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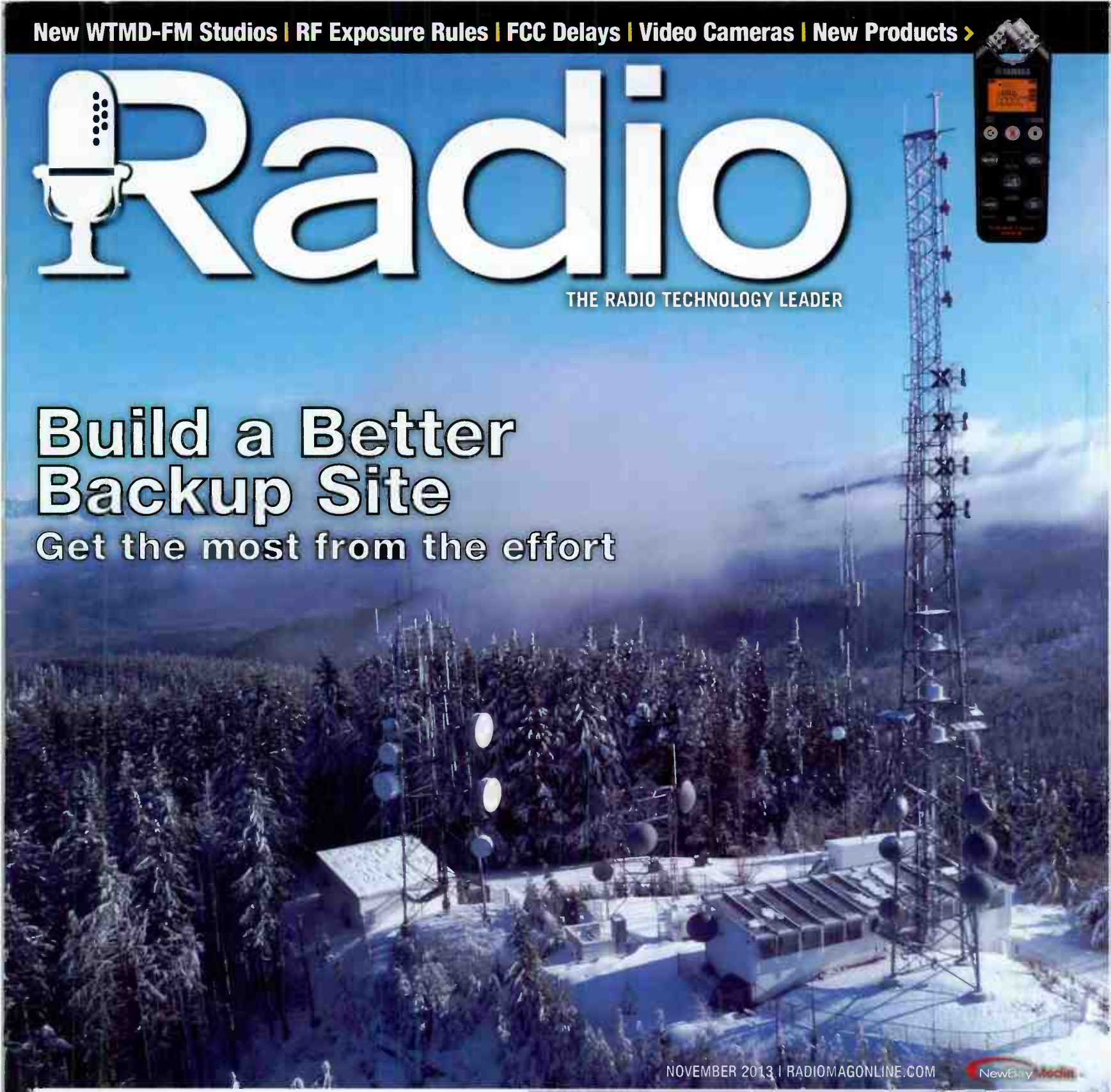

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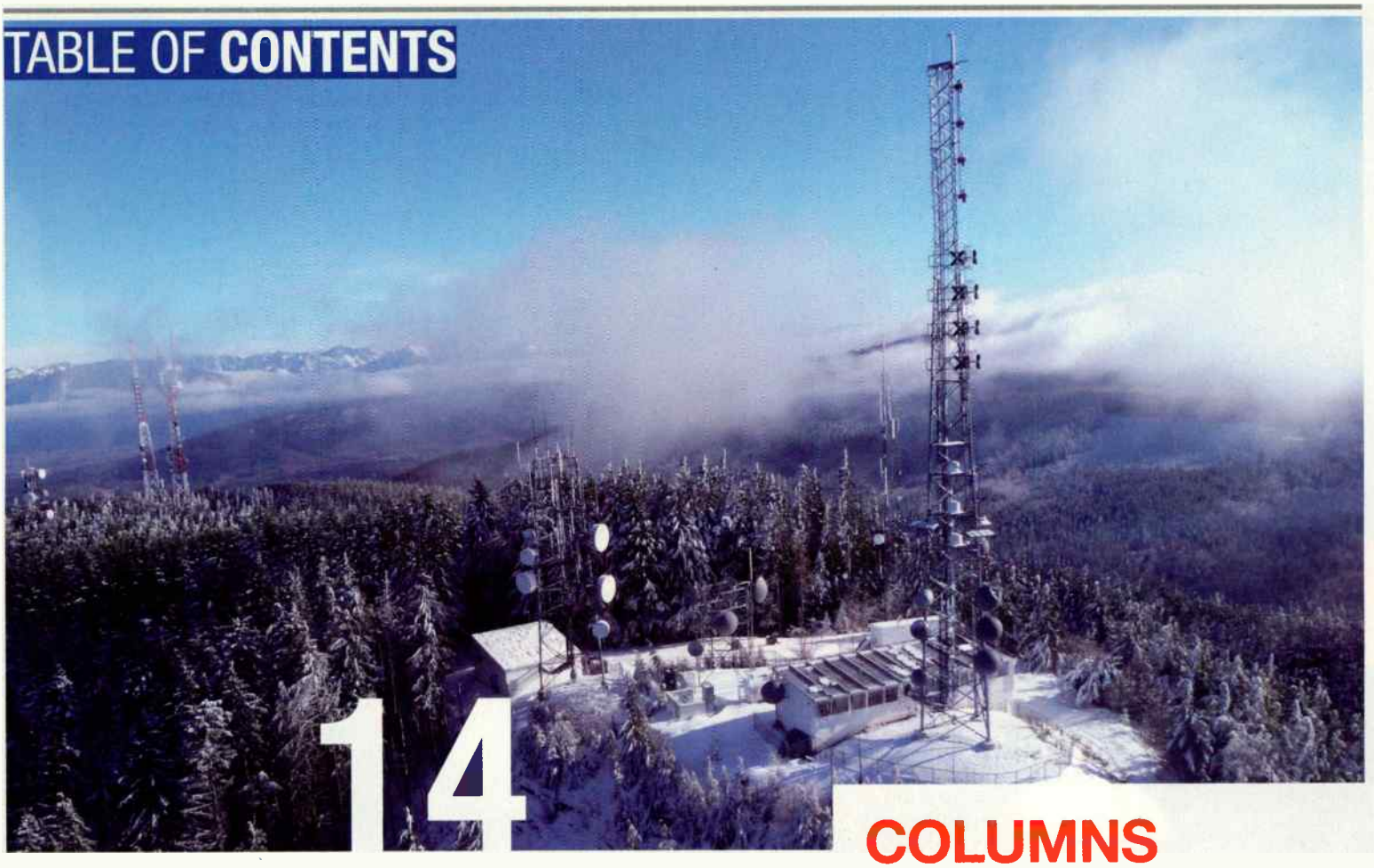

