



# RADIO WORLD

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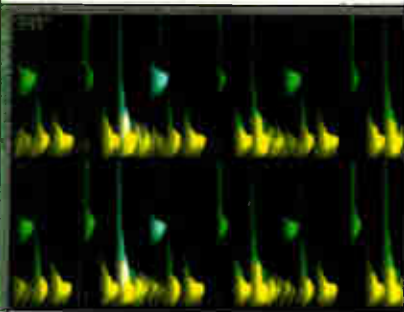
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## This LPFM's Time Has Come

A Maryland case study in sourcing funds, equipment and studio space

### FIRSTPERSON

BY MIKE STARLING

*The author is general manager and chief engineer of WHCP(LP), Cambridge, Md. He is former executive director of NPR Labs.*

CAMBRIDGE, MD. — For radio zealots, nothing beats building a radio station from scratch. And those of us in the low-power FM movement are relishing the day when we will soon open the microphone for the debut of what will often be the area's first community radio station.

While it may appear that Democrats and Republicans in Washington seldom agree on anything, Sen. John McCain,

*(continued on page 6)*

Mike Starling (right) is joined by Art Director Paul Hutton (on ladder) and Architect Jay Corvan wire brushing top section of the STL tower in front of the "Ole Barn" WHCP(LP) studio. The barn is a former "sail loft" for "queer of the fleet" Skipjack Rosie Parks. Willy's remote truck at right.



## NPR Labs Is Reorganized

Director Rich Rarey leaves; Labs moves under corporate division



BY LESLIE STIMSON

NPR has moved its engineering research division, NPR Labs, under its corporate budget and out of the Distribution Division; I'm told that the entity will no longer need to be solely self-supported by grants and other funding such as corporate contracts. Coming at a time of broader financial challenge for the organization, the change will help ensure the long-term success of NPR Labs, according to NPR Vice President of Technology

Operations, Distribution and Broadcast Engineering Marty Garrison.

However, the move comes at a cost: NPR Labs Director Rich Rarey's position was eliminated, a decision Garrison called "very difficult" in a note to broadcast staff. Rarey left at the end of July. As of Aug. 1, NPR Labs became part of the Technology & Operations Division.

Senior Technologist John Kean and Technical Researcher Alice Goldfarb remain; they will report to Chris Nelson,

*(continued on page 3)*

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## NPR LABS

(continued from page 1)

director of technology strategy, who adds director of NPR Labs to his title.

### BACKGROUND

NPR Labs will turn nine years old this fall. In a March 2005 opinion article for Radio World, Mike Starling, then the vice president of engineering and operations for NPR, wrote about the need for an entity like NPR Labs.

He said technical research at one time had played an important role in the industry, mentioning the role of past labs at NBC and CBS, as well as the technical unit of the Corporation for Public Broadcasting in the 1970s and '80s. Starling called for the creation of a "lasting, public-service driven, radio broadcast technology research center" whose activities would focus on the user experience.

He helped create NPR Labs that October and became its executive director. As I wrote at the time, its mission was to provide system representation and technical expertise on regulatory and legislative issues important to the stations and public radio system.

Early NPR Labs projects included conditional access for the blind and hard-of-hearing with the release of the Dice ITR-100A, a "talking radio."

"Tomorrow Radio" was an early project; this was a joint effort with Kenwood USA and the former Harris Broadcast to test the transmission and receive feasibility of multicast channels for HD Radio.

NPR Labs also helped the formation of the Association of Public Radio Engineers. In 2006, it went to bat with NAB to get the FCC, Sirius and XM to recognize the issue of signal leakage from some aftermarket wireless FM modulators for satellite radio that were interfering with some broadcast radio stations.

### BUDGET CONCERNS

Initially, NPR Labs constituted its own department. In 2009, looking to increase efficiencies, NPR moved it under its Distribution Division. The Labs and Distribution had collaborated occasionally on projects; NPR thought aligning them more closely made sense at the time. The move would also give Labs more back-office support, freeing engineers to focus on more technical tasks, according to Starling and NPR Vice President of Distribution Pete Loewenstein back then.

At that point NPR Labs was expected to become self-sustaining, similar to the Public Radio Satellite System, which also was part of Distribution. With that goal, Labs focused on grant-funded work and expanded its scope to include fee-based consulting services to public radio stations, industry partners and commercial clients.

Two projects I think of stand out here.

John Kean, left, and Rich Rarey are shown in the listening area of NPR Labs.

Photo by Leslie Stimson



Labs conducted testing for the Broadcast Traffic Consortium, of which NPR is a member, to confirm that the HD Radio datacasting stream had the capacity for stations to offer traffic information; it did. The Labs also performed research for Nautel, validating the transmission manufacturer's technology for asymmetric HD sideband transmission, which it says improves FM digital reception.

But recently, NPR overall experienced a budget shortfall of some \$6 million, and last year it offered buyouts as part of a two-year plan to balance its budget. Significantly, the network eliminated a news show as well as 28 associated positions.

Starling had accepted that staff buyout, retiring in February. At that time, Rarey, manager of strategic technology applications for the Labs, was named director.

Consequently, I'd heard rumors that Labs had a budget shortfall but that it was being handled internally. When news of the latest changes became evident in July, I asked a spokesman about the Labs annual budget numbers and the size of its shortfall; he said the network hasn't publicly broken out the budget numbers that way.

Starling and Rarey both declined comment for this article.

### ONS

Engineers in the public radio system expressed shock at Rarey's departure, and some questioned the future of Labs, whose full-time personnel have now been reduced by half.

One station engineer told me, "Severing Rich is a problem for John Kean, not only because of [Rarey's] proven technical expertise but also because of his fundraising ability. [Kean] will not have time to canvas the industry looking for projects. That will mean that their funds will have to come 100 percent from the NPR budget, at which time their continued existence may be in question since their projects relate most directly to

over-the-air" radio.

Another station engineering source told me, "We'll see what happens, but I suspect that when the contracts run out, it's gone."

One such contract likely will end soon; I hear that a final report is due Aug. 31 for the Department of Homeland Security alerting project for the deaf and hard of hearing. That testing, funded by FEMA and managed by DHS, involves development of an accessible FM RDS receiver to be used in an emergency alerting demonstration program in the Gulf Coast region.

Labs has other projects in the works, like working with the National Radio Systems Committee on studies to determine compatibility of FM single-sideband transmissions and a study on AM modulation-dependent carrier level transmissions.

### GRANT-WRITING EXPERTISE

Garrison declined to list the NPR Labs current contracts or their expiration dates. He said NPR Labs will be able to tap in-house expertise for grant application-writing.

He also says NPR Labs will continue. "The scope and ambitions of the contracts underway with NPR Labs will not change, and the group will remain an industry leader in R&D projects such as emergency alert messages for those who are deaf or hard of hearing," Garrison told me.

One noncommercial station engineering source quoted said losing Rarey will also be a loss for Kean when he's stumped on a project and needs someone with technical expertise to bounce ideas off of. I posed this line of thinking to Garrison, who responded: "NPR Labs' mission and activities will remain the same and staff will be able to get feedback and support from their colleagues within the division that will enrich their work."

Garrison indicated Labs may hire contractors in the future if necessary.

(continued on page 5)

# “I Cannot Live Without Books”

So said Tom Jefferson. Here are three he might take to the beach

We haven't visited the Radio World radio bookshelf in a while!

How would you go about explaining to a non-engineer the technical concepts that might arise when working at a radio station, TV station or other digital media facility? “A Broadcast Engineering Tutorial for Non-Engineers” is most helpful.

The fourth edition is a 360-page paperback published by Focal Press and the NAB, and it seems more comprehensive and well thought out than I recall from earlier versions. Its content is broken down logically into discussions about broadcasting basics; studios, production and playout facilities; and transmission standards and systems.

Much about our media technology world has changed in the nine years since the previous edition: so the

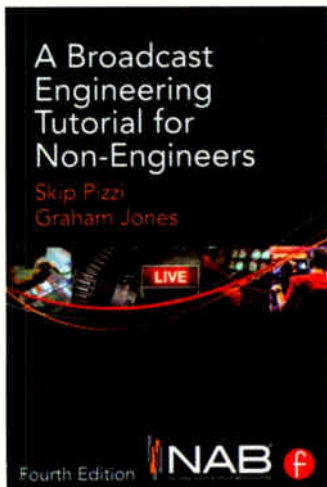
authors include topics like next-generation radio, “hybrid” broadcasting, IP-based content production, HDTV and “over the top” TV, mobile apps and so forth. Yet they don't stint on the ABCs.

The authors are Skip Pizzi, senior director of new media technologies at NAB, a veteran trainer-and-explainer of technical concepts and a former RW contributor; and Graham Jones, former NAB senior director working on advanced television issues.

They provide readers a broad survey via digestible explanations rather than deep dives. So the next time a reasonably intelligent, non-technical colleague asks you to explain Program and Service Data, transmitter remote control, radio automation, EAS or audio over IP, hand

them this book.

Price: \$44.95. Find it at [www.focalpress.com](http://www.focalpress.com).



Anxiety! Ignorance! Hubris! If you like your summer reading hot, John Nathan Anderson has a topic for you: HD Radio. He attacks his subject, almost literally (using words like those above), in “Radio's Digital Dilemma: Broadcasting in the Twenty-First Century,” published by Routledge.

The author is an assistant professor and director of broadcast journalism in the Department of Television and Radio at Brooklyn College, City University of New York, and a former radio journalist. As he sees it, HD Radio “pitted the nation's largest commercial and public broadcasters against the rest of the radio industry and the listening public in a pitched battle over defining the digital future of the medium.”

The FCC, he writes in the introduction, put its faith in market forces to govern our digital transition. “But this has not been a winning strategy: a dozen years from its rollout, the

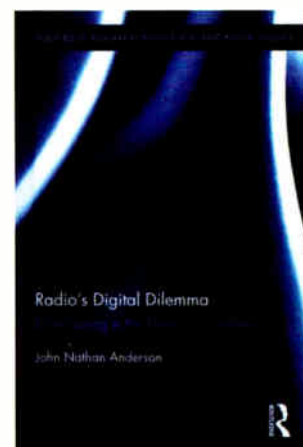
FROM THE EDITOR



Paul McLane

state of HD Radio is one of dangerous malaise, especially as newer digital audio distribution technologies fundamentally redefine the public identity of ‘radio’ itself.”

Begun as a doctoral dissertation, the book is essentially an extended essay on the history of HD Radio with Anderson's pungent commentary. Anyone who has followed the debate in our pages will find this 188-page hardback thought-pro-



voking. (Indeed, Anderson frequently cites articles in Radio World and other industry publications to assess pro-and-con industry sentiment; and he quotes RW and my own columns extensively, though we had no involvement in the book.)

The book is pricy at \$125, though this is not unusual for academic works of its kind. See

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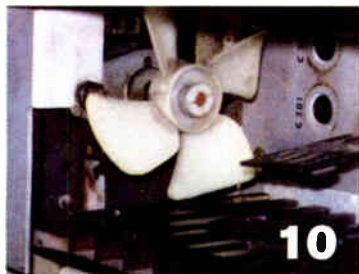
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**NPR LABS**

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NPR Labs will remain in its current space at NPR headquarters, which consists of an equipment area, a workbench, a listening room and office space.

Others in the larger radio community are watching this play out with interest.

At Greater Media, Milford Smith, vice president of radio engineering, told me: "I can certainly say that we have always valued the tremendous resource that NPR Labs and its staff represent to the radio industry. It is largely unique in its expertise, knowledge and facilities and has done a lot of extremely valuable work that has helped the radio industry move forward with new technology while in many cases helping us to better understand current technology. I would surely hate to lose this important broadcast laboratory; I'm not sure where one would find an alternative."

"We really respect NPR Labs and its people, and look forward to continuing to cooperate as it evolves. I think NPR Labs has done some great technical work that has helped support the needs of not only public broadcasters but the industry as a whole," Nautel Marketing Director John Whyte tells me.

At first glance, the change "doesn't bode well" for the future of NPR Labs, according to one station-based engineer in the public radio system.

I'm hoping that bringing Labs under NPR's corporate budget umbrella gives it a chance to ride out the financial storm and rebuild. One of the engineers quoted above told me: "I hope that something will change and that Labs will find a solid source of long-term funding, but I don't see any clear path to that end."

**ENGINEER'S ENGINEER**

Rarey, who is also a contributor to Radio World, had been with NPR 34 years, the last five at Labs.

In his note to staff, Garrison called Rarey "an engineer's engineer — someone who has a visionary grasp of what is possible in broadcast engineering and the technical expertise to bring those visions to life."

Rarey got his start with NPR in 1980 at NPR's Chicago Bureau as a bureau engineer and technical director. He was the first technical director for "Weekend Edition" and held that post with "All Things Considered" as well as "Talk of the



Photo by Leslie Stimson

**NPR Labs' gear includes this equipment, a workbench area, audio listening room and office space at NPR's new headquarters in Washington.**

Nation" and other NPR programs. He co-engineered the first national Dolby Surround FM broadcast for NPR's "Weekend Edition Sunday" in 1992.

In D.C., Rarey became supervisor of NPR's Master Control in 2000, overseeing the systems at the heart of NPR's audio content intake and control. In 2008 he moved to NPR Labs as manager of strategic technology applications, architecting and designing key projects including prototyping systems to support access to radio content by those who are deaf or hard of hearing, as well as listeners with visual impairments.

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## LPFM

(continued from page 1)

R-Ariz., and then Sen. Barack Obama, D-Ill., were both big supporters of the Local Community Radio Act of 2010, which relaxed the third-adjacency channel restrictions. More than 1,000 new LPFMs are currently in the pipeline.

