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NewBay Media

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INSIDE

Photo by Alan Jurison

Indiana Convention Center

Matheny to Set Tech Course for NAB

New EVP/CTO discusses mobile apps, HD Radio, RDS and dashboards

NEWSMAKER

WASHINGTON — Sam Matheny is NAB's new executive vice president and chief technology officer. He came to the broadcast lobby in July from Raleigh-N.C.-based Capitol Broadcasting, where he had been vice president of policy and innovation. He replaces Kevin Gage, who left NAB after three years when his contract was up in May.

Matheny has guided strategic investment decisions in new media and secured patents that enabled distribution of broadcast content via the Internet, according to NAB; he also engaged North Carolina state officials in developing emergency services using the ATSC Mobile Alert System to enhance the use of broadcast airwaves in times of crisis.

The 42-year-old Matheny began his broadcasting career in radio. He holds a B.S. in broadcast communications from East Carolina University and a M.S. in technology management from

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Raise FM IBOC Power Further

Let's reevaluate higher digital levels to better replicate analog coverage

COMMENTARY

BY ALAN JURISON

If iBiquity Digital's projections hold true, 50 percent of vehicles sold in the United States this year will include HD Radio, and within a few short years, vehicles with HD Radio will become the norm. Our listeners are buying vehicles with it every day. As time goes on, the discrepancy between an FM station's analog and digital coverage areas will become more noticeable to your listeners, advertisers and sponsors.

I feel the radio industry is unprepared for how inadequate FM digital coverage at –14 dBc can be. It's time to reevaluate digital power level restrictions so that more stations transmitting an FM HD Radio signal can experience enhanced coverage.

FIELD DATA

Field observations and drive testing involving elevated FM IBOC stations have led me to this conclusion.

The FCC rules governing elevated FM IBOC power levels have been in effect for four years, long enough to add to the industry's collective digital radio knowledge base.

Back in 2002, when the agency authorized IBOC transmission, the initial power level for the digital carriers was 1 percent of the analog effective radiated power level of the host station. But at –20 dBc, many FM stations found that their digital coverage couldn't replicate their analog coverage; this discrepancy especially affected car reception on the fringes of a station's contour and indoor environments.

The industry asked the commission to authorize stations to raise their FM IBOC power to 10 percent of the analog power or –10 dBc. The commission in 2010 approved a blanket authorization of –14 dBc for most stations, a procedure for some facilities to increase from –13 dBc to –10 dBc with a special engineering exhibit, and a specific procedure for grandfathered super-powered stations.

The commission reported 50 FM licensees had increased digital power between –13 dBc and –10 dBc as of Jan. 7. Ten super-powered stations had asked for higher power authorization and five or fewer broadcasters had asked for permission to employ the digital power increase asymmetrically.

Overall, at least 365 FMs are transmitting at some level of elevated IBOC power, according to the commission. There may be more, since the figure doesn't include those who advised the FCC early by letter that they were raising digital power levels. The Audio Division told me it has not received one interference complaint in accordance with its resolution procedures, nor has the agency had to order an FM off the air because of digital interference to an analog station.

DRIVE TESTS

I logged tens of thousands of miles in drive tests in New York City, Los Angeles, San Francisco, Detroit and other markets of all sizes monitoring Clear Channel Media + Entertainment stations for HD data coverage in the past two years.

In New York City, we collected data comparing digital power levels for five signals during a single test: WLTW, WWPR, WAXQ, WHTZ and WKTU.

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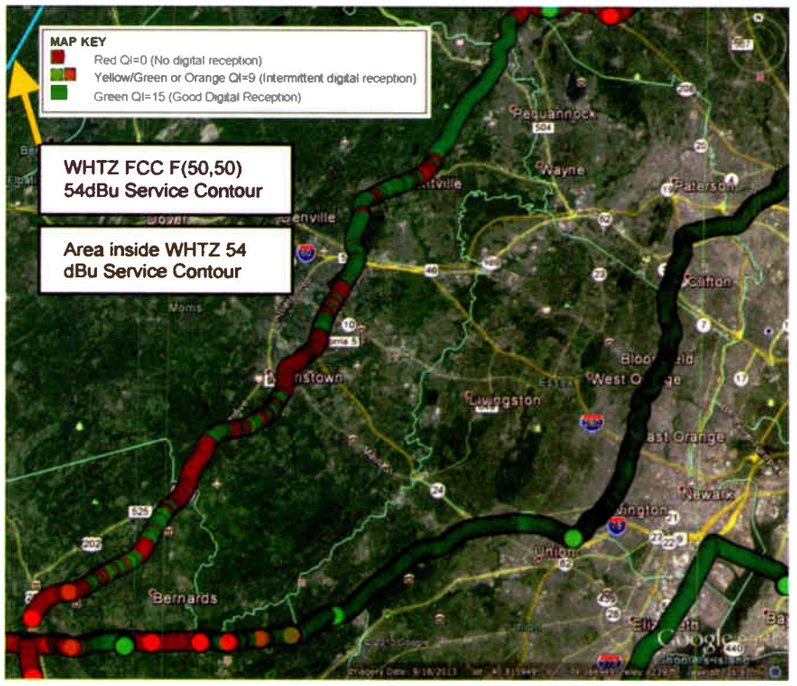

I-287 New Jersey Corridor, WHTZ, –20 dBc, 1/4-Wave Antenna

I-287 New Jersey Corridor, WLTW, –14 dBc, 1/4-Wave Antenna

NRSC's Impact Is Significant

Noting its 'coral' anniversary, the group continues to deal with key tech issues

Sometime soon, U.S. radio probably will ask the FCC to allow AM stations the option of using all-digital HD Radio. This will be contentious; everything about IBOC is. Yet allowing full digital has the potential to be exciting, not only for the moribund AM HD Radio franchise, but for AM broadcasters generally, who — despite challenges — are sitting on spectrum that, if empty, might be considered priceless in this era of "limited bandwidth, infinite demand."

Expect the National Radio Systems Committee again to be at the center of industry discussion.

NRSC notes its 35th anniversary at the Radio Show. It was formed in 1979 by the National Association of Broadcasters and the Consumer Electronics Association, then called the Electronic Industries Association, to investigate and recommend improvements in AM and FM transmission and reception.

The committee "brings together companies from two sides of the air chain, from the transmit side and the receive side, to make sure they work together properly as time goes on," said Mike Bergman, senior director of technology and standards for CEA. Members work for hardware manufacturers, consulting engineers, tech developers, broadcasters and others (I've posted the list at *http://tinyurl.com/rwnrsc*). NAB and CEA administer it, providing staff support.

Photo by Jim Peck

Members of the NRSC prepare to convene at the spring NAB Show.

Bergman's involvement predates his CEA job; he was active for a decade while with Kenwood, mostly as co-chair of the digital radio subcommittee. His NAB counterpart is David Layer, senior director, advanced engineering, who has been involved since 1995. Both mentioned the level of expertise in the group. "They're just such high-caliber people, to a person," Layer said. "They're smart and well-informed. And for a group of technologists, they're incredibly business-savvy."

NRSC has no official role at the FCC, but its opinion matters there, where technical resources are limited. When a bi-industry group agrees on a technical recommendation, FCC staff takes note.

Over 35 years, NRSC has published five standards, dealing with AM preemphasis/deemphasis and broadcast audio transmission bandwidth; emission limitations for AM broadcast transmission; the radio broadcast data system; and in-band, on-channel digital radio. They must be renewed or retired on a five-year cycle.

The committee has had three chairmen: Wally Johnson, Charlie Morgan and now Milford Smith, vice president of radio engineering for Greater Media. "I think right now the NRSC is as vital and relevant as it has ever been. It has as much or more going on than it ever has," Smitty said.

In addition to standards, he continued, it publishes guidelines, "nuts and bolts" descriptions that engineers can use when launching, modifying and adding services, on *nrscstandards.org*.

I observed how readily NAB and CEA work together at this level while policy leaders sometimes are at logger-

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FROM THE EDITOR

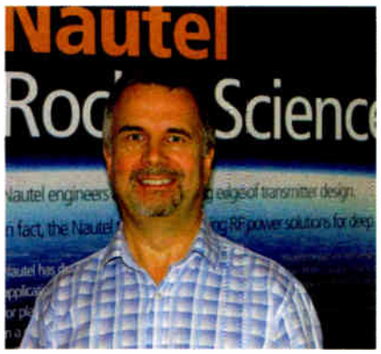
Paul McLane

THIS ISSUE

SEPTEMBER 10, 2014

NEWSROUNDUP

NAUTEL: Kevin Rodgers is now president and chief executive officer of transmission products manufacturer Nautel Ltd., replacing Peter Conlon, who stepped down after eight years.



Conlon is new chief executive officer of LED Roadway Lighting Ltd., which, like Nautel, is headquartered in Halifax, Nova Scotia. Rodgers has been with the company for 29 years and has been on its board for 19 years, most recently as chairman; Nautel characterizes him as a major shareholder. He says Nautel has no plans to change its "key strategy, which is to listen to what our customers tell us and implement their best ideas throughout our company." He has led the Nautel User Group meetings at trade shows and plans to attend the upcoming Radio Show.

BIG: Orban, SCMS, Jampro, DaySequerra, BW Broadcast and StreamGuys have taken steps towards eventually forming a mutually owned company called the Broadcast Industry Group or BIG. They say its purpose of is to promote the consolidation of key manufacturers and service providers in the broadcast industry. The founding members are equal owners and will be on the board of directors of the planned new entity. Their first priority is to share certain sales, marketing and promotion functions. A larger, united presence will be on display at trade shows, SBE activities, local and state broadcast group meetings and other broadcast industry events. While the companies' products may overlap in some areas, they believe their offerings generally are complimentary. Orban President/CEO Jay Brentlinger, who calls himself the organizer rather than leader of the group, says savings will especially come into play for overseas sales.

LPFM: Low-power FM KAHG(LP), a Spanish-language Christian station on 99.9 MHz in Hood River, Ore., is operational. The FCC okayed the call letters in March and issued the license to the River of Life Assembly Church In Hood River on June 30; it went on the air in July. Broadcast engineer Jim Keightley tells Radio World the station may be one of the first new LPFMs to go on the air from the 2013 application window. It is using a Rivendell automation system and Bext transmitter to accomplish its 100 watts ERP.

LPFM II: Low-power FM advocate and services provider REC Networks has created a new engineering services company. REC Broadcast Services LLC, a for-profit operation, will handle requests from LPFM licensees, permittees and applicants for allocation engineering consulting, application preparation and filing services with the FCC. REC LLC (*recfm.us*) will also handle sales, billing and collections for the services provided.

SBE: Joe Snelson has been elected to a second term as president of the national Society of Broadcast Engineers. The one-year term begins Oct. 8. Snelson, vice president of engineering at Meredith Corp., is a member of Chapter 128 in Las Vegas. Society members also elected Jerry Massey to a second term as vice president. Massey is corporate regional engineer southeast and director of engineering for Entercom Greenville LLC. He's chaired the SBE Sustaining Member Committee during the past year and also SBE Chapter 86, encompassing Greenville and Spartanburg, S.C. and Ashville, N.C. Elected to a fourth one-year term as secretary is Jim Leifer, director of engineering and IT for Clear Channel South Florida. He's a member of Chapter 53, South Florida and has chaired the SBE Bylaws Committee for the past year. Andrea Cummis has been elected treasurer for a second term. The broadcast consultant owns AC Video Solutions. Cummis is a member of Chapter 15 in New York City and has chaired the SBE Publications Committee.

FM HD POWER

(continued from page 3)

The hilly terrain of New Jersey is one of the more challenging coverage areas in the New York City metro. The I-287 corridor is a major commuter route, stretching from Mahwah through Morristown and south to Bridgewater, and only some 15–25 miles to the Empire State Building. Analog FM reception on this route can be noisy, with frequent multipath and fading.

At –20 dBc, WHTZ is inadequate in this corridor, and there are many stretches where HD coverage is nonexistent, according to my drive tests. At –14 dBc, WLTW showed improvement in this corridor, however it still falls short of replicating analog coverage.

We also tested digital performance in Westchester County, in the northern portion of the New York metro, only 25–35 miles from the Empire State Building; this too, is considered "in market," and analog FM is viable here. Some of the businesses on White Plains Road (NY-119) between Tarrytown and White Plains are car dealerships. Even with stations at –14 dBc, it's clear these dealerships cannot demonstrate an adequate HD Radio signal to potential customers. The digital stations at –20 dBc just do not work here, and the ones at –14 dBc have a lot of dropouts. Yet, the analog FM signal is very good here.

In the New Jersey and Westchester testing, we performed multiple drive tests, one with magnetic mount quarter-wave antennas, and one with OEM in-glass antennas, which have poorer reception in my experience. Since the publication of our findings earlier this year, I have returned to the New Jersey corridor with an OEM vehicle with no test equipment installed, and the –14 dBc WLTW performed similarly to the OEM in-glass antenna data we previously published. It is clear to me that –14 dBc from Empire is not enough in New York.

Example of one of the test setups used to perform the HD Radio coverage measurements. Laptop is secured to the center console to monitor the four logging receivers in real time during the drive. Additional aftermarket OEM receiver used as well for comparison and its audio is routed through the vehicle auxiliary audio input for listening in real time of HD service.

Shifting to Los Angeles, the second largest metro in the U.S., stations operating with elevated digital power are hard to find because most of the Class B facilities are transmitting from Mount Wilson and operating as grandfathered super-powered stations. Many of these stations don't qualify to operate at higher digital power levels and so they're capped at –20 dBc.

In Los Angeles, I found many stations — like KBIG, KHHT, KOST and KIIS — are underserved by stations running at –20 dBc. I often compare KIIS and KBIG. While KBIG is operating at –20 dBc, because of grandfathering, its analog (and thus digital power) is 9.1 dB higher than that of KIIS.

The lower-powered KIIS does not adequately cover major freeways in Burbank. The I-5, U.S. 101 or CA-170 corridor has significant HD dropouts. KBIG being 9.1 dB higher performs significantly better here, although still falls short of replicating its analog coverage, as it still suffers drop-outs on I-5 in Burbank.

I've spent a lot of time in the past two years researching, mapping and studying digital FM stations in many markets and configurations. I believe that, while the increase from –20 dBc to –14 dBc is noteworthy and created improvements, it always falls short of replicating a station's analog coverage.

Results submitted to the commission by iBiquity Digital in 2007 and 2008 show that –10 dBc is compatible in most situations. Research in this area has lain dormant for several years, and I suggest it's time we as an industry reevaluate the rules and allow for more meaningful power increases to –10 dBc, with safeguards in place to mitigate any interference on a case-by-case basis.

We could use the detailed interference resolution procedures the commission outlined in its 2010 order, in paragraphs 27–29, or a mutually agreeable update of them. Essentially, the order sets a framework where the two licensees work together to verify the interference and reduce digital power if necessary, and if that does not work there is a process to involve the commission.

Time is of the essence as radio's digital rollout progresses. Many complaints are logged by people regarding the underperformance of their digital radios. Those complaints and the dissatisfaction of listeners will only increase as millions of additional digital radios are sold each year.

Photos by Alan Jurison

Rear of the vehicle showing the four Audemat Navigator HD units used for data coverage logging.

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

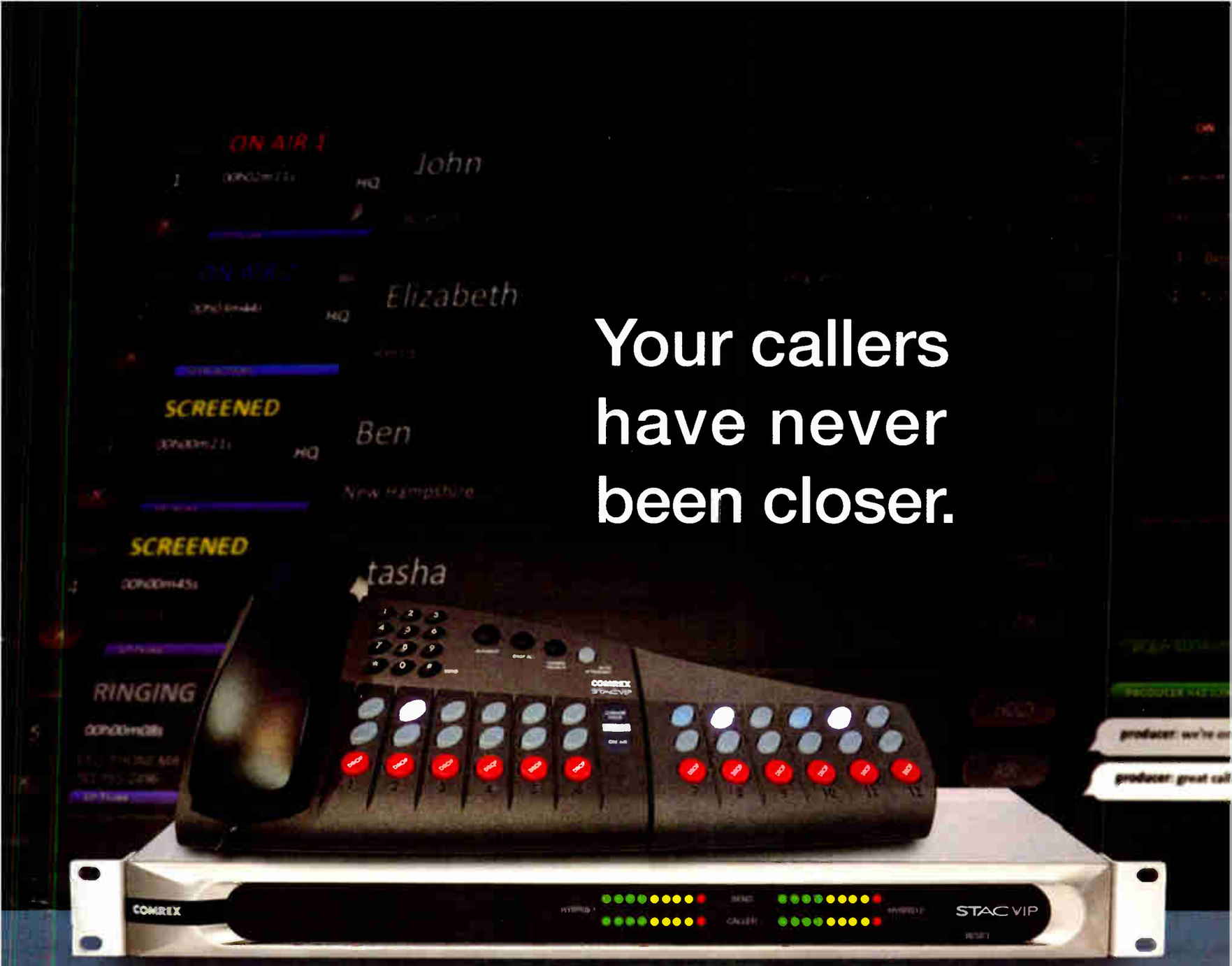
This article is based in part on a paper presented at the NAB2014 Broadcast Engineering Conference; the full technical white paper is in the conference proceedings. This article also contains new information based on testing conducted after the show, not previously published.