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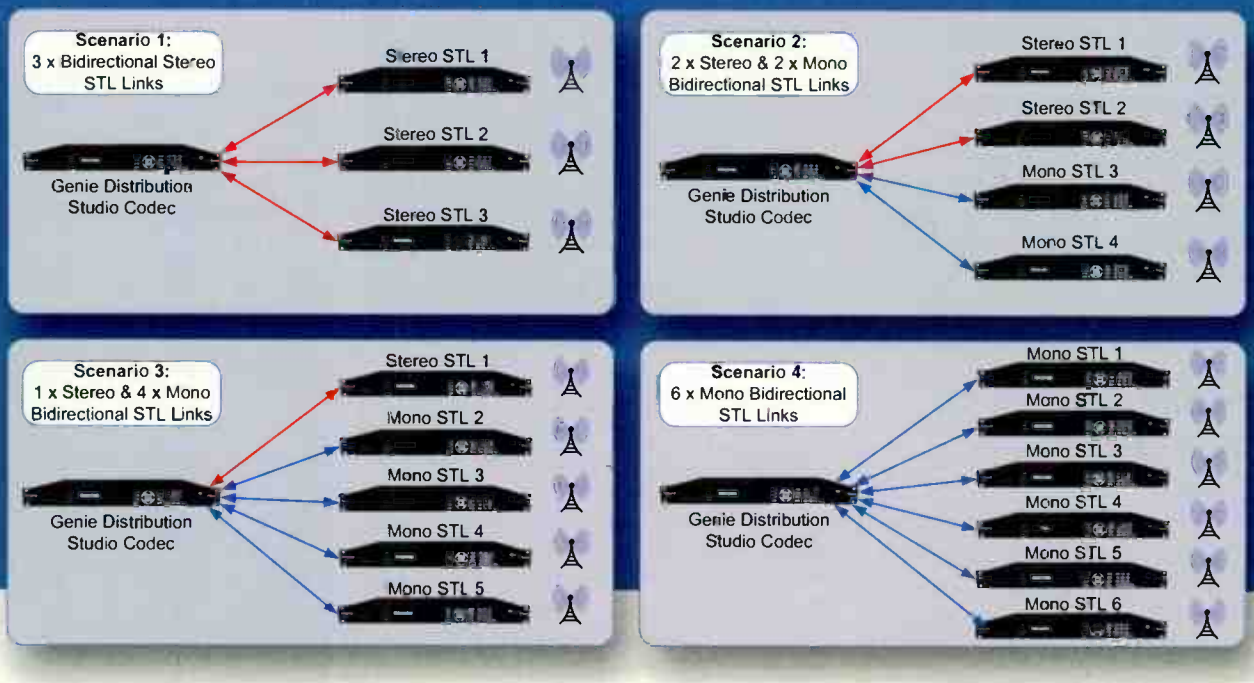

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Senate Confirms Tom Wheeler as FCC Chairman

In spring 2013, after then-FCC Chairman Julius Genachowski announced he would step down in June, President Obama nominated Thomas Wheeler to take the chairman's seat. The confirmation was on while Senator Ted Cruz (R-TX) blocked the confirmation vote. Cruz wanted to hear Wheeler's views about the FCC attempting to adopt new political TV ad disclosure rules. Cruz released a statement saying, "[Wheeler] explicitly stated that doing so was 'not a priority.' Based on those representations, I have lifted my hold on his nomination, and I look forward to working with him on the FCC to expand jobs and economic growth."

Once the hold was removed, the Senate unanimously confirmed Wheeler's nomination.

Prior to his confirmation, Wheeler was the managing director at Core Capital Partners. He has also been a lobbyist for the wireless and cable industries.

Also confirmed by the Sentate for the seat vacated by Robert McDowell was Mike O'Rielly.

FEMA, NPR Partner on Emergency Alert Preparedness for Deaf and Hard-of-Hearing

The Department of Homeland Security's (DHS) Federal Emergency Management Agency (FEMA) announced a cooperative pilot project with National Public Radio's (NPR's) technology research and development group, NPR Labs, to demonstrate the delivery of the first-ever, real-time emergency alert messages to people who are deaf or hard-of-hearing in five Gulf states.

Twenty-five NPR-affiliated public radio stations throughout Alabama, Florida, Louisiana, Mississippi and Texas agreed to participate in the pilot project to transmit emergency alert messages, such as weather alerts, to 475 individuals who are deaf or hard-of-hearing in the stations' listening areas to determine how effectively the messages are being sent and received. The Gulf State region was selected for the demonstration because it is often subjected to extreme weather conditions. Individuals participating in the project will receive alert and warning messages through specially designed receivers capable of displaying the text messages.

Richard Mertz Dies

Richard Mertz, a consulting engineer and partner of the firm Cavell Mertz and Associates, died on Oct. 29 at his home. He was under hospice care for his two-year fight with pancreatic cancer.

Mertz joined the firm in 1994 after 25 years in broadcast engineering. For more on his career, visit RadioMagOnline.com.

135th AES Convention Attendance Hits 5-Year High

The 135th Audio Engineering Society Convention, held Oct. 17-20, 2013, at the Javits Center in New York City, boasted a packed exhibit floor, panels and technical sessions on all four days. The AES celebrated its 65th anniversary this year, and capped the celebration with a 5-year-high number of 18,453 registrants being tallied.

At show close, the AES reported a 16 percent increase in registration since the last time the convention was in New York two years ago (131st AES) and a 71 percent increase over last year's San Francisco event (133rd AES), which unfortunately was plagued by smaller attendance due to Hurricane Sandy.

Jack Smedile Joins NAB Government Relations Team as VP

Jack Smedile will join the National Association of Broadcasters on Nov. 4, 2013, as vice president of government relations. Smedile will report to NAB Executive Vice President of Government Relations Kelly Cole.

Smedile joins the NAB after four years on Capitol Hill with Senate Commerce Committee member and Vice Chairman of the Senate Republican Conference Roy Blunt (R-MO), where he was the Senator's policy advisor on telecommunications, technology and transportation issues.

The Alliance for Women in Media welcomed long-time supporter and past chair Sylvia Strobel, JD, MBA, as Interim CEO.

Broadcasters Foundation of America appointed Peter Doyle vice president. He will share responsibilities with Jim Thompson, president of BFofA.

Harris Broadcast appointed Pablo Gargiulo president of global sales. He will report directly to Charlie Vogt, CEO.

Nielsen Holdings completed its acquisition of Arbitron, rebranding as Nielsen Audio and will be integrated into Nielsen's U.S. Watch business segment.

Wheatstone released software update 3.6.7 for its AirAura X3. Beta testers report competitive loudness without increasing distortion.

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VIEWPOINT

A Study in Contrasts

I visit radio stations. While it's not all I do in my job as the editor of *Radio* magazine, it's something I like to do. Most of the time the visits are related to something you'll see in *Radio* magazine, but it's not always just business. Last month while on a trip I visited two radio studios, and those facilities could not have been any more different.

The contrast covers nearly every aspect of each facility. One is a small market AM/FM combo, the other is a stand-alone radio studio with a national radio connection. One is using equipment that has served the station well for many years, the other is loaded with all-new equipment and is getting ready to go online. One has a broadcast license, the other does not.

The first facility is the home of *Radio* magazine contributor Gil Wilson. He works for WAKO-AM/FM in Lawrenceville, IL. The stations have been under the same ownership since 1959 and in the same studio building (collocated with the transmitters of course) for almost as long. While not directly on my usual route for my trip, I took the detour to see Gil and his facility. The stand-alone building on the edge of a field even has the neon call letters on the roof. It's classic radio.

The second facility will be featured in an upcoming issue of *Radio* magazine. It's the next radio studio (actually a broadcast media center) to be built by the Ryan Seacrest Foundation. The foundation is building media centers in pediatric hospitals around the country. The Seacrest Studio at Cincinnati Children's Hospital will be the sixth studio built by the foundation to go online.

Like I said, the two facilities could not be more different. But at the same time, they are very much alike.

While one still uses analog tape and well-used analog consoles, the other has a completely digital infrastructure and storage system. The Seacrest Studio also has video production capability. But the core function of the two is the same: They produce and deliver quality information and entertainment to their listeners, and the people who built these studios do it with a passion for their work.

When I visited each facility, I was told about how they used to serve their audiences. I was told about the time and effort put into capturing and producing the programming. I was shown what steps are taken to create something of great interest to their respective audiences. And in all this, I was reminded about the effective reach of radio.

These facilities are — or at least one is and one will be — important to their listeners. For one group it's the Friday night high school football game. For the other group, it's a discussion of a life-flight helicopter ride (and that it doesn't need to be scary). But both audiences are engaged.