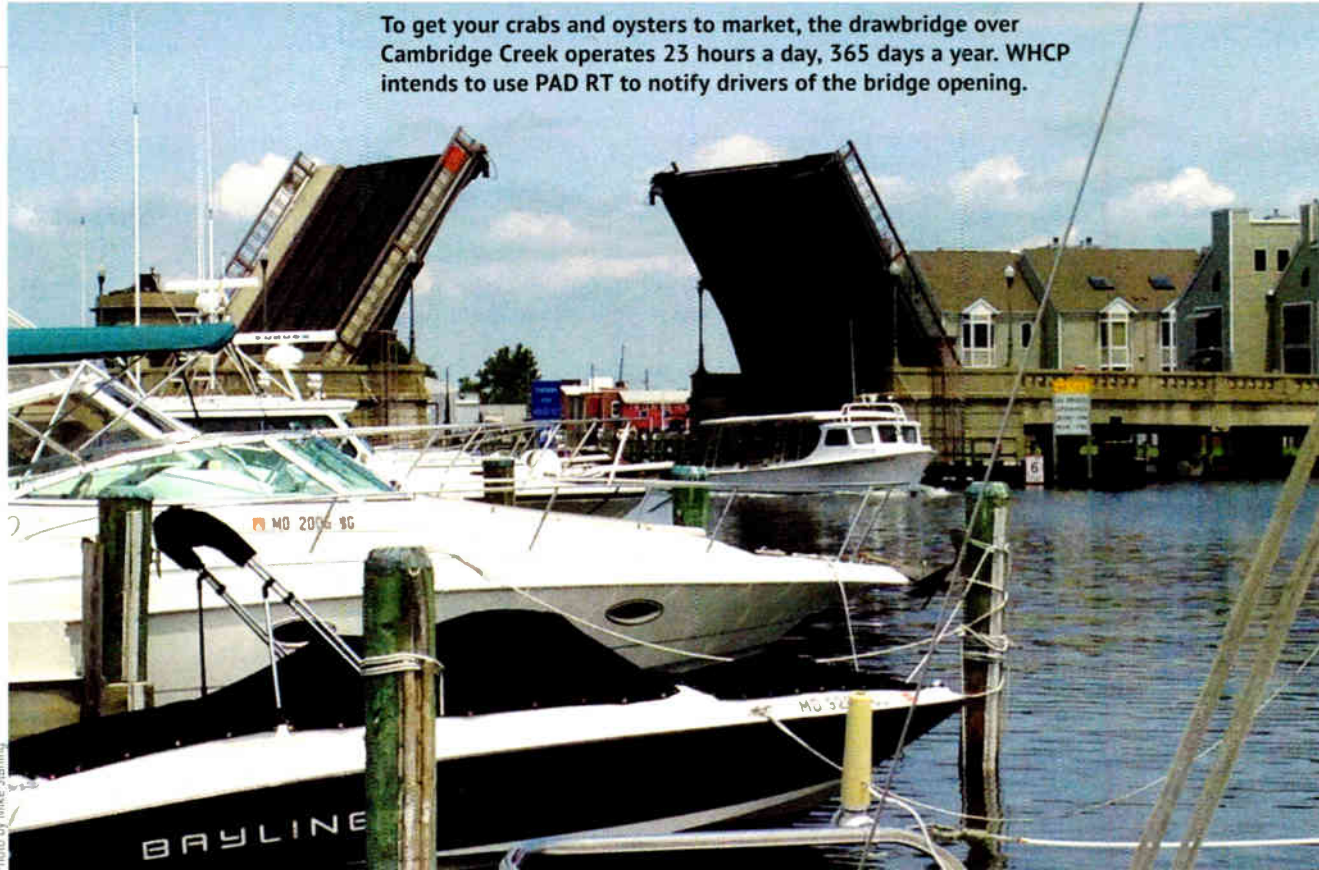
Thanks to the online resources from the FCC, Prometheus and RecNets, finding an available channel and applying for the construction permit couldn't have been easier. It beats the months of labor, thousands in consulting expenses and hundreds of pages of supporting exhibits filed when applying for my first construction permit in 1975. The FCC's processing was a Blitzkrieg pace — an early December notice of acceptance for filing, January cutoff date and a Feb. 10 construction permit award.

So, with the clock ticking on the 18-month time window for construction, and having just retired from National Public Radio at the helm of NPR Labs, it was time to get busy on the latest “2 and raise” campaign. The designation “2” often refers to the transmitter “plates” channel on a remote control system; thus the term “2 and raise” has been used frequently as engineering slang for “sign-on.”

### THE PROCESS TO OATE

There's an old saying I've learned over four decades of radio immersion: Successful projects turn on three things: time, quality and money. Pick two.

Most LPFMs will enjoy tight budgets. And I do mean enjoy. The freedom to have creative fun in radio starts with a no-sweat bottom line. Since we have to take the time to launch it as smartly and frugally as possible, I'm targeting a



To get your crabs and oysters to market, the drawbridge over Cambridge Creek operates 23 hours a day, 365 days a year. WHCP intends to use PAD RT to notify drivers of the bridge opening.

July 4, 2015 sign-on.

One of the best things I did to prepare was going to the 2014 NAB Show to kick the tires on the key technical systems that will be the heart of WHCP(LP), Cambridge, Md. On the LPFM listservs, I'm reminded of the old limbo chant, “How low can you go?” Thanks to a \$40-a-day Airbnb studio apartment, frequent flier miles, an \$11-a-day rental car and free exhibits, attending NAB 2014 cost less than \$300. It was worth thousands.

The focus was narrowly on the lowest-priced, highest-quality, most-reliable studio and transmission equipment available. A few minutes talking shop with the illuminati at the Association of Public Radio Engineers and Nautel

NUG provided access to decades of practical community radio wisdom. It has been many years since I've put a soldering iron to the air chain of a radio station, and such wisdom is invaluable; it's a good thing we've moved on to crimping Ethernet instead.

### KNOW YOUR COMMUNITY

Understanding our community of license is critical. While I've lived in and frequented Cambridge on weekends for a dozen years, my grandchildren will of course, still be considered “come here's.” I've studied the history, upgraded a post-Victorian in the historic district, joined clubs and boards, attended city council and planning commission

meetings and gotten to know a number of key community leaders.

It's a vibrant community in transition from its seafood industry roots to a tourist-based economy. Downtown is thriving with destination restaurants, art galleries and a committed Chesapeake College satellite campus.

Cambridge is a racially diverse community of 12,000 and serves as the county seat for Dorchester County. We are less than an hour south of the Chesapeake Bay Bridge, right in the heart of the Eastern Shore.

It has multiple waterfronts, a working drawbridge and a lot of talented, smart people working together to build a great community. From my third-floor office, I hear the bells on the old City Clock Tower on the hour, the steam toots of the “Dorothy & Meagan” and “Choptank River Queen” paddle-wheelers, the bells on the drawbridge when it opens, and the lovely sounds of “Miss Molly,” a neighbor who sings old standards and gospel songs most days for hours in her back yard. It's an idyllic life for a kid from the row houses of east Baltimore, now coming off a quarter century of “jacket and tie” days inside the D.C. beltway.

### FUNDING, HISTORY

It will take about \$20,000 to build the station and another \$24,000 annually to operate. Half of the construction dollars are in the bank and I'm confident about securing donations for the other half.

It's the operating budget that is the focus to apply the “how low can you go” limbo rule. You can't do good service if you don't survive, and keeping the overhead modest will be key to long-term survival.

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## BOOKS

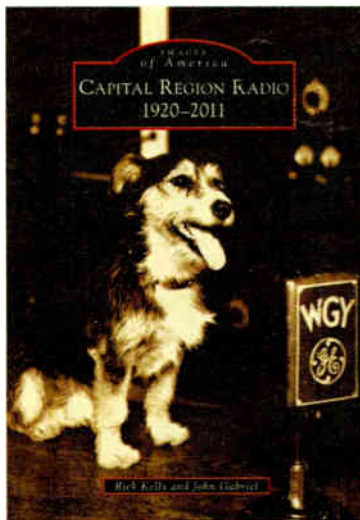
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[www.routledge.com](http://www.routledge.com) or try online book vendors, which often carry discounts.

In an interview published on Routledge's website, Anderson adds that radio studies in general have been “grossly neglected” by scholars, though he senses a resurgence of interest in recent years. “I'm hoping that my work may spark some debate and perhaps inspire others to take a closer look at broadcasting, its structure and its values,” he said then.

And I can hardly write a book column without mentioning Arcadia Publishing's regional radio series, part of its “Images of America” lineup.

“Capital Region Radio 1920–2011” was written by cousins John Gabriel and Rick Kelly, natives of the region. “Capital Region” here refers to the New York capital of Albany and surrounding Hudson Valley area, notably the towns of Schenectady and Troy.



air. The authors acknowledge that those were the years they were growing up, listening to and falling in love with radio.

“Capital Region Radio 1920–2011” is from Arcadia Publishing and lists for \$21.99. It also features one of my favorite book covers of all time. Woof!

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## LPFM

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The licensee for WHCP(LP) is Historic Cambridge Inc., the nonprofit that was instrumental in getting the state of Maryland to establish the historic district in Cambridge back in 1990. Four state governors called it home, and High Street serves as a gateway, which James Michener called “the prettiest street in Maryland.”

Now, with newcomers settling here in increasing numbers as we baby boomers retire from nearby Washington, Baltimore and Philadelphia, there is a real need for reliable information and community networking. And Historic Cambridge is offering us inexpensive studio space, built-to-suit, as they renovate a main street storefront.

### A DIFFERENT KIND OF STATION

We are already brainstorming on ways to make WHCP unique.

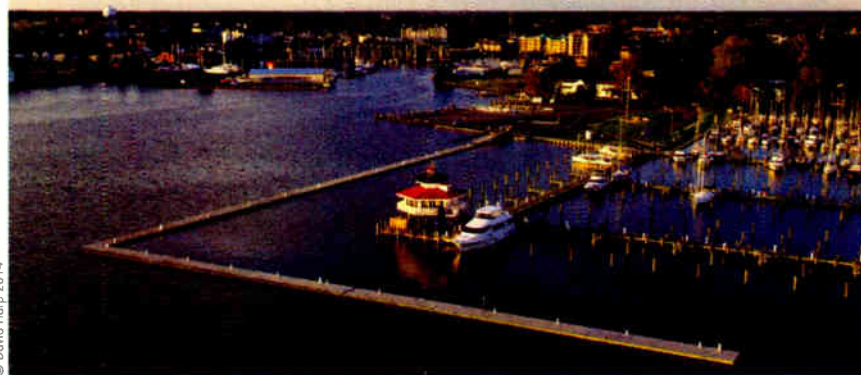
We'll take a page from the BBC's Big Ben and place a microphone in the City Clock Tower to hear the hourly chimes live, with ospreys and cityscape below.

Many agree that we need an Angie's List in Cambridge; but this community is too small to sustain one — or is it? Members of the station will be invited annually to nominate and vote on the “best of Cambridge” businesses. The winners will be listed as “ShoreGood” businesses on our website and reinforce the ShoreGood community campaign promoted on-air. It should help build goodwill, station website traffic and help great businesses attract new customers. It's just an idea at this stage, but I'm checking it out with FCC attorneys familiar with the nuances and policy precedents of the underwriting rules.

WHCP is exploring a “sister station” project with Developing Radio Partners, which has helped establish and support dozens of community radio stations, primarily in Africa and Mongolia. DRP is headed by NPR founder Bill Siemerling; former NPR President Kevin Klose is on its board. Weekly, we'll air an hour of their best programming via FTP and offer them the same. Each community gets to hear an hour of life from halfway around the world. Twice a year we will open the phones via Skype and let our listeners ask their listeners questions and vice versa. We will encourage our listeners on our website to make a donation to their pledge drive.

We are exploring automating a PAD display of “Cambridge Creek Bridge Open,” alerting drivers of the option to take the alternate Cedar Street entrance into downtown. The Cambridge drawbridge is one of the busiest drawbridges in the state: “openings” can cause a five-minute delay right when you're in a hurry. Cambridge has a satellite campus

“Cambridge, MD — A Great Place to Be!” will be the on-air slogan for WHCP(LP), 101.7 FM, with the state pronounced “em-dee.”



© David Harp, 2014

for Chesapeake College, headquartered in Wye Mills, Md. Practical training in electronic media fundamentals should be a great fit for their students and WHCP's community service mission. The plan is to offer a formal internship program in which the students receive practical training on the art, science and business practices of a progressive media outlet — online and on-air, up close and in-person. They'll be taught mic techniques, station operations, interviewing skills, basic computer skills, social networking and automation basics and even vintage slip-cuing for vinyl, as well as current tools for sending artist and title information to the RDS encoder. We'd love to be an HD Radio station with multicast channels for the local schools, and to offer a radio reading service; but one step at a time. An introductory student exercise will be to record and edit a Shore Life Story with

community elders to tell about their lives growing up here. I've already purchased a bunch of Tascam DR-5s for field recording on sale from BSW.

What about not just covering the City Council meeting, but enabling it? What so many small communities lack is active civic engagement. So let's make it easy. WHCP will offer not just to air important meetings live, but to outfit the council chambers with a Polycom conferencing system for use during public comment times by those unable to attend in person. They call us and register to comment; we call them back to avoid any “anonymous disruptiveness” pranks, keeping a profanity delay in-line should anyone be passionate about trash pickup schedules.

### QUALITY, PRICE

Most purchases represent compromises between price and quality. I am by

nature notoriously cheap. For an earlier project at an AM daytimer, I bought a 1946 Collins 20V that had been through a site fire, paying \$450. But six months after sign-on, the station ended up being off the air for a full week at a time when I should have been out in the community instead of designing and building solid-state replacements for the charred mercury vapor rectifiers.

So I've looked hard at the costs and benefits of buying off-shore, less-expensive transmitters, and also lower-priced, quality transmitters from the usual suspects. In the end, after looking at them all and listening carefully to the hundreds of engineers in the room at the NAB Nautel User's Group, I decided to buy a Nautel VS-300. With a sale underway providing the internal Orban audio card option for free, I couldn't resist making the purchase. I've also got a production room with a 16-channel Behringer Eurorack, and vintage EV and Heil microphones on hand. The Heil mic, a token of appreciation I received in conjunction with the 2005 Radio World Excellence in Engineering Award, will make a great control room mic with WHCP on the flagstand.