Alan Jurison, CSRE, CBNE, AMD and DRB, is a senior operations engineer for Clear Channel Media + Entertainment's Engineering and Systems Integration Group. His opinions are not necessarily those of Clear Channel or Radio World.

NEWSROUNDUP

SCBA: The Southern California Broadcasters Association wants to form a group of engineers that can offer help to BMW to solve the issue of electric motor noise affecting AM reception. As we've reported, tuners in the BMW i3 and i8 models lack AM tuning for that reason. NAB President/CEO Gordon Smith wrote to BMW, asking the automaker to reconsider and offering help. SCBA President Thom Callahan said his group is canvassing engineering schools and soliciting engineering professors from USC, UCLA and the Jet Propulsion Lab to serve as advisors to the ad-hoc group. Engineers willing to help form the committee can contact Callahan at *tcallahan@scba.com*.

K-PAUL: San Francisco's Candlestick Park was home to teams such as the Giants and 49ers for decades starting in 1960; the venue was famous for its wind and unpredictable weather. Candlestick Park was also the site of the last large public concert of The Beatles, Aug. 29, 1966. The stadium is slated for demolition; Sir Paul McCartney made a last appearance Aug. 14, almost 50 years to the day of that last Beatles concert. To celebrate, Cumulus Media-owned KFOG(FM) called itself K-PAUL that day, and aired back-to-back McCartney tracks including Wings and solo works.



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NRSC

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heads. Organizations may dispute certain issues like spectrum repacking; but "on NRSC we always seem to get along just fine," Layer said. Bergman agreed: "We've been cooperating on broadcasting for more than 35 years. CEA was founded some 90 years ago as a radio standards organization; we have deep, deep roots in radio. The conflict areas make headlines [but] the cooperation is happening on a regular basis."

(If you wonder whether members really get along, you'll have to attend. We in trade media are excluded from its meetings. This policy should be overturned, at least for meetings that involve final votes, which should be on the record. But the question of press access has been explored here.)

So what next? Look for the RBDS Subcommittee to expand its guideline for creation and distribution of audio metadata. "Syndicated radio programs don't usually provide metadata to the broadcasters, so we're interested in trying to facilitate distribution," Layer said.

RDS/RBDS may not seem sexy but Smitty thinks RDS, "this little, narrow, low-bitrate data service," is a perfect example of why NRSC matters. "With all that's gone on with traffic, title/artist, EAS — the reason those things are possible is because of standardization. Everyone knows how it works — that if you do 'this' on one end, 'this' is what will come out the other end. It's one reason RDS has become such a valuable tool."

The NRSC continues to explore FM stereo single-sideband suppressed carrier modulation for stereo audio generation, in conjunction with NPR Labs. Its AM and FM Analog Broadcasting Subcommittee meanwhile is looking to update guidelines for AM modulation-dependent carrier level control systems. "We would like to include more information about the use of MDCL with hybrid IBOC; we're hoping to do some IBOC compatibility testing later this year," Layer said. A current FCC proposal would allow stations to use MDCL without prior authorization.

But digital radio surely will remain the topic that generates the most attention and heat. NAB Labs has been leading tests of all-digital AM at a handful of stations. Once that wraps up, it's reasonable to expect that NRSC will start an evaluation process. Says Layer, "There's no definite timeline; but that's what we did before."

Presumably the FCC would then look to the NRSC for a report. Smitty said, "It's unlikely the commission would routinely authorize something like all-digital AM without that evaluation."

Another area NRSC could explore fruitfully is how radio content displays on mobile devices. Cellphones have their own peculiarities in display and reception, Bergman pointed out. Increasingly, audio content of one form or another is consumed and controlled through that interface; the interface matters more to radio now. Meanwhile readers are well aware of the importance of the dashboard interface to radio, and I wonder if NRSC might someday take a higher profile there.

Meantime, Bergman urged readers to visit the site "to make sure you are up to date on what the best engineers in radio today recommend you should be doing with your signal." Layer encouraged engineers to become familiar with its document repository and said NRSC members can access resources via a helpful Kavi software platform. Smitty said the group wants more volunteers, particularly with a number of veterans having retired. One need not go to trade shows; important work is done at subgroup levels, usually by teleconference.

I asked Bergman, who also deals with standards such as Ultra HD and IPv6, whether the NRSC has been effective. "Absolutely," he replied, and pointed to — gasp — HD Radio. "The NRSC played a role in getting this approved at a time when radio was looking for solutions, ways to maintain competitiveness, enhance itself and launch new features. You can't drive through a major city today without seeing a billboard talking about their HD2 channels."

But he said standards can only do so much. Tech developers, inventors, retailers, carriers and receiver/transmitter manufacturers must cooperate on a broader scale to ensure success. Meantime it's wise to remember what NRSC does *not* try to do with technical matters. As Smitty put it: "Whether it's a good idea isn't our job. It's our job to say yay or nay about the viability."

Smitty thinks RDS, "this little, narrow, low-bitrate data service," is a perfect example of why NRSC matters.

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MATHENY

(continued from page 1)

North Carolina State University. Matheny is also a licensed private pilot and certified scuba dive master.

He and his wife Tamara and their teenage sons Ty and Liam had just moved to the Washington area from their home in Zebulon, N.C., when he spoke with Radio World News Editor/Washington Bureau Chief Leslie Stimson for this story in advance of the Radio Show convention in Indianapolis. This was Matheny's first interview with a radio trade publication since joining NAB.

***RW:** You've been on the job for a few weeks now. How is it going?*

Matheny: I've been really impressed with the team here. They are very smart and engaged; and for me, everybody's been so supportive and welcoming. So that aspect of it has been really great.

I'm just really getting to a point where I'm starting to engage with our members and that's one of the reasons I'm really excited about the Radio Show.

***RW:** Are there any short- or long-term goals that you can discuss?*

Matheny: I'm still in learning mode. I'm applying the "two ears, one mouth" ratio, and I'm asking questions and trying to listen a lot.

A broad goal is really to make sure that we're able to support our members from a technical standpoint in the best way possible. Now, how to accomplish that; that's something I've got to listen and learn about.

***RW:** Are radio members discussing any particular challenges that come to mind?*

Matheny: I'm just now starting to engage, so I'll answer that question a little differently. When I was at Capitol Broadcasting, we owned several radio stations; and things we were focused on were the adoption of HD Radio and FM receivers in cellphones. From my time there, I know that those were some key issues; but I really need to engage at a much broader level.

***RW:** Cavell & Mertz were building a test bed to be housed at NAB. One purpose was to get lab data in order to back up drive data from the all-digital AM HD Radio testing. How is the test lab coming along?*

Matheny: The test lab is up and running. As you mention, we're working with the Cavell group and our Radio Technology Committee on test plans and gathering data. If it follows plan, the lab testing should be complete by the end of this year.

***RW:** How are the all-digital AM tests coming along, and do you have anything to share about that?*

Matheny: What I can say is it's pretty extensive. It's been going well, and in addition to the lab testing, we're also doing field testing. Thus far, seven stations have been tested in the field; we've got another one lined up later this fall.

As you can imagine, with the lab testing and all of those field tests, there's going to be a lot of data to be analyzed. If folks really want to get the latest information, the Radio Show is going to have a session on all-digital AM. *[Ed. note: The session is Sept. 10 at 2:30 p.m.]*

***RW:** Speaking of AM, has there been a response from BMW to NAB's letter regarding its decision to drop AM from receivers in their i3 and i8 vehicles?*

Matheny: Not yet.

***RW:** In the letter, NAB says it would be happy to work with BMW on the issue on its concerns about the electric motor interfering with AM reception. Would you have an idea of what that would entail? Will you put engineers on it? And have you been working with other automakers, because, for example, Ford and Toyota have electric cars ...*

Matheny: And Nissan does as well. We would love to engage with BMW and understand what the issues are. Because these other manufacturers have been able to address any concerns.

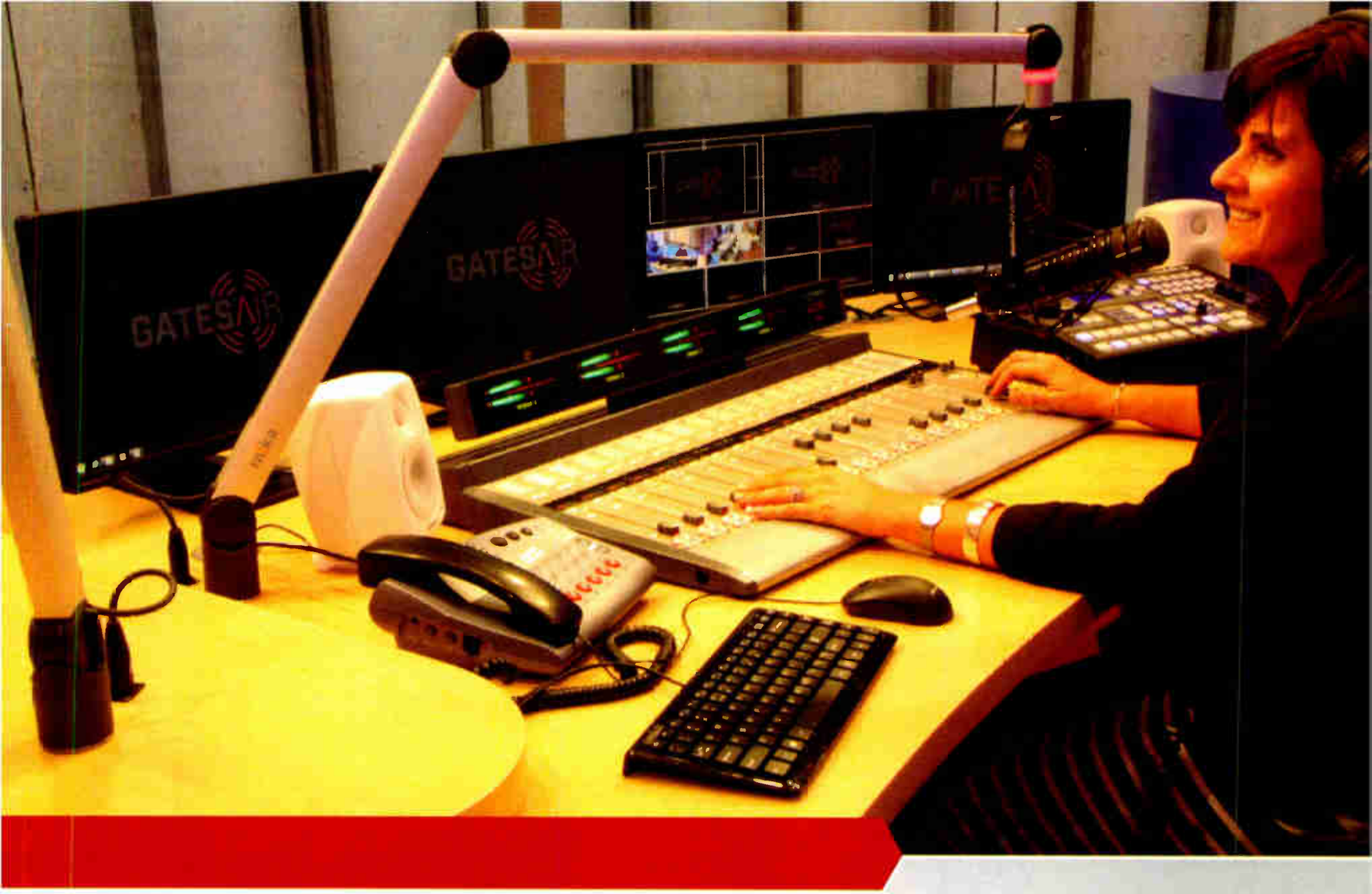
There's multiple ways to suppress conductive interference. We're not really sure what issues specifically BMW is having, but it's certainly something that ... other folks have been able to overcome.

[In] a larger perspective, [I would] just kind of look at it and say, "Okay, in San Francisco, the number one and number two stations — I'm guessing BMW sells a number of cars in that market — the number one and number two stations are both AM. *[Ed.: AM stations KCBS and KNBR were one and two in that market as of July, according to Nielsen Portable People Meter data.]* And if you look at Chicago, Atlanta, Boston, New York, Philadelphia there are heavily, heavily listened to stations — all the top five or top 10 stations there ... and they're all AM. So it's a little baffling to me.

***RW:** You had mentioned that at Capitol, you were involved in the effort to get FM chips enabled in cellphones. Please tell me more.*

Matheny: We applauded the NextRadio app and the effort that was put there and the application itself, and making sure that we were participating actively.

(continued on page 12)



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MATHENY

(continued from page 10)

That's really it, working with TagStation and doing our part with our stations to have a great user experience.

***RW:** So you were doing interconnectivity, going beyond the free icon…*
Matheny: What we didn't want to have happen was folks just [having] the tuner icon. We started with that, and we're adding the interactivity.

***RW:** Is NAB Labs still involved in NextRadio?*
Matheny: That's one of the things we're excited about, and we're very supportive of NextRadio in terms of what they're doing in development on cellphones. Specifically, we've been backing their development, and that's something that we're working closely with Emmis and other folks to keep developing. We're big advocates of it.

***RW:** So providing testing help, things like that?*
Matheny: Providing financial support. We helped with development of some of the core functionality. We also helped finance some of the research around it too, with Coleman Research.

***RW:** They're trying to move beyond the phone to an in-dash solution. Is NAB Labs' money helping to support that too?*
Matheny: Absolutely. We are fully supportive of NextRadio's efforts, both on cellphones and on dashboards.

***RW:** You're familiar with radio. What do you see as radio's greatest technical challenges right now?*
Matheny: My first job in broadcasting was for WETC 540 AM, a 10,000-watt station in the Knightdale, Wendell, Zebulon area of North Carolina … some 20 miles east of Raleigh. Lew Parrish was the owner. It was a southern gospel and classic country station. I would go in on weekends and do everything from power the station on — I'd turn on the transmitter — to disk jockey to cart machine, production, answering the phones … so I've worked with radio for awhile.

My first job with Capitol Broadcasting was in their radio group. I was building websites for the North Carolina News Network, the Southern Farm Network as well as their Winston Cup Today Racing Network and other sports networks. I really enjoyed working in radio in all those capacities.

Looking at today, I reflected a little bit back on what our focus was at Capitol, but I think that continuing to work on the FM chips is something that we are going to need to do. Other than that, I'm still in learning mode. I'm going to be talking to a lot of the industry players and seeing where NAB can help from a technology perspective and combine that with my background to set a course.

This is the NAB Labs' radio test bed. The left rack includes analog and digital audio distribution hardware, audio processor, modulation monitors and test bed computer. At right are RF hardware, including an HD Radio exporter and two HD Radio exciters, a programmable RF attenuator, a programmable RF switch, a spectrum analyzer and four receivers under test. Another exporter and exciter are planned.

Courtesy NAB Labs

***RW:** And turning on the transmitter in the morning … that's hard to get up that early. Was that an AM daytimer?*
Matheny: Yes it was. I had to be on the air at 6 in the morning and I ran the board and did all the stuff after I powered on the station until noon. At that time, the station was leasing its time to Hispanic broadcasters. Sometimes if they were running a little late I'd have to do the Hispanic sign-on as well, so I learned to do that.

***RW:** You have a background that involves experience with EAS both in North Carolina and being on the FCC advisory committee, the Communications Security, Reliability and Interoperability Council. What are your thoughts as to how radio alerting can be improved?*
Matheny: Radio is an incredibly important part of emergency alerting in the U.S. and around the world, and I think the more places radio can be received, the better we will be in times of disaster and emergency. That rolls back into FM receivers in cellphones. If you look at the capability of cellphones today, the alerting that you're able to get through a WEA alert is 90 characters of text. It usually says something to the degree of "check local media" …

The more cellphones that are enabled with FM tuners, the more you're going to be able to have direct access to local media, with a better battery performance and without taxing the cell network infrastructure. We're working with the FCC and our members to make sure alerting by radio is optimized to the full extent that it can be and … very proud and serious about the role as first informers.

***RW:** RDS is experiencing more interest among broadcasters. What are your thoughts about how that can fit into alerting, or about how RDS can be used to get people's attention in the dashboard in general? Did you ever do anything with RDS at your stations?*
Matheny: We did. … When you ask about more engagement and more experience, that's where I need to talk with folks; but I think that anytime you can improve the in-car experience, there's a great opportunity. It's something that all stations should be thinking about and executing on. RDS is, I think, one way to do that; and as these cars get smarter and smarter, with more compelling user experiences, there's going to be opportunities, not just for RDS, but for even more compelling experiences that are akin to what's happening in the NextRadio app.

***RW:** Is there anything else I should have asked you?*
Matheny: You did not ask me about college football.

***RW:** Who do you support?*
Matheny: I very much support the East Carolina University Pirates. I am a Pirate from ECU. We went 10 and 3 last year. We're joining the American Conference, and we're hoping we might be able to pull off an upset in one of these first few games.

***RW:** Are you the same, the Pirates, for college hoops too?*
Matheny: I am, but we're not as developed there.

***RW:** That's okay, I was afraid you were going to say N.C. State. And no, sorry, we can't have that!*
Matheny: I am actually an ABC, which is "Anybody But Carolina" because I did go to N.C. State, and I do cheer for the Wolfpack, but my wife Tamara is from Durham, and so I'm also a Duke fan.

