone Hill Drive, Houston, TX 77053
 Ph: 800-723-8656 Fax: 713-751-2741 E-mail: sales@radiosoft.com
 Visit us on the web at www.radiosoft.com

DISTRIBUTOR DIRECTORY

The following distributors serving the broadcast industry would be glad to help you with any of your requirements.

CORNELL-DUBILIER MICA CAPACITORS
 FROM STOCK

JENNINGS VACUUM CAPACITORS
 FROM STOCK

JENNINGS VACUUM RELAYS

SURCOM ASSOCIATES
 5674 El Camino Real, Suite K
 Carlsbad, California 92008
 (760) 438-4420 Fax: (760) 438-4759
 e-mail: link@surcom.com web: www.surcom.com

Progressive Concepts
 "The Best in Broadcast Electronics Since 1990"



High Quality Broadcast Equipment at Extremely Reasonable Rates
(630) 736-9822
www.progressive-concepts.com

INGENIERÍA EN RADIODIFUSIÓN Y TELECOMUNICACIONES
www.radiodifusion.com.mx

- Diseño de Estaciones de AM, FM, TV.
- Auditorías Técnicas en Radio y Telecomunicaciones
- Recomendación y Venta de Equipo
- Asesoría y Gestoría Legal - Técnica
- Peritajes Técnicos, Planos de Ubicación
- Estudios de Propagación, Frecuencia

Libertad 1822 2do Piso Col. Roma Monterrey N.L.
 C.P. 64700 México. Tel y Fax +52 81 83 58 30 27
etamezescamilla@yahoo.com.mx
etamez@att.net.mx

CALL EXCHANGE
 L Q
 A USED H
 S I NEW
 SOLD P L
 I A M P
 F V NEWBAY W
 I I N A
 E ADVERTISE N
 D H T
 SELL O E
 O RADIOWORLD
 O C
 K AVAILABLE
 S U
 EMPLOYMENT Y

Broadcast Equipment Exchange



"BEE" in the habit of selling your used equipment here!

Call David for details at
(615) 776-1359
 or e-mail dcarson@nbmedia.com

You're Here!



...and so are the potential buyers for your products and services.

Radio World's Classifieds section is a great place to find things for your business, and a great place for prospects to find you!

Contact David Carson at 615-776-1359
 or e-mail dcarson@nbmedia.com



POWER TUBES
REBUILT

1/2 THE COST
OF NEW!

ECONCO

TEL: 800-532-6626
INTL: +1-530-662-7553
FAX: +1-530-666-7760
www.econco.com
SE HABLA ESPAÑOL



TRANSMITTERS/EXCITERS/TRANSLATORS, cont.

OFF THE AIR?
Emergency Back-up Rentals

FM Exciters - STLS -
FM Pwr Amps - Antennas -
Studio & Test Equipment

SCMS Inc (800) 438-6040
"You Know We Know Radio"

WANT TO SELL
2006 Nicom NT20 FM exciter, 20 Watts, frequency agile & still under war until May '09, \$800; 2006 Nicom NA-501 FM amplifier, 500 watt broadband, newer "cold FET" design, still under war until May'09, station gone dark, must sell, \$2500. Ron, 386-447-1999 or rkocher@msn.com

CCA AM 10,000 D - Call John KQSS 928-595-0263 between 10 & 5 PM Pacific Time.

DBS
Diversified Broadcast Systems

AM Transmitters
500 to 50,000 watts

FM Transmitters
20 to 30,000 watts

STL Transmitters/Receivers

Television VHF UHF
Analog and Digital

FM and Television Antennas

Transmission
Line and Connectors

Benny Springer
1-800-210-1737
BennySBP@aol.com

FM Translator at 104.5 - Manchester, KY Call Joey Kesler 606-843-9999.

Rest Assured! **FCC Certified**
FM Stereo Transmitter

✓ 50W RF-output, continuous duty!
✓ Auto protect with auto soft fail & auto restore!
✓ Automatic battery backup!
✓ Digital display of all parameters
✓ Perfect for LPFM, Translators, as well as stand-alone exciters
www.ramseyelectronics.com

800-446-2295
In Our 36th Year!