In a future story I'll focus on WHCP's experiences with the nitty gritty of finding and negotiating favorable tower space, STL strategy and mixing consoles — all marching towards firing up 100,000 milliwatts of community radio into the “MidShore” aether!

*Comment on this or any story; email radioworld@nbmedia.com with Letter to the Editor in the subject line.*

## NEWSROUNDUP

**EAS TEST:** FEMA's Integrated Public Alert & Warning System Program Management Office is targeting late 2015 for another national EAS test; Radio World broke that news last month. Sources said several steps must be taken first. FEMA has bench-tested the transmission, encoding and decoding of a Common Alerting Protocol-EAS message with a National Periodic Test header; the next step involves sending a CAP-EAS message with an NPT event code through IPAWS OPEN in a closed test in West Virginia; that test is slated tentatively for Sept. 17. West Virginia Broadcast Association Executive Director Michele Crist says stations would report back to the WVBA after the test, noting whether they received and retransmitted the alert along the daisy chain.

**BBG:** The House passed a bill to reform U.S. international broadcasting. It would replace the Broadcasting Board of Governors with the U.S. International Communications Agency, and appoint a full-time chief executive officer. It would also “express the sense of Congress” that Radio Free Europe/Radio Liberty, Radio Free Asia and the Middle East Broadcast Network should be merged. It's not clear whether the Senate plans to take up the legislation.

**IHEARTRADIO:** Clear Channel Media and Entertainment added Mexico's Grupo ACIR radio stations to its iHeart-

Radio Hispanic Network. ACIR owns and/or operates 55 stations in Mexico. Clear Channel will also become the digital ad sales seller for the Mexican outlets, swapping out local Mexican station ads and replacing them with U.S. consumer-targeted spots.

**NABA:** Emmis Communications, part of an industry push for FM



reception in cellphones, joined the North American Broadcasters Association. The Toronto-based group comprises broadcasters, regional networks and specialty service broadcasters; they handle issues facing broadcasters in Canada, Mexico and the U.S. Emmis enrolls as an associate member, joining NAB, NPR, PBS. Among full radio/TV members are CBC/Radio Canada, CBS, Disney/ABC and Univision. Emmis Chief Technology Officer Paul Brenner becomes vice chair of NABA's expanding radio committee; Julie McCambley, director of radio production at CBC/Radio Canada, chairs that committee.

“The globalization of technology has forced companies to look well beyond country-by-country,” Brenner said. “We must rethink the ways of the past that focused on technology for technology's sake or improvements to specific broadcast-related technology and strive to change perceptions of our medium. Think differently. Universal compelling content, whether aural, visual, analog, digital or hybrid solutions that blend bidirectional technologies, are goals we should all aspire to accomplish together.”



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# Reduce Noise by Making Fan Substitutions

Also, a chart that simplifies decision-making for engineers

## WORKBENCH

by John Bisset

Read more Workbench articles online at [radioworld.com](http://radioworld.com)

The longevity of some older broadcast gear is a real testament to its manufacturing techniques and design. The Marti STL-8 is no exception.

Charles "Buc" Fitch, P.E., had one of these STL transmitters on his bench. He changed out the very noisy AC cooling fan for a very quiet DC fan.

The replacement runs well. To avoid adding to the regulator load, Buc grabbed a sample of the raw 18-volt bus and put a 1/2-watt, 5.6-volt zener in line with the fan. This holds the voltage around 12 or 13 volts for the 12-volt fan.

The 120 milliamps from the fan, flowing through that 1/2-watt zener, is just about 1/2 watt, so Buc made certain the zener is mounted in the fan air flow to keep it cool. It should have been a 1-watt unit, but Buc didn't have one handy.

Buc settled on the DC fan because an

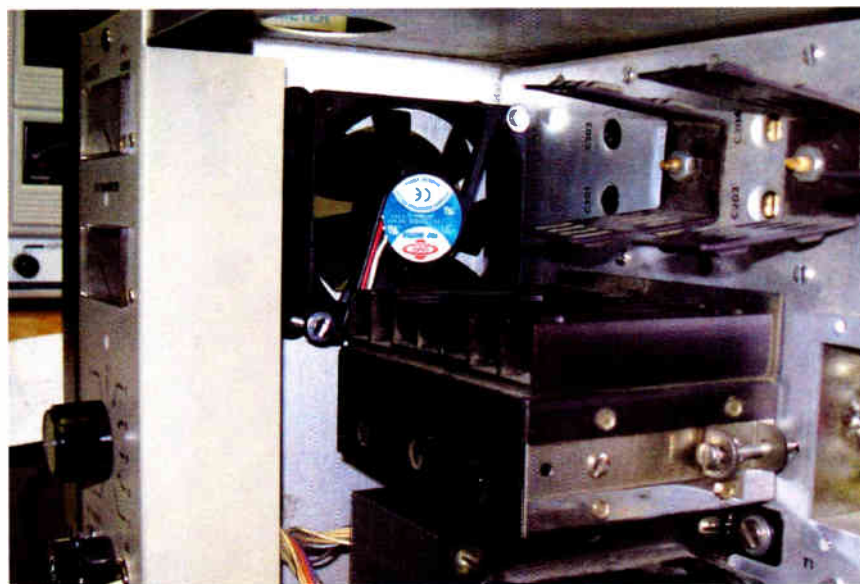


Fig. 1: The Marti STL-8 with its AC cooling fan.

AC replacement fan motor is expensive. Instead, he found 10 DC fans for \$10. Plus the DC fans are more readily available. You can't beat \$1 per fan!

The DC fan is smaller in depth, and thus makes adjusting the first stage of capacitors a lot easier — your hand or screwdriver no longer gets caught in the

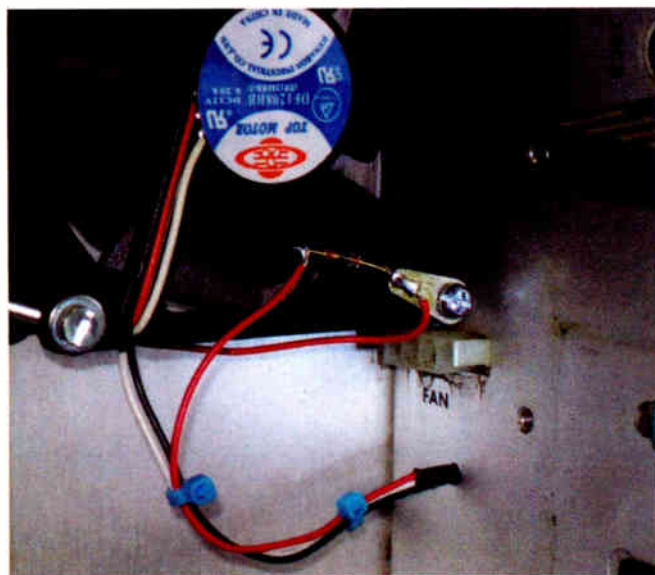


Fig. 2: Buc's DC fan replacement.

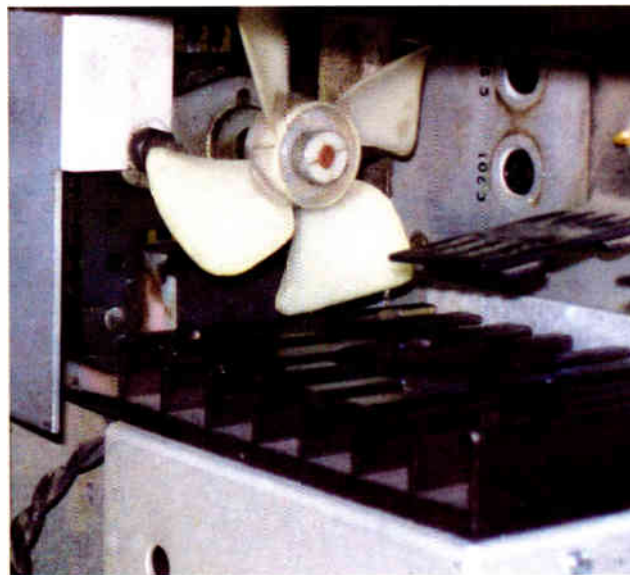


Fig. 3: Buc cheated on the zener rating by mounting it in the fan's air flow.

32S series and KWM-2As. Philip would use a scrap of five-level teletype tape, which was yellow paper about 3/4-inch wide. It had a hint of lubricant in it to help the tape punches and readers stay smooth, as well as to collect paper dust.

Philip would crease a few inches lengthwise, power down the rig, remove the RF cage around the finals, and carefully run the paper between the un-energized contacts while gently pressing the contacts together.

This paper would be hard to find these days! If you know good sources, pass them along to me at [johnpbisset@gmail.com](mailto:johnpbisset@gmail.com).

Philip says GC Electronics still makes little diamond-faced steel bur-nishing tools. The company has two sizes, part number 9337 and the larger 9338. Of course, these, too, are going to remove a little metal from your contacts, so use them with caution.

Head to [www.gcelectronics.com](http://www.gcelectronics.com) and search for those parts to see information and pricing. Thanks Philip for a tip that will guard against intermittents.

Philip Barnes-Roberts can be reached at [pbarnrob@acm.org](mailto:pbarnrob@acm.org).

We'll wrap up this column with a fun flowchart sent in by Jim Davies over at the University of Iowa, seen in Fig. 4. Yes, this flow chart really does simplify your toolbox. He's not sure who originated this fun image; if you know, share with us so we can tell readers.

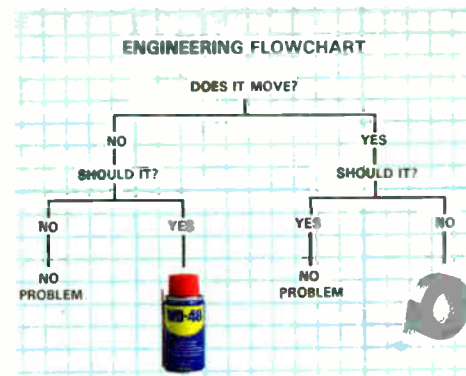


Fig. 4: The engineer's decision-making tool box.

Jim can be reached at [jim-davies@uiowa.edu](mailto:jim-davies@uiowa.edu).

Contribute to Workbench. You'll help your fellow engineers and qualify for SBE recertification credit. Send Workbench tips to [johnpbisset@gmail.com](mailto:johnpbisset@gmail.com). Fax to (603) 472-4944.

Author John Bisset has spent 44 years in the broadcasting industry and is still learning. He handles West Coast sales for the Telos Alliance. He is SBE certified and is a past recipient of the SBE's Educator of the Year Award.

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Thanks, Buc, for this noise-elimination tip.

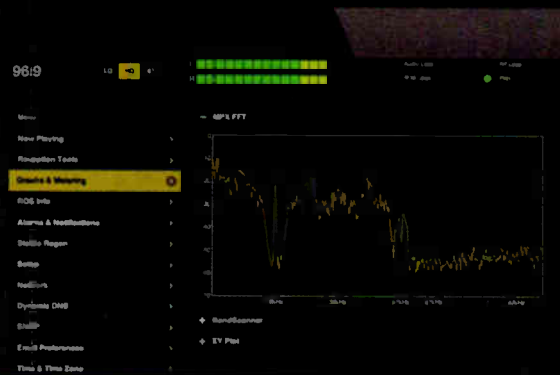
Philip Barnes-Roberts saw our tip about cleaning relay contacts and drew on experience from his military service.

To slightly burnish the T/R relays in Collins S-Line transmitters, such as the

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# Unlicensed Bands Offer Opportunities

## Use Industrial, Scientific and Medical bands for Wi-Fi links

BY TOM VERNON

Much of the equipment in today's transmitter sites has an Ethernet jack on the back. An Internet connection is very nice to have — or in the case of "anywhere-anytime" access to remote control, it's downright necessary.

The traditional means of connecting to the transmitter site has been leased telephone lines or some form of STL microwave connection. More recently, Wi-Fi links in the unlicensed Industrial, Scientific and Medical bands have been used by some pioneering stations.

This was the topic of an engineering session at this year's NAB Show titled "Broadcast Applications in the Unlicensed Wi-Fi Bands — It's Not as Bad as You May Think!" Despite the somewhat foreboding title, presenters Steve Johnston, director of engineering and operations at Wisconsin Public Radio, and Kevin Trueblood, WPR broadcast engineer, find many good reasons for utilizing these unlicensed channels.

### ISM ADVANTAGES

In the past, operations in the ISM bands have been cost-prohibitive, slow and tedious. But recent advances in the technology have made them much more affordable, spacious and robust.

There are also several advantages. By extending the station's LAN to the transmitter site, you can take advantage of the virtual schematic function included with most remote control gear. This allows you to see status indications and control functions throughout the plant.

Another benefit of extending the station LAN to the transmitter is that, with the newest generation of audio codecs and a Wi-Fi link, you can create a new STL for a fraction of the cost of a traditional licensed STL system. An IP-based phone extension can also be installed at the transmitter, saving the cost of a traditional phone line, with the proviso that it is properly set up for 911 calls.

There's good news and bad news with operations in the unlicensed bands.

The cost of equipment is significantly less than what you'd spend on a

licensed equipment. There is no need for frequency coordination, nor any need to relicense if you move facilities. Depending on the band used, there may be some advantages in terms of susceptibility to rain and snow fade.

tower. Precautions need to be taken for lightning and surge protection. That means using outdoor-rated, shielded Cat-6 Ethernet cable, grounding it and using ferrite chokes. Surge protection on power-over-Ethernet connections is

an especially attractive option due to the low cost of equipment.

A high data throughput is ideal, but it can come at the cost of large bandwidth. This may result in interference or difficulty in establishing a solid link. The solution may be to reduce bandwidth from the default 20 MHz to 3 or 5 MHz.