Leslie Stimson is Radio World news editor, Washington bureau chief and a Maryland Terrapin.

Comment on this or any story. Write to radioworld@nbmedia.com *with "Letter to the Editor" in the subject field.*

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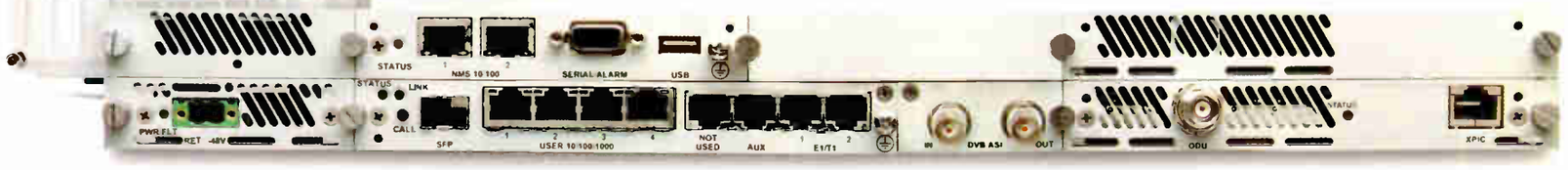
indoor unit



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Radio Comes to a "Crossroads"

"Hybrid" radio, dashboard trends and all-digital AM testing are among topics

They call Indiana the "crossroads of America." But radio always seems to be at a crossroads lately; so it's appropriate that the Radio Show will be held there this year.

The show is co-produced by NAB and RAB. The event takes place Sept. 10–12 in Indianapolis Some 2,400 people attended in 2013.

Here's a rundown of notable sessions and events as picked by Radio World's editorial staff; see *radioshowweb.com* for a full list.

(Quick, can you name the cities that hosted the five previous fall Radio Shows? Answer is at the end.)

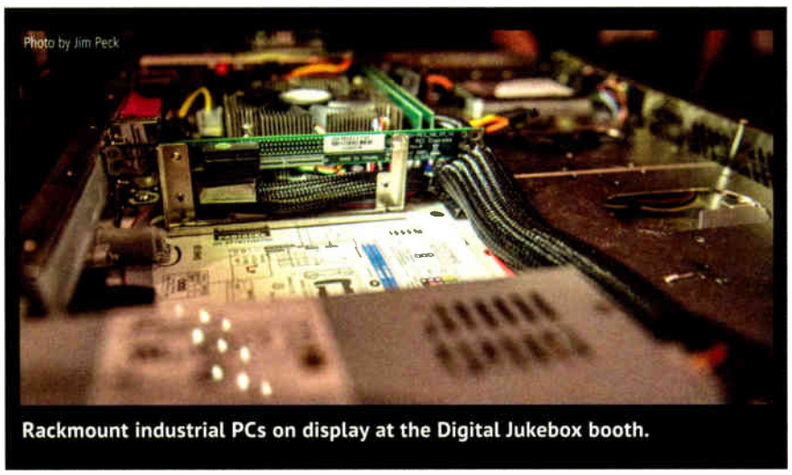

Photo by Jim Peck

Rackmount industrial PCs on display at the Digital Jukebox booth.

Opening Session and Keynote — Advertising consultant Bob Hoffman is featured. He's the author of a book "101 Contrarian Ideas About Advertising" and writes "The Ad Contrarian" blog. Show organizers say he'll talk about "the gulf between what we are being told by 'experts' and the reality of advertising and media today, with specific focus on broadcast radio," in a speech titled "The Golden Age of BS." RAB President/CEO Erica Farber and NAB President/CEO Gordon Smith also will speak. — *Wednesday, Sept. 10, 3:45 p.m.*

SUPER SESSIONS

"From the Control Room to the Board Room" — If U.S. commercial radio had to name its biggest management star these days, it would probably be Bob Pittman, chairman/CEO of Clear Channel. But Dan Mason is no slouch either, as president/CEO of CBS Radio. Those two get their own super session at the Radio Show. "Before becoming top media and entertainment leaders, they began their careers behind a radio microphone," planners say; this session traces their career paths and visions for media's future. — *Thursday, Sept. 11, 9:15 a.m.*

"Hybrid Radio: What's In It for You" — The term hybrid radio refers here to enhancing the broadcast product with interactivity and visuals such as ad graphics, via services such as the new NextRadio platform. Supporters see this as a path to more revenue and listenership, as well as a way for radio to hold up its head in deepening digital waters. Panelists will represent Emmis Communications, backer of NextRadio; Big Machine Label Group; Hubbard Radio; and Sprint Corp., which has introduced some phones with FM reception and NextRadio. — *Sept. 11, 11 a.m.–12:15 p.m.*

How can broadcasters benefit from hybrid radio? Ginny Morris, chairman/CEO of Hubbard Radio Group, is among panelists seeking to answer that question in a super session.

"Executive Future" — Dan Harris of ABC News interviews Alan Mulally, who is a Google board member and (more to the point) former CEO of Ford Motor Co. They'll talk about radio, the automotive sector and tech trends. Harris also will lead a "meditation talk" and sign copies of his self-help book. — *Sept. 11, 3–4 p.m.*

TECH SESSIONS

"IT for Radio Engineers: Understanding IP Networking Routing and Switching Tutorial" — It's a topic of great interest and impact for techies. Veteran engineer and educator Wayne Pecena, director of engineering for Texas A&M University, will explain IP networking technology, fundamentals of Ethernet switching, IP routing, building a segmented IP network and more. — *Sept. 10, 9 a.m.–2:15 p.m.*

"All-Digital on the AM Band – Testing for the Future" — In the not-too-distant future, the radio industry may ask the FCC to allow AM stations to broadcast in all-digital. The tech work being done on that front right now is laying the groundwork. NAB Labs has been doing field and lab tests; this session will show the types of stations used in the program and the resulting coverage. Ben Downs, the VP/GM of Bryan Broadcasting Corp. and a vocal proponent of AM improvement, moderates a panel that includes Greg Borgen of WDGY(AM); David Layer of NAB; Andrew Skotdal of KRKO(AM)/KKXA(AM); and Glynn Walden of CBS Radio. "We will look at the interference concerns, receiver performance issues and propagation effects," the organizers say. — *Sept. 10, 2:30–3:30 p.m.*

Indiana Convention Center

IF YOU GO

When: Sept. 10–12

Where: Indiana Convention Center, Indianapolis

How: www.radioshowweb.com

How Much: $495–$995 depending on membership status and packages; see website

RADIO SHOW

Produced by RAB and NAB

Photo by Jim Peck

Participants of a session on emergency planning listen raptly in 2013. Session themes this year include hybrid radio, mobile revenue, all-digital AM and radio creativity.

NRSC Meeting — The National Radio Systems Committee convenes, and notes its 35th anniversary. See page 4 for more. — *Sept. 11, 8:30–10:45 a.m.*

SBE Certification Exams — The Society of Broadcast Engineers administers tests to those who applied by Aug. 22. Visit *www.sbe.org* for info about future

(continued on page 16)

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RADIO SHOW

(continued from page 14)

certification exams. — *Sept. 11, 2–5 p.m.*

"Designing, Maintaining and Monitoring Reliable IP Audio Broadcast Facilities" — Jake Robinson has designed several AoIP-based large-market broadcast facilities and will discuss how to implement IP audio. He is director of engineering and IT for Emmis Indianapolis, which includes four FMs, one AM and a state satellite news and audio distribution network. He's a member of the NAB Radio Technology Committee and the Audio Engineering Society, and is chairman of SBE Chapter 25. — *Sept. 12, 9–10:15 a.m.*

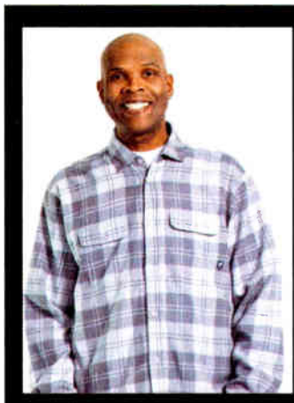
Advertising "contrarian" Bob Hoffman will give a keynote titled "The Golden Age of BS," promising to "address the gulf between what we are being told by 'experts' and the reality of advertising and media today," with a focus on radio.

"15 Tech Ideas that Help the Bottom Line: A Radio Technology Panel of Experts" — Chriss Scherer moderates a panel with three veteran engineers. See our story, page 20. — *Sept. 12, 10:30–11:45 a.m.*

A MANAGEMENT SAMPLER

"Operating a Successful Radio Station in 2014" — The entire convention revolves around that theme; but this particular session features GMs of growing stations, talking about how managers can create growth, keep staff "activated, dedicated and engaged" while handling multiple jobs, and run the station as efficiently as possible. Participants work for Hubbard Radio, Univision Radio, Alpha Media and West Virginia Radio Corp. — *Sept. 10, 9–10 a.m.*

"Growing Your Mobile Audience" — Everyone tells you that your station needs to be more active on the mobile platform. But what exactly does that mean, and how do you engage those consumers? Dale Thornhill of Commonwealth Broadcasting moderates a session that features speakers from Hitch Radio and Commotion. — *Sept. 10, 10:15–11:15 a.m.*



Kurt "Big Boy" Alexander is host of "Big Boy's Neighborhood" on Power 106 FM Los Angeles. He's among several returning Marconi hosts who will emcee at the event.

Al Kenyon of FEMA IPAWS catches up with Larry Walke of NAB in 2013.

"It Starts at the Top: Reinvigorating Station Creativity" — Planners engaged in creativity of their own when putting this panel together. They issued a challenge asking contestants to submit ideas about incorporating creativity into on-air and online content. Winners won show registration and a $1,000 travel stipend courtesy of Salem Communications, and were invited to participate on the panel. Winners are Kelly Jarvis, digital director, WRBW(FM) Baltimore; Jason Skaggs, production director, WGN(AM) Chicago; and Rick Balis, program director, KSHE(FM)/KIHT(FM) St. Louis. — *Sept. 10, 10:15–11:15 a.m.*

"The Magic: Radio's Storytellers" — This one is all about the on-air talent. Bob Kevoian, Tom Griswold, Clark Howard and Scott Shannon will gab about how they got started in the biz and how they connect to people. — *Sept. 10, 2:30–3:30 p.m.*

SPECIAL EVENTS

Career Networking Event — Early arrivals can look for jobs and recruiters can seek job candidates at this Tuesday afternoon event put on by the NAB Education Foundation in partnership with the Broadcast Education Association. "Our goal is to match high-quality candidates to potential employers from major broadcasting companies," they say, noting that participating companies can receive Equal Employment Opportunity credit from the Federal Communications Commission. — *Sept. 9, 1–5 p.m.*

Leadership Breakfast "Capitalizing on Radio's Potential" — Do you want to talk about radio's financial situation, equity and debt financing for acquisitions and how digital resources can translate to the bottom line? This one's for you. Lew Paper of Pillsbury Winthrop Shaw Pittman moderates, with high-profile panelists Lew Dickey, Dean Goodman, Jeff Smulyan, Jose Valle and Marci Ryvicker. — *Sept. 11, 7:15–9 a.m.*

David Hoxeng, owner of ACX Communications, and Tieline's John Lackness discussed contribution codec technologies at last year's show.

NAB Marconi Radio Awards 25th Anniversary Dinner & Show — Stations and individuals are honored for their excellence and performance in 21 categories. Singer/songwriter Hunter Hayes will perform. (To scroll through fun photos from 25 years of Marconis, visit *www.nab.org/2014Marconis/gallery.asp.*) — *Sept. 11, 6–9 p.m.*

Radio Luncheon — NAB President/CEO Gordon Smith talks with FCC Commissioner Ajit Pai "about communications policy and how it affects free, local radio broadcasting." Pai has shown a vocal interest in radio issues, including the future of AM. The luncheon will also honor Bud Walters, founder and president of The Cromwell Group, who will receive the 2014 National Radio Award for leadership in the industry. — *Sept. 12, Noon–1:30 p.m.*

Answer to the question at the beginning: The recent Radio Shows have been held in Philadelphia (2009), Washington (2010), Chicago (2011), Dallas (2012), Orlando (2013).

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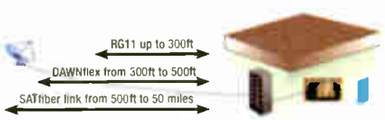

offers the best protection from signal ingress. Choose the SATfiber link for dish-to-receiver distances from 500 feet to 50 miles. Eliminate long distance signal attenuation, and lightning surge problems, when you install SingleMode fiber running out to the dish. Place our SATfiber Transmitter and Receiver units on both ends of the fiber, and pass 45 to 2800 Mhz with perfect quality. Call DAWNco to hear about our easy-install fiber, and for help choosing the best SATfiber system for your needs.

HD GRADE LNB AMPLIFIERS ARE NEEDED FOR NEW SAT CHANNELS

Several networks have made the switch to DAWNco's new "L series" of C and Ku band LNB amplifiers, to accommodate the "finicky" nature of new HD satellite receivers. This new generation of LNB has improved specs that can make a real difference in the reception of high-definition and 8PSK satellite channels. These new LNBs feature best-in-industry specs for "1dB gain compression point" and "phase noise." Internal circuitry has been completely redesigned for reduced power draw, so that indoor receivers and power supplies will never be overtaxed. In order to prevent video picture tiling and signal outages, when outdoor temperatures fluctuate, DAWNco's best LNBs feature a highly stable +/- 2 Khz rating. Make sure to upgrade to the new DAWNco "L series" LNBs, and watch for improved EbNo readings on your digital satellite receivers.

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Are Broadcasters Doing Digital Wrong?

Be wary of falling into the common "bright shiny object" syndrome

BY KEN DEUTSCH

"In the digital world, we're not competing against just radio," said Alan Segal, senior director, Digital Insights, a part of Cox Media Group in Atlanta. "This is a radio show, but we are really competing against everything digital."

That statement reflects the insight of one of the panelists who will participate in a Radio Show session with the unusual title, "What Do We Need to *Stop* Doing (Digitally)?"

Tom Bender. "Does it fit within our sales strategy? ... Is there internal bandwidth and commitment to present and implement it?"

Dan Shelley. "Too many stations still do contests for 'the tenth caller.' Really? In 2014?"

Alan Segal. "You are in a dogfight with everyone out there who can grab the listeners' attention."

Pat Walsh. "People on our digital and social media development teams very often are fans of the content."

It will be presented Wednesday, September 10 at 2:30 p.m.

"This is important from an audience perspective if not strictly from a revenue standpoint," Segal said. "You are in a dogfight with everyone out there who can grab the listeners' attention.

"Is someone not listening to your stream because he is listening to Spotify? A radio competitor? Is he playing 'Angry Birds?' That's the fight you should be in on a daily basis. It's not just about the station down the street; it's about the endless list of choices out there."

Tom Bender, senior vice president/general manager, Greater Media Interactive, Detroit, sees a common pitfall in radio's digital endeavors.

"By the very nature of digital and the constant waterfall of new products, ideas and refinements, we all can easily fall into the 'bright shiny object' syndrome," he said.

"If it's new and has a buzz, we've got to have it. I know from experience that numerous digital initiatives look promising, and those promoting them promise a great return, but too often, nine months into the project, reality starts to set in. There are execution issues that weren't thought through and advertisers want a lower price."

But Bender also has a way to avoid this potential misstep.

"Before we bring new technology or digital inventory online, we should take the time to make the business case. Does it fit within our sales strategy; is there a need or opportunity in our local markets; and is there internal bandwidth and commitment to present and implement it?"

Dan Shelley is senior vice president of local and studios for Interactive One, part of Radio One. He believes that radio undervalues its digital product.

"Too many radio groups are still 'giving away' digital ads, or at least telling their clients digital is free and then shifting the dollars internally to pay for it. That makes it harder for the rest of us who stopped giving away digital years ago."

And Shelley believes that broadcasters have not yet fully embraced mobile technology.

"I don't mean just streaming," he said. "At Radio One, as much as 80 percent of the people who engage with our stations digitally each month do so on smartphones or tablets. Our primary audience indexes higher in mobile than other demographic categories, but the seismic shift from desktop to handheld devices is happening with everyone. You've got to make a huge mobile play — from both the content and ad perspectives — or you won't be reaching a significant portion of your audience, or your clients' customers," he said.

"Too many stations still do contests for 'the tenth caller.' Really? In 2014? Listeners don't call radio stations to try to win contests — at least not millennials and Gen-Xers. They text. Stations must engage with their audiences where their audiences are, not where they used to be."

ENGAGED STAFF

Pat Walsh, COO of Emmis Communications in Indianapolis, will moderate this session. His background includes a stint with iBiquity Digital, developer of HD Radio technology.

To minimize missteps in radio's digital realm, he recommends that broadcasters seek out non-traditional radio people.

"We have hired many people with a digital content and social media background," he said "These are young people, millennials, who have grown up in the digital world and have a different perspective on content. We have recruited a lot of folks that have worked in startups, either technology or digital media, because we want to engage our audiences on their phones, their tablets and desktops.

"Part of the magic has been combining the deep knowledge of radio that our programming and on-air talent have, with the knowledge these young people we have brought into the industry."

Where is the common ground among these groups?

"It's all in the passion for the music, or the spoken word, or whatever the content of the station is," he said. "People on our digital and social media development teams very often are fans of the content; and it's a natural extension for them to reach our audiences on digital platforms."

Walsh says that just because a person has a knack for audio programming, it does not necessarily follow that this person is well-versed in the nuances of Twitter, Facebook or YouTube. "Stations that avoid hiring new talent from the digital realm do so at their own peril."

Segal agreed, but went further, citing a need to use digital-savvy outside talent for specific tasks at a radio station.

"We might build the best digital widget in-house; but why would we? It's not our core expertise," he said. "Ours is telling stories. Why not partner with someone who can develop something for us, fix it, and let us do what we do best, playing music or whatever that happens to be. We need to stop thinking we can solve everything ourselves."

Segal talked about qualities he seeks when planning digital projects.