WANT TO BUY
AM Phasors, Phasor Parts, Phase Monitors, Rf Switches, AM Transmitters. Continental Communications 314-664-4497, Contcomm@Sbcglobal.net

Radio World.
Equipment Exchange

TUBES & COMPONENTS

POWER EIMAC YOU CAN TRUST

ISO 9001 Certified
The Choice of Successful Broadcasters Since 1934

NEW POWER TUBES
Triodes
Tetrodes
Pentodes

NEW SOCKETS & REPLACEMENT PARTS

Worldwide Availability

Made in U.S.A.

CALL 800-414-8823
Int'l (650) 592-1221
Fax (650) 592-9988

Visit our Web Site at
www.eimac.com

FOR THE BEST PRICE
& 24 Hr service on transmitting tubes & sockets/parts, new & rebuilt call Goodrich Ent. at 402-493-1816 day or night, www.goodrichenterprises.com.

D And C Electronics
An International Distributor of RF Components
Tubes
NEW & REBUILT

TRANSMITTERS, STUDIO EQUIPMENT, STLS, ANTENNAS, RADIO DATA SYSTEM (FOR CAR RADIO DISPLAY) EXCITERS-TRANSMITTERS, TRANSLATORS, MIXERS-CONSOLES, RADIO LINK RPU, MOSFETS, VACUUM CAPACITORS, SOCKETS

Eimac **Pro-Tek®**
SVETLANA **EEV**

BEST PRICES To Order: 1-800-881-2374
Outside U.S. (352) 592-7300
Se Habla Español FROM OUR STOCK

P.O. Box 6409 Spring Hill, FL 34611 352-592-7800
BEST SERVICE Fax 352-596-4884
Website: www.dandcelectronics.com

RF PARTS™ CO.
Se Habla Español We Export

EIMAC • TAYLOR • SVETLANA
New & Rebuilt Tubes - Same Day Shipping

Motorola • Toshiba • SGS • Thomson & Mitsubishi Semiconductors

800-737-2787 760-744-0700
rfp@rfparts.com www.rfparts.com

TRANSCOM CORPORATION
Serving the Broadcast Industry Since 1978
Transmitters and Broadcast Equipment for Radio & Television

Used FM Transmitters				Exciters	
1	KW	2007	Crown FM1000A (new), solid state	Used Harris Digit Exciter	
1	KW	2007	Crown FM1000E (demo), solid state	*New* 30W Synthesized exciters	
1	KW	2007	Crown FM1000E (new), solid state		
2.5	KW	1984	Continental 814R-1		
3	KW	1996	Henry 3000D-95, single phase		
10	KW	2005	Harris Z16 HD, solid state		
14.5	KW HD	2005	BE Fmi1405 (IBOC), solid-state		
20	KW	2005	BE FM20S, solid state		
20	KW	1985	Harris FM20K		
21.5	KW	1989	Continental 816R-2B		
35	KW	1986	BE FM35A		
50	KW	1982	Harris Combiner w/auto exciter-transmitter switcher		

Used AM Transmitters			
1	KW	1996	Continental 314D, solid state
5	KW	1982	Harris MW5A
5	KW	1987	Harris MW5B
5	KW	1988	Harris SX5A, single phase
10	KW	1985	Continental 316F
10	KW	1985	Harris MW10B, solid state
12	KW	2000	Nautel XL12, solid state

Please visit our website, fmamtv.com, for the most current listings.

800-441-8454 • 215-938-7304 • FAX: +1-215-938-7361
www.fmamtv.com • E-mail: transcom@fmamtv.com
RETUNING & TESTING AVAILABLE • CALL US FOR A QUOTE!

ADVERTISE YOUR EMPLOYMENT AD ON OUR WEB SITE FOR ONLY \$2 PER WORD!

ADS GET POSTED THE NEXT BUSINESS DAY AND WILL RUN FOR A FULL TWO WEEKS!

COMBINE THIS WITH AN AD IN OUR RADIO WORLD NEWSPAPER EMPLOYMENT SECTION AND REALLY COVER THE BROADCAST INDUSTRY AND THEN SOME!

www.radioworld.com

Call David Carson for all the details at
615-776-1359
dcarson@nbmedia.com

EMPLOYMENT

POSITIONS WANTED

Excited and Motivated Air Personality with a Passion for the Lord! Seeking air shift or production positions available. Troy, abstroy1726@hotmail.com or 541-258-5278 for resume/air check.