Johnston and Trueblood reminded attendees of the old maxim: Never

Band	Advantages	Disadvantages
902 – 928 Mhz	<ul style="list-style-type: none"> <li>* May already have necessary hardware</li> <li>* Can be combined onto existing 950 Mhz STL</li> <li>* Not limited to Ethernet – antenna can be higher</li> <li>* Best propagation</li> </ul>	<ul style="list-style-type: none"> <li>* Channel space is limited</li> <li>* Harmonics fall within licensed spectrum</li> </ul>
2.40 – 2.485 Ghz	<ul style="list-style-type: none"> <li>* Good tolerance for path obstruction</li> <li>* 40-50 miles possible</li> </ul>	<ul style="list-style-type: none"> <li>* Most used by consumer devices</li> <li>* More prone to interference</li> <li>* If increase antenna gain, then reduce TX power out</li> <li>* Fewer channels to operate simultaneously on</li> </ul>
5.15 – 5.825 Ghz	<ul style="list-style-type: none"> <li>* Less interference</li> <li>* Antenna gain may be increased without reducing TX power</li> <li>* Greater number of channels in 5.8 Ghz band</li> </ul>	<ul style="list-style-type: none"> <li>* 5.8 Ghz less tolerant of obstructions than 902 Mhz or 2.4 Ghz</li> <li>* Signal may not go as far as on other bands</li> </ul>
24.0 – 24.25 Ghz	<ul style="list-style-type: none"> <li>* Large throughput</li> <li>* Less interference</li> </ul>	<ul style="list-style-type: none"> <li>* Subject to rain fade</li> <li>* Only useful for very short links</li> </ul>

This chart shows advantages and disadvantages to operating in four of the unlicensed bands.

The bad news, of course, is that your frequency is not protected. You are on your own to resolve any interference problems that may arise after your system becomes operational.

Johnston and Trueblood note that the four most widely used unlicensed bands are 902–928 MHz, 2.40–2.48 GHz, 5.1 –5.825 MHz and 24.0–24.25 GHz. There are advantages and disadvantages to operating in each of these bands, and these are summarized in the table above.

### THE RULES

While these bands are unlicensed, there are some ground rules that need to be followed. The maximum allowed transmitter power in all bands is 1 watt. The maximum effective isotropic radiated power is 4 watts in the 900 MHz and 2.4 GHz bands. The maximum EIRP in the 5.8 GHz band is 12 watts. There are exceptions. Power is limited to 160 mW from 5.15–5.25 GHz and 800 mW from 5.25–5.35GHz.

Broadcasters have some advantages over other tenants of the ISM bands. Access to "vertical real estate" in the form of tall towers and rooftop sites allows them to literally rise above much of the interference and noise. Many of the newer receivers are software-based, and have built-in spectrum analyzers, which enable you to find the quietest channel.

Unlicensed Wi-Fi gear is no different than anything else you put on a

also a good idea.

If the link is to be used for audio or video links with a large data stream, take the necessary steps to keep latency low and consistent. This means selecting a channel with the lowest interference and using transceivers from the same manufacturer on each end. While there is usually compatibility among various manufacturers' equipment, experience has shown that mixing them up can sometimes add latency.

Many Wi-Fi devices can act like a home wireless router, with the ability to accommodate many host connections. The problem is, this adds latency. If you're using just two devices, be sure to select point-to-point mode.

Lastly, be sure to turn off all firewalls, DHCP and routing within the access point. Keeping devices in a simple bridge mode enables them to simply transmit packets without further processing.

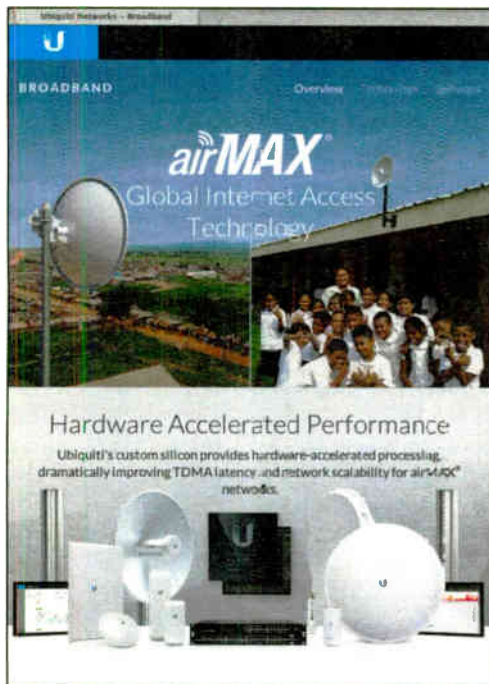
For backup, users may want to deploy Wi-Fi links in different bands. For example, if you have a 5.8 GHz link and a licensed 950 MHz link, you can add a 902 MHz link, and set it up for automatic failover to the 5.8 GHz link. This is

assume. With unlicensed Wi-Fi, don't assume that because you are in an urban area there will be interference. Also, just because you're in a rural area, don't assume there are no other users. Wireless Internet Service Providers are

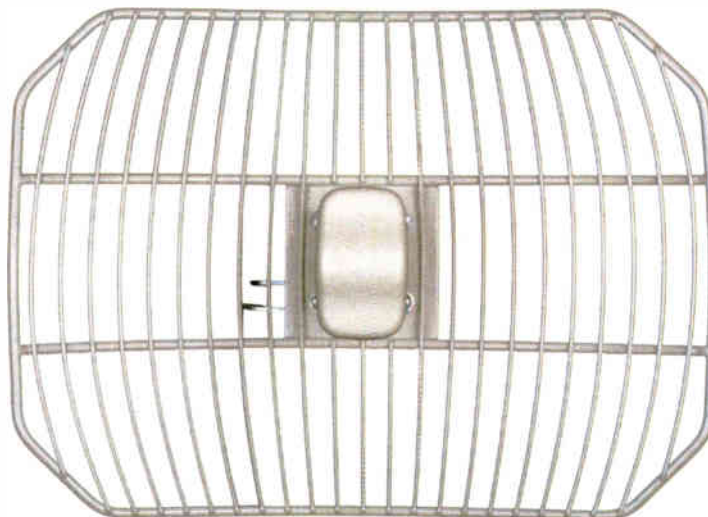


Ubiquiti's Rocket Dish antenna is available for the 2.4 and 5 GHz unlicensed Wi-Fi bands.





Ubiquiti's AirView software enables RF energy visualization in the 2.4 GHz unlicensed Wi-Fi band.



Ubiquiti's AirGrid antenna operates on the 5.8 GHz band.

tem exceeded Johnston and Trueblood's expectations. With 40 MHz of bandwidth, they were getting 100 MB of throughput. After some tweaking, which involved taking the link out of Auto mode, a latency of 2-3 milliseconds was achieved. Next, they installed two Barix audio codecs running in linear PCM WAV mode for the STL. With bandwidth left over, two more Barix codecs were installed for backhaul audio from a satellite downlink at the transmitter.

The installation was completed more than 14 months ago. So far, the system has been trouble free.

*Tom Vernon is a longtime contributor to Radio World. Find more of his articles by searching keyword "Vernon" on radioworld.com.*



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often power users of these bands, and there can be a great deal of congestion.

Finally, some consideration needs to be given to security. Anyone who can hack into your Wi-Fi link is on the station's LAN. Using WAP2-AES encryption should be standard. Also, be sure to hide your SSID or Wi-Fi name so it is not obvious who you are. A name such as "WXXX transmitter" may attract extra attention from hackers.

**EARLY ADOPTER**

Wisconsin Public Radio was an early adopter of this wireless Wi-Fi technology at their WHA Madison flagship station. The combination of difficulties with maintenance of an aging equalized phone loop to the transmitter and low cost of 5.8 GHz equipment pushed the purchase decision.

A topographic survey revealed there was a clear line-of-sight path for the two miles between studio and transmitter. A Ubiquiti AirGrid 5.8 GHz link with 27 dBi of gain was installed. The total cost for the radio gear and 1,000 feet of shielded Cat-5e cable was around \$350.

Despite the low cost, the new sys-



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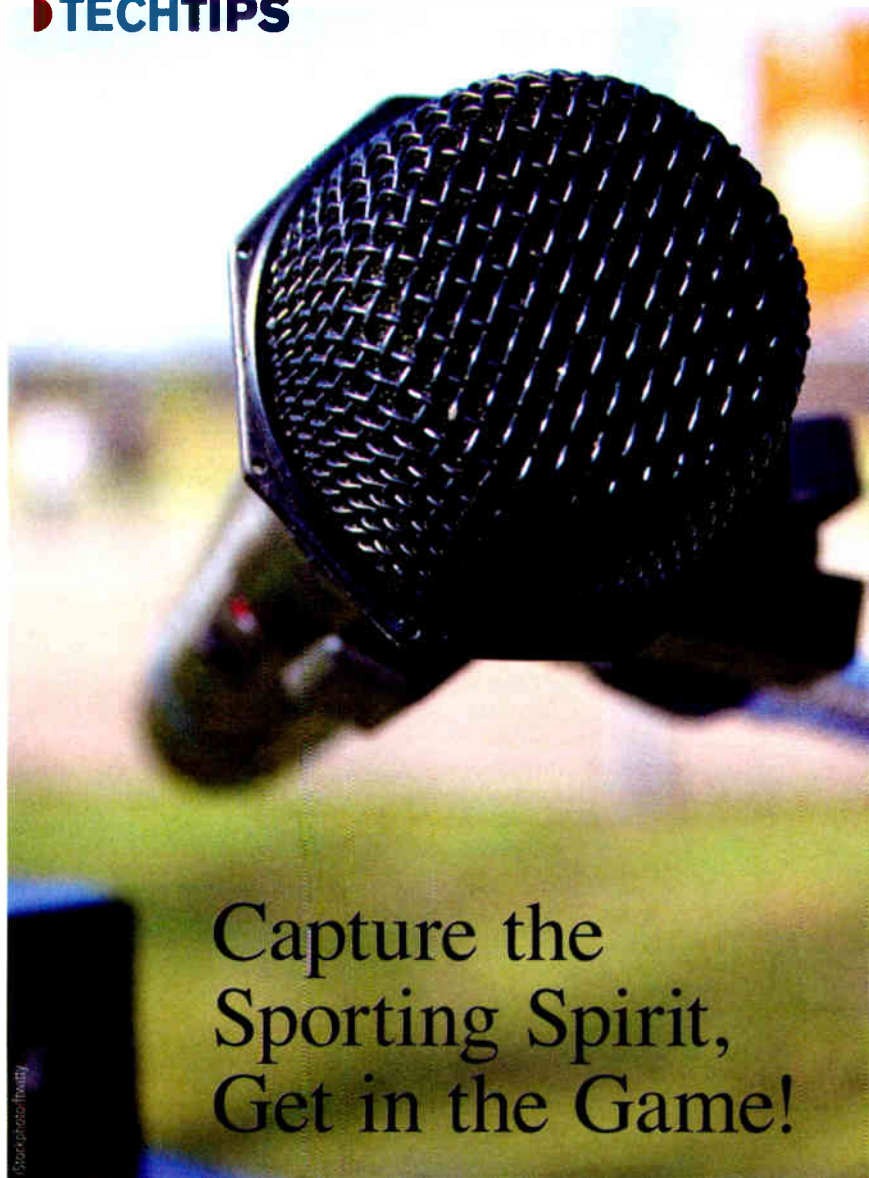
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## TECHTIPS



Capture the  
Sporting Spirit,  
Get in the Game!

Don't be afraid to use crowd noise in your audio mix for that in-the-stands sound

BY MARK PERSONS

When mixing audio at a sporting event, broadcasters need to think in terms of the listeners rather than themselves.

It is my observation that a majority of small-market sportscasters do not understand the concept of deploying a crowd microphone.

Yes, we go to a lot of trouble to make radio studios quiet (as we should). The situation is much different when away from a studio.

Listeners should be treated to the sounds of what is happening, not just announcers' voices. Remember, listeners tune into a sporting event on the radio because they cannot be there in person. It makes perfect sense to demonstrate the flavor of the scene by putting a microphone out to pick up crowd and action noises. So many times you hear announcers close-talking their

microphones, so much so that you might think they were doing the broadcast from a studio rather than a baseball or football stadium.

Announcers must stop thinking that listeners are tuning in to hear them. Mix the audio so the listener feels he or she is sitting at the game.

If you were in the stands at a game and there was little or no crowd noise, you would feel there was something wrong. It is the sound of the crowd reaction and the clash of players or bats against balls that give a listener a more complete sensory experience.

Almost any inexpensive or beat-up old microphone will do to pick up crowd sounds. It doesn't even need to have good frequency response.

The big guys will use a microphone just to pick up the crack of a bat at professional baseball games.

Basketball games are different. There

## A MODEST PROPOSAL

Let me offer a suggestion to those who are speaking before a live group or for video. This is becoming increasingly pertinent as more radio stations are encouraging broadcasters to use multimedia coverage for events.

Please hold the microphone away from your mouth. Much of the enjoyment is found in seeing someone speak. Covering a face with a microphone keeps viewers from experiencing the expressions and emphasis in a speech or song. Some of us supplement our hearing by reading lips.

If the microphone needs to be close, have it resting on the chin and talk over it. The sound will be just fine. Trust me. Television reporters do it that way, and everyone else should too.

Pass this tip on to everyone you know. It makes perfect sense.

is usually plenty of noise in the packed arenas, so an extra microphone is not normally needed.

Keep in mind that too much crowd noise can mask what an announcer is saying, and unfortunately that is bad too. Occasionally there is a situation where a crowd mic will hear a fan using four-letter words. Good microphone placement should more or less eliminate that problem, so I wouldn't use that as an excuse not to use a crowd mic.

Our local high school football team competed for the state championship title last fall. I was in a car listening

not have much audio headroom. Voice peaks can easily be clipped by running the audio into the red on a VU meter.

Listeners quickly will tire of distorted audio. Give the listeners a break and increase listener retention by keeping the audio clean. It makes a world of difference, especially for listeners who are only mildly interested in the event. Those people typically tune out from fatigue.

If you have the choice between more audio level or less audio level, less is better. Peak clipping distortion is an easy way to grate on listeners' nerves.

A similar situation happens when

**It is the sound** of the crowd reaction and the clash of players or bats against balls that make a listener have a more complete sensory experience.

to the first half of the game. No crowd microphone was used and it sounded very dry. When I reached home and turned on a television I discovered the television folks had employed a crowd microphone. It was an entirely different sound and was a much more exciting game even when I closed my eyes to just hear the audio. (Did you get that? Television had better sound than radio!)