"I look for humility," he said. "I want people who recognize they don't know everything, because if they think they know everything, they won't want to be open and listen. I want people with an appetite to learn. A lot of people can sit at a computer and do things, but a great digital person has to create relationships to make sure everyone is exposed to the larger scene. They touch base with people across many departments to make sure things fit together."

Ken Deutsch is a former broadcaster and longtime Radio World contributor.

THIS INTERNET THING WILL NEVER CATCH ON

Every emerging trend has been pooh-poohed by someone. According to *rinkworks.com*, a Western Union executive said in 1876 that "the telephone has too many shortcomings to be seriously considered as a means of communication." Many years later Decca Records took a pass on a singing act called The Beatles, predicting that "they have no future in show business," according to *minyanville.com*. In 1966, this writer told his girlfriend Allison that Madras shorts and Paisley ties were here to stay.

But talk about the mother of all horrible predictions. On Feb. 26, 1995, Newsweek writer Clifford Stoll misread the tea leaves in his article, "Why the Web Won't Be Nirvana."

He said in part: "Visionaries see a future of telecommuting workers, interactive libraries and multimedia classrooms. They speak of electronic town meetings and virtual communities. Commerce and business will shift from offices and malls to networks and modems. Baloney. Do our computer pundits lack all common sense? The truth in no online database will replace your daily newspaper, no CD-ROM can take the place of a competent teacher and no computer network will change the way government works."

You can read the article at *http://tinyurl.com/rwstoll.*

So how about this Internet thing? Do you think it'll ever catch on?

— *Ken Deutsch*

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- Secure access to your system

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In Indy, Engineering for the Bottom Line

Session with veteran radio engineers will explore 15 helpful tech ideas

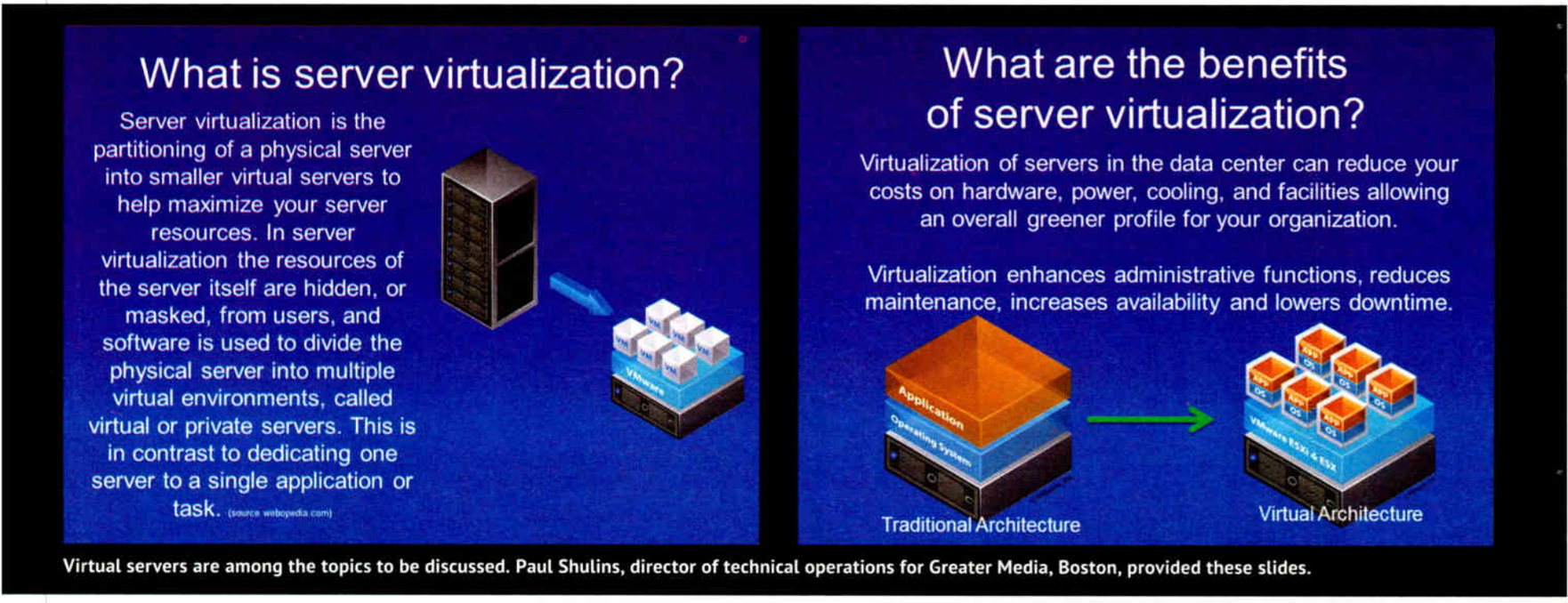
BY CHRISS SCHERER

Many view the engineering department of a radio station as a financial liability even though the entire business is built on technology.

While it's easy to fall into the reactive trap of constantly putting money in just to keep things working, there are proactive steps that can be taken to improve reliability and save money in the long term.

With the Radio Show heading to Indianapolis, the NAB and RAB have partnered with the Society of Broadcast Engineers, which has its headquarters in Indianapolis, to produce the technical sessions for the convention. One session on Friday, Sept. 12, is titled "15 Tech Ideas That Help the Bottom Line." The panel, which I'll moderate, features three respected engineers who share their ideas that any station can implement.

The panelists are Jake Robinson, director of engineering and IT for Emmis Communications, Indianapolis; Jeremy Ruck, PE, principal engineer of Ruck and Associates; and Paul Shulins, director of technical operations for Greater Media, Boston. These individuals possess nearly a century of combined broadcast engineering experience.



Virtual servers are among the topics to be discussed. Paul Shulins, director of technical operations for Greater Media, Boston, provided these slides.

5 TIMES 3

When I was asked to submit an idea for a session, I had two ideas in mind about a single session. Instead of a single speaker presenting a topic, I suggested a panel that could present, discuss and likely more easily interact with the session attendees. I also wanted to cover technology in a way that not only provides roll-up-your-sleeves information, but also addresses the age-old concern from managers and owners about their perceived financial black hole view of engineering.

Drawing on the panelists' experience in all aspects of radio technical operations, I asked each to develop his own top five ideas on technical operations, upgrades or fixes that will likely have a positive effect on a station's budget. Many of these ideas include some kind of upfront or capital cost, but that cost is quickly covered and exceeded by the realized savings of the project.

What can you expect to learn during the session? You'll have to attend to get everything, but some of the topics to be covered include virtual servers; multi-use STLs; LED lighting in studios, office space and on towers; tower site inspections; and several ways general maintenance now has benefits later.

The Radio Show has a history of targeting the station owners, managers, sales and programmers, but there is a valuable experience for the engineer as well. Spend some time on the exhibit floor, take in the technical sessions, and network with other radio professionals.

Chriss Scherer, CPBE CBNT, is a contract engineer and recording engineer in Kansas City. He is former editor of Radio magazine and a past president of SBE.

Radio Show Exhibitor List

The following is the list of Radio Show exhibitors as provided by NAB in August. Check on-site information for full list.

EXHIBITOR	BOOTH
AdMall/SalesTouch	122
AmWINS Program Underwriters	2
AXIS Insurance	2
BizTalkRadio	229
Bonneville Distribution	424
Boostability	328
Broadcast Electronics/Marti/Commotion	204
Broadcast Software International	312
Broadcast Supply Worldwide	202
Broadcasters General Store	308
Capitol Marketing Concepts	409
Christian FM Media Group LLC	213
Comrex	202
Continental Electronics Corp.	403
Creative Ready	224
Dielectric LLC	428
Digital JukeBox	329
DoubleRadius Inc.	411
EMIRAT AG	324
ENCO Systems Inc.	209
ERI-Electronics Research, Inc.	401
FEMA Integrated Public Alert and Warning System	319
GatesAir	303
iBiquity Digital Corp.	140
Indy Race Car Simulator	133
International Demographics/ The Media Audit	103
Kelly Music Research	128
Marketron Broadcast Solutions	111
Matrix Solutions	215
Media Monitors	317
Miller Kaplan Arase LLP	104
Moseley Associates Inc.	100
NAB Membership	2
NAB PAC	2
NAB Public Service	1
Nautel	311
NeighborWorks America	404
Netia/Globecast Group	407
NewBay Media	425
NextRadio	405
OMB Sistemas Electronicos	121
OMT Technologies	216
Powergold Music Scheduling	105
PromoSuite	416
Radio Advertising Bureau	3
RadioDNS	126
RadioTraffic.com	107
Radio World	425
RCS	201
Regional Reps	220
RF Specialties Group	423
Rohde & Schwarz	106
Sales Logic	321
Shively Labs	402
Simpli.fi	426
Society of Broadcast Engineers	124
Specialty Data Systems Inc.	211
Star Publishing	429
SuiteLife Systems	108
Sun & Fun Media	418
The Bones Game	102
Tieline Technology	225
Univision Radio Content Syndication	117
vCreative	413
V-Soft Communications, LLC	307
Wheatstone Corp.	325
WideOrbit	219
Worldcast Systems	406
Zocle Media	138

EXHIBIT HOURS

Wednesday Sept. 10
10 a.m.–6:30 p.m.
Thursday Sept. 11
9 a.m.–4:30 p.m.

Wednesday includes opening reception. Thursday includes coffee breaks and a lunch. The floor will include an Indy racecar simulator.

Photo by Jim Peck

Ben Barber of Inovonics talks to attendees in the Broadcasters General Store booth at last year's Radio Show.

WLIR: They Dared to Be Different

Documentary will chronicle the history and resurgence of heritage station

PROGRAMMING

BY DAVID PLOTKIN

I was fortunate to begin my radio career at 13 years old in the second-largest radio market in the country, Los Angeles.

Having "grown up" working at MOR, classical and talk stations, I was comfortable in a relatively conservative radio environment. But in 2000 I moved to New York to attend college, and in 2001 I started working at heritage alternative rocker WLIR(FM) in Garden City, N.Y. I began as a production assistant and later served as production director.

The environment at WLIR encouraged creativity, demanded you have fun while at work and expected nothing but the best from its staff.

January 2014 marked the 10th anniversary of WLIR 92.7 FM leaving the dial. But that iteration of WLIR remains special in many ways … it was *different* … not only because it had taken a chance in 1982, flipping from an illustrious progressive rock format to an untested alternative rock presentation, but because of an intense loyalty that developed among fans and staff alike.

WLIR wasn't just another radio station; it was a lifestyle.

In 1959 John Rieger had started WLIR in the basement of the Garden City Hotel on Long Island, originally airing a beautiful music format. In 1970, Rieger allowed two radio professionals right out of college, Richard Neer and Michael Harrison, to flip the format to progressive rock. It was at this point that WLIR started to develop an intensely loyal fan base.

In 1982, Elton Spitzer, then owner and general manager, and Denis McNamara, the program director, made the controversial decision to flip the format further from progressive rock to new wave, feeling that the market was oversaturated with album rock-oriented stations. This is where WLIR really began to earn its reputation as the station that "dares to be different."

MOVER AND SHAKER

Originating from Hempstead and covering New York City and the tri-state area, it became a station with influence beyond its transmitter power of 1,000 watts.

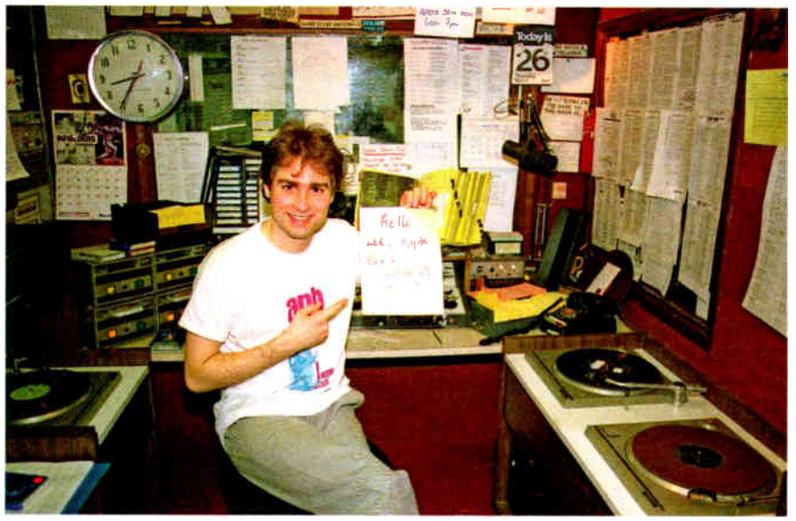
With millions of potential listeners, WLIR helped advance and, in many cases, introduce such artists as U2, The Ramones, Depeche Mode, the Cure, the Clash, XTC and countless other new wave and punk bands. Programmers at stations in New York and other markets were influenced by WLIR's willingness to take a chance on new artists before they entered the mainstream market.

McNamara, now a consultant, said, "We knew music was changing very dramatically. This really accelerated us to make a decision. Do we live in the past or do we move forward?"

In 1987, the station changed hands to The Morey Organization. With an increase in power, 'LIR continued introducing new music into the '90s with artists such as Nirvana, Beck and Green Day, and the '00s with artists such as Coldplay, Moby and Daft Punk.

It continued to operate with an alternative rock format until January 2004; then, receiving an offer they could not refuse, The Morey Organization sold the frequency to Univision, which flipped the format to Spanish language, leaving the WLIR listener with no alternative (pun intended).

Even 10 years after leaving the airwaves, though, you will find former WLIR listeners reminiscing about voting for Screamer of the Week, the famous Tuesday Night Concert Series,



Larry "The Duck" in the WLIR 92.7 studio at 175 Fulton Street, Hempstead, N.Y., in 1987.

WLIR Airline Club card circa 1980. It was used by listeners to take advantage of special discounts at local stores — more evidence of the station's "lifestyle" effect.

the 'LIR DJs spinning at their favorite night club and, most of all, how they felt the station was *their* station.

Now the questions are different. Could WLIR exist in today's environment? How would it continue to be different?

There has been a recent resurgence in the interest of the heritage station. Not only does it continue to live and grow online, but Hollywood has stepped into the picture with an upcoming documentary about "The station that dares."

WLIR.FM

There's no question that most radio stations today have a tight play list.

Facebook, Myspace, Amazon and iTunes are great for finding music that you have already heard elsewhere. However, there are few sources that curate new music for the listener.

It was because of this perceived void that former 92.7 staffer Bob Wilson started *www.wlir.fm* in 2005. With many of the former air-staff helping to contribute to the website, Wilson began streaming the music he could no longer find on the FM dial. However, when he started to receive email requests and his number of listeners started to grow online, Wilson recognized that there was still an unmet demand not only for the heritage music of the station but for new music, as well.

WLIR.FM keeps the successful formula of the familiar disk jockeys voice-tracked throughout the day, ticket giveaways, WLIR.FM bumper stickers and answering listener requests.

Wilson is careful not to make his station an oldies station playing only the heritage 'LIR music. "It is important for the station to keep moving forward," Wilson said. "The 'LIR listener is someone who always wanted to hear new music."

But the question remains: Can you make money with WLIR — or any format — online?

Wilson, who has just started to see the books turn black by selling banner ads and commercials on the stream, says having an interactive website is key. "Give people reasons to keep returning to your site."

Posting links to YouTube and Facebook navigate people away from what you are doing. Forming partnerships with other websites like *www.donyc.com* creates the ability to have an up-to-date concert calendar on WLIR.FM. Weekly concert, show, event and merchandise contesting, as well as a WLIR.FM store, help keep the listener engaged.

"Know your audience," Wilson emphasizes. Recognizing that WLIR.FM has a niche format, it is important to target businesses that appeal to his listeners, most of which are in the tri-state area. Concert promoters such as Live Nation and Bowery Presents, appeal to the WLIR.FM listener. Ski resorts and Broadway shows are among other advertisers that buy time on the station.

Wilson's goal ultimately is to get WLIR — or, more accurately, his own modernized version of WLIR — back on the FM dial; he is partnering with investors and hopes the station may return to the airwaves one day.

John Rieger is deceased. RJ Morey and Elton Spitzer are retired and could not be reached for comment for this story. They are not involved in the online station.

THE MOVIE

Interest in preserving the importance of WLIR lives, not just online but, also on-screen.

"Dare to Be Different —The Movie" is a documentary in production and set to debut at film festivals in 2015.

Focusing on the importance of WLIR to the new wave, punk and alternative rock bands of the 1980s, creator and producer Ellen Reiss Goldfarb hopes to create national awareness of the once-

(continued on page 31)

BLADE-3

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- **Gigabit Connectivity**
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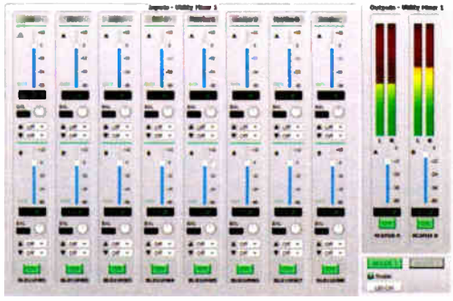
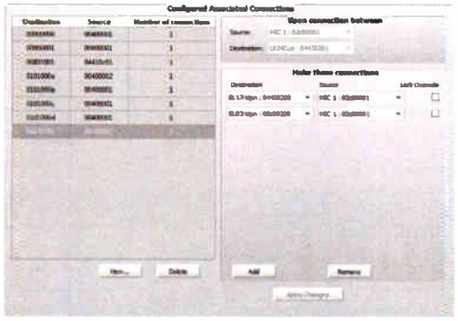
- **Virtually All Audio Formats**
  BLADEs are built to handle and convert native analog, microphone, AES/EBU, SPDIF, AOIP, MADI, SDI and AES67.