I drove this trip from Kansas City, through Lawrenceville, to Cincinnati and back, and I listened to lots of radio stations along the way. Some were the big stations in St. Louis, Indianapolis and Cincinnati. Others were in small towns en route. Regardless of their size and reach, they all reminded me how radio has for decades played an important role in the community. Regardless of the technology in use, radio needs to continue to fulfill that role and reach the audience not just via the technology, but via the programming.

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FCC Looks to Update RF Exposure Rules

by Jeremy Ruck, PE

A couple of years ago I discussed RF radiation safety as it applies to broadcasters. At that time, the Commission was still using its OET Bulletin 65 standard, which is a hybridization of the 1992 revision to the IEEE C95.1 standard combined with some elements of previous standards. The latest tome concerning updating and revising the standard was issued in March of this year, and spans some 202 pages of text. This release from the Commission continues the discussion started in ET Docket 03-137, which began a decade ago. Who denies that the wheels of government move slowly?

Although this process appears to still be far from over, there have been some changes in the way RF exposure is evaluated, and to the methods in which compliance with exposure limits are demonstrated. There are no changes at this time, however, to the maximum permissible exposure (MPE) limits for the controlled and uncontrolled environment conditions. The numeric limits recognized by the Commission differ from the current IEEE values over certain ranges. In addition, the Commission and the Institute use different formulae and units, but tend to arrive at similar numbers. To be in compliance with the terms of a license, one must comply with the FCC requirements; however, given that this is a science in a continual state of flux, it may be advisable to examine compliance relative to the IEEE values as well.

For instance, at AM frequency ranges the FCC limits are more stringent than the IEEE values. Through UHF frequencies, which include the transmissions of our television engineer friends as well as STL links, the situation is reversed. Generally this is a bigger issue for the TV guys because of their higher power transmissions, but areas where STL antennas are transmitting may be worth a look if they are on a building rooftop or in other areas potentially accessible to persons.

The MPE limits are, however, derived from specific absorption rate (SAR) values. In a nutshell, SAR looks at body tissues, and how they absorb non-ionizing radiation leading to heating. Under the March revision to the rules, the Commission sagely broadens the methodologies of compliance for fixed and mobile transmitters to permit the utilization of SAR in lieu of MPE measurements. So in essence, what has been done here is to increase the size of our toolbox.

ONGOING UPDATES

When the previous rules were implemented, measurement of SAR within a body at a distance from an antenna, such as on the ground near an FM facility, the MPE values in terms of field strength or power density were derived. These values were easily measurable then, and continue to be so, with a varying array of equipment. As the science has advanced, however, developments in techniques have allowed for practical SAR measurement. Recognizing this fact, both methods will now be permissible, so the performed survey continues to remain valid providing no emitter changes have been made at your site.

While the SAR analysis may be somewhat more cost effective in some circumstances, the Commission specifically noted that "accepted" and "generic" procedures for determining SAR throughout a range of circumstances have yet to be developed. As a result, any procedures and methodologies utilized in such calculations will necessarily be evaluated on a case-by-case basis. As part of any showing along this line, the Commission notes that it must demonstrate that evaluation was made under all applicable operating configurations and exposure conditions, and whole and partial body limits must be considered as must near and far field situations. Since the potential variables could grow rather rapidly, it may make more sense to continue along the more "traditional" MPE methodology.

What is interesting to note, however, is picking-and-choosing the methodology circumstantially is verboten. Specifically the Commission will forbid demonstrating compliance via the traditional MPE method, and then coming back and claiming SAR is valid following an enforcement action. In other words, if MPE methods are used, and the Commission subsequently determines the MPE limits are exceeded, changing the tune and claiming that it was not a problem under SAR ain't gonna fly. SAR will not be permissible to undermine enforcement of MPE

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limits. Such a situation would probably be much more applicable to portable or mobile devices, and not a fixed transmitter facility.

Two of the discussions that are most germane to broadcasters address the difference between the controlled and uncontrolled environments as well as responsibility under a multi-emitter situation. In the case of the former, the key to considering an environment as controlled, and thereby subject to the less restrictive higher tier limits, was that persons were fully aware of their exposure potential, and could exercise control over their exposure. The concern here is how "fully aware" is defined, and what was the origin of that awareness. Did it arrive from some form of osmosis, or was it definitively communicated.

In the initial proposals the Commission suggested awareness consisted of receiving verbal and written information concerning exposure as well as appropriate training regarding work practices to controlling or mitigating the exposure. This of course resulted in questions as to what constituted written information, and how do the licensees or responsible parties handle third party subcontractors and highly transient persons. The final decision is that workers subject to the higher tier must receive written and/or orally communicated information at the discretion of the responsible party as is necessary to ensure compliance with limits. The second prong is that appropriate training will provide a mechanism whereby persons can employ exposure control through administrative or engineering controls. Finally, the Commission is also proposing rules that result in more specific guidelines for the communication and training processes. We will return to this topic in a future column once things are more codified.

The discussion about multi-emitter site responsibility was also undertaken. The Commission specifically noted that in such cases, the rules do not specifically address how that responsibility is to be apportioned among those utilizing the site. While it was suggested in comments that one licensee hold the primary responsibility, the Commission noted that this is not the case, and all licensees must cooperate to ensure compliance. Moving forward, the Commission will be providing guidance in future revisions of OET Bulletin 65. In the meantime, no one is relieved from the special condition on construction permits and licenses, so this may be a good time to dust off the RF Safety Plan if you have not done so for a while.

In short, RF Safety, like all sciences, continues to evolve. Updating of the quasi archaic OET Bulletin 65 is definitely due, and the Commission is certainly working in this direction. Comments were due in September with reply comments due in November, so this will no doubt continue to be an ongoing topic of discussion for the foreseeable future.

Ruck is the principal engineer of Jeremy Ruck and Associates, Canton, IL.

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Government Shutdown Causes FCC Delays

by Lee Petro

With the final gasps of fall almost expired (coupled with a government shutdown) is a regulatory potpourri of radio broadcasting matters. Last month, the FCC was closed for business for more than two weeks. Not only were no applications granted, rulemakings completed, or transactions approved, but the FCC also shut down access to the online databases so many of us rely on to complete our daily business. When the systems came back online Oct. 18, the FCC took steps to address the effect of the government closure.

Most important for many was the delay of the low power FM filing window. Rather than closing the filing window on Oct. 29 as originally planned, the FCC postponed the closure of the filing window until Nov. 14. By delaying the closing of the window, the FCC provided additional time for applicants to prepare their proposals, and provided their engineers and lawyers time to make sure the I's were dotted, and T's were crossed.

It is anticipated that the FCC's staff will begin to process the singleton applications immediately. Applicants with tech-savvy engineering consultants will also be able to determine whether applications submitted in the filing window are mutually exclusive with other nearby applications. Those applicants that can identify technical solutions to resolve mutual-exclusivity should be able to file amendments to their pending applications to remove themselves from conflicts and render their application eligible for processing as a singleton. Those that would rather wait for the FCC to announce singleton and mutually exclusive applications group will likely see the first wave of public notices in January or February 2014.