Again, sports announcers should not think of themselves first; instead, they should think of the listener. When they bring in crowd noise, they capture the spirit of the event and have an entirely different presentation.

## BAD AUDIO

On another matter, more audio is not necessarily better — it is usually worse.

Watching VU levels is critical to keeping announcer audio clean. As an engineer, I have often been appalled at how bad audio can be from a game when it did not need to be if audio levels had been watched more closely. Mic gain should be set before the game for the loudest possible level when the announcer shouts during a touchdown, etc. Remote broadcast units typically do

announcers close-talk a microphone to the point where breath noises and p-popping occurs. It's not pleasant for the listener. Remember, radio is communication should be between one announcer and one listener at a time. That personal one-on-one relationship is a hallmark of the most successful announcers.

One way to help fix this problem is for sports announcers to listen to their own audio in an air check, just like studio announcers do. Sportscasters could learn something from that time-honored technique. If they sit back and listen to more than the game score, it might come to them that the listener is not hearing the game the way a fan would in the stands if he had a good buddy explaining the action to him.

Yes, sports announcers paint word pictures with narration, but the crowd reaction and play sounds are important parts of a broadcast. Best not to leave the extra sounds out.

*Mark Persons WOMH, CPBE, has over 30 years' experience. He has written numerous articles for industry publications over the years. Learn more at [www.mwpersons.com](http://www.mwpersons.com).*

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- The revolutionary design of Op-X's clock builder turns the previous task of scheduling satellite programming into a few simple clicks.
- Share serial devices from any machine using the Op-X Serial Server.
- Importing logs now gets its own module that takes confusion out of the process.
- Engineers will enjoy Op-X because it's easy to install, maintain, and has automatic backup features.

## iPad app Features

- Live show real-time control from almost anywhere
- A powerful tool for remotes or voice tracking
- Take a show on the road
- Start, stop, copy and paste functions from the log
- Insert audio items into the log
- Initiate audio playback from hot buttons
- Run macro command from hot buttons
- Secure access to your system



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RADIO AUTOMATION SOFTWARE

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[wheatstone-radio.com](http://wheatstone-radio.com)

 **Wheatstone**  
SPECIALIST AUDIO POSITIONING SYSTEMS

World Radio History





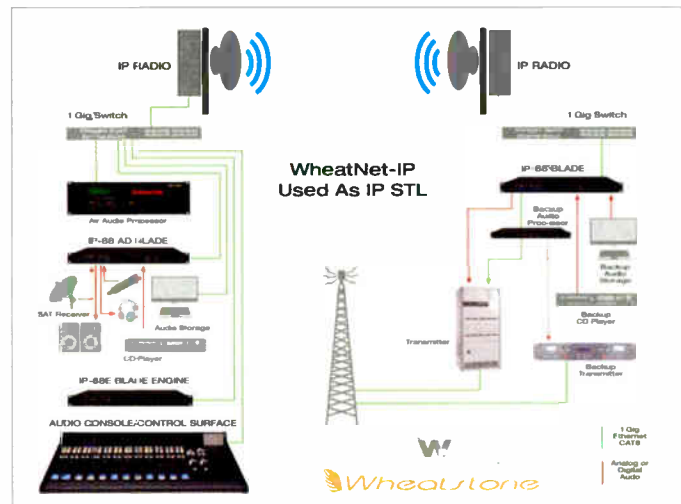
## No Stopping WheatNet-IP BLADEs

Continue IP audio from the studio to the transmitter site.

They're unstoppable, those BLADEs. By connecting a WheatNet-IP BLADE I/O unit to each end of an IP wireless audio STL, you can continue IP audio from the studio to the transmitter site. IP radios connect to the switches on each end, which can connect to BLADEs already in use for managing audio and any devices hanging off the network. If the IP radio should lose connection, the BLADE3 will not only detect silence, it can trigger the startup of playback audio stored on the unit itself.

For other helpful uses for new or existing BLADEs go to...

[INN13.wheatstone.com](http://INN13.wheatstone.com)



## Multimedia Madness

Rethinking radio because of multimedia? We're putting more shared resources on the WheatNet-IP audio network and discovering some interesting uses for logic, including video following audio.

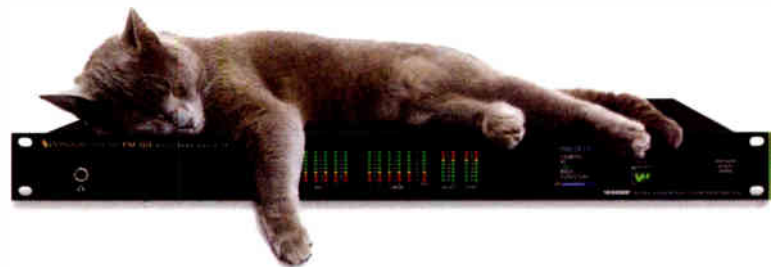


If you wanted to mess with cameras all day you wouldn't have gone into radio, right? It's not just YouTube, either. Or the station website that needs a continual stream of video and audio, or the photo bombs that are going off all day, every day. Or even that the morning guys are running all over town with a microphone and a camera.

Multimedia is requiring all of us to rethink radio.

We're putting more shared resources on the WheatNet-IP audio network in order to clear the studio of old gear and other camera eyesores, and we're putting audio processing at every access point in the network for the disparate sounds coming off the Internet, for example. We're finding a lot of new uses for logic control, too — like, triggering the studio camera to take a picture for Instagram or record video for YouTube whenever talent talks into the mic. For more ideas on how to deal with multimedia madness, go to...

[INN13.wheatstone.com](http://INN13.wheatstone.com)



## Something New is in (on) the Air

Yep. You guessed it. The new FM-55 processor is out there and it's purring right along...

If the station across town suddenly starts to blow everyone else off the dial, blame it on Wheatstone's new FM-55 audio processor. We let the cat out of the bag a few weeks ago and there's no putting it back.

We put some interesting new circuitry in the FM-55, and there's no question that our intelligent five-band AGC coupled to a multiband limiter is getting those highs, lows and mids to sing. The real kicker is the price, though. The processing intelligence needed for that kind of sound improvement historically came at a price — typically, three to four times that of the FM-55. Which is another reason why you'll be hearing a lot more about the FM-55 from here on out. For more, visit...

[INN13.wheatstone.com](http://INN13.wheatstone.com)





## TSL DEBUTS AXIUS ETHERNET SWITCHES

It was not that long ago that broadcasters didn't have to think about Ethernet switches. No longer.

TSL Products is offering broadcasters its new Axius managed Ethernet switches. These switches are designed for handling audio and video over IP networks within a facility (i.e. Layer 2 LAN) or interfacing with other IP networks (i.e. Layer 3 WAN).



TSL Products Product Manager Pieter Schillebeeckx explained, "What is special about the new switch is that it has been developed from the ground up around accurate timing and synchronization through a very tight implementation of Precision Time Protocol, also known as IEEE 1588, which is used in the majority of high-end audio/video-over-IP supported equipment."

The Axius switches are also compatible with AVB, AES67, Ravenna, Stagebox and SMPTE 2022-based systems.

Initially there are two Axius boxes available. The MES-1 has 10 ports with eight 10/100/1000 Ethernet ports and two 1Gbps Ethernet SFP ports. The more rugged MES-1-R has eight ports, with Neutrik latching connectors for secure operations in challenging environments. Its port complement is six 10/100/1000 Ethernet ports and two 1Gbps Ethernet SFP ports.

INFO: [www.tslproducts.com](http://www.tslproducts.com)



## FOR STUDER, X MARKS THE SPOT

Harman's Studer nameplate has launched a new console in the Vista line, the Vista X.

According to the company, the Vista X has a new processing core called Infinity DSP. It says that, unlike traditional but more app-specific SHARC- or FPGA-based engines, the Infinity uses a commercial CPU. Therefore it should be easier to develop programming for it, and its power should increase along with commercial CPU development.

One CPU-based advantage that the company is highlighting is the ability to use multiple cores within the CPU, and thus allowing for a level of redundancy.

The Infinity core is compatible with Studer's new 12 A-Link high-capacity fiber digital audio interface, providing thousands of inputs and outputs per console.

Like other members of the Vista family, the Vista X has Vistonics and the FaderGlow UI.

INFO: [www.studer.ch](http://www.studer.ch)

## WIDEORBIT WHEELS OUT NEW AUTOMATION AND TRAFFIC

Broadcast business automation developer WideOrbit has new versions of its automation and traffic software products.

Version 3.7 of the Automation for Radio suite adds "a new MusicMaster widget allows on-air announcers with the necessary privileges to make intelligent choices about the songs played on the air," the company says.

It explains that with the widget, "announcers can get real-time information about a song's play history and other information needed to determine whether a song is eligible for airplay based on rules defined in MusicMaster." The information will appear on the on-air screen. The MusicMaster database will be updated in real-time as necessary.

WideOrbit also has a new version of WO Traffic, the company's traffic and billing module. Upgrades include "a more streamlined process for importing Lockbox payments, improved log status tracking, station-defined order separation defaults for advertisers and more flexible format scheduling across stations with time offsets," the company explains.

In addition, "Digital tools allow users to manage Spot and Digital orders from a single order, from order entry through to invoicing and reconciliation," it adds. Mobile support for iPad and Android devices is now integrated.

INFO: [www.wideorbit.com](http://www.wideorbit.com)

## ANTENNAS, MORE FROM ALDENA

Aldena has introduced its ALP series of high-gain FM log-periodic directional antennas, which the firm says feature notable electrical performance and front-to-back ratio. Moreover, it explains, the antenna's customizable directional azimuth pattern can be configured to meet FCC requirements.

Other products from Aldena include the AQP0404 four-dipole antenna panel for mixed/linear polarization (shown). It is suitable for installation on square or round masts. The ALP0704 log-periodic high-gain, low-wind load antenna is particularly appropriate for horizontal or vertical linear polarization and can be used in stacked array or complex pattern configurations.

The company, which recently opened a new certified test plant, also offers the EmLab antenna design and coverage software for the management of complex antenna arrays. Used to plan analog or digital SFN/MFN networks, the software provides area coverage calculation, interference analysis, SFN problem detection and EM field safety control information.

INFO: [www.aldena.it](http://www.aldena.it)

## DIELECTRIC OFFERS NEW RADOME, GREEN PACKAGING

The news from Dielectric this year isn't just that the Maine-based antenna maker still exists after former owner SPX announced plans to close the business last year. It wasn't even about the metal in the antennas themselves. Instead, it's about what's around that metal — most notably the new radome option for the DCR-T-R low-power circularly polarized FM antenna. Available in configurations from one to eight bays, the DCR-T-R can handle 1 kW of input power per bay, and the optional ABS radome protects the lightweight all-aluminum antenna elements from the elements.

It's also about what's around the radome when it arrives at the transmitter site: Certain Dielectric antennas are now being shipped in "renewable" biodegradable packaging, made from a mushroom-based compound.

INFO: [www.dielectric.com](http://www.dielectric.com)





## NEW MONITORS FROM DYNAUDIO PROFESSIONAL

Dynaudio Professional is promoting new members of its BM mkIII range of powered studio monitors.

The latest models are the two-way BM Compact mkIII (shown) and the BM5 mkIII.

The Compact mkIII uses a 5.7-inch woofer with an aluminum voice coil and a 1.1-inch soft dome tweeter with an aluminum voice coil. Twin 50 W Class D amplifiers power the drivers. There is a high-pass filter (60/80 Hz) and an input sensitivity switch (-10/+4 dB). It includes XLR and RCA inputs.

Expected frequency response is 49 Hz–24 kHz.

The BM5 mkIII carries many of the same features. Its drivers are a 7-inch woofer with aluminum voice coil and the 1.1-inch tweeter. Frequency response is claimed at 42 Hz–24 kHz.

A bonus — both monitors ship with an IsoAcoustics ISO-L8R155 speaker stand.

INFO: [www.dynaudioprofessional.com](http://www.dynaudioprofessional.com)

## STACO BRINGS THE POWER

Staco Energy Products FirstLine PL/PPC (shown) is a three-phase power conditioner, rated at 208VAC, 10–40 kVA. Capabilities include continuous voltage correction and conditioning providing a clean, regenerated waveform. Staco says the units have up to 94 percent efficiency, an input power factor of 0.99, Adaptive Feed Cancellation, digital signal processing and Soft Start Power walk-in function.

Also available are the larger FirstLine P/PPC 480VAC, 65–250kVA power conditioners. They too provide continuous voltage correction and conditioning providing clean regenerated waveform. The FirstLine P/PPC gives cost-effective protection from a range of power quality anomalies, while providing regulated output power. They are suitable for use in broadcast transmitters, to protect them from damage by poor power quality, the company says. Broadcasters can save money by extending the life of the equipment and keep operations up and running through unstable power situations.

The latest Staco UniStar P is the 0.9 6–10 kVA power factor correcting uninterruptible power supply unit. As studios and tech centers become more IT-oriented, power protection becomes a huge issue. Staco Energy says it has the experience and products that broadcasters need, whether it be a facility-wide UPS system or protection for just one piece of equipment. The UniStar series is a single-phase, online UPS system that protects against all power quality problems, including blackouts. The units provide power conditioning continuously, whether on battery power or not. Up to four can be connected in parallel.

INFO: [www.stacoenergy.com](http://www.stacoenergy.com)



## IDC STAR PRO AUDIO'S NEXT GENERATION

International Datacasting says that its Star Pro Audio Generation 2 (G2) receiver increases ad revenue by offering ad insertion for regionalized and localized campaigns — plus it reduces costs by lowering the cost-per-channel and using less bandwidth. Star G2 is a DVB-S/S2 audio receiver with integrated advertisement and content play-out system, offering live audio decoding and file play-out. It handles HE-AAC, MPEG-2, MP3, IP and satellite delivery methods. The Star Two G2 is supplied with two audio decoders and the Star Four G2 is supplied with four.