- **Two 8x2 Utility Mixers**
  Each BLADE has two 8x2 utility mixers that can be configured in many different formats. Two 8x2, four 4x1, etc. These internal mixers are full featured and include panning, channel ON/OFF, fader levels, and access to any source signal in the system. They also include a full ACI (Automation Control Interface) allowing remote control, ducking, auto fade, channel on/off, levels, source assign, etc.
- **Audio & Control Routing Matrix**
- **Source & Destination Control**
  Each BLADE has the ability to route any system source to the destinations on that BLADE.
- **Front Panel Logic Indicators***
- **12 Universal GPI/O Ports**
- **128 Software Logic Ports***
  Used to interface with software switches, indicators, and control functions throughout the system.
- **Built-in Audio Clip Player***
- **Silence Detection**
- **Dual OLED Displays***
- **LIO/SLIO Logging***
- **Aliases***
  Allows the same source to be identified by different names. Multiple aliases can be used so different operators can share logic functions, source feeds, routing, etc.
- **Auto Mono Summing**
- **Signal Splitting**
- **Gain Control on Every Input & Output**
- **Balance Control**

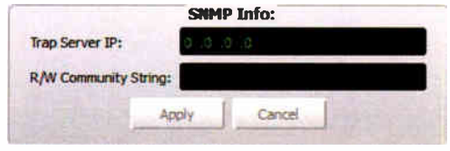
- **Stereo Audio Processor***
  Each BLADE-3 has a stereo multiband processor with the following: 4-band parametric equalizer, 3-way crossovers, 3 compressors, 3 limiters, and a final lookahead limiter. This is a "routable processor," meaning it is not limited to the local I/O on the BLADE – it can be considered a network resource.
- **Onboard Intelligent OS**
  Each BLADE has its own intelligence/operating system that allows it to be a powerful standalone router, part of a larger system or control the entire routing system.



- **Associated Connections***
  This is a great feature in BLADEs for callers, codecs, networks, remote broadcast & live talk shows that require a mix-minus. You can create a predetermined back haul, IFB feed or mix-minus for each device based on its location in the system or on a fader. If you have a shared resource connected to your system, such as a codec, the software will "automagically" give the proper return feed to the codec based on its destination. When a base connection is made, up to ten additional connections can be made. This significantly helps streamline studio routing, phone and codec selection.
- **44.1 or 48K Sampling Rates**
- **Flexible Signal Configuration**
  Signal can be defined as up to 16 mono, 8 stereo or any combination of mono and stereo totaling 16 channels.

** indicates features available only in BLADE-3s*

- **AES67***
  Ability to support AES67 compliant devices. Allows WheatNet-IP system to synchronize to IEEE1588 from a PTP grandmaster clock and ingest /stream AES67 compliant packets.
- **44.1, 48K, External Sync or AES67 Operation***
- **Clock/Sync and Alarm Indicators***
- **Automation Control Interface**
  This is a "tool box" that every BLADE has that allows full control of the BLADE's functions such as routing, ducking, panning, full logic control, mixing and silence detection. Each BLADE supports up to 20 ACI connections which can be used with devices like Talent Stations, GP panels, SideBoards, etc. It also allows control of our partners'/third party equipment.
- **Front Panel Headphone Jack and Source Selection**
- **Salvos/Macros**
- **Studio Bypass**
- **Front Panel Input and Output Metering**
  There is metering for every input and output on the system – 12-segment, multi-color LEDs that can be used for metering inputs and outputs as 8 pairs or 16 mono signals.



- **SNMP**
  SNMP gives you centralized monitoring over large distributed systems. You can configure alarms and set thresholds to get notified if and when a problem occurs. The instant alarms and notifications help you take quick corrective actions through e-mail, SMS, and executing custom scripts.
- **Connection Choices**
  Has both DB25 to make transitional wiring easy for existing BRIDGE TDM customers and RJ45 – Studio Hub compatible RJ connectors for input and output.
- **Full Info Screen**
  Each signal has a new info screen allowing the user to add text to signals such as wire numbers, termination locations, etc.
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Give Your Rig a Thorough Inspection

Don't forget your "Jesus stick" or your Rags in a Box

WORKBENCH
by John Bisset
Read more Workbench articles online at radioworld.com

Reliability of modern equipment can reduce our maintenance duties significantly; some gear needs only to have its dust blown out once a year. But not so with older tube transmission equipment that we may need as our backup or even our main transmitter.

Cleaning out dirt and dust is fine, but your rig also needs a thorough visual inspection if you are to assure reliability. Use a strong trouble light to inspect all the dark recesses.

Before you begin, bring someone with you for safety's sake. Also disable the remote control. There's nothing scarier than hearing the click of relays as the air talent tries to bring up a transmitter you're working on.

Watch the high voltage meter as you turn off the transmitter. The meter indication should drop quickly. If it does not, or if the needle hangs around the normal reading when the transmitter is on, suspect bad bleeder resistors. This indication makes the next few steps particularly important.

Turn off all breakers for the transmitter and use a shorting stick to discharge all components. The bleeder resistors and the transmitter interlocks are supposed to do this job, but the interlocks may have been defeated, or the bleeders are bad.

Fig. 1: Damaged components are lurking. Give your transmitter a thorough inspection.

If anything live exists, the shorting stick will find it —and you'll know it. One crack of a high-voltage discharge will be all you need to be reminded to use this safety device. Many seasoned engineers nickname the shorting stick a "Jesus stick" — because if you don't use it, that's who you're going to meet. Yes, it's that serious.

The stick's purpose is primarily to discharge large power supply capacitors, usually found in the bottom of the transmitter. But I recommend you touch *all* components. You can't do any harm, because the transmitter is off, right? One engineer told me about a transmitter that was fed by three separate circuit breakers. Two were in one box marked LV (low voltage) and HV (for high voltage). In another box, across the room, was another circuit that the shorting stick discovered. The arc took a chunk out of the shorting stick! Better the stick than your hand or arm.

So what will your inspection disclose? Well, with trouble light in hand, maybe nothing. Then again, you may see damage as in Fig. 1.

Contract Engineer Mike McGowan found this arced grid tuning variable capacitor during one of his inspections. In this case, the rig still worked, but wouldn't tune properly.

As you inspect, look for anything unusual. Check wiring terminals — are they tight and not corroded? Check those oil-filled power supply capacitors for leaks. And speaking of leaks, is the blower motor in good shape and not leaking oil?

You can buy clean T-shirt material online, or purchase Scott Rags in a Box at a hardware store. Clean rags are great for cleaning when paired with isopropyl alcohol. As with all cleaning, use plenty of ventilation.

As you clean, look at those bleeder resistors — the foot-long, tubular wirewound resistors, usually with a ceramic finish. Corrosion on the terminals or along the exposed wire can prevent these resistors from doing their job, which is to discharge the high-voltage power supply when the transmitter is turned off.

Remember when we checked the plate voltage meter while shutting the rig off? Suspect one or more bad bleeders if that voltage indication didn't drop to zero quickly. After you get the coating of dirt and grease off the wiring and components, suspect anything that doesn't look right.

Your camera phone is a real asset in the inspection task, not only for pictures to submit to *Workbench*, but also to identify parts or sub-assemblies that need repair or replacement. The phone can also serve as your eyes in hard to reach places, ensuring a thorough inspection. More than one engineer has sent his picture to the repair/parts depot to identify a particular component.

As you clean, be careful not to jar or mis-form coils. Especially at FM frequencies, even a slight bend of wire can mistune a circuit. If you've never cleaned your rig, get some help before you begin. Someone who is experienced with that particular transmitter can teach you a lot.

Reach Mike McGowan at *shadetree@socket.net*.

Lloyd Collins, director of engineering for GoodRadio, offers an alternative to hinged doors when you want to hide your equipment racks. The sliding door panels seen in Fig. 2 keep things hidden but can be slid to one side or another for maintenance.

Fig. 2: You can use sliding doors to hide equipment racks.

Should you need all the racks exposed, you can simply lift the doors off their track and replace them when your work is completed.

Lloyd Collins can be reached at *lloydc@regionalradio.com*.

Reading Workbench is like taking a college course in hands-on radio problem-solving! Contribute your ideas, help your fellow engineers and qualify for SBE recertification credit. Send tips to johnpbisset@gmail.com. *Fax to (603) 472-4944.*

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Grace Digital Targets Custom Biz Segment

Internet radio manufacturer focuses on music/messaging content providers

INTERNETRADIO

BY JAMES CARELESS

Internet radio manufacturer Grace Digital has decided to take on the customized business music and messaging market, using an adaption of its GDI-IRBM20 Internet radio.

Grace Digital is aiming to become an equipment and platform supplier to small and medium-sized business music/messaging content providers. These companies create and sell custom audio mixes to individual stores, retail chains and franchised restaurants— the kind of content that was once only provided by major business music/messaging firms such as Muzak.

Released commercially in 2013, the GDI-IRBM20 is an industrial-grade Internet radio receiver, with the ability to be integrated into a business' background music and telephone system. Grace Digital's recent software upgrade allows business music/messaging providers to offer their custom audio streams for delivery directly to the GDI-IRBM20. The system is supported by a Web-based control panel that automatically removes competitive audio streams, provides control functions such as volume and channel selection, and can optionally shut off radios during off-hours to minimize music licensing fees.

"Functionally, the GDI-IRBM20 is really not different than the many models of Internet radios we sell to consumers, except for its ruggedized case and construction," said Grace Digital CEO Greg Fadul.

"The big difference is our custom business-grade software and Web-based control panel. This provides any business music/messaging service provider a platform to compete against the 800-pound gorillas, at a very competitive price."

BUSINESS MUSIC

Business music and messaging refers both to the custom music streams that retailers and offices choose to shape their customers' and employee's moods, as well as the business-specific messages and music people hear while sitting on hold in a company's voicemail queue.

Thanks to the advent of personal computers and the Internet, even the smallest of mom-and-pop stores can now have their own business music/messaging services, which are typically managed for them by a local content provider.

The content provider takes responsibility for producing the steams and messages, based on the customer's requirements. They also deliver it — historically using hard media such as tape, CD and thumb drives, and more recently via the Web.

According to Fadul, such services are usually received on proprietary business music/messaging receivers connected to the Web, or, failing that, a standard Internet-connected PC. "A proprietary unit tends to be expensive and tied to a large legacy service provider, while a PC is really not a reliable device to stream 24 by 7," he said. "In contrast, the GDI-IRBM20 can fulfill the same functions and more, at a retail price of just $199.99."

STRATEGY

It was this logic that led Grace Digital to launch the GDI-IRBM20 into the general business audio market last year. Its recent addition of a Web-based remote control system, plus the modified GDI-IRBM20's enhanced software features, has transformed this Internet radio into an intelligent and configurable device, one that can deliver custom content while providing customer security and cost savings.

"Using our Web-based control panel, a business music/messaging provider can log directly into a customer's suite of GDI-IRBM20 receivers; right down to a single unit," Fadul said. "The provider can program the radio to only receive the customer's custom audio streams, wiping every other audio stream from its firmware."

The provider can also schedule the radio to switch between audio streams, from relaxing morning audio to pulsing late-night club music. They can create individual "radio groups" that each have their own streaming schedules, and schedule volume levels and even power on/off times.

"If you're a business music service provider's customer, you're paying music royalty fees," said Fadul. "Turning off the radios on a custom schedule when a store is closed means you're not paying to play music when no one is there to listen."

In the same vein, a GDI-IRBM20 can be plugged into a customer's telephone system to stream music mixed with promotional messages. "Many chains are getting very specific about the timing of promotions, switching them around frequently," Fadul said. "Our system allows a retailer to extend this level of control into their telephone systems, so the audio being heard while someone is on hold mirrors their radio, TV and Web promotions."

AMBITIOUS PLANS

Grace Digital isn't alone in its business music efforts.

It has been joined by RadioIO.com, an Internet-only audio service that offers a different way for businesses to curate and play music. RadioIO.com can provide a wealth of music genres and selections for business music customers — all royalties paid — as well as create custom stations for unique business needs.

RadioIO's Chief Operations Officer Julia Miller says the company provides "music to thousands of business outlets," some of which have "tens of thousands of outlets down to single unit locations."

Fadul has big hopes for Grace Digital's business music/messaging platform and its ability to help small operators compete with powerhouses like Mood Music.

"During the last few years, Mood Media has acquired and consolidated many of the leading business music providers like Muzak, DMX and True Media," he said. "Grace Digital's plan is to provide small to mid-sized business music/messaging service providers with a cost-effective superior platform that will allow them to create best-in-class audio and messaging for their clients."

James Careless reports on the industry for Radio World from Ottawa, Ontario.

PEOPLENEWS

Bill Ruck is among a group named to the Bay Area Hall of Fame by the Broadcast Legends.

He is principal radio engineer at CSI Telecommunications Inc. and a freelance broadcast engineer. Ruck spent 21 years at KFOG, then KFOG/KNBR. Most of those years were with Susquehanna Radio Company. He has worked for or with a number of broadcast organizations and has been involved with the Northern California Frequency Coordinating Committee, AES, IEEE, SBE and EIBASS. For the Maritime Radio Historical Society, he has maintained historic radio equipment at former RCA Coastal Marine Station KPH, now part of Point Reyes National Seashore.

Ruck is shown with the Press Wireless PW-15 transmitter in Bolinas, which is still regularly on the air.

Ruck is a native San Franciscan who has been a radio enthusiast since he heard his father's stories of being a radio mechanic during World War II, according to a bio on the Point Reyes National Seashore Association website.

"Bill was an aviation electronics technician in the Navy during the Vietnam War and spent the next 20 years working as an engineer for local San Francisco radio stations KFOG-KNBR. ... Recently he was named 'Fellow for Historic Preservation' by the California Historical Radio Society for his work on the KPH Project," the site said.

INTRODUCING

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One Didn't Make You the Other

Was he a first-class engineer, or was he an engineer with a First Class?

EDUCATION

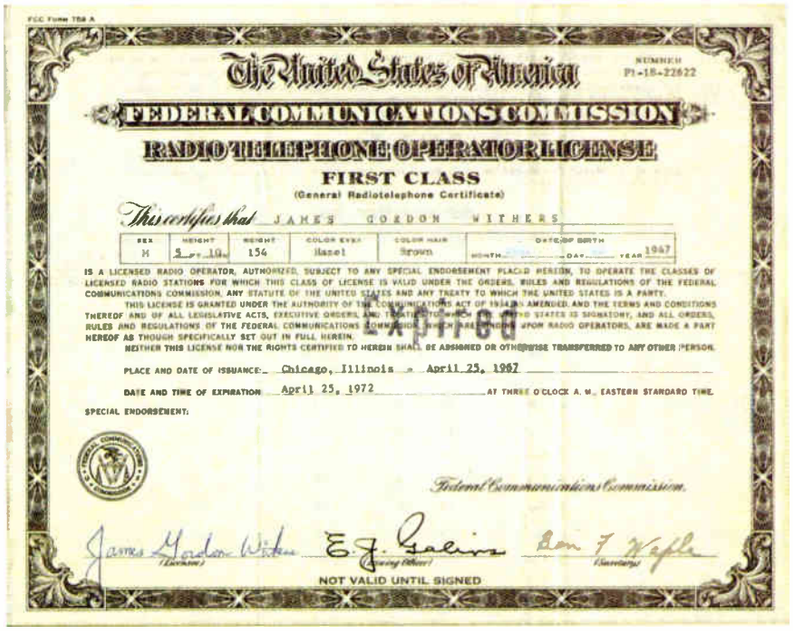
BY JIM WITHERS

In April of 1967, I got a ride out to Lambert Field in St. Louis, got on an Ozark Airlines DC-9 and took off for Chicago.

I was 19 and it was my first time on a plane. I remember being extremely nervous; but that had nothing to do with the flight. In fact, I instantly liked flying and started taking lessons soon afterwards.

Instead I was worried about how I would do a few weeks later, when I planned to walk into the FCC's District Office in downtown Chicago to take the test for the First Class Radiotelephone Operator License.

The test for the "First Phone" was given on specific dates and only at an FCC office in the presence of an FCC field engineer. It was short (my memory places it at 50 questions) but rigorous, and could not be attempted until the applicant had passed the Second Class Radiotelephone License. That test was 100 questions long and was loaded up with a lot of electronic theory. In those pre-calculator days, the Second Class was by far the harder test, at least in my opinion.



The United States of America

FEDERAL COMMUNICATIONS COMMISSION

RADIOTELEPHONE OPERATOR LICENSE

FIRST CLASS

(General Radiotelephone Certificate)

This certifies that JAMES GORDON WITHERS

SEX	HEIGHT	WEIGHT	COLOR EYES	COLOR HAIR	DATE OF BIRTH
M	5 ft. 10 in.	156	Hazel	Brown	MONTH ... DAY ... YEAR 1947

IS A LICENSED RADIO OPERATOR, AUTHORIZED, SUBJECT TO ANY SPECIAL ENDORSEMENT PLACED HEREON, TO OPERATE THE CLASSES OF LICENSED RADIO STATIONS FOR WHICH THIS CLASS OF LICENSE IS VALID UNDER THE ORDERS, RULES AND REGULATIONS OF THE FEDERAL COMMUNICATIONS COMMISSION, ANY STATUTE OF THE UNITED STATES AND ANY TREATY TO WHICH THE UNITED STATES IS A PARTY.

THIS LICENSE IS GRANTED UNDER THE AUTHORITY OF THE COMMUNICATIONS ACT OF 1934 AS AMENDED, AND THE TERMS AND CONDITIONS THEREOF AND OF ALL LEGISLATIVE ACTS, EXECUTIVE ORDERS, AND TREATIES TO WHICH THE UNITED STATES IS SIGNATORY, AND ALL ORDERS, RULES AND REGULATIONS OF THE FEDERAL COMMUNICATIONS COMMISSION WHICH ARE BINDING UPON RADIO OPERATORS, ARE MADE A PART HEREOF AS THOUGH SPECIFICALLY SET OUT IN FULL HEREIN.

NEITHER THIS LICENSE NOR THE RIGHTS CERTIFIED TO HEREIN SHALL BE ASSIGNED OR OTHERWISE TRANSFERRED TO ANY OTHER PERSON.

PLACE AND DATE OF ISSUANCE: Chicago, Illinois - April 25, 1967

DATE AND TIME OF EXPIRATION April 25, 1972 AT THREE O'CLOCK A. M., EASTERN STANDARD TIME.

SPECIAL ENDORSEMENT:

EXPIRED

Federal Communications Commission

James Gordon Withers (Licensee) E. J. Gallagher (Secretary) Ben F. Waple (Chairman)

NOT VALID UNTIL SIGNED

Eventually I took the test and sweated out the notification period. Soon after, my "ticket" arrived. I was a broadcast engineer!