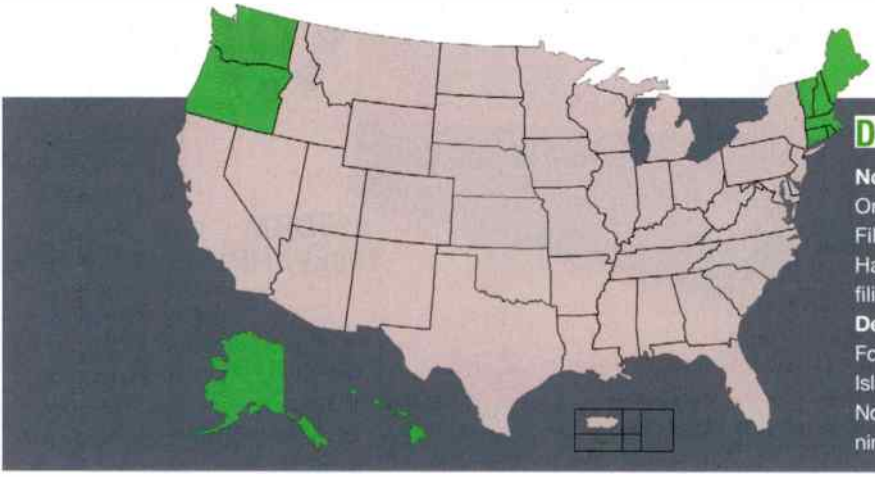
Although not directly tied to the government shutdown, the Nov. 1 deadline for commercial broadcasters to file biennial ownership reports was pushed back to Dec. 2. With the government closure, this delay in the filing deadline took on new importance since parties could not prepare the sometimes-lengthy ownership reports for a good part of October because CDBS was shut down. The ownership reports are intended to provide a snapshot of the media ownership landscape as of Oct. 1. As a result, even if a licensee has subsequently closed on the sale of a broadcast facility, it must submit an ownership report reflecting its ownership position as of Oct. 1. It is important to remember that commercial Low Power television stations and Class A television stations are also required to submit an ownership report before the deadline.

Notably, the FCC announced it will act on a petition for declaratory ruling filed last year relating to the foreign ownership of broadcast licensees. The Communications Act prohibits foreign ownership stakes in broadcast licensees more than 25 percent unless the applicant seeks a specific ruling. While non-broadcast licensees have often used the case-by-case standard to exceed the 25 percent benchmark, it has long been an unspoken policy of the FCC to not grant similar requests for broadcast licensees.

Now, the FCC is said to have decided to apply the same case-by-case review process for broadcast licensees as well, and will use a ruling on the petition for declaratory relief as a vehicle to state its intention to permit such ownership interests in the future. Each of the Commissioners issued statements supporting the expected change in the standards, which will likely become effective upon the grant of the petition. Whether this change in policy will lead to a dramatic increase of foreign ownership stakes in broadcast licenses is unclear, but it would be reasonable to expect that certain foreign language programming outlets would see the opportunity to bring in foreign investors.

Note: Because of the government shutdown, the AM Revitalization NPRM discussed in the October FCC Update has yet to be released. A full discussion will follow its publication.

Petro is of counsel at Drinker Biddle & Reath, LLP. Email: lee.petro@dbr.com.



DATELINE

Nov. 16: Stations in Alaska, America Samoa, Guam, Hawaii, Mariana Islands, Oregon, Saipan and Washington continue running License Renewal Post-Filing Announcements. Stations in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont continue running License Renewal Pre-filing Announcements.

December: Commercial AM and FM licensees file Biennial Ownership Report (FCC Form 323). Stations in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont file License Renewal Application and EEO Program Report, and Noncommercial stations file Ownership Report (FCC Form 323-E). Commence running License Renewal Post-filing Announcements Dec. 1 and 16.

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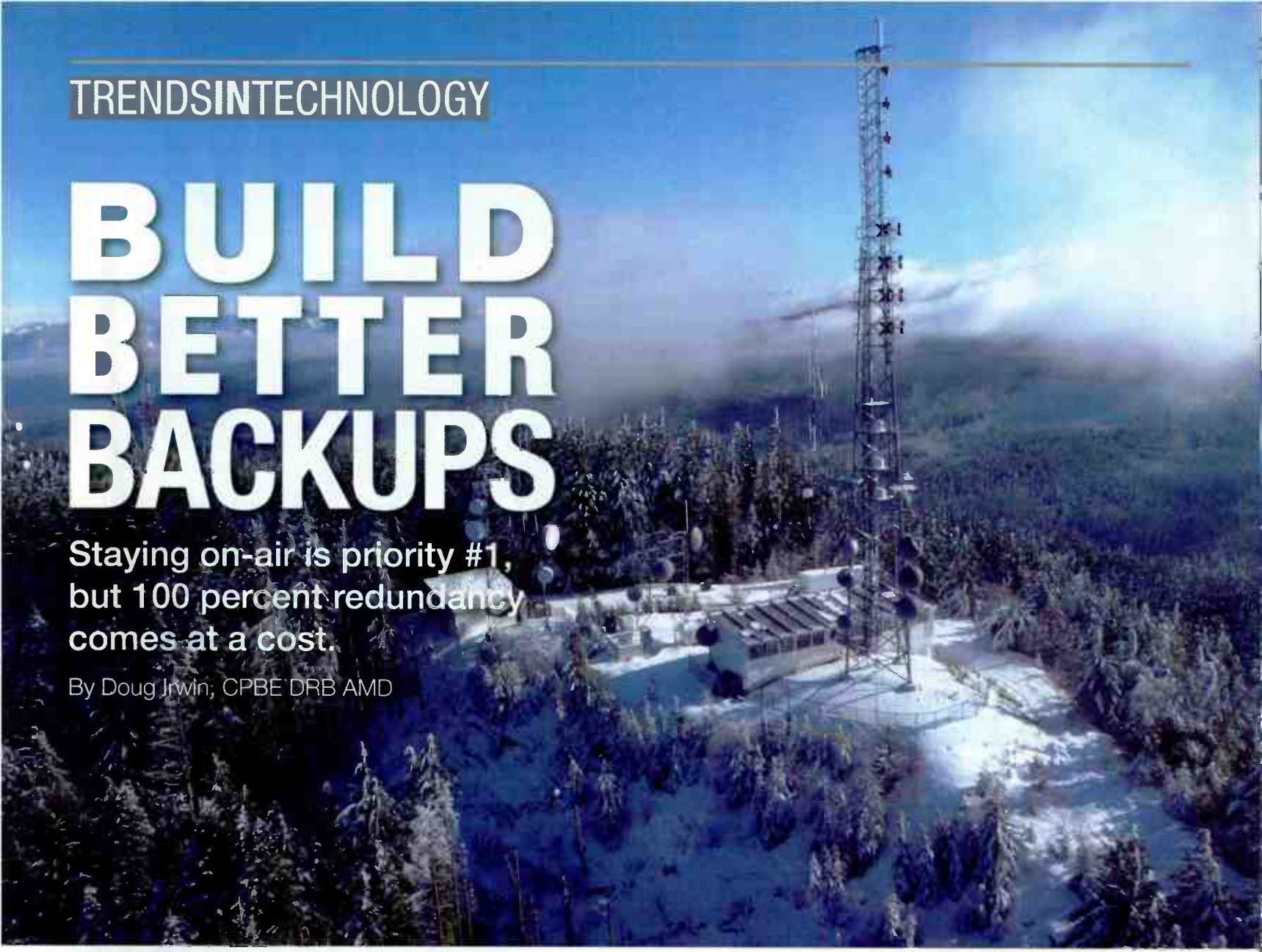
By Doug Irwin, CPBE DRB AMD



In 1986 I started at my first major-market radio job, and on my first day, while sitting in the engineering office with the chief, the GM came through (mainly because the shortest route from the sales department to the men's room was through engineering). "We spend a million dollars a year on promotion, and we don't want to be off the air," is all I remember him saying in that brief introduction. He was serious, obviously, but he hardly needed to tell me that. You learn from day one when you get in to broadcasting that the station shouldn't be off the air at all. And if it is, the need to rectify the situation is immediate and trumps all else. The worst thing in this job (at least in my opinion) is that moment you find out the station (or one of many) is off-the-air, not knowing the cause or obvious the solution. Much of my career has been spent minimizing those instances.

Everyone, from management down, will say, "We can't be off the air," but in reality, this question needs to be asked: "How badly do you want to stay on the air, really?" The answer will likely be rhetorical; the truth will show through once resources — whether they are money or time — become allocated.

I know many stations have a single thread made up of a single STL (whether it is radio or wireline) followed by one transmitter followed by one antenna. Usually in this case there is a single power source as well. Those situations are, in a certain sense, far easier to deal with than systems with multiple layers of redundancy. With the single thread, everyone knows that the failure of any link takes the station out, and nothing can be done except to fix the broken part as soon as practicable. Power failures at the transmitter site (as an example) can take a station out for days on end. The station engineer can shrug his or her shoulders and say, "Oh well — if they just bought another (insert device name) then this wouldn't be happening!"