The original Star Pro Audio receiver is a satellite receiver designed for radio distribution applications. Based around the latest DVB satellite modulation and MPEG audio compression standards, the Star's integrated, low-power, fanless architecture is designed to maximize network uptime. Star supports high-efficiency, standards-based DVB-S2 as well as DVB-S satellite demodulation. Both MCPC and SCPC delivery modes are supported, down to rates as low as 100 kbps.

The SuperFlex Pro Audio Series features two models: SuperFlex Pro Audio with two audio decoders and SuperFlex Pro Audio XTR with four audio decoders. All the decoders have associated relays sufficient for an AM/FM collocation or AM/FM transmitter pair. Each audio decoder is independent of the other, allowing maximum flexibility in data rates, codecs and sample rates: MPEG Layer II for existing DVB compatibility or MPEG Layer III or HE-AAC for the best audio performance at the lowest bitrate. The SuperFlex Pro Audio Series is designed to allow commercial/program insertion on any channel, according to the company.

INFO: [www.datacasting.com](http://www.datacasting.com)

## USB AUDIO IS THIS EASY WITH USB MATCHBOX II



TO YOUR PC

TO THE REAL WORLD

The ease of USB audio without hum, buzz, or sound-card headaches! Get true professional levels with lots of headroom, and an AES digital output too.



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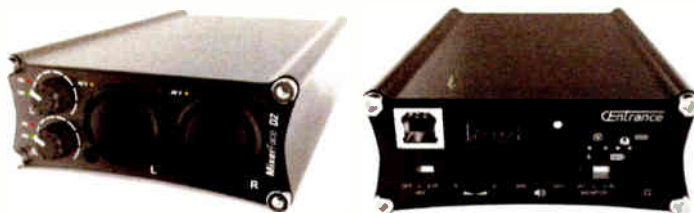


## CENTRANCE MIXERFACE HAS A SIMPLE MISSION

Centrance's rechargeable battery-powered MixerFace is a rather simple product with a simple mission — get high-quality audio into an iPhone or iPad. It does this by packing "boutique" preamps and 24-bit/192 kHz converters into its aluminum box.

Neutrik combo jacks provide inputs for mics (48 V phantom power) or musical instruments. Dual level controls, onboard limiters, USB digital outputs and 1/4-inch headphone output are provided. MixerFace can also be connected to a tablet or a laptop, according to the company.

INFO: [centrance.com](http://centrance.com)



## SWITCHCRAFT DEVELOPS NEW XLR SERIES

For the serious do-it-yourselfer, connection specialist Switchcraft has developed a new family of XLR panel-mount connectors, the DE series.

The DE series offers 3–7 silver- or gold-plated pins/contacts in male or female versions. Chassis ground terminal feature is standard. Available in nickel or black finish. They are RoHS-compliant.

Switchcraft says that the DE series mate ideally with its QGPK I/O panels and W series of wall plates.

INFO: [www.switchcraft.com](http://www.switchcraft.com)

## DAWNCO FILTERS AGAINST NEW INTERFERENCE

For broadcasters trying to find clean RF space for studio-to-transmitter links and satellite downlinks, there are always new challenges standing in the way. "We're seeing an increasing amount of interference from WiMax transmitters lately," says John Joslin of Dawnco, who notes that the 3.65 GHz WiMax band is extremely close to the bottom of the C Band downlink spectrum at 3.7 GHz. To aid broadcasters trying to get clean C Band downlinks, Dawnco offers a new T1 interference filter that can clean up issues that arise from nearby WiMax signals, as well as from radar operations near airports, military bases and harbors. The filters, offered in a 3.7–4.2 GHz band pass version for U.S. customers and 3.6–4.2 GHz outside the U.S., boast 0.4 dB insertion loss, an improvement over the 0.7–1.0 dB of the older version. The filter also has sharper skirts to better filter-out WiMax at the bottom of the band.

INFO: [www.dawnco.com](http://www.dawnco.com)

## NEXT FOR STAGETEC NEXUS ROUTER

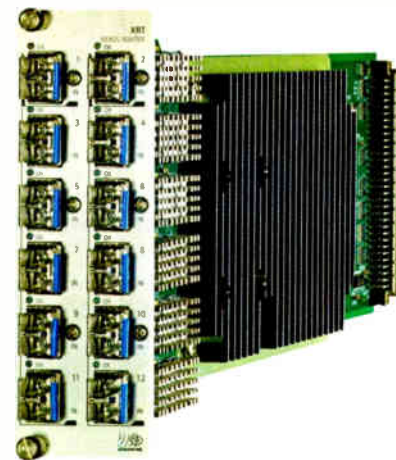
Console and router maker Stagetec has released an I/O board for its Nexus router system.

The XRT is a fourth-generation fibre-optic card that is capable of handling over 8,000 audio channels per card, the company says.

The top speed is estimated to be 6.25 Gbps. It is also compatible with lower-speed (1.25 Gbps) Nexus equipment.

It is compatible with Ethernet tunneling, 1 Gbps/100 Mbps. The board uses passive cooling heatsinks.

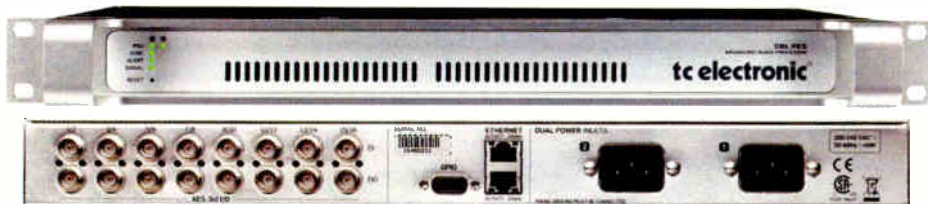
INFO: [www.stagetec.com](http://www.stagetec.com)



## TC ELECTRONIC UPDATES DB6

TC Electronic has a new option for its DB6 loudness controller.

Available is a new AES I/O option that puts 16 AES3 digital audio-compatible unbalanced BNC connectors onto the backplane.



VP of Business Management for Broadcast & Production at TC Electronic Thomas Valter said, "Now, all broadcasters can choose whether they want to route only the audio signal through DB6 or not. Integrating DB6 to an existing transmission system at an insert point is a flexible option to have and it will surely suit some stations better than an SDI-only solution."

On the software front for the DB6, a new software version is ready. Version 1.30 is a free update.

The company says, "With the new software, broadcasters are able to recall up to 16 scene presets by using GPI 1 and 2 together."

It explains, "The GPI implementation of DB6 is very extensive, offering switching between up to 16 Scene Presets using only two of its four GPI inputs. Based on this, DB6 may be controlled during playout, or a simple preset selection panel can be designed with easy access to presets and/or emergency override."

Also, the DB6 can now be remote controlled by multiple instances of TC's Icon remote software. One more goodie in the update is the ability to copy whole user preset banks to or from files stored on Windows or Mac computers.

INFO: [www.tcelectronic.com](http://www.tcelectronic.com)

## FRAUNHOFER DEMOS EWF FOR DIGITAL RADIO

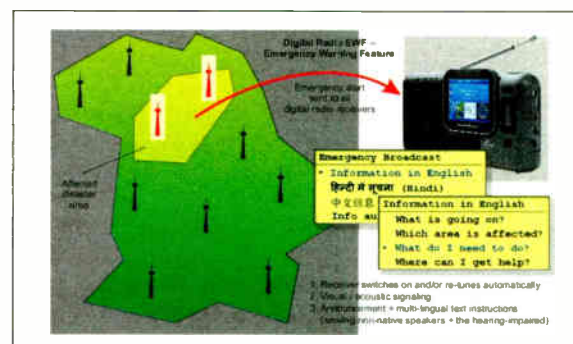
Fraunhofer IIS recently showed new developments and solutions for the next generation of digital radio. With the implementation of the DRM and DAB+ global broadcast standards, the Emergency Warning Feature (EWF) is becoming widely available as an integrated core benefit of digital radio.

Fraunhofer has demonstrated the Emergency Warning Feature with a complete DRM+ live transmission chain from ContentServer to USB dongle-enabled tablet receiver. The

Emergency Warning Feature transmits audio alerts along with multi-lingual textual information to alert the public in case of disasters and emergencies, reaching non-native speakers and those with hearing impairments.

Fraunhofer IIS also displayed a complete DRM encoder/decoder chain to demonstrate how a typical broadcast application using Extended HE-AAC enables consistent high-quality low bitrates for all signal types.

INFO: [www.iis.fraunhofer.de/en.html](http://www.iis.fraunhofer.de/en.html)



# Radio Station, Market Thyself

Outside marketing is a must for successful station launches

"We don't need a marketing budget for people to find our new station," a corporate VP once informed me with confidence.

"If we create a superior product, we won't have any trouble attracting a substantial and sustainable audience," he said. "Besides, we have the power of an entire cluster of our stations behind us. We can put our personalities on those stations and run concurrent advertising campaigns that will reach over half this market on a weekly basis. Our research shows there's room for this product, and potential advertisers are all telling us that they can't wait to spend money with us."

I wish I could say that I've only heard this speech once or twice, but it has become a recurring nightmare in the radio industry.

This type of thinking actually comes from a good, responsible place. It has been pushed down by the highest level of management to eliminate risky expenses and drive profit. Both desires are worthy motivators.

The trouble is that more often than not, a lack of marketing, especially for new radio stations, results in slow launches and frequent failure.

## ISN'T IT IRONIC?

There is great irony that an industry that makes its living off selling advertising that is supposed to drive a result for a client, claims that advertising its own product isn't worth the investment.

**Absolute Radio**  
How does a radio station reach millions in real time and increase listening?

ENTERTAINMENT | MEDICINE

Filter: All Success Stories | By industry | By year | By product | By goal | By company

Challenge	Solution	Results
Help listeners engaged in real time and rise above the clutter to build reach.	Amplified the live, in-air experience through a Promoted Tweet (tweeting) and Promoted Tweets with an instant cash giveaway.	<ul style="list-style-type: none"> <li>100K increase</li> <li>25% potential reach</li> <li>7% increase in online listenership</li> </ul>

UK station Absolute Radio (@AbsoluteRadio) wanted to "cut above the clutter" to promote a wide variety of music programming—from Coldplay to Foo Fighters—and highlight their roster of popular on-air personalities.

**Use promoted Tweets as part of a multiplatform marketing campaign for your new station. Twitter lists the UK's Absolute Radio as one of success stories on its business.twitter.com page, which highlights examples of companies and organizations that have successfully used their platform for marketing initiatives.**

I have no trouble hearing a company doesn't want to invest in marketing its own product because it will badly affect profit margins and will prevent a cluster from hitting an expected forecast.

However, to hear an intelligent, experienced broadcaster state that "outside marketing for radio stations doesn't work" drives me over the edge. Companies can get sometimes get lucky and fill a need to such a large degree that a new format gains momentum over time, but I see this much more as the exception than the rule.

To quickly address a typical side-step I mentioned at the beginning of my rant: While marketing a new property over existing stations in the same market can add to an outside marketing plan, it will not succeed by itself.

Why? This approach is just not that effective. From what I've seen in focus groups, audiences are easily confused when they hear about one radio station's attributes advertised on another radio station. The typical listener has no idea that multiple stations in the same city are owned and operated by the one

## PROMO POWER



Mark Lapidus

company. And guess what? When they do know, they don't care.

Even when told that Company X owns five stations, they still don't understand why one station is being advertised on another. They may even think they've inadvertently changed channels.

However, I have witnessed positive results with features from station being placed on another — when context is included in the content. For example, a sportscast from a sports station on a music station, or a newscast from a news station on a sister music station can make sense and add value to each product. In these cases, the listener is actually obtaining a benefit.

With straight advertising, some may get it and many will not. This is why the approach will not fly solo.

## DOLLARS AND SENSE

So, what's a new station without a marketing budget to do?

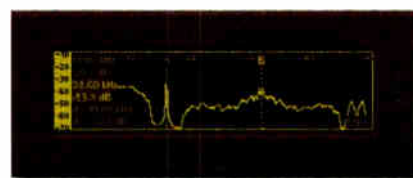
The obvious answer is to not launch the product if you don't have supporting marketing dollars. Why lose current billing and focus an entire staff's energy into a new station when success is questionable?

It's hard to face facts, but people aren't scanning their car radios every day for new stations. Combine that with shorter attention spans, mobile phones in every hand, devices containing hundreds of songs and an abundance

(continued on page 23)



**DB4004 Modulation Monitor**  
Product with no equal in the industry  
... it's Simply the BEST !!!



**Price: \$3200**  
sales@devabroadcast.com

Fully Digital DSP-Based IF Filter • iPhone, iPad & Android Compatible  
Built-in Audio Streamer for Remote Listening • Easy to use WEB interface  
Built-in 50 channels Data Logger and FTP Server



# Are You a Nonstop Brander?

Prevent seismic shifts while building loyalty through planning, regular updates

BY GARY BEGIN

Radio stations need to change their perspective on rebranding.

Think of it not as an occurrence (e.g., something that happens to you), but rather as a procedure that you initiate and carry out regularly.

Rebranding is like shifting tectonic plates: As long as the shifting is a slow, nearly imperceptible, continuous movement, everything is fine. It is only when the plates freeze up and pressure builds that the shifting becomes violent and damaging.

That's the way to think about rebranding. You want changes to be gradual and continuous. If the radio station goes a long time without an update, it is just like two interior continental plates getting stuck. Sooner or later, something's going to give, and an earthquake erupts.

The following offers a practically

fool-proof method for creating continuous rebranding strategy.

The first thing you need to do is make a list of all the elements that go into creating the station's identity. Think about what exactly makes the station what it is.

You will be surprised. Virtually every department plays a role in giving the station its distinctive personality; you should include every one of them as you inventory what needs to be updated when you rebrand.

Here are starter suggestions:

- In programming you've got the music — what you play and what you don't play. Then there are rotations. Rotations, scheduling rules and flow can have a dramatic impact on how a station sounds even if the library doesn't vary.
- There's the air staff. Regardless of the quality of your staff and how long they

have been on the air, this too needs to change from time to time. There's how much they talk, what they talk about and how they say it. If you want to change things, move the staff around. Moving people can often have as dramatic an effect as replacing people.