Well, not quite. I had the license, sure. But I lacked the knowledge that the license was supposed to represent.

I, like many other holders of this all-important piece of paper, was a Six-Week Wonder.

BECOMING A WONDER

Six-Week Wonders, and the schools that produced them by the thousands, were the direct result of the licensing requirement.

That requirement was valid enough. Broadcasting equipment had improved dramatically since the inception of commercial broadcasting in the 1920s; but even in 1967, 20 years after the invention of the transistor, transmitting equipment was almost exclusively built with vacuum tubes.

Unlike modern components, those failed often (mean times between failure were sometimes under 10,000 hours — only a bit more than a year of constant operation). On top of that, as tubes aged, they — and the components around them — drifted. If the air conditioning hiccupped, or the crystal oven heater burned up, your little 500-watt AM, which had been chugging merrily along right on frequency, would begin to wander up and down the band right along with the building temperature.

Although operators could legally control certain classes of broadcast stations with the more limited Third Class "Permit" (provided it included a "broadcast endorsement"), someone in the bowels of the commission correctly realized that it would be a good thing if every station had at least one person (and for some classes of station, one on duty at all times) who actually knew what to do when things went awry.

Presto: the First Class Radiotelephone License was born. But, as with most of these things, the whole process came with unintended consequences.

ENGINEERS IN DEMAND

In 1967, the Vietnam War was raging. That conflagration forced over a million young men into the service. (By 1968, I would be included in their number.) There weren't that many engineers with the "Ticket" to start with; this additional manpower drain left stations scrambling for people who possessed the all-important license.

The overall demand fueled a rapid growth in what were known as the "Six-Week Wonder" schools. These schools advertised in all of the broadcasting trade publications, and the message, like this one I copied from the March 2, 1967 issue of *Broadcasting*, was a simple one: "Elkins Radio License School of Chicago-Six weeks quality instruction in laboratory methods and theory leading to the FCC First Class License. Fully G.I. Approved. 14 East Jackson St., Chicago 4, Ill."

I was a six-week wonder.

Well, fine. I had already bought a book (which I still own) called "Electronic Communications" by Robert L. Shrader, and had been plowing through it, trying to work it all out. But the book was a ponderous thing, and I had no way of knowing which facts were critical. Did I need to know the rule for current and voltage through an inductor or a capacitor? Or both? Or neither? I gamely fought with it for a few months, but finally decided that I would be 90 before I mastered it all.

And then, an epiphany: How about letting the good folks up at the Elkins Radio License School in Chicago hypnotize me for six weeks? It seemed to me that was the only way to absorb so much information in so short a time. I enrolled, was accepted (presumably because the check cleared the bank, and I was able to sign the application) and was soon on my way in the DC-9.

Hypnotism, it turned out, was just about spot on. The advertising for the

school was accurate. The "quality instruction" did indeed lead to the FCC First Class License. The curriculum could take credit for that because, day after day, instructors addressed each and every possible iteration of every problem in the test question pool.

I learned that I did indeed need to know the characteristics of current and voltage applied both to an inductor and capacitor, and learned the way to memorize those: ELI the ICE man, which translates to voltage *E* Leads *I* (current) through an L (inductor), and *I* in a *C* (capacitor) leads *E*. After six weeks, I had no idea *why* that phenomenon was so, but I could tell you with absolute 100-percent recall that it was. And so, I passed.

THE FIRST GENERAL

The FCC got out of the First Class business in 1982, and replaced all First Phones with lifetime General Class Licenses as they expired. Those were issued as lifetime licenses, but are not required for any broadcast work. The SBE began its voluntary certification process in 1975, and certification by that organization is generally recognized as equivalent to (or better than) the old First Phone.

I have mixed feelings about the demise of the First Phone and the schools that "taught the test."

On the one hand, it was a bit of a farce. Anyone with the ability to memorize could get the license for around $400 and six weeks in Los Angeles, New Orleans, Dallas, Chicago or Minneapolis.

On the other hand, though, how many Six-Week Wonders went on to get jobs and to learn from people who really were engineers? My ticket gave me the chance to get a good paying job, first at a 5 kW AM rocker in St. Louis as a vacation relief engineer, and then as a staff engineer at WGEM(AM/FM/TV) in Quincy, Ill. Those jobs gave me the opportunity to learn from some extremely talented (and very patient!) engineers, and to move on and up over the years.

As I progressed, I went back to Shrader's book and learned all about voltage, current, inductors and capacitors and the like. The knowledge has served me well over the course of my career.

A first-class engineer? The young kid with the brand-new First Class Radiotelephone License issued on April 25, 1967 definitely was not that. But I like to think that over the next 46 years, I ultimately became one.

Jim Withers is owner of KYRK(FM) in Corpus Christi, Texas, and a longtime RW contributor. He has four decades of broadcast engineering experience at radio and television stations around the country.

WLIR

(continued from page 30)

popular Long Island station and to demonstrate how exciting radio can be.

Having interviewed many recording artists for the film, Goldfarb says most of them feel that radio has changed for the worse and that the days of taking chances on new music are over.

"WLIR was able to break so much ground by being able to take risks on bands that people never heard of, and the fans [of the radio station] really helped this process," Goldfarb says. "It's almost like the magic is gone, and it would be great to get that back."

The continued interest in WLIR is exciting to see. To find so much passion for a station that hasn't existed in more than 10 years is impressive.

The special bond made between WLIR and its listeners accounted for much of its success. Finding a staff that connects and encourages participation from the audience, as WLIR did, is what makes a radio station truly special. That form of broadcasting is rare in today's marketplace.

Some will argue that the music set WLIR apart from the rest. Others will say the talent propelled WLIR. The true meaning of WLIR was — and is — to take chances, to listen to your audience, and always "Dare to Be Different."

David Plotkin is the director of production and creative services for WINS(AM) in New York.

Develop Contracting Diversity

There's money to be made in putting your core competencies to work out there

CONTRACT ENGINEERING

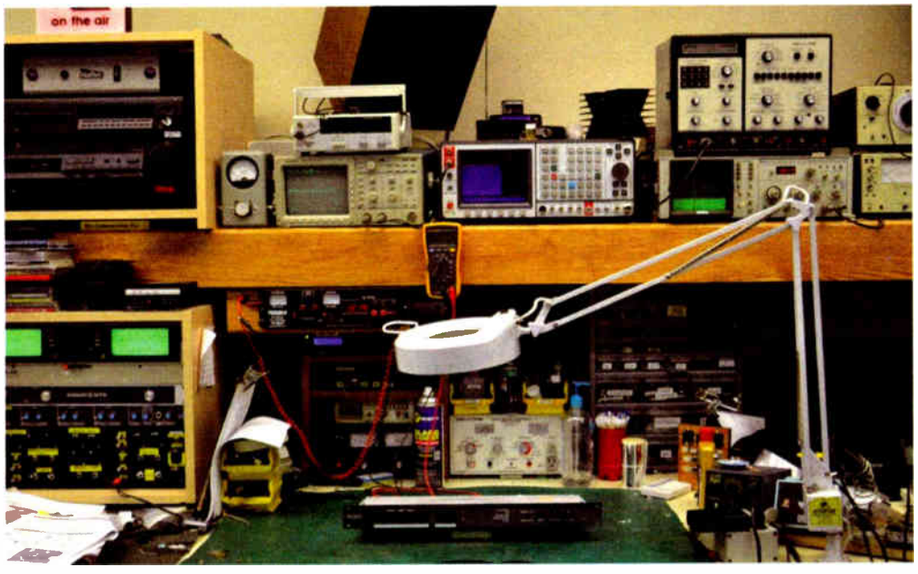
BY THOMAS OSENKOWSKY

A contract engineer operates his or her own business, and you are the president of your own company. A successful businessperson combines knowledge, professionalism and experience to realize profit. Clients will judge you based on your presentation, performance, knowledge and communication skills.

The knowledge and experience required to serve as a contract engineer have increased substantially over the years. Equipment may be more diverse, serving stations with varying budgets and technical needs.

A small AM station may still use a plate-modulated tube transmitter, satellite-delivered programming and digital automation system. The technologies in such an operation span almost a century.

However, the test equipment and tools necessary to effectively maintain and troubleshoot broadcast gear have also diversified. In times past, a Simpson 260 VOM, pair of high-impedance headphones and an oscilloscope mostly satisfied the needs of daily troubleshooting. An audio oscillator and distortion meter were required to conduct audio proofs-of-performance. The FCC requirement for audio proofs is history, and test gear necessary to evaluate Cat-5/Cat-6 cable or network activity, perform FCC-required AM emissions measurements and set up satellite dishes properly is almost mandatory. This equipment represents a considerable capital investment.



Test equipment for troubleshooting and repairing broadcast gear

CORE COMPETENCIES

In addition to the test gear required to service the various equipment encountered in today's broadcast station, the knowledge and experience to use and interpret the results competently are key.

Vacuum tube and transistor technology is barely mentioned in today's electronics technology curriculum, yet many stations still use them on a daily basis.

IT is an important core subject, and it is pertinent to satellite receivers, modern transmitters, audio consoles and distribution systems, telephone systems — in general, it affects most employees in a broadcast facility. We depend on the Internet for news, audio transport, traffic logs, EAS, email and facility control. It is essential to daily operations.

Some engineers also have experience in specialty disciplines. These include, but are not limited to, digital studio design and maintenance, transmitter maintenance and repair, remote broadcast facilitation, audio/PA system setup and equipment rentals, multi-user tower site management, analog audio equipment and the various facets of information technology and network operation.

Tester used to evaluate copper and fiber optic cables

SUPPLEMENT YOUR SALARY

Diversifying your expertise can provide sources of additional income. You might negotiate a rate with state broadcasters associations to provide annual FCC required emissions measurements for AM stations and for FMs with recently changed facilities. This assumes that the engineer owns or rents a spectrum

(continued on page 34)

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CONTRACT

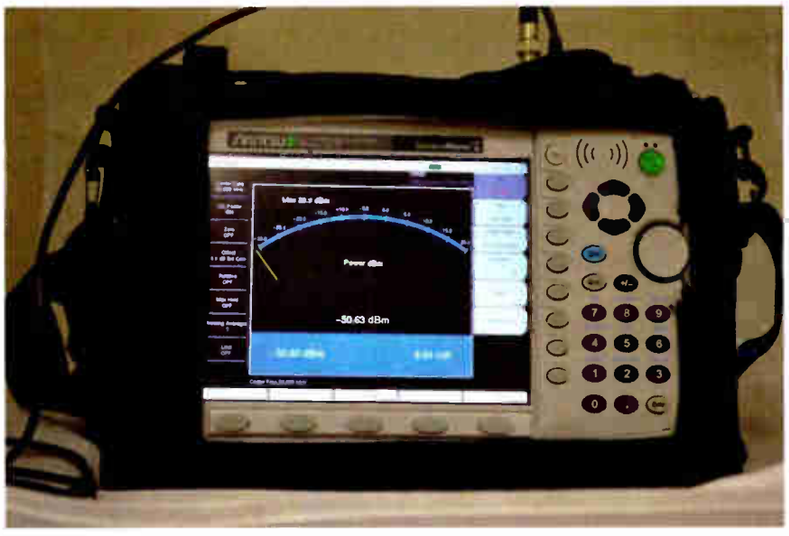
(continued from page 32)

analyzer with appropriate specifications.

You can develop income by performing due diligence inspections; conducting equipment inventory for owners; managing tenants on station-owned towers; and renting out and installing remote broadcast equipment.

Contract engineers also can explore possibilities outside their normal realm of broadcast facilities.

Some possibilities include audio/video equipment rental and setup for presentations at company meetings; equipment breakdown and inventory for repossession companies; telephone installation, setup and maintenance; and PA rental and setup for carnivals and fairs. Professional sound/video installation for commercial and private venues, houses of worship and small arenas such as skating rinks are non-traditional sources of revenue.



Power level display shown on spectrum analyzer

In broadcast work, noncommercial stations, such as those at educational institutions, usually have simpler needs and are diligent about paying invoices. Depending on your skills and experience, you may be able to integrate as a part-timer in their A/V or IT department.

Internet stations require technically skilled professionals, particularly in the IT space. At most, these streamers typically use audio mixer and playback equipment, like a turntable, CD player and microphone. Nonetheless, such operations can benefit from the experience of a broadcast engineer who is familiar with ergonomic studio setup, audio storage and processing.

Once you've crossed that bridge, the advice of an attorney and/or CPA is most valuable. If you incorporate, should you do so as an LLC or LLP? And what type(s) and amounts of insurance should you carry? Offering services to the general public may require state licensure and/or registration with your state tax collection agency. These are questions where getting professional advice is essential.

A contract engineer should not limit his or her practice but diversify, to take advantage of all available opportunities to maximize income.

Tom Osenkowsky is a radio engineering consultant in Brookfield, Conn., and a longtime RW contributor. He has been in the radio broadcast industry since 1975.

Comment on this or any story. Email radioworld@nbmedia.com *with Letter to the Editor in the subject field.*

Spectrum analyzer display of amplitude modulated carrier at 1490 kHz

Spectrum display of LNB output at satellite dish

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They Help You Outsource Local News

Virtual News Center was founded in 2005 by a news anchor/Internet entrepreneur

PROGRAMMING

BY KEN DEUTSCH

It's not unusual for broadcasters to rely on outside suppliers for talk shows, voice-tracked announcers, format consultation and even contests. But if the bedrock of a good radio property is its local news, weather and sports, as many argue, how could anyone outsource these services?

"Even ten years ago it would have been difficult," said Scott Roberts, 49, founder and executive vice president of technology for Virtual News Center, a company that provides exactly these features on a customized basis for some 200 stations in 150 U.S. markets.

"It's partly due to the wide availability of broadband Internet," he said. "We can easily have content redistributed in MP3 format via file transfer protocol, and we can deliver it in near-live time. We provide traffic in some markets, and it's sent to the station two minutes before it airs."

Roberts started in radio as a high-school sophomore in Pratt, Kan., playing spot inserts for Kansas City Royals baseball broadcasts. He has been a radio operations manager; a broadcast journalist; an emergency medical services dispatcher and EMT; and an Internet entrepreneur who owned Web hosting and design businesses. Virtual News Center is his fifth startup, "the one that's developed the most staying power," he said.

Said Jeff Singer, operations manager for KVOT(AM), DMC Broadcasting in Taos, N.M., "With downsizing, everybody is trying to find a way not to hurt the station or the listener. We found that Virtual News Center fills a major hole for us."

One of Virtual News Center's freelancers, Dave Alpert, sits at his home studio.

Dave McBride's "Radio Boynton" in Boynton Beach, Fla., has an effective bare-bones setup.

Stations can obtain their choice of anchor voices, and anything from three localized newscasts a day to hourly reports around the clock, and this service can cost between $500 and $5,000 a month, depending on the quantity of material.

"Generally, we are about one-third to one-half the cost of a fully-burdened staffer, including benefits," said Roberts.

The company bills in excess of half a million dollars annually but is itself decentralized. Roberts is in Wichita, Kan.; news director/partner Jen Austin resides in Dallas; and another partner, Joel Dearing, is based in Indianapolis. If a client station requests that its news be delivered in Spanish, a group of talent in the Dallas area can handle that.

So how can news be localized for a specific market while the people preparing and delivering it may be thousands of miles away?

Dearing, 58, is executive vice president of business development and a four-year veteran of Virtual News Center.

"If there is a breaking story, we have a couple of avenues," he said. "Obviously, we are as good as the local people want us to be. So if they see there's a big story, they pick up the phone, text or email us, and we jump on it. In some cases, we can put a scanner in the market and feed that information back to us. That would be an added service for the station, monitoring the scanner during certain hours. We don't handle international news, and national news is on a very limited basis. What we cover by various means is the local content, the fires, the county government, the school board; and we dig for it."

FEET ON THE GROUND

"When selling new stations we get one question over and over," said Roberts. 'How do we handle something like city council?'

"There are two answers, the first of which is you keep local feet on the

ONE PLUS US

Roberts feels customers get the best results by combining their resources with Virtual News Center's service, in an arrangement called "One Plus Us." He provided the example of KIRX(AM) in Kirksville, Mo.:

"We're part of the news flow of the market, receiving all the email and faxes that come into the newsroom. Among them are the detailed meeting notes for the city council meeting. We do preview stories from those handouts, just like a person in the market would.

"KIRX sends a part-timer or an intern to the meeting, and they'll grab a community member, the city manager or a council person in the hall after the meeting and do a quick interview. Often, they will edit the audio and write a story around it; this gives a training opportunity where we can guide them to better storytelling skills. Then our anchors use the followup story and audio clips the morning after the meeting.

"It's the same cycle the story would have taken with an in-house news person, only streamlined in a way that lets each part of the process play to its strengths."

street, like a sales person, an intern or a part-timer, who gets the audio and ships it back to us. The second answer is we can do next-day coverage by calling in. If you want it first thing in the morning, the legitimate way to cover that is to have a body there. We call this solution 'One Plus Us.' It's a way stations can keep its mic flag in people's faces and increase the quality and consistency of the newscast" (see sidebar at left).

FREELANCE FLEXIBILITY

Virtual News Center relies on a growing network of freelancers. Currently, the company uses 28 anchors and three people dedicated to gathering and reporting news. While this offers flexibility to its part-time employees, it also presents some challenges.

"If we bring the right people in the door, then things go really well," said Roberts. "But who doesn't occasionally make a mistake in hiring? The depth of our bench allows us to very quickly make a change as needed."

And how does management keep in touch with the far-flung voices and news gatherers?

"A virtual environment is much different from face-to-face," he said. "You don't have an opportunity for water cooler chats. You don't get to have that quick 'all-hands' meeting. We are dealing with people in multiple time zones that have other jobs. We sometimes use video conferencing and recorded presentations for them. But it's really vital that they understand the difference between being an independent freelancer and a full-time employee. We want our people never to think in terms of 'that's not my job.' That's a meaningless phrase to us. We want our freelance talent to have an entrepreneurial spirit.