When the station takes the notion "We can't be off the air" more seriously, the job gets harder of course. Broadcasting isn't the most lucrative of

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businesses, as we all know. Rarely are there resources necessary to make the job at hand easy; often some sort of technological strategy must be employed. Let's look at a simple example. A station gets a new transmitter, and the decision is made to keep the old one as the backup. Very common occurrence, right? But it's not as simple as just *keeping* old Betsy. To keep this old transmitter available, you'll have to consider the following: Is there enough physical space for a second transmitter? Is there enough electricity available to run a second transmitter? How will I put the old transmitter on the air, should I need to: coaxial relay or patchbay? How will I test this transmitter? I also need a dummy load… So after considering these things, you make up a budget, and go to station management. Before you take the budget, and your plan, into management, ask yourself that question: "How badly do I want to stay on-the-air, really?" Once you deliver your plan and budget, you'll get a good idea of how your management answers that same question.

WHAT'S UNDER YOUR CONTROL?

Now let's jump ahead and consider a station that has multiple levels of redundancy, established over years, perhaps before you even got there. It's nice to inherit a situation that is well considered and maintained. There are two transmitters, or perhaps more, with an easy means of testing during normal hours (i.e. a dummy load). There are two STLs, or perhaps more, and they all work and sound fine on-the-air. There are two antennas, each of which gets out so you don't feel as though you're handicapping the station while testing one. You have a large generator, that can run at least two transmitters at once, serviced regularly, and you have confidence in it. What else could one want in a transmitter site? Your job is to take care of all the things under your control: You fix broken transmitters, STLs and everything else. It's all up to you, and nothing is standing in your way.

Well, let's consider some other potential issues, even with the transmitter site described. Let your pessimistic imagination run wild — or let your prior (hard-fought) experience have a say.

> Are both antennas on the same tower?

This is an obvious flaw. If the tower falls over because of a weather event,

Photo by Clay Freinwald

Having two of everything is the start of a good back-up plan, but also make a plan on how the equipment will be used when needed.

World Radio History

you're dead. I've seen it happen (in California, no less). Tower maintenance issues can also be problematic.

> How is access to the transmitter site?

Again, think about weather-related events. Can you even get to the transmitter site under *all* circumstances? Probably not. Is the road too snowy? Is it flooded out because of a hurricane? Have trees fallen over the road? Have the authorities closed it down for some reason, like a forest fire?

> What's the generator status?

It's important to have a reliable generator, clearly. How long of a power failure can be covered? Is there enough fuel to last a week? Longer? If not, can you get a delivery, or is a fuel vehicle unable to drive up the road? Is the fuel provider open for business? Can you contact the generator tech? Can he get to the site?

> Vulnerable point: The three-phase main distribution panel.

If this panel encounters problems, then you're really in trouble. You can do I.R. studies, and maintain it, but no guarantees, of course.

If your transmitter meets these basic checks, you're have a highly reliable backup plan in place. If you want to be on 99.9 percent of the time, you're set. But if you want to stay on the air no matter what, there's more work ahead.

ALTERNATE TRANSMITTER SITES

No one can guarantee 100 percent on-air reliability mainly because, no matter how hard you try, there are circumstances out of your control. I would say 99.9 percent is pretty good goal, though. Having an alternate transmitter site is one way to overcome some of the obstacles in the planning I mentioned earlier. There are two alternate transmitter sites with which I am familiar that do just that.

COUGAR MOUNTAIN

Cougar Mountain has one of the best and most well-known alternate transmitter sites in the country, for many reasons. Most of Seattle's FM stations broadcast from Tiger Mountain while maintaining backup sites at Cougar. My friend Clay Freinwald was a principal in the development of many of the backup transmitter facilities there and generously agreed to tell me about its history and capabilities.

As in many other markets, while FM became more and more important, transmitter sites sprouted at various locations scattered about the metropolitan area. In 1987 Clay moved the first station (then KBSG, 97.3) to Tiger Mountain. It soon became clear that Tiger was a great site for FM. Over the next few years, 10 more stations moved there. A large combiner was installed along with a master antenna. Tiger, however, is notorious for harsh winter conditions, since it's more than 3,000' tall, at 47 degrees latitude. Along with all the benefits of Tiger came the liability of accessibility problems in wintertime. Entercom, who at that time owned five FMs in the market, also had a site at Cougar Mountain, which is at about 1,400' of elevation, closer into downtown Seattle, and basically continually

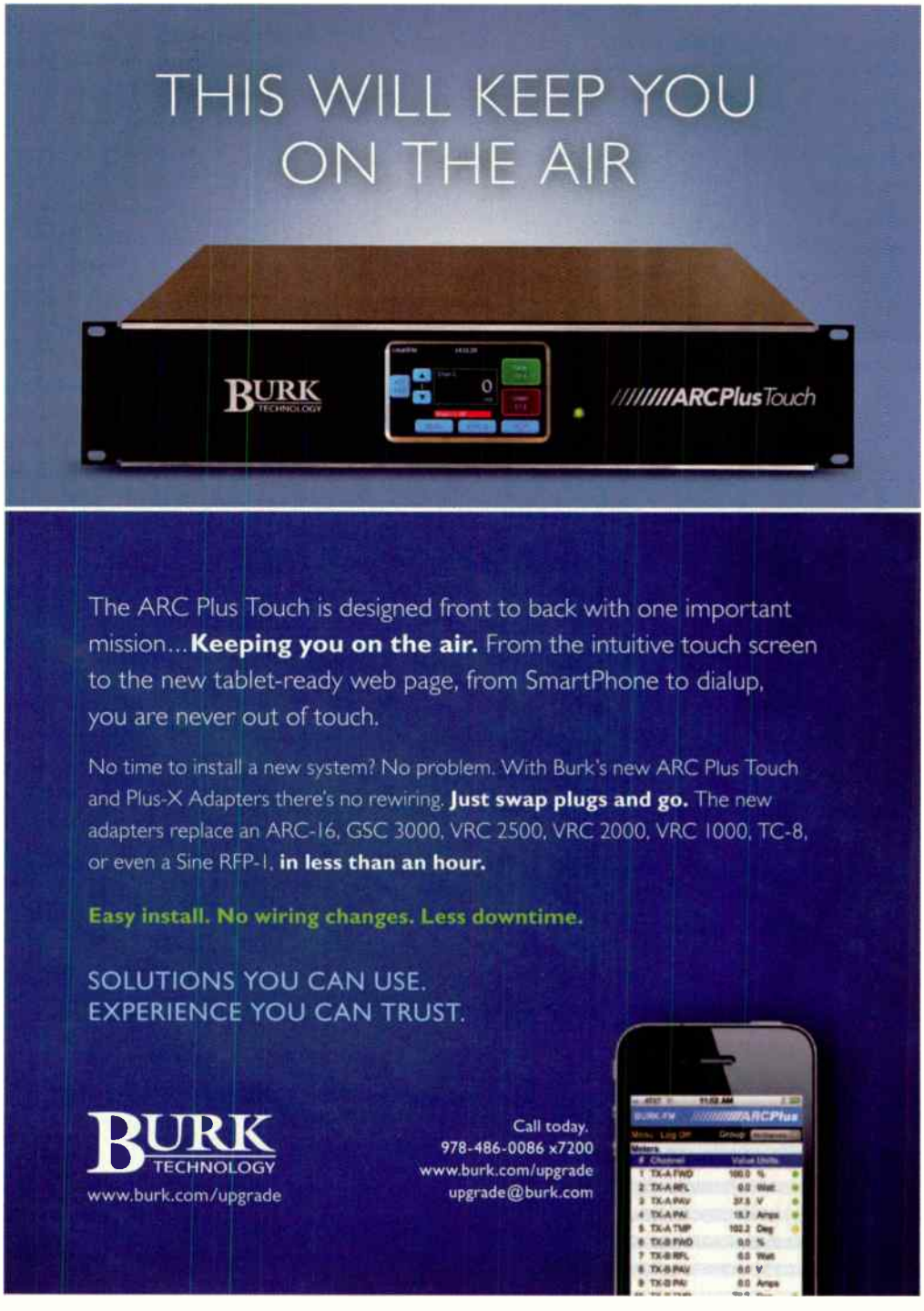

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Photo by Clay Freinwald

The combiner room at the Cougar Mountain transmitter site.

accessible even in the winter. The Entercom management decided to consolidate all of the auxiliary (formerly main) sites at one location — on land that they owned on Cougar. Another combiner, and master antenna, were built and installed at Cougar. Other FMs (notably KING-FM) joined in and became tenants of Entercom at both sites.