- Newscasts need to change as more listeners get their headlines from the Web. List all the elements of news that need to grow over time.
- Don't forget special programming and weekend shows. Adding an evening feature, a midday gossip show or some other special program changes the pace of the station — and provides something new to promote and tease. However, every special program should come to an end one day. A show may be doing well, but there's something out there that's even better. Find it and move on.
- Don't leave engineering out of the list. Changing the overall texture of the station should be part of the update. Listen critically to the station. Does the station sound contemporary? Think about the processing chain, consider tweaking the EQ or change the mics.



Gary Begin

ing clock. You want to rotate the elements of rebranding as if you're scheduling an hour of music, except instead of an hour, the wheel might be a year or two.

If the station is a CHR, you want to use a fairly fast rotation, due to the speed at which pop culture shifts. If you are an AC, country or some other adult format, you'll slow down the rotations to tailor to the taste of your demographic.

**If the radio station goes a long time without an update, it is just like two interior continental plates getting stuck. Sooner or later, something's going to give, and an earthquake erupts.**

- List all the annual promotions (paid and free). Include annual contests, what you give away and how you give it away. Include remotes, both paid and concerts. Contests, like special programming, should have a sunset date.
- Inventory the station's marketing. There's the station name and logo. List the logo's various elements, which include color, fonts and other graphical elements.
- Change the station's primary positioning statement and liners. Write them all down and list the dates that they were added. Don't forget the station voice. That needs to change at regular intervals.
- There's the website and the dozens of individual elements on the site. This category can also cover the station's social media efforts and email outreach.

Each month, add a change to your schedule. Your focus might be in marketing one month and programming the next. Schedule changes with sufficient frequency that everything will have changed by the time a year or two later rolls around, depending on your format.

Coordinate with your sister stations so no two stations are changing the same element at the same time to maximize the impact of the alterations. Also, within a group, you'll be able to update and recycle ideas throughout your stations.

A comprehensive list of station elements combined with a schedule of when they need to be updated provide a good road map for continuous rebranding.

Remember, your ultimate goal is to keep your station fresh and timely, while building audience loyalty and come.

Gary Begin is president of Sound Advantage Media, a full-service radio-programming consultancy, based in Jackson, Tenn. He also owns Gary Begin Voice Talent. Begin can be reached via gbegin@soundadvantagemedia.com or (731)437-0536.

# BUDGET

(continued from page 21)

of streaming choices and you're just asking for trouble.

So, if you actually do have marketing money, what's the best approach in 2014? TV and outdoor will still give you the best reach and frequency of any media in one market. It is exciting that there are so many localized digital alternatives to complement these mass media.

You can highly target video pre-roll ads online and run very cool display advertising on social media and key websites. For example, you can utilize Facebook to reach news junkies in your city based on behavior. Google can also pinpoint and remarket to audiences as they visit other websites, so they can drive frequency for your message.

As you build a Facebook following, you can easily find friends of friends in large numbers. The advantage of this is that friends of friends often have similar entertainment and informational taste.

Twitter advertising is a tremendous way to spread your reach based on keywords. For example, music stations can use artist names to hit people with messages about your new format.

A few words about expertise: You must find an advertising agency with a great reputation for building media audiences. Don't let your sales manager steer your business to the agency that spends the most money with your cluster just because that will make them happy.

Also, make sure to test your creative. It's not that expensive to do shopping mall intercepts where consumers will tell you if they understand your spots and display ads. Don't spend hundreds of thousands of dollars running advertising that people won't understand.

Marketing a radio product is exciting, and this feeling should be infectious, spreading to your staff, advertisers and the entire city. Be loud, be proud and let people know that you're open for business!

Find more of Mark Lapidus' Promo Power column at [radioworld.com/promopower](http://radioworld.com/promopower).

# PEOPLE NEWS



**Brian Lakamp**

*Clear Channel*

will serve as president of technology and digital ventures

**Dave Coskey**

*New Jersey Broadcasters Association*

sworn in as the organization's new chairman

**Tom Humm**

*Beasley Broadcast*

the VP and Las Vegas market manager has signed a five-year extension to his contract



**Katie Boyle**

*Studio Center*

promoted to vice president of audio services



**Thierry Gandilhon**

*Netia*

selected as new managing director



**Chuck Maines**

*SCMS*

was added to company's Midwest sales team as a sales representative



**Misti Douglas**

*Cumulus and Westwood One*

named manager of country syndication affiliate sales

**Sam Matheny**

*National Association of Broadcasters*

hired as new executive vice president and chief technology officer



**Eric Bonnici**

*Nevada Broadcasters Association*

will fulfill his dream of working for the NBA by serving as its executive director

**Darren Davis**

*Clear Channel*

will oversee iHeart Radio as part of his duties as Clear Channel Networks Group president

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# Sony Ghosts Unwanted Noises

Audio restoration software has many tools, though the interface can be complicated

## PRODUCT EVALUATION

BY DAVE PLOTKIN

Often I am asked to review products that incorporate noise reduction features in some form or another. However, I rarely get to dig into an audio forensics program that handles noise reduction in an entirely different manner. Enter SpectraLayers Pro 2.

This program, available from Sony Creative Software, takes a unique approach to removing unwanted audio from your pieces. In essence, it allows you to take a two-track mix and break it apart into several layers.

We have all mixed down multitrack files into a single stereo file. We have created a mix. However, what if we could take that stereo mix down and unmix the file? Perhaps you didn't want the guitar. Maybe the piano was too loud. The hiss from the amp makes the recording sound dirty. SpectraLayers Pro 2 allows you to export these individual pieces of audio to separate layers and, as they put it, "fix it in the mix."

### THE CLONE ZONE

One of many intriguing features of SpectraLayers Pro 2 is the ability to clone audio.

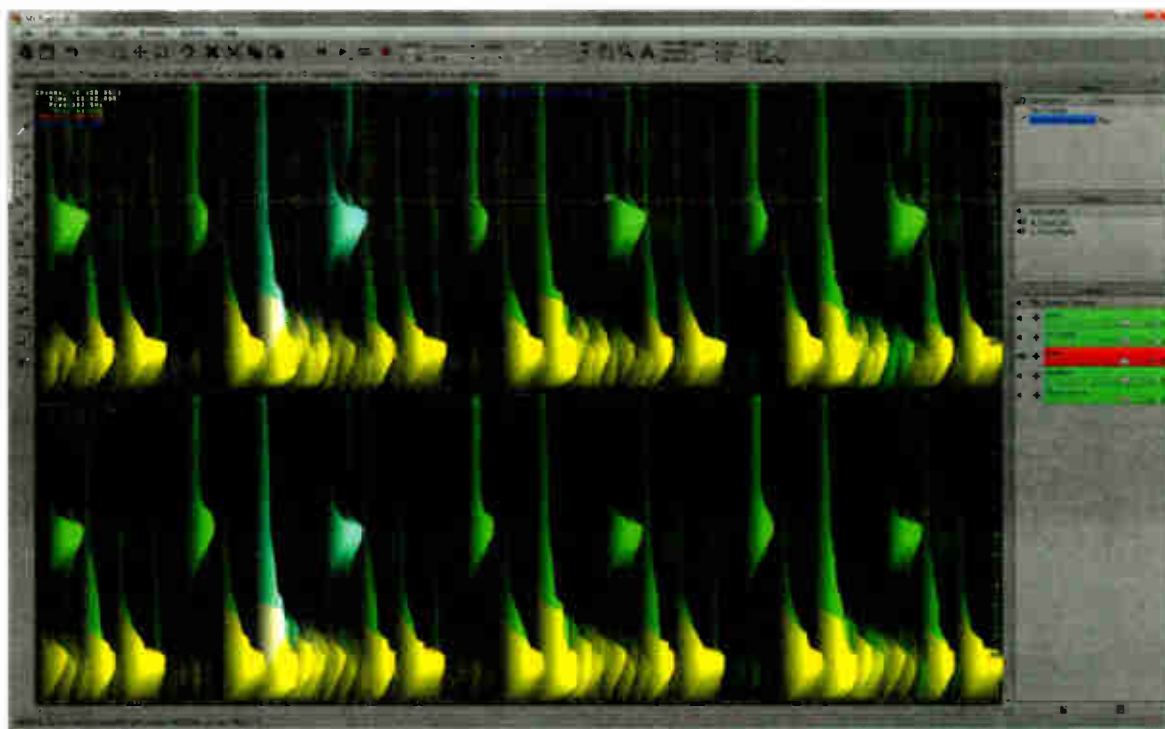
What do I mean by that? Well, let's say you have a recording of a speech. Between sentences, a huge crash

was recorded. You want to silence the crash but don't want to delete the whole section because it will alter the pacing of the speech. However, when you silence the crash it leaves a hole in the audio. All background room noise is silenced along with the crash. How do you eliminate *just* the crash but leave the background room noise? SpectraLayers Pro 2 allows you to clone background room noise from a different portion of

the file so you can fill the hole where the crash once occupied. Now anyone who listens to the recording will never know that an edit occurred.

Do you recall watching your favorite spy movie and the FBI audio forensics guy is able to amplify a certain piece of background audio without altering the rest of the audio file? SpectraLayers Pro 2 gives us this same ability.

By using the amplify tool, you are able to highlight the specific frequencies of a certain sound and enhance only that sound while leaving other background and



The Sony SpectraLayers Pro 2 displays a 3D spectral graph of audio using its Shape Tool.

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foreground noise unaltered. This feature helps if you are trying to identify a noise in a recording but are having trouble hearing it. It can also be useful if you are trying to correct a mix down you created but no longer have the multitrack.

I have a few musical pieces in my collection of golden oldies that are mixed poorly. I only wish a multitrack existed so I could remix them. Perhaps the trumpet is too loud or the piano is too soft. How can this be adjusted?

SpectraLayers Pro 2 addresses this problem by identifying and the filtering out the unwanted instrument. By using the Extract Harmonics tool, I can identify the frequencies of the trumpet and paste them to a new layer. Then, by reversing the phase of that layer, you can phase out the trumpet but leave the rest of the mix alone. What if I only wanted to lower the trumpet and not phase it out entirely? Since I extracted the trumpet to a new layer, I can control how much trumpet I really want in the mix. I found speech to be a little more difficult, but this tool was definitely fun to play with.

### TOO MUCH NOISE

If SpectraLayers Pro 2 can handle removing a trumpet from a recording, how about surface noise or a crowd in the background?

The software removes unwanted noise in much of the same way it removed our trumpet. Once the



## STUDIO SESSIONS



so many little buttons and settings to play with all over the screen, it is hard to keep straight which ones to use when noise reducing, harmonics filtering or amplifying audio. I found the ergonomic layout to be poor and certain shortcuts that we would come to expect didn't exist. There are several steps when using each tool, and I found it difficult to remember all of them. For example, it takes five steps to extract noise from a recording when, in other programs, it only takes two steps.

While you may become proficient in SpectraLayers Pro 2 after using it for

some time, it pays to watch the tutorials on how to use the program: see [www.sonycreativesoftware.com/training](http://www.sonycreativesoftware.com/training).

I would like to see Sony create a more ergonomic, user-friendly program. I was also disappointed that audio artifacts were audible after noise reducing the audio. After the several steps it takes to remove surface noise, I was expecting amazing results for my hard work. Instead, I got mediocre results that are similar to those I would expect in other programs. Perhaps adjusting the parameters even more than I did would give me better results, but it can become

quite confusing as to what these parameters really do. At times I didn't fully understand what I was adjusting.

I do have to acknowledge that Sony is really on to something here. They've got a great concept and a powerful tool but need to consult their users on how to make it an easier program to decipher.

In my opinion, once they do that, SpectraLayers Pro 2 can be a huge asset to any radio station or recording studio.

*Dave Plotkin is director of production and creative services for a large metropolitan radio station. He likes old records.*

unwanted surface noise is sampled, you paste it to a new layer. You then reverse the phase of that layer and play it simultaneously with the original recording. You have now phase-cancelled only the noise while leaving the rest of the recording alone. However, there can still be artifacts if you take out too much surface or background noise. This process has to be done gingerly but you can get some pretty decent results.

SpectraLayers Pro 2 is a powerful audio forensics program. There are endless possibilities, from removing unwanted audio or frequencies to enhancing specific sounds of a recording.

While the concept of the program and its capabilities are amazing, I found it terribly confusing to use. There are

### PRODUCT CAPSULE

#### SONY CREATIVE SOFTWARE

SpectraLayers 2 Audio Restoration Software

#### Thumbs Up

- + Versatile
- + Able to remove or enhance noise successfully

#### Thumbs Down

- Not ergonomically friendly
- Confusing to use
- Too many steps to accomplish one task
- Needs more shortcuts

Price: \$399.95, upgrade \$199.95

For information, contact Sony at [www.sonycreativesoftware.com](http://www.sonycreativesoftware.com).



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**Wi-Fi Link:** Inmarsat's IsatHub provides a personal and secure communications network, allowing users to connect and use personal Wi-Fi-enabled smart devices when beyond the reach of terrestrial mobile and fixed networks.

The service is accessible via a small, lightweight terminal that is less than half the size of a standard laptop. Multiple users within 100 feet of the terminal can connect their personal devices — iPhone, iPad, Android phones and tablets, etc. — to simultaneously talk, text and access the Internet and mobile applications.

Once the IsatHub connection is established, users can gain access to the IsatHub service through two applications — the control app and the voice app— on the smart device, allowing them to use both its data capabilities and dedicated high-quality voice line. The control app has additional features such as set-up assistance, control over additional device access, as well as visibility of data usage from each device sharing the IsatHub connection. The voice app enables users to make and receive voice calls on their device via IsatHub's dedicated high-quality voice line, as well as sending and receiving text messages, even if the device is for Wi-Fi use only. The IsatHub control app and voice app can be downloaded from the App Store or Google Play.

Radio journalists in the field can use battery-operated IsatHub's dedicated voice line for live reports and can use the data connectivity connection offering of up to 384 kbps to upload and send recorded reports and interviews for airplay. One IsatHub terminal and connection can support multiple journalists at the same time.