Don Murley's home studio in rural Pennsylvania rivals those of many radio stations, including an interview area and seven video/audio production computers.

"Our people are paid by the number of minutes of finished material they produce," he said. "And our typical anchor works about two to three hours a day. We like to have our talent working for the same stations week after week. If you look at the workflow on a bar graph of a dollar, the gathering and writing are the most expensive. Voicing news is a smaller percentage."

Don Murley is an anchor who spends between three and four hours a day creating newscasts for stations in 12 markets.

"Virtual News Center has given me the opportunity to utilize my radio skills as an announcer, writer, editor and producer, and keep in touch with the 'business,' without going into a radio station every day," he said. "I find it best to work with multiple monitors because you need to have several programs open at one time."

Virtual News Center offers a menu of services including Web-only content, Web plus broadcast or even written newscasts that can be delivered by local station voice talent. The company uses proprietary software created by Roberts that enables easy two-way communication with its clients.

"We try to be a partner with the station in getting things done the way they want them done," said Roberts. "The most successful stations are those that treat us like we're in the building. It's not 'set it and forget it.'"

In an age of voicetracking, many in radio view the use of distant talent as

(continued on page 39)

Our Free FB Ride Is (Nearly) Over

Stations may need to reevaluate the costs and benefits of organic reach in 2015

PROMO POWER

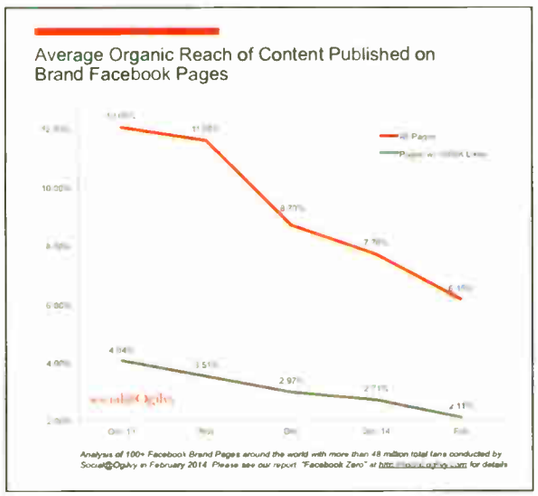
Mark Lapidus

The Internet is supposed to be free, right? Wrong. This naïve thinking has been around since dial-up modems.

The latest incarnation to surface involves Facebook actually having the nerve to charge companies for advertising! Imagine that ... one of the world's largest digital assets wants to be compensated by companies that have been using it for free to sell products and services.

In case you haven't heard, Facebook hero-to-zero is coming fast.

If your station and its personalities have been posting regularly on Facebook, you have certainly noticed that your organic reach has been consistently dropping since 2012.



Courtesy Social@Ogilvy

If you're not already doing so, please look at your totally free Facebook Insights. Your Facebook audience has been getting smaller, but it may still be worth the effort because, depending on your fan base, you could still reach hundreds or even thousands of people with every single post.

Those days are nearly done. Don't know what I mean? Let's, as our prez says, "be clear."

Facebook defines organic reach as "the total number of unique people who were shown your post through unpaid distribution." In other words, you post a message and tons of people see it in their newsfeeds. This has enabled our industry to drive listening and attendance at our events and to showcase our content.

PAY-FOR-PLAY

But here are the sad facts of life that companies are beginning to learn from Facebook: Reach via Facebook will soon be zero unless you start paying for it.

That's right, social media fans — I said zip, nada, nothing. This could happen as soon as the end of 2014.

Feel free to whine about the fact that Facebook sold you a bill of goods when they pushed you toward building your fan base.

But you may have to admit that it's a bit unusual in the media world to offer free access to consumers. Even non-profit, public radio and television expect companies to cough up the cash to underwrite shows.

So why do we feel bad about Facebook asking us to pay to reach their audience? Perhaps it's that we are media people ourselves and didn't see it coming.

It is also only natural for us to feel like our audience on Facebook is "ours." We begged, cajoled, rewarded and sometimes even spent money with Facebook in the mad rush to obtain "likes" from our listeners. How many thousands of times have you encouraged listeners on the air to join your Facebook page? In fact, we justified the juice we offered on-air by bragging about how many "likes" we obtained from our broadcast audience.

We feel as if we own those people, but of course, we don't. The terms of service make that clear to anyone who can stay awake long enough to read it.

MAKE IT COUNT

What's a broadcast outlet to do? If we truly believe Facebook is an effective tool to generate tune-in and activate promotions, events and contests, we have to put a line item in our 2015 budgets to purchase paid, guaranteed reach. Then we have to spend some serious time on the creative we put in the posts to be sure it's effective every time.

In the meantime, check Facebook Insights weekly to better understand your organic reach. You may be cool with continuing life as usual for a while. However, as you watch your organic reach tumble, you will no doubt reach a point when you realize that it's a waste of time to post anything you aren't willing to advertise on Facebook.

Is it time to invest more time in Twitter, Instagram, Pinterest, Google Plus, YouTube and others? Sure, if you have the proper resources (people, content, money), you may reprioritize your efforts. It is possible though that using paid reach on Facebook will ultimately be cheaper. You've gotta do the math and not let your feelings about having to pay Facebook get in the way.

Also, before chasing a new tactic for "free" media reach, just remember that every one of these social media companies must generate profit to stay in business. What's free today will, at some time, require you to open your wallet in the future.

In social media, the all-you-can-eat free buffet line is slowly — but most assuredly — ready to put you on a pay-for-play diet.

The author is president of Lapidus Media and a longtime contributor. Email marklapidus@verizon.net.

OUTSOURCING

(continued from page 37)

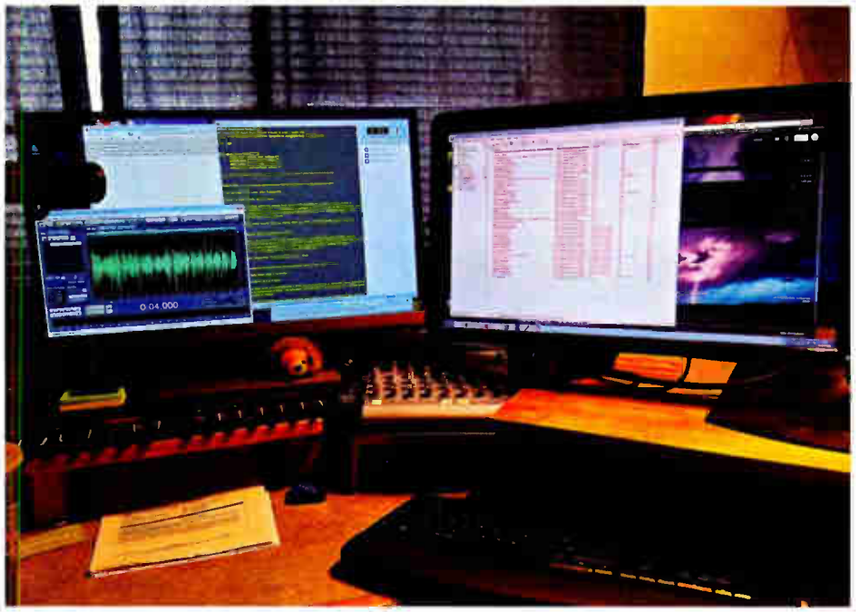
counter to true localism: so the outsourcing of news as practiced by Virtual News Center might seem even less local.

"This is an objection that's been raised since we started doing this in 2005," Roberts wrote in a followup email to Radio World. "We've done some informal surveying on this topic, and our panelists have returned the same response consistently: *Where* the person reporting the news happens to be is much less important to them than the *content* of that newscast."

Virtual News Center (*www.virtualnewscenter.com*) is also available on a barter basis in some markets.

Comment on this or any story. Email radioworld@nbmedia.com.

Ken Deutsch is a seasoned broadcaster. He says that unfortunately his season was when paisley ties were popular. He has written for Radio World since 1985.



Virtual News Center's News Dashboard software records a newscast for WENG(AM), Englewood, Fla. The software manages written copy and audio clips for each of the company's markets; it includes editors for news stories and newscasts, and a prompter module to allow newscasts to be recorded as-live. It handles FTP upload and sharing among anchors and reporters.

THE GEAR

Virtual News Center founder Scott Roberts often is asked by freelancers what kind of gear they'll need. He provides these recommendations:

MINIMUM EQUIPMENT:

- PC (desktop or laptop) running Windows 7 or later, anything built in the last four years is more than enough, 4 GB RAM recommended. Cost $169 (example: Professional Dell 745). Monitor is extra.
- Microphone. $49 (example: Blue Microphones Snowball iCE Condenser Microphone, cardioid) Of course, some way to get the audio into the computer is needed, too. If one doesn't have a USB mic or a mixer, there are a number of USB interfaces that will work. I record into a Marantz PMD660 when I travel and have a USB mixer at home.
- Audio editing software. Audacity is free; there are several higher-cost options

RECOMMENDED EQUIPMENT:

- PC $169
- Monitor: $129 (Example: Asus VS228H-P 22-Inch Full-HD 5 ms LED-Lit LCD Monitor)
- Studio microphone (several of our people use EV RE20s and the like; I get great results with a $100 Sterling ST-51)
- Mixer: $105 (Example: Alesis MultiMix 4 USB FX 4-Channel Mixer with Effects Plus USB Audio Interface)
- Boom: $35 (Example: Neewer Broadcast Studio Microphone Suspension Boom Scissor Arm Stand with Shock Mount and XLR Male-to-Female Cable)
- Shock Mount: $16 (Example: Black Universal Microphone Shock Mount for Large-Diameter Condenser Mic Metal)

He adds: "Software-wise, we have a proprietary copy management system, which I wrote. I install that remotely for our freelancers during the setup phase. We recommend using Website-Watcher (*http://aignes.com*) to monitor Internet sources. It costs $50, but will save at least that per month in time spent checking for updates on websites. We also recommend using a browser other than Internet Explorer, and at this point, we are a PC-only shop. Mac users have to run Windows via Parallels, Bootcamp or the like in order to work with our software."

Android for Newsies? There Are Apps for That

Wherein the Warrior looks beyond iOS devices when stuffing his kit

RADIO ROAD WARRIOR

Columns are archived at radioworld.com

BY PAUL KAMINSKI

One of the trends in the way radio news is produced, edited and transmitted involves the Apple operating system (iOS) and its associated devices (iPads, iPhones, etc.). For example, Jeff Gilbert of WWJ(AM) Detroit and CBS News, Radio produced his coverage of the 2014 North American International Auto Show with an iPad.

There are so many hardware and software goodies for newsies that it seems iOS devices are the only such devices that can be adapted to radio news work. Not so fast.

Android devices have enough power to edit and transmit audio, especially those with the 2 GHz processors, like the Google Nexus tablet, and devices such as the Samsung Galaxy S4 smartphone. I have both and have experimented with some apps and audio inputs to customize those devices for what I do in semi-retirement (one never quite retires as a newsman).

GO

There are different ways to input and process audio with an Android device, like the KV Adapters XLR female and 3.5 TRS jack (Fig. 1) I featured in a past column (Radio World, Feb. 1, 2012)

If you want to lighten the load, Dayton Audio's iMM6 (Fig. 2) gives you a measurement-grade omnidirectional microphone (18 Hz–20 kHz) and a standard mini stereo headset jack (picture Fig.2). Due to its design, the iMM-6 adapter can act as a mic stand if the reporter has to mic a table without a mult box (however, that means the headphone jack acts as the stand for the phone, and can't be used.) The iMM-6 can be found at Parts Express (*www.parts-express.com*), part number 390-810, for well under $20.

Some cautionary notes: Not all tablets have combined microphone and headphone jacks like the one on the typical cellphone or smartphone. Like the number of tablets available, each seems to have a different way to get sound in and out of the tablet. Although most smartphones are wired for the four-pole tip-ring-ring-sleeve (TRRS) convention, some, like the Motorola Droid line, are not. The kV Connection (*www.kvconnection.com*) website is a great resource for finding out which jack will fit what phone.

My Google Nexus 7 FHD (made by Asus) only has a 3.5 mm TRS stereo headphone jack and relies, like a smartphone, on a built-in electret microphone for a basic audio input, which will work OK with a set of 3.5 mm stereo headphones, for live shots and two-ways. If the task calls for more critical recording and editing of audio, here's the workaround on the Nexus.

Fig. 2: Dayton Audio's iMM-6 is actually a microphone and headset jack.

Fig. 1: KV Adapters XLR-3.5 TRS Adapter

I downloaded two linked programs from the Play Store, USB Audio Recorder Pro (Fig. 3) and the Audio Evolution (Fig. 4) multitrack audio editing program. The USB Audio Recorder program has a proprietary driver that will bypass the onboard microphone and headset jack, and interface an outboard USB audio device (like the MXL USB Mic Mate Pro [Fig. 5]) to which a microphone and headphones can be connected. This driver will only work with USB Audio Recorder Pro. Both of these programs are available in ad-free versions for under $20 for the pair. There are free versions of these apps, but free versions have ads, and the resulting links. The paid version dispenses with those links. And the support is much better than might be expected.

Fig. 3: USB Audio Recorder Screenshot

Fig. 4: Audio Evolution Screenshot

What is nice about the Android Play Store, is that when you buy an app for, let's say your smartphone, the app will show up as one of your apps on any related Android device and you can install that usually with no additional fee. So the Audio Evolution program now resides on my Android phone as well as the tablet.

Some tips here: With most of these devices, make sure the headphone jack contacts the input jack securely, almost to the point of a hard push into the socket. When connecting any USB device to a tablet or other host-enabled device which will recognize a USB connection, look for a cable that is plainly marked OTG (on the go) (Fig. 6). The shorter, the better.

Fig. 5: Google Nexus with MXL USB Mic Mate Pro

Fig. 6: An OTG — On the Go Cable

For news people who may be in an unfamiliar area but need to get up to speed on local situations quickly, the Scanner Radio Pro app ($2.99) has streaming links to many public safety scanners, some National Weather Service radio stations and even the occasional amateur radio repeater.

CAUTION

Another caution: Some tablets like my Nexus 7 FHD are only Wi-Fi; therefore, when using those units, reporters need to look for a hot-spot or infrastructure Wi-Fi connection unless it can be tethered it to a smartphone with a data plan. If traveling with such a tablet, make sure the smartphone data connection is protected with the proper security precautions (like WPS connection, etc.), If the smartphone has sufficient memory, it too can be used to process and edit audio. As for memory, if your tablet is limited in memory to onboard RAM like my Nexus 7, use the OTG cable and plug in a properly formatted USB drive. For those using smartphones and tablets with a micro SD card slot, my advice is to find and use a micro SD card of at least 16 GB; 32 GB is much better; 64 GB is about the max. I tell you this from painful experience.

Some paid apps like Luci Live Lite (*www.luci.eu*) will help tablets and Android smartphones interface with G.722 codecs. Also called HD Voice, it's an international standard that will pass audio 50 Hz–7 kHz. And newer versions of the Android OS have the capability in some apps to process audio with a 16-bit/48 kHz sampling rate.

There are other apps available from the Play Store (some of which are free) that will make a connection using a G.722 codec. One such is CSipSimple, which is suggested by Comrex as an interface with its Access IP codec.

Tieline has apps that will help devices interface with its equipment as well.

Whichever app from the Play Store you choose to act as a virtual codec, make sure your operations people, engineers and IT are onboard with your choice so they can make sure the software is compatible and safe and that proper precautions are taken to protect the integrity of the facility's system. The release and use of Android applications is a moving target; frequent visits to the Play Store for updates and to see what is available will help you. You will also be doing a lot of what I call "menu diving" to optimize the programs and hardware to work efficiently. The time you spend doing this, and getting familiar, will allow you to do things more quickly under conditions which dictate that you do.

You could be able to reduce the amount of gear you carry into the field by using Android OS tablets and smartphones; you might use those Android pieces as off-duty backup, or you may use them to complement the standalone gear you already use to record news sound. The extra capability could spell the difference between getting that memorable bit of sound and explaining to the assignment desk why you couldn't.

Radio Road Warrior Paul Kaminski, CBT, is host of msrpk.com's "Radio-Road-Test" program. He is a member of SBE Chapter 1 and an occasional contributor for CBS News, Radio. Follow him on Twitter @msrpk_com.

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I'm looking for San Francisco radio recordings from the 1920's through the 1980's. For example newscast, talk shows, music shows, live band remotes, etc. Stations like KGO, KFRC, KSFO, KTAB, KDIA, KWBR, KSFX, KOBY, KCBS, KQW, KRE, KTIM, KYA, etc, I will pay for copies... Feel free to call me at 925-284-5428 or you can email me at ronwtamm@yahoo.com.

Looking for a broadcast excerpt of a SanFrancisco Giant's taped off of KSFO radio from 1959, interviews with Willie Mays, Dusty Rhodes & some play by play excerpts, also features a homerun by Willie Mays and Felipe Alou stealing second base, running time is 18:02, also looking for SF Giants games and/or highlights from 1958-1978 also taped off KSFO Radio. Ron, 925-284-5428 or ronwtamm@yahoo.com.

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Looking for KTIM FM radio shows from 1981-1984 if possible unscoped. R Tamm, 925-284-5428 or ronwtamm@yahoo.com.

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Anderson: I Come in Peace

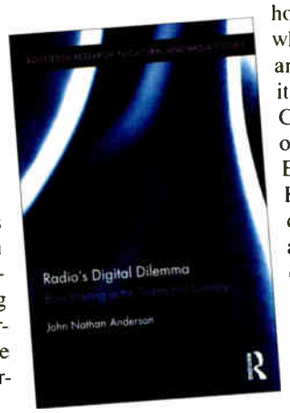
Broadcast activist explores the potential and pitfalls of HD Radio

DIGITAL

BY JOHN ANDERSON

The writer is author of the recently published book "Radio's Digital Dilemma: Broadcasting in the Twenty-First Century."

After spending several years assembling the definitive history of HD Radio's development and proliferation, I've learned some uncomfortable truths.



It is indeed true that the system was developed primarily as a gambit to preserve the radio industry's perceived control over its own destiny. It is also true that industry organizations and the FCC had to perform some substantial convolutions, like actively redefining what "channel" and "interference" mean, to accommodate HD Radio on the public airwaves.