Eventually ATC built another site on Tiger, complete with a large combiner and master antenna, at a site slightly east of Entercom's. That site's major tenants, CBS and Sandusky (now Hubbard) also maintain complete backups at Cougar.

As expected, over the 13 years that the Cougar site has existed, its benefits came into play many times. The power feed up to the west Tiger mountain site is buried along the road; when it fails, the power company *also* has a hard time getting in to fix it. Extended power outages there have created situations where the diesel levels ran low, since no one could get in to make deliveries. The Cougar site, which was meticulously designed to provide coverage as close to that of Tiger as is possible — was then used. Tower and antenna maintenance and repair instances are done during normal daylight hours without drama — the stations just use their Cougar site. It's not just during weather extremes that Cougar sees use though. Each station has AutoPilot running, and transmitter failures at Tiger

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- Bud Walters, The Cromwell Group, Nashville, TN

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prompt their complements at Cougar to come up automatically. Through some geographic good-fortune, both Cougar and Tiger are along almost the same line looking southeast from Seattle; so one RF-STL shot from a studio there illuminates both sites.

I can tell you from my own experience with backup transmitter sites that routine maintenance is also greatly simplified when you have an alternate transmitter site. The work that would normally have to be done at night (because it would take the station off-air) can be done during normal hours at the main site, while the other site is on-air.

Clay summed up the entire notion of alternate sites quite well. "Although some stations at West Tiger have auxiliary transmitters there — It would be foolish to not create 100 percent redundancy. 100 percent redundancy means *not* having all your eggs in one basket; that is, having a complete duplicate at another location with nothing in common with the mains."

Photo by John M. Lyons

The combiner room at 4 Times Square as it was being installed.

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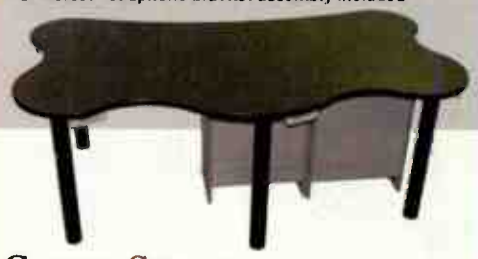
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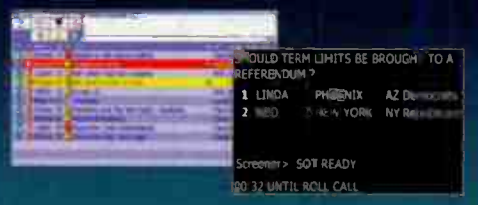
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Photo by John M. Lyons

4 Times Square as the finishing touches were being put into place.

FOUR TIMES SQUARE

Four Times Square is one of the best-known alternate transmitter sites in the United States. But why was it originally built? When the 9/11 attacks occurred, Josh Hadden (the CE of WKTU and Z100 at the time) already had a backup facility ready to go there; WKTU turned on the 4TS site shortly after the attack began. Let me give you just a small excerpt from a memo he had written, in August 1998, explaining to his then GM about why an alternate site was needed:

"What kind of problem could result in our not being able to broadcast from our primary location (then WTC)? Most dramatically, is the bombing of the World Trade Center (in 1993). This bombing resulted in WKTU (then WYNY) ceasing operations from WTC for weeks, as the FBI investigated, and structural engineers worked to reinforce the badly damaged foundations of the building. Initially, there was even some concern that the building would have to come down altogether. After a month of being closed, the World Trade Center reopened, but with significant deficiencies. For four years, WKTU dealt with unexpected power outages, a result of soot and smoke having gotten in to electrical switch gear ..."

World Radio History

Other reasons were given, in the same memo, not the least of which was a two-week total shut down of the master antenna planned for June of 1999.

John Lyons (of WAXQ), Jim Stagnitto (of WWPR) and Nick Doshi (of WLTW) all had plans at the beginning of the last decade to build at 4TS as well, and eventually the plans were carried out. Fast forward to today: Clear Channel has backup transmitters for its five NYC FMs at 4TS. New York Public Radio (WNYC and WQXR) has its backups there, as does Spanish Broadcasting. WKCR and WNYE transmit from the site full-time. Most of the FM stations that transmit full-time from the Empire State Building have alternate transmitter sites either in Manhattan, or just across the Hudson in New Jersey.

The 4TS site is equipped with a large Shively combiner, and Shively master antenna up on the building-top tower that was enlarged after 9/11. The building supplies chilled water for air conditioning purposes, as well as backup ac power, with systems maintained by the building engineers themselves.

Clearly the WTC 1993 bombing and subsequent destruction in 2001 were extreme cases;

Photo by John M. Lyons

Transmission line being hauled up to the 4 Times Square tower site.

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and as you might expect, the "we don't want to be off the air, no matter what" attitude is pervasive in New York. (Josh has worked under that guideline for a long time — and he's been the Clear Channel NY DoE for 10-plus years now.) CC has main and backup transmitters at ESB, in addition to the single ones at 4TS — so, each station has three transmitters total. At ESB, all the master FM users have access to the main and backup antennas; at 4TS, there is also a main and backup antenna. Each of the five CC stations at 4TS had the same STL arrangement as ESB: the main STL (Worldcast Systems Oslo using AoIP over a private IP network); a 950MHz radio link; and finally, a pair of 15kKHz "analog" (which are really digital) phone lines from the studio. There are two Audemat Relios on site for remote control; one manages WKTU, WHTZ and WAXQ. The second one manages WWPR and WLTW.

At this point you might be asking, "What's the payoff? This all sounds impossibly expensive." Well, there was an instance about three years ago when one of the power dividers on the master antenna flamed out, and we used 4TS for nine days straight at our full ERP while some other stations opted to use the upper bay of the ESB antenna at 1/4 of their nominal ERP. (If you look at a typical ESB license (using Z100 as an example) you'll note that the ERP is 6kW with a height above average terrain of 415 meters. The corresponding auxiliary license for 4TS is 13kW with an HAAT of 281 meters.) Then there was the time at the end of last year when a water leak directly over the Z100 transmitter (completely out of our control) took out the main transmitter at 3 p.m. on a Friday. 4TS put itself on the air automatically, then called and e-mailed me to tell me about it. Oh yes — then there was the time, about a year ago, when we had a weather event, which is now known simply as "Sandy" that effectively took out our ESB transmitters leaving us with our 4TS site and its full capability.

The current 4 Times Square installation.

Photo by John M. Lyons

Any transmitter site, even with the best redundancy, is still subject to problems that are out of your control: weather events, such as tornadoes, floods, hurricanes. Mountain top sites can be snowed in during the winter and exposed to forest fires during the summer. If the opportunity presents itself for you to develop an alternative transmitter site, I recommend taking it. The extra peace of mind one develops knowing your plans are in place is really satisfying and ultimately makes this job easier.

Irwin is RF engineer/project manager for Clear Channel Los Angeles. Contact him at doug@dougirwin.net.

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Music Everywhere

WTMD at Towson University builds a showcase with music in mind.

By Edwin Bukont, CTS, CSRE

WTMD-FM/HD, owned by Towson University in Towson, MD, recently commenced operations from a new 8,000 square-foot studio and co-located transmitter facility. Having moved literally from the basement to a high rise, this was a big deal for everyone involved — from staff to vendors, administrators, listeners (of course), and the visiting bands. Bands are a big part of WTMD: There is a daily effort to showcase up-and-coming musical talent. The design enables music production everywhere, with a 5.1 surround sound live performance studio as the centerpiece and a clean slate of modern equipment. Only a Minidisc player and the incidentals for live bands were kept from the basement.

WTMD now has a state-of-the-art facility, using audio-over-IP (AoIP) and structured wiring. Consoles, computers and satellite receivers are all networked using AoIP. The facility sample rate is 48kHz, rate converted to 44.1kHz at the output of an Optimod 8500 and then conveyed via an Intraplex NetXpress Multiplexer at an E-1 rate (2Mb/s) over single-mode fiber to the transmitter facility. The Intraplex, Harris Z12 HD+ transmission system and Orban were provided in a 2008 project with the knowledge that the facility might move.