Extensive Public Address experience. Vast sports/stats knowledge. Notable show preparation/research skills. Excellent professional delivery, able to communicate and relate to audience. Chris, 817-528-5524 or awright005@tx.rr.com.

Are you a small market station needing a good nuts & bolts engineer in the Los Angeles area? I will make your station shine! CET, fully FCC Licensed. Available for Full/Part-time/Contract work. Available immediately. Mitchell Rakoff, 949-916-6255 mitchell-rakoff@yahoo.com.

Extremely knowledgeable and articulate racing writer/talk show host Adam Amick is available for shows, correspondent, features, etc. Check out www.bleacherreport.com or www.rubbinsracingshow.com for samples. Call 214-384-5812 or email: adam@rubbinsracingshow.com.

SPACE AVAILABLE — Call Now

Buying Or Selling Used Equipment?
You're in the right place!
Radio World
Broadcast Equipment Exchange

ADVERTISER INDEX

This listing is provided for the convenience of our readers.
Radio World assumes no liability for inaccuracy.

PAGE	ADVERTISER	WEB SITE URL
15	Axia - A Telos Company	www.axiaaudio.com
20	Balsys	www.balsys.com
27	Broadcast Tools, Inc	www.broadcasttools.com
9	Broadcasters General Store	www.bgs.cc
3	BSW	www.bswusa.com
8	Comet North America	www.comet.ch
7	Comrex Corporation	www.comrex.com
19	Comrex Corporation	www.comrex.com
31	Davicom, a Div. of Comlab	www.davicom.com
24	Deva Broadcast Ltd	www.devabroadcast.com
4	ERI	www.eriinc.com
31	Freeland Products, Inc.	www.freelandproducts.com
1	Google Inc.	www.google.com/ads/asaudio
31	Gorman Redlich Mfg	www.gorman-redlich.com
26	Grace Broadcast Sales	www.gracebroadcast.com
36	Heil Sound, Ltd.	www.heilsound.com
10	Inovonics Inc	www.inovon.com
23	LBA Technology, Inc.	www.lbagroup.com
11	Logitek	www.logitekaudio.com
21	Moseley Associates	www.moseleysb.com
29	National Religious Broadcasters	www.nrbconvention.org
28	OMB America	www.omb.com
17	Omnia - A Telos Company	www.omniaaudio.com
5	PTEK	www.ptekpower.com
39	Radio Systems Inc	www.radiosystems.com
13	Telos Systems - TLS Corp.	www.telos-systems.com
2	Vorsis	www.vorsis.com
40	Vorsis	www.vorsis.com

◆ 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
Anchorage, Alaska*

Radio World
The Newspaper for Radio Managers and Engineers

Our readers have something to say

"I have been in the engineering business for 32 years. Radio World affords me a chance to get a jump on the new stuff; and thanks to Workbench & Radio World Engineering Extra, I even learn a few more new tricks. You are my Number 1 source for it all."

Harry Bingaman, Chief Engineer
WQKX(FM), WEGH(FM), WVLY(FM),
WKOK(AM) & WMLP(AM)
Sunbury Broadcasting Corp., Sunbury, PA

HEIL SOUND
www.heilsound.com

Shown: Heil PR 35 large-element dynamic handheld microphone

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.

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

How to ...

Send a letter to the editor:

E-mail radioworld@nbmedia.com with "Letter to the Editor" in the subject field. Please include issue date.

Change your mailing address:

Visit radioworld.com, click on "Subscribe" and follow instructions to change a subscription address.

Contribute freelance articles:

E-mail radioworld@nbmedia.com and request our Writer's Guidelines.

Get information about advertising:

Download a media kit including editorial calendar at radioworld.com/advertise.shtml.

Run a Help Wanted ad:

E-mail David Carson at dcarson@nbmedia.com or call 615-776-1359 for print and online rates.

Purchase reprints of articles:

E-mail Caroline Freeland at cfreeland@nbmedia.com.

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.

StudioHub+ Inside



Plug and play your next installation with Radio Systems Millennium Broadcast Consoles now with StudioHub+ inside — the Broadcast Wiring Standard!