The FCC itself, wholly focused on the economics of policy-making above all else, erroneously interpreted the coalition of HD proponents — a group that controlled the majority of industry revenue in critical alliance with public broadcasters — as industry consensus. And iBiquity's business model, ripped straight from Microsoft's playbook, killed any natural enthusiasm most broadcasters might have otherwise had for HD Radio.

Here in the pages of Radio World, there has been a relatively vibrant discussion of digital radio over the last two decades. You can watch the tenor of stories and commentaries evolve over time, from dreamy optimism to anxious skepticism. Now the discourse is horribly polarized: Those who speak highly of HD are all-in and consider its triumph inevitable. Critics of the technology seem to think it's the End of the World As We Know It — a conspiracy of sorts designed to assimilate all broadcasters under one corporate mothership. Supporters call critics "haters" and "naysayers," while critics think supporters are "shills" or worse.

Meanwhile, in the quarter-century since Project Acorn took root, the very definition of what radio itself is has been fundamentally transformed, and there's a lot of collective handwringing about what that means. One thing is clear: HD Radio is not the primary avenue by which broadcasting will make its digital transition.

By this point, you've probably

labeled me an HD hater or naysayer.

But you're wrong: I love radio and have been involved in broadcasting since I was 15. That love transcends your industry. When it comes to HD Radio, what I am most concerned about is the malaise that surrounds it, and how that malaise actively interferes with radio's digital transition more broadly.

Whether you are a lover or hater, you can't ignore the malaise, and nobody's happy with the status quo.

In my book, I highlight three possible avenues for change.

COMMIT TO MAKING HD RADIO "WORK"

The IBOC transmission system is built on a series of compromises that dramatically limits its attractiveness and utility. The fact that it works at all is a significant accomplishment in and of itself. Some of these compromises might be rectified in HD's all-digital mode — but even then, nobody expects a quantum leap. Other compromises can be wholly reversed today. For example, iBiquity's business model is not a force of nature, and has strangled innovation.

Making HD Radio "work" could mean many different things. It might mean committing to an all-digital transition, because marketplace forces alone are not working. It might mean reconfiguring the primary motive of HD to prioritize meaningful functionality over chimerical profitability. It might also mean considering technological tweaks to the system that exist outside of iBiquity's black box.

Regardless, any efforts in this direction must be built on open and transparent collaboration — the past practice of closed-door testing and deliberation among select industry and regulatory players has produced bad science and bad blood. If the hottest fire makes for the strongest steel, then HD proponents should embrace creative thinking and a wider discourse. What is there to lose?

CONSIDER ALTERNATIVE DIGITAL BROADCAST TECHNOLOGIES

In the FCC's ongoing AM revitalization initiative, a surprising number of commenters suggested the agency consider Digital Radio Mondiale as a digital broadcast system alternative. DRM faces many implementation challenges of its own, and does not offer a hybrid mode. But it does provide a qualitative improvement to analog broadcasting that HD struggles with, and comes with no silly licensing-baggage attached.

The stated position of the FCC is to deny that HD alternatives even exist, and HD proponents would perceive any sharing of spectrum with another system as dangerous balkanization that diminishes their investments. But this is not the 1980s and AM stereo all over again; interoperable digital radio transmitters and receiver chips exist. Countries in Europe that began their digital radio transition with DAB but are now moving to DAB+ have figured out the retrofit process. Such a consideration need not be the death knell of HD Radio — it could be just the sort of competitive jolt the system needs.

PREPARE TO CEDE THE PUBLIC AIRWAVES

There's no guarantee that AM and FM radio will exist indefinitely.

Just ask television broadcasters: Today, the value of DTV spectrum as a medium for something other than broadcasting supersedes its legacy use, which is why the FCC seeks to reclaim wide swaths of it. This is not some radical notion from the ivory tower: in 2011, NAB President/CEO Gordon Smith told Radio World that while there was no immediate similar threat to radio, "If they can do it to your neighbor, they can do it to you eventually."

New technologies and networks simply cannot replicate the intimacy, immediacy and reach of broadcasting; yet its potential diminution has implications that most futurologists, enamored with the new, haven't fully grasped. Better to control that evolution than to suffer it because of bad strategic decisions made a long time ago.

I'm attending the Radio Show in Indianapolis in hopes of having some interesting conversations on the future of radio and its digital transition. I'm not interested in perpetuating the love/hate dichotomy. I come in peace. And I'm as curious and concerned about the future of radio as you are. Let's brainstorm.

Comment on this or any story. Email radioworld@nbmedia.com *with "Letter to the Editor" in the subject field.*

John Anderson is the director of broadcast journalism at Brooklyn College, City University of New York. His book "Radio's Digital Dilemma: Broadcasting in the Twenty-First Century" is published by Routledge. A former radio journalist with both commercial and noncommercial experience, he's been writing on issues of broadcast policy and activism since 1997 at http://diymedia.net.

READER'SFORUM

BUREAUCRATIC PROBLEMS

Photo by Bob Kovacs

Amateur radio works in the aftermath of an emergency precisely because it's so decentralized ("Hams and Uncle Sam Grow Closer," *radioworld.com*, July 21). I'm a little concerned that closer cooperation with government brings bureaucratic problems to amateur radio.

For example, it takes days to clear debris from roads and to inspect bridges so that large FEMA trucks can get into the disaster area. Local hams driving relatively lightweight passenger cars and light trucks, armed with local knowledge and very flexible communications systems, can physically get where needed and establish communication for health and welfare traffic. Hams help most by helping survivors get in touch with family members when normal means of communication are not working.

It would be a shame if the ham response was slowed down to the speed of government.

George Bednekoff

An Outsider's Perspective

How to solve the puzzle of radio's future in the United States

COMMENTARY

BY ALAN HUGHES

The author has published technical articles on digital radio and lives in a city served by DAB+ digital broadcasting.

The United States can solve the interference and coverage problems in HD/AM/FM using DRM+ in the vacant analog TV Channels 2–6. This will mean all broadcasters can be selected by name and not a number.

An outsider can see that in the United States there are 4,721 AM stations, which share 117 medium-frequency (MF) channels.

AM is suffering from poor sound quality with increasing noise from arcing sources and transformerless power supplies. There is no domestic high-frequency (shortwave) broadcasting. There are also 10,704 high-powered and 814 low-power FM stations, and this number will soon rise to a maximum of 16,239 transmitters, as when AM broadcasters can add an FM transmitter to areas of poor coverage, all of which share the 100 available FM channels.

HD Radio in its FM/digital mode has a 98.4 kbps main digital audio channel, which is sufficient for good quality audio, but its 20.2 kbps used for its supplementary audio such as HD2 and AM digital audio is poor for music.

EXISTING PROBLEMS

The digital coverage area is less than for the AM and FM signals, with the supplementary channels being even smaller. This causes the receiver to blend the main digital and analog signals when the reception is poor, and when it becomes poorer still, the FM stereo blends back to monophonic. HD2 channels just drop out under these conditions. Added to this, pre-emphasis is required prior to FM transmission, which means that the sharpness of loud sounds is reduced in processing.

The digital component of the transmitted signal interferes with the adjacent channel either side of the main channel. This causes interference, particularly bad in HD AM at night.

There are no "on-channel repeaters" for HD Radio to fill pockets of poor reception because they only work for purely digital signals. FM translators have to be used, and they transmit on a different frequency than the main station.

Cell phone and Internet broadcasting is on the rise; however for broadcasters, the price skyrockets as the number of simultaneous listeners increases. It would appear that relatively few cell phones and tablets contain an enabled radio receiver; this is not the case outside the United States.

The U.S. has only 39 low-powered DTV transmitters in Band 1 (Channels 2–6) and 426 in Band 3 (Channels 7–13).

THE SOLUTION

The current problems of comparatively small digital coverage areas, interference, poor sound and overcrowding are solved by using pure digital transmission system(s), where they are surrounded by similar digital signals of approximately the same power and type.

This means that the appropriate power for the coverage area can be specified by the FCC. Listeners will then receive a perfect signal more often without a reduction of coverage area.

Digital Radio Mondiale can operate at any frequency below 108 MHz. The DRM+ version shown in Fig. 1 can carry a single 128 kbps high-quality audio program, a pair of 64 kbps music programs or multiple talk programs along with other data. It is configurable by the broadcaster.

Digital Audio Broadcasting Plus can carry up to 18 x 64 kbps music programs. It is also configurable as to what you broadcast. In both systems all program and data has the same coverage area.

DAB+ would have to share spectrum with digital television's Channels 7–13. DRM+ can use the vacated analog TV Channels 2–6. The FCC will need to investigate if 47–50 MHz is being actively used, and finally once pure digital radio is well established, it can release the FM band to DRM+.

DRM+ would occupy a "greenfield" piece of the spectrum. Each channel is 100 kHz wide, which is a quarter of that occupied by an HD Radio signal on the FM band. The available data rate, which is selectable by the broadcaster, is between 37.2–186.3 kbps. The selected data rate will depend on the transmitter power, the diameter of the coverage area, the terrain and the number of on-channel repeaters. Antennas in DRM are vertical (at right angles to the horizon), which makes vertical vehicle antennas omnidirectional. There is one transmitter per broadcaster and is capable of high-quality surround sound, pictures, text, traffic data, etc.

DAB+ Channels 5A–10D as well as 11B makes 25 transmission channels carrying up to 18 x 64 kbps stereo sound channels each. This is a total of 460 programs, although some of those 64 kbps streams may be used for advertising pictures and traffic data instead. DAB+ Channels 5A–10D would have to share with television. The TV transmissions have the antenna elements horizontal, but DAB+ uses vertical antenna elements. The different polarizations allow transmitters on the same frequency to be closer together in distance without causing interference. A pair of 50 kW ERP DAB+ transmitters on the same transmission channel must be separated by at least 336 km (208 miles).

In both the above systems, the entire signal is at the same power, and there are no broadcast licence fees. The device manufacturer pays the patent based on device sales, e.g. royalties to Dolby for the use of the HE AAC+ compression system.

By comparison, the all-digital HD Radio in the FM band has a data rate of 24.8–99.3 kbps, but the secondary channel is of lower power. All-digital HD AM also requires the transmission of a high-powered carrier which contains no information and increases the transmitter's power costs. This does not occur in DRM or DAB+. The compression system is secret, so a sound quality comparison, with Dolby's HE AAC+ has to be subjectively tested at a range of data rates to see which sounds better. HD Radio channels overlap each other, whereas DRM+/DAB+ do not, which allows an adjacent channel to carry another program even in the same coverage area, even on the same antenna.

The dark blue frequencies would be ideal for areas of low population den-

(continued on page 46)

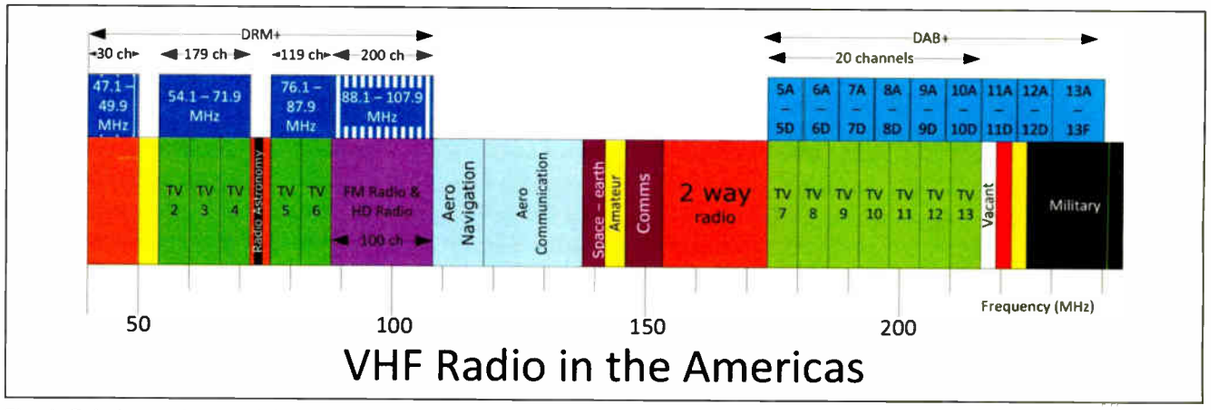


Fig. 1: Existing and potential spectrum available for broadcasting. Note top labels. DAB+/DRM listeners do not need to remember frequencies or channel numbers, just the broadcasters' names.

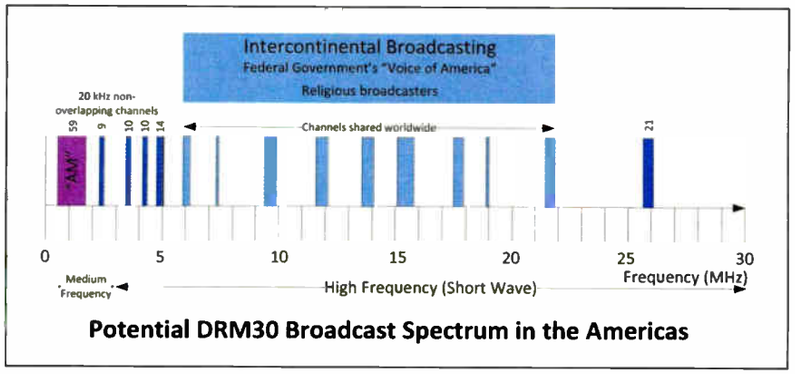


Fig. 2: The frequencies above use amplitude modulation (AM). DRM30 can replace AM, giving clear, interference-free stereo sound even in the HF (shortwave) bands.

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34	Ram Broadcast Systems	www.ramsyscom.com
33	RCS	www.rcsworks.com
16	Sandies	www.sandiesusa.com
39	Stormin Protection Products	www.opticshield.com
9	Tieline Technology	www.tieline.com
2, 24-25, 48	Wheatstone Corporation	www.wheatstone.com
41	Wide Orbit	www.wideorbit.com
23	Worldcast Systems - APT	www.worldcast.com

PURE DIGITAL

(continued from page 45)

sity, such as Alaska, Wyoming Montana, the Dakotas, New Mexico, Idaho, Nebraska and Nevada. Satellite and HF radio transmissions in Alaska are occasionally affected by aurora borealis, which will cause digital signals to breakup or be absent.

DRM30 can be used in the medium- (AM) and high-frequency (SW) bands, whereas HD Radio only works in the medium-frequency band.

There are 218 channels available in AM/FM radio. There is a minimum of 298 DRM+ channels and 60 domestic HF channels available now. In addition there are 24 DAB+ channels available which will have to be shared with TV.

RECEIVER AVAILABILITY

Frontier Silicon's Chorus 4 and NXP's SAF356 single-chip receivers can now demodulate DAB+, DRM HD Radio, FM and AM in the medium-, high- and very high-frequency ranges.

India now covers the whole of its population of 1.3 billion (over three times that of the United States) with DRM30, and it proposes to switch off AM radio by 2017. Therefore, a range of radios will be available in large quantities soon.

DAB+ is well established in Europe and Australia and is spreading in Asia, where there are quite a few radios available at a price little more expensive than their AM counterparts. Very few of these radios receive AM.

IMPLEMENTATION

Radio should copy the system used by the United States for digital TV:

1. Select a switch off date. (Congress selected a date 10 years ahead; however it was delayed an extra three years due to poor public awareness.)

2. Select a start date after which all new devices must comply to the latest ETSI standards at profile level 2 as specified by DAB+ and DRM, including 47–108 MHz DRM+ reception. A device includes all radios capable of receiving broadcasts, including factory installed and after-market auto radios; cell phones; tablets; home theater amplifiers; and portable playing devices.

All devices will be able to respond to the Emergency Warning system; display color images, text and Electronic Program Guide; and be able to select the best signal from that broadcaster using the Alternate Frequency Tables. Automotive receivers in addition will be able to respond to traffic data. (Congress set the TV start date two years prior to switch-off. On reflection this date should have been halfway between switch-off and the decision to switch to digital. This earlier date reduces the need for subsidies to receiver purchasers but yet allow enough time for broadcasters to commence digital transmission.)

3. The FCC should require all broadcasters to transmit the Alternate Frequency Signalling by RDS for FM stations and Amplitude Modulation Signalling System on AM stations to make new receivers automatically select the best signal from that broadcaster regardless of the signal type and frequency. This will also mean that all of the additional program stream names will appear in the list of program names on the receiver.

4. The FCC immediately should create transmitter specification and nationwide multi-level grid with each level representing an effective radiating power of the main transmitter and its channel frequency. This grid can then be used to allocate frequencies, and powers with sufficient physical separation. FCC also needs to analyze the feasibility of DAB+ using Channels 5A–10D, 11D in large cities.

5. Allow use of the new DRM/DAB+ channels to be without licence fees until the AM/FM switch-off date.

In conclusion, all broadcasters in a given license area should be given the same DRM+ channel width and the same transmission power and antenna height, so they can choose what they will broadcast. Options include music, speech, Journaline (news text), weather, pictures to go with advertising, captioning for the hard of hearing and extensive road traffic data, etc.

The adoption of DRM/DAB+ in the manner described above allows broadcasters to control their transmission cost rather than letting the telcos do it for them.

Comment on this or any story. Write to radioworld@nbmedia.com *with "Letter to the Editor" in the subject field.*

Reach Alan Hughes at dtvdrb@westnet.com.au.

FOR FURTHER INFORMATION:

DRM Introduction and Implementation Guide
http://www.drm.org/?page_id=19

"Overview of the DAB+ System" by Les Sabel for WorldDAB
http://bit.ly/1rxJYxZ

"The Successful Implementation of High-Performance Digital Radio Receivers," Analog Devices, Vol. 47.1, page 13
http://bit.ly/1pdCo9U

SiDRADIO, DRM radio construction project, November 2013, Silicon Chip magazine
http://bit.ly/1p7bbzL

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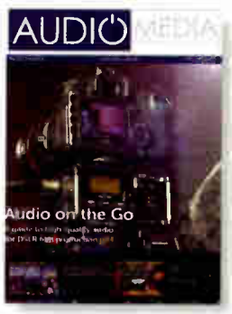

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