Facilities include a performance studio with dedicated control room, two production rooms and an on-air studio A. The on-air studio has a dedicated secondary control room that can also be used for production and as a control room for shows on the Baltimore Channel, which is carried on HD2. The performance studio fixes one end of the 200-person SRO lobby, but can be closed off with a folding glass wall and acoustical drape. The remaining studios are arranged down one long hallway with a common glass wall looking out toward the Towson Circle.

Photo by Jack D...

World Radio History

FULLY NETWORKED

All the operational areas are networked through a technical operations center (TOC) that sits between the performance studio and the other rooms. This TOC was built as an audio data center, complete with 45kVA UPS, secondary ac power source in each rack, computer room air conditioning and monitoring. The room has its own ground pulled to a sub-basement termination in a ground ring. The audio network uses the Axia LiveWire AoIP technology.

Each production room and the air studio have a 16-mic level in by 8-line level out patch panel to permit the production of multiple musical events. These patch panels feed PreSonus DigiMax 8 preamps, which then feed inputs of two Axia X-nodes. The X-node outputs feed the line level return jacks. In this manner, studios can be used as isolation booths, independent of the rest of the room. Each of the six rooms and the technical center has a Henry Engineering Multiport analog/AES interface panel as well. Any source, anywhere, anytime, including sources generated by the network, was a mantra in the design.

Except studio B, each room has an Axia Element 20-fader control surface and Power Station engine. There are CAT-6 patch panels, but there are no punch-blocks in the facility. From the engine, network cabling extends power and data to X-nodes in a studio as necessary. This facility has 48+ X-nodes, about half of which are in the TOC. Each studio is built as an island (except band patch panel nodes that are direct to TOC). The engine connects on a 1GB port to a Cisco 3750 managed switch. (Fiber is an option). Of course we have to build for redundancy and maintaining uptime, so each studio has analog and AES patch points between the engine and TOC. Each studio has a local PC equipped with the Axia single-channel driver. The studios have Denon CD players and flash recorders, Genelec monitors and two KVM workstations that allow sharing of computer assets including the Wide Orbit automation system. The Wide Orbit computers and NPR receivers connect to the network via Livewire.

Studio B has an Allen & Heath GM24 console with FireWire option. The FireWire allows for a single A/D conversion of performance studio sources. After the A&H, signals pass to a PC, equipped with recording software and the Axia MultiChannel Driver that allows those sources to appear on the LiveWire network. A real effort was made to keep it all digital, all AES, all 48kHz, all AoIP, all structured wiring throughout the facility. I believe we achieved that goal.

STRUCTURED WIRING

The WTMD facility has approximately 40,000 feet of CAT-6 UTP cable as structured wiring that handles every source-destination path that could possibly be carried over such media. Except for the mic lines, 5.1 powered speaker runs and monitor returns in studio B, there are no traditional STP audio runs between rooms. Instead, each room has 24 runs of CAT-6 UTP from TOC and terminated in a patch bay. There is a run of RG-6QS to each

WHAT IS STRUCTURED WIRING?

The term structured wiring, rather than the broadcast specific Studio Hub approach to such wiring, has been used for a reason. I am providing this detail because you may have to explain this, as did I, to third parties and we have to use their IT terms, not our broadcast terms. One has to separate the network from the node. Nodes are devices that connect to networks. Networks, and their cabling, should be agnostic to the attached devices and signals, unless there is a really good reason to do otherwise. Any competent low-voltage wiring firm can install structured wiring.

Why structured wiring? Because it works? Well, yes it does, and quite well, but that is not the reason. "But it costs more." Not necessarily. Stepping out of the broadcast mindset, and speaking as a project manager, one has to look at the practical reality of getting things done under increasing layers of technology and regulations against tighter budgets and deadlines. You can very clearly define an scope of work, a bill of materials, a budget and sign-off criteria when you specify the number of runs of CAT-6 UTP terminated in modular ports per room. Try explaining that you need X different types of multipair, terminated in X different types of connections, and then find out you need something different, and try to purchase that difference. Anything other then CAT 5/6 UTP, or STP, or fiber, becomes a showstopper. Businesses make so much use of structured wiring now that it is the standard for wiring. ■

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Photo by Jack Dana

Connectivity was key in all studios to provide maximum flexibility.

studio for CATV and from the roof for various reception concerns.

The type of cabling to be used (CAT-5 or 6) and how such is terminated (patch panels) form the basis of structured wiring. All this is defined using standards that appear in the National Electrical Code, ANSI/TIA, BICSI etc. We then interconnect devices. The core wiring — the infrastructure — never changes. After installing the core wiring early in the project, we have yet to pull a new wire between any two racks or studios. Patch cords are used to go from patchbays to nodes. Where necessary, Studio Hub+ compliant adaptors for audio-over-Ethernet (AoE) are used. While the structured wiring at WTMD supports Studio Hub-enabled products, the same wiring is supporting data networks, Avocent KVM sharing and extension system, USB-over-Ethernet extenders for touch screens, NTP/POE LED clocks, LVDC LED on-air lights, Valcom speakers in common areas and video signals using HDMI to HDBaseT converters. There are some instances where TTL or RS-232 were necessary, and carried over the same wiring.

Nothing goes between racks, each rack has a 16- or 24-port CAT-6 STP patch bay with the "other end" at two patch racks that terminate all wiring and switches. The flexibility benefit is obvious. In a university setting however, buy-in from the university IT department can be a real challenge. I did a network diagram of the entire plant, and I asked for the university wiring specification. The studio wiring spec was derived from that document. The rack that houses the studio concentration of patch bays also houses various runs to other offices in the suite, and a 48-port tie to the university LAN. Because the design conforms to the university specification, it made it possible to have their usual vendors quote all of that wiring, the switches and servers. Having that infrastructure then allowed us to accommodate several curve balls.

After all the budgeting and planning was done, we were told that the studios had to vacate almost two months sooner than planned! And we would have to move the studio on a weekend when a fund drive started. Yikes? Nope. We purchased an Axia Radius console. A temporary studio was built in two days, and two patch cords connected it. One cord ran from the console AES output, to a wall jack to route to TOC. At TOC, AES audio was connected to a loaner Tieline Bridge-IT connected to the campus network. The companion end of the Bridge-IT at the old studio was connected to the STL. We had to continue feeding the old STL and transmitter until the mast and antenna were erected. The second patch cord allowed an Axia node to be routed from an RJ-45-equipped TV wall plate at the lobby. Since the node uses power-over Ethernet (POE), all we had to do was connect mic and 600Ω headphones to do pledge breaks. Soon thereafter, it became necessary to move production and an existing Enco system to the new site as well. Yes, we moved and operated the station from the new site while building the new site. The presence of so much RJ-45-ready infrastructure made it possible

EQUIPMENT LIST

- Allen & Heath GM24
- Appo Blu-Ray
- Aurora DMX88
- Avocent AMX5100
- Axia Element, Power Station, Radius, Pathfinder, Network Drivers, Smart Surface, nodes
- Belden cable
- Burk remote controls
- BW Broadcast processor
- CBT Systems on air/recording lights
- Cisco and HP switches
- Comrex Access, Access Portable
- Crestron HDX5P
- Day Sequerra modulation monitor
- Dell and HP servers, PCs and monitors
- Denon DNC640, DNF650R
- Electro Rack Barracuda
- Harris HD+
- Henry Engineering Multiport, Matchbox
- Inovonics 632
- Intraplex NetAccess Multiplexer
- Lectronsonics DM812
- Lucid SSG192
- Master Clock Systems MCR5000
- Middle Atlantic Products KVM drawers
- Neumann TLM102
- OC White ProBoom
- Ortronics and LCOM structured wiring products
- Panasonic projection and camera devices
- Presonus Digimax D8
- Radio Systems Studio Hub+ headphone amps, integration products
- Samsung TV monitors
- Sony MDR 7506
- Studio Technology Furniture
- Studio Tools AES DA
- Tieline Bridge-IT
- Valcom powered ceiling speakers
- WatchFire and Tightrope Media Digital Signage
- Wohler, Genelec and QSC K-series monitors and speakers
- Wide Orbit 3.5

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to reconfigure many systems with little planning as needs changed.