ANALOG Two inputs per channel with fully agile - mic thru line sensitivity on every input • Soft touch, LED lit ultra-wear rubber keypads • Two stereo program buses with TEL mix minus bus output • Up to four additional mix-minus outputs available • Full metering and monitor section • Up/down clock/timer with master sync capability • Complete GPI channel remote control provided for all A & B inputs • Available in 6 / 12 / 18 / 24 channel frame sizes



DIGITAL AES/EBU or analog on any input channel • Mic thru line sensitivity on every analog input • Soft touch, LED lit ultra-wear rubber keypads • Two stereo program buses with TEL mix minus bus output • Ten fully programmable mix-minus outputs — standard • All outputs provided in analog and digital simultaneously • LED VU or PPM metering and full monitor section • Up/down clock/timer with master sync capability • Complete GPI channel remote control provided for all A & B inputs • Available in 6 / 12 / 18 / 24 channel frame sizes



NETWORK Six IP audio Livewire channels with LCD selectors • Local input channels with two inputs per channel / analog or digital / mic thru line • Soft touch, LED lit ultra-wear rubber keypads • Two stereo program buses with TEL mix minus bus output • Ten fully programmable mix-minus outputs — standard • All outputs provided in analog and digital simultaneously • Full metering and monitoring • Up/down clock/timer with master sync capability • Complete GPI channel remote control provided for all A & B inputs • Available in 6 / 12 / 18 / 24 channel frame sizes

ANALOG is good. There are over 4000 analog Millennium consoles in service today and we continue

to manufacture and ship analog consoles every day. That's because these boards are inexpensive, sound great (with specifications that rival and exceed many digital designs) and have enough features for many small and medium market applications. For more demanding applications, our analog consoles optionally can be equipped with additional mix-minus outputs, distributed output busses and redundant supplies making them even more capable and still a great value.



Going **DIGITAL** is a process. Radio Systems eliminates some of the stress with our NO CHARGE Digital upgrade program. For the life of your console we will swap any analog plug-in card for a digital one (or vice-versa) allowing you to gradually transition your studio to digital. You can even start out all analog and convert one channel at a time as digital arrives in your facility. But from day one your Millennium Digital console will out-put pristine digital audio to feed your air-chain processor and produce up to ten fully configurable mix-minus feeds.

At Radio Systems, our **NETWORK** is IP Audio by Livewire®. We've adopted this proven multi-channel standard from Axia® and installed it in our digital consoles. But we left local inputs as well to create the perfect hybrid of stand-alone and network capabilities. This way Millennium Network consoles easily mix local studio sources and connect to all Livewire enabled devices using standard Ethernet switches.



StudioHub+® is the glue of our entire console line. Use our award-winning CAT-5 wiring system to simply and quickly plug any source into any console channel. Or, easily configure custom talent panels and even interstudio tie line connections. And its value doesn't end after the installation is over. RJ-45 connectors allow new sources to be added at any time and makes trouble shooting easy.



*Livewire is a registered trademark of TLS Corp.
StudioHub+ is a registered trademark of Radio Systems, Inc.*



601 Heron Drive • Logan Township, NJ 08085 • Phone: 856-467-8000 • Fax: 856-467-3044 • www.radiosystems.com



While the two usual suspects slugged it out in the loudness war, we quietly developed the ultimate weapon for the REAL challenge:

WINNING THE RATINGS WAR

Basic loudness is simply not the draw it was in the last century. Today, with so many options for audio delivery, getting and keeping listeners means you need to SOUND GREAT across all media. That's why we developed VORSIS – to deliver clean compelling audio that cuts through the muck without fatiguing those all-important ears.

With Vorsis, we rethought the whole process – developing new tools to let your station deliver the best possible sound to each and every one of those 20th century radios, not to mention the great new standard and hi-def radios being produced in THIS century.

With Vorsis, you're never stuck with your processor's signature sound. You have a full toolset to create your own magnificent sonic signature – one your listeners can key into just by scanning the dial. For the first time, you have the capabilities of bringing true fidelity to FM, AM, and HD/DAB radio.

Intrigued? Call us or visit us on the web to learn more or set up a demo. You'll be happy you did. Vorsis – more listeners listening more.



W H E A T S T O N E
VORSIS

Radio has evolved. Your sound should too.™

phone 1.252.638-7000 | www.vorsis.com | sales@wheatstone.com

World Radio History