Info: [www.inmarsat.com](http://www.inmarsat.com)



**Blimpie:** For those who take their shotgun microphones seriously, Rycote is releasing two new windshields.

The Super-Shield (shown) really is a blimp-style protector, featuring a modular twist-lock cone, available in three sizes. The exterior includes a laminated fabric that the company says "minimizes acoustic insertion loss and provides almost perfect transparency with effective calming of wind noise."

A fur Windjammer is able to fit around the microphone but inside the Super-Shield for maximum wind-resistance.

Internally, the Super-Shield uses Rycote's Lyre shockmount system.

Less Zeppelein-ish is the Super-Softie. The Super-Softie uses Rycote's new 3D-TEX fabric and is more of a sock/soft design. According to the company, 3D-TEX has "unparalleled sonic performance, wind-noise suppression and field durability."

Rycote adds, "The initial noise reduction can be in excess of 30 dB and acoustic artifacts are extremely low."

It adds that if the fabric become soaked, it can be shaken dry quickly. It can also be rinsed out if it becomes dirty or dusty.

The Super-Softie has no internal structure that could affect a polar pattern, break or rattle.

Redding Audio distributes Rycote products in the U.S. Prices: Super-Shield — \$359; Super-Softie — \$135.

Info: [www.reddingaudio.com](http://www.reddingaudio.com)



**Fleet Boss:** Digigram has released the Codec Fleet Manager. Able to be hosted privately on any virtual machine or operated as SaaS in the cloud, the Web-based application enables structured management of AoIP contribution codecs, explains Digigram.

Accessible from anywhere through the Web browser of Internet-connected devices such as PCs, tablets and smartphones, the application automatically synchronizes phone books, connection profiles and "favorite" groups of codecs to ease deployment and day-to-day operation of the full codec fleet.

Digigram points out that the Codec Fleet Manager supports phone book creation and management similar to the "contacts" interface on a smartphone, tablet, or computer. This element of the Codec Fleet Manager describes all the characteristics of the contacts included in a fleet of codecs and also provides the control over connection profile details, favorites, and associated filters.

With the new application, authorized users can preconfigure and edit contact settings for the entire codec fleet and apply those settings across the whole fleet at once. The administrator manages read/write access. As a consequence, says the company, at the codec level, the user interface mimics simple mobile phone operation, assuring ease of use.

Info: [www.digigram.com](http://www.digigram.com)

## Portable Drive:

Glyph Technologies has been providing rackmount and portable computer data storage products for the creative industries, including broadcast, for years. The latest is the StudioRAID Mini, a portable enclosure.

The StudioRAID Mini is available in 960 GB, 1 TB, 2 TB and 4 TB capacities. Interfaces available are eSATA, FireWire and USB 3.0. RAID modes are RAID 0 and RAID 1.

The FireWire provides bus power while an AC adapter is also included for others. The 960 GB model is a solid-state drive. There is a variable speed cooling fan onboard.

StudioRAID Mini is compatible with Windows 2000/XP/Vista/7/8 and Mac OS X 10.4 and above. Prices start at \$299.

Info: [www.glyphtech.com](http://www.glyphtech.com)



**TAP Upgrade:** SoftWright, developer of the Terrain Analysis Package RF propagation analysis software, has announced that Version 6.2 of the TAP program is available.

The big news is the improved calculation engine that "drastically improves execution speeds," according to the company.

A release adds, "As a terrestrial RF propagation software tool, TAP is data- and computation-intensive. It has been common for large area coverage studies using high-resolution data to require hours of execution time. However, TAP 6.2 is the first release in the next generation of TAP software that uses an all-new calculation engine to dramatically decrease study execution time."

SoftWright says using the processing engine with a solid-state drive will increase times even more. "By upgrading to TAP 6.2, Longley-Rice study times may be reduced by 80 percent and combining TAP 6.2 with SSD data storage may reduce study times by 98 percent." It does note, however, that "Your individual results may vary based on your specific computer configuration and other factors."

The new calculation is not the default processor but will appear as a button to be activated for a calculation in the GUI.

Info: [www.softwright.com](http://www.softwright.com)

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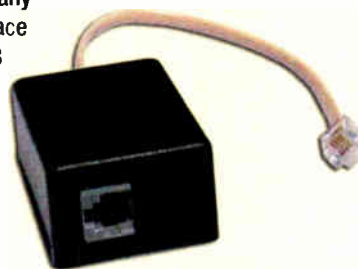
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# How I'd Change the FCC Rules

A longtime broadcaster weighs in on AM improvement, translators and more

## COMMENTARY

BY CARL COMO TUTERA

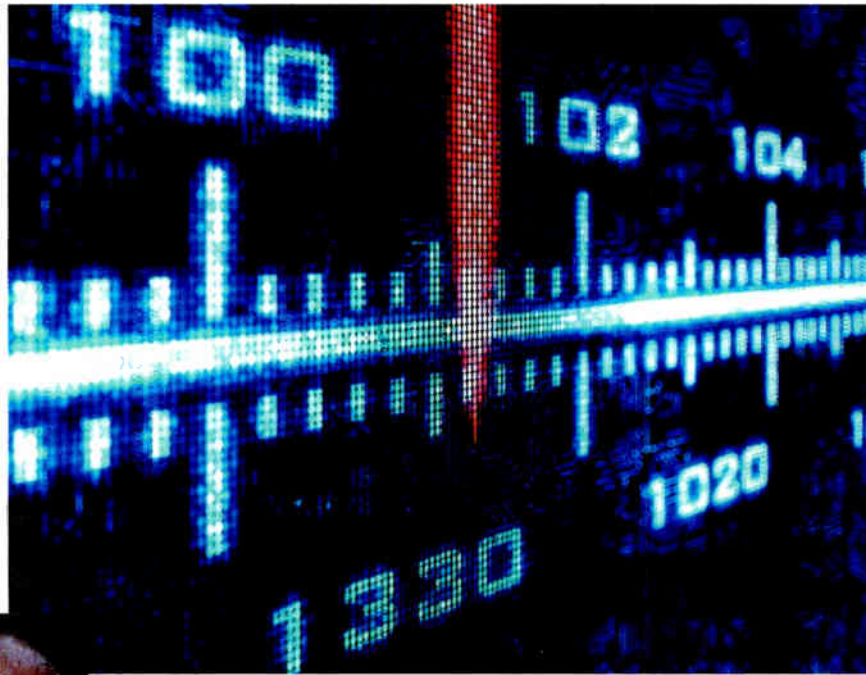
We embrace change in the broadcast industry to help us achieve results: to get better coverage for our content, to reach more people, to increase our ad rates and income.

Even the FCC will tell you they want change. They talk about it constantly when it comes to helping AM operators; but we know action speaks louder than words. I just came back from a visit at the FCC. I was greeted warmly by senior staff members; but change to them is measured in years, not months.

Here are a few things that could help AM operators by giving them additional leeway.

An FM translator window for AM radio may not bring about any new channels, at least in medium to major markets; the band is just about filled now, so find a spot within your signal and get it on. If a broadcaster is able to own or buy/lease a translator in its .025 mV/m AM contour, it should be able to move that translator beyond the 2 mV/m signal rule now imposed to anywhere within the .025 mV/m AM contour, and do so as a minor change. The FCC also should eliminate its related limitation of 25 miles from the transmitter.

How can an AM be competitive when its nighttime coverage area is less than 10 miles in most cases, and directional as well? A few watts or even hundreds of watts at night won't get you anywhere in a market today. The idea is to offer coverage to all your listeners, day and night; to do that, AM stations need relief from onerous rules. Put more RF in your AM coverage area. Let's ease the nighttime interference limits so AM stations can increase power to cover their markets more adequately at night. A cleaner signal and sound will go a long way. You can see and hear the interference around you: cell phone towers, bridges, elec-



Carl Como Tutera

tric wires, not to mention all the unseen interference with computers, handheld devices, constructions site and so much more. More RF will help bring more signal into weak areas.

### ORLANDO

Let's look at Orlando, where my son Carmine and I operate WRSO(AM) and an FM translator, and wish to move two more to Sanford and Kissimmee.

I am sure it's like many markets across America. Three major groups control 15 signals here, not to mention FM translators that promote content on their HD channels or are used to further expand AM coverage areas. What happened to the caps imposed on ownership rules? FCC staff says "don't go there," but I say those caps should apply to translators as well.

Orlando now becomes a market for group operators, raising the number of signals to more than 20 by three groups. What exists now under FCC rules is a "de facto" increase in station ownership in a number of markets. Major groups could even decide to run commercial-free just so they can tie up a format or content that you may have been looking for.

So insist on caps. Make translators count in ownership for everyone who owns or leases them.

Also, cut the nighttime interference protection limits on the clear-channel AM stations, since most if not all of the powerhouse stations are owned by

the same three or four groups in most markets. In years gone by, some 50,000-watt stations would serve rural towns and communities; now those areas are being attended to by licensed stations of their own. Give it up for the good of all local broadcasters. Cut interference protection limits to the point where the day and night signals are the same or close to it; in conjunction with our earlier proposal about FM translators, now the playing field will look a bit more level.

Also, do away with the rules on power limits among FM translators and IF channels (translators) to effectively give more power without causing inter-

ference. Many engineers will tell you it's a rule that doesn't belong; any problems will be small and can be solved with a filter.

### SOUND OFF

Seek immediate action by the FCC or enlist help from your congressman, senator, trade publications and the NAB. Tell them to move these issues to approval. Stop the rhetoric and start the action to help AM broadcasters in small and large markets to make radio better in communities all across the country.

AM broadcasters need help before their transmitter sites turn into flea markets. The fixes above are easy and cost-effective. It's up to all broadcasters to demand action. We have discussed these issues over and over; we all know what needs to be done.

Any technical person will tell you that allowing these simple changes will not affect or damage existing stations. The coverage has always been local and the content as well. Let local radio do its job more effectively by giving it some changes in the rules to enhance their facilities so they can compete more effectively. Let's not talk further about the demise of AM, but about the rebirth of a new and local medium that has done more good for more people by providing local news, talk, information, sports and a variety of other programs to entertain listeners everywhere.

*The author will mark his 55th year in broadcasting in 2015. He started as a DJ at WTAY(AM) in Robinson, Ill., and ended his on-air career at WOKY(AM) in Milwaukee. He's been a group manager, vice president of a major-market group operator, and an owner operator and builder of stations across the country.*

## READER'S FORUM

### BBG, POORLY MANAGED

Good for RW to finally devote sufficient space to this instead of just parroting BBG or IBB press releases ("How Effective Is the BBG in 2014," June 4 issue).

As your readers can see, this is not a simple story but deserves attention because any expenditure of public funds, including the FY 2015 \$720 million request, should be understood by tax payers.

And what they should know is that this has long been one of the most poorly managed agencies in the federal government, with documented failures when it comes to news and programming. Many of these were detailed by the BBG Watch website which, along with HR 4490, is now the target of the wrath of BBG/IBB managers trying to hold on to their GS or SES jobs.

Dan Robinson  
Potomac, Md.

*The author is a former VOA White House, congressional and foreign correspondent.*

## WRITE TO RW

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Email [radioworld@nbmedia.com](mailto:radioworld@nbmedia.com) with "Letter to the Editor" in the subject field. Please include issue date.

**OPINION**

Before



**READER'S FORUM**

**THE CASE OF THE NAKED TOWER**

*We received numerous comments about the July 7 online story "The Case of the Naked Tower," in which Mike Rapeer of Connoisseur Media in Pennsylvania discovered that a tower at his mountaintop transmitter site had been "decommissioned" without any notice. Mike's photos of the tower are shown here.*

While I'm not sure about the legal mechanics, in the abstract I would not be above filing a police report for theft and property damage.

Pretty sure that tower crew won't make such an egregiously stupid mistake again after getting a felony indictment against them.

*Aaron Read  
President & Owner  
Fried Bagels Broadcast Consulting  
Providence, R.I.*

This exact thing happened to me! I was driving to another one of my sites and was listening to another one of our stations when I heard it go silent. I drove up to that site and found a tower crew cleaning up their gear with all my antennas (except my broadcast antenna) in the back of their truck!

*Marcos O'Rourke  
Chief Engineer  
K-Wave Radio  
Costa Mesa, Calif.*

I will admit that this is really bizarre. And your company sold the site to whom?

This is the downside to selling off station assets for some quick cash. It's not pretty, and a complete pain to boot.

*Michael Payne  
Contract Engineer  
Twin Falls, Idaho*

After



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**Our readers have something to say:**

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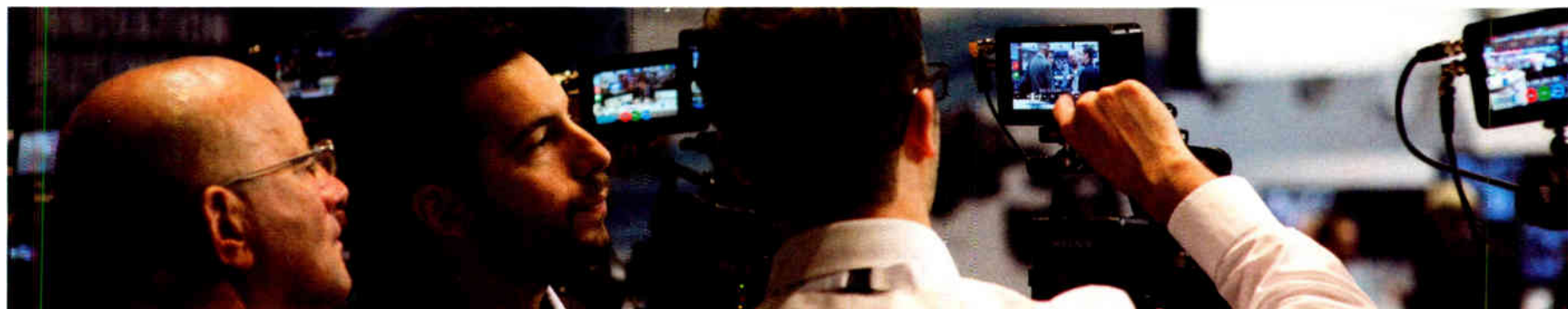
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