The performance studio and a few other spaces share an Audio Visual system including video projector and motorized screen, Crestron 5.1 surround sound with stereo mixdown to QSC K-series powered monitors under the control of a Lectronsonics DM series processor, Blu-Ray player, VGA/HDMI wall ports, PTZ HDMI cameras, signage and video streaming servers all to an Aurora 8x8 HDMI/HDBaseT Matrix. The outputs feed GM, conference room, lobby, reception and projector destinations. Video and song now playing are also routed to a massive ticker-style moving message sign that wraps around two sides of the studio building.

The technical operations center (TOC) sits between the performance studio and the other control rooms.

The facility has a master clock, however it is not GPS derived. Because the station carries network programming, it was felt better to receive and generate an NTP clock derived from the NPR/PRSS receiver. This clock is distributed over the networks to console, automation and wall clocks.

The studios, TOC and transmitter room share access to the building's 480Vac/650kVA generator. The transmitter room also has an Emerson 45kVA UPS with maintenance bypass and Emerson computer room grade A/C.

Bukont is owner of E2 Technical Services, Nashville, TN.

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Exploring More From Google Earth

by Doug Irwin
CPBE DRB AMD

I appreciate receiving reader feedback, and I received some from the August 2013 Tech Tips about using Google Earth (G-E). The basic message was that while G-E is interesting, the fact that it doesn't show obstacles in the path limits its usefulness. Additionally, if you were to use it for a path study, it doesn't give you any information about Fresnel clearance along the path. All true, of course, but it is free, right? You can't expect to get too much for nothing. But there are ways to get around the limitations.

Los Angeles and a mountaintop (Pleasants Peak) that is some 38 miles to the southeast. Originally I just wanted to know if there was anything major in the way that would totally preclude this from being a viable radio shot at 950MHz. Just looking at the profile gives you the impression the answer is no; there's nothing big in the way. Once you have an elevation profile such as this created, zoom in and follow it all the way from one end to the other, which will give you a decent idea as to whether or not there are buildings in the way (especially when part of the path goes over a city).

You now have the G-E-generated path and results of the free Fresnel zone calculator, and you've determined the path is good, so you licensed a new radio shot. The antenna is put up on a tower or pole and you're ready to align it. However, it's cloudy and you can't see the far end. Don't be frustrated, call on G-E again and open the original path profile. Zoom way in on the end you're working on. The red line that represents the path from end to end will give you a good starting point on how to point the antenna using local landmarks, so at least you can get started on the path alignment (even with the clouds).

Figure 1. An elevation profile from Google Earth.

If you use G-E in the manner I described in August, you'll have an elevation profile between two points. As an example, see Figure 1.

This is an elevation profile (redrawn for clarity) between one of our AM transmitter sites in

You can purchase software packages that will generate the same terrain profiles in addition to providing the Fresnel zone clearance along the path. (These software packages do much, much more as well, which is why they have a price attached.) If you can't afford the software, what do you do? Reader Dave Day suggests RadioMobile, which is freeware that you can use to find Fresnel zone clearance along the path. I suggest you also look at the free Fresnel zone calculator available from Afar Communications. Online searches will provide other sources, but I find the Afar to be the most user-friendly. One caveat, however: resolution is 1 mile.

SATELLITE AIM

Along the same lines as this, you can also find tools on the Internet to help you align satellite dishes. I know there are quite a few of those but take a look at one from Satcom Resources (satcomresources.com/Satcom-Dish-Pointer-with-Google-Maps). This will get you in the ballpark helping you to find the right satellite (which always seems like the hardest part). Again, when you zoom in, you can see local landmarks at which you can point the antenna for starters.

Irwin is RF engineer/project manager for Clear Channel Los Angeles. Contact him at doug@dougirwin.net.

RESOURCES

RadioMobile | cplus.org/rmw/english1.html
Afar Communications | afar.net/fresnel-zone-calculator
Satcom Resources | satcomresources.com/Satcom-Dish-Pointer-with-Google-Maps

WE NEED YOUR TIPS

Tech tips may be suitable to earn SBE recertification credits. Send your tips to radio@RadioMagOnline.com.

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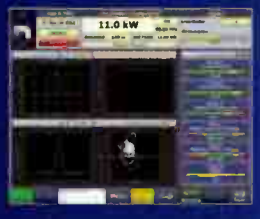

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Video Cameras

by Chriss Scherer, editor

Video is everywhere, and it's an easy addition to a station's online presence. Taking video at remotes and concerts, or video of an artist interview is common, but radio shows can also create added video feature content on the street as well.

Pretty much any modern phone can take video, so why get a dedicated video camera? Just like a dedicated audio recorder, the unitasker is designed for the function and it does it very well. The main advantage is the improved optics. Video cameras offer many other functions, and can accommodate a variety of lighting conditions. Cameras also have a tripod or stand mount, which is very helpful.

For our rundown we looked at models targeted for pro audio use or are designed to be more robust. Chances are, this equipment will be in the hands of those why may not be the most responsible, so rugged performance is important.

Alesis Videotrack
This camera has a pair of condenser microphones for better quality recordings. It records directly to the included 2GB SD card, and it will accept a card up to 16GB. The camera connects to a computer via USB, and includes PC software to manage videos. It records at 640 x 480 resolution in MP4 format. It's powered by an internal, replaceable, rechargeable battery. A composite video output allows monitoring or playback to a TV or computer screen. It can also take still images.
alesis.com

Canon Vixia mini
This compact camcorder has a fisheye lens (160° movies/170° photos) that (according to the manufacturer) offers a unique and creative perspective. It offers a wide mode and close-up mode, which can be toggled via the LCD screen. It captures 1080 video in MP4 format and can take 12Mp photos. Storage is handled by a removable microSD memory card. Built-in Wi-fi simplifies video sharing and allows for live streaming. It features a tiltable 2.7" capacitive touch panel LCD, adjustable integrated stand, tripod socket and built-in stereo mic. Available in black or white.
usa.canon.com

Panasonic HX-WA03
This pistol-style camera is waterproof, freeze proof and dustproof, which is ideal for less careful users. It records up to 1080p video to its built-in 65MB memory, but it also accepts an SD/SDHC/SDXC memory card. An active image stabilizer avoids camera shake, and the focus can be set to auto or manual. It records to MP4 H.264 format. It has a built-in stereo mic for audio pick up. 16MP still photos can be captured as well. It is available in white with blue or black with orange.
panasonic.com

Sony HDR-GW77V/B
This waterproof, dustproof and shockproof camera has image stabilization, various lighting modes, face detection, auto focus, and several on-board features to aid in shooting. The pistol-grip style case has a flip-out monitor that can be adjusted to any viewing angle. It captures video up to 1080p resolution as MP4 (MPEG-2 for SD), and it can also take still shots up to 20MP. It records to Sony Memory Stick Micro and MicroSD/SDHC cards. Connections include USB, mini HDMI and external power.
sony.com

Samsung HMX-W300
Waterproof , shockproof and dustproof, this 1080p HD recorder might be rugged enough to stand up to the most careless users. The built-in USB connector is used to charge the camera and transfer files to a computer. Files are stored on a microSD card. There is also an HDMI connection to playback directly from the recorder. It can capture up to 5.5MP still images as well, and sports a tripod thread mount. Available in black, red and orange.
samsung.com

Zoom Q3HD
Recording both HD video and HD audio (24-bit/96kHz), the Q3HD takes Zoom's audio technology and combines it with 1080p video. This point-and-shoot features both full HD 1080p at 30fps and 720p at 30 or 60fps. A 4x digital zoom and a larger, redesigned aperture is paired with three lighting settings. The Q3HD uses the same microphone capsules as Zoom's H4n recorder, configured in a wide 120-degree X/Y pattern, for stereo recordings of unsurpassed quality and depth. Setting audio levels is easy using the onboard level meters and mic gain switch with auto gain control.
samsontech.com/zoom

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Compact Radio Console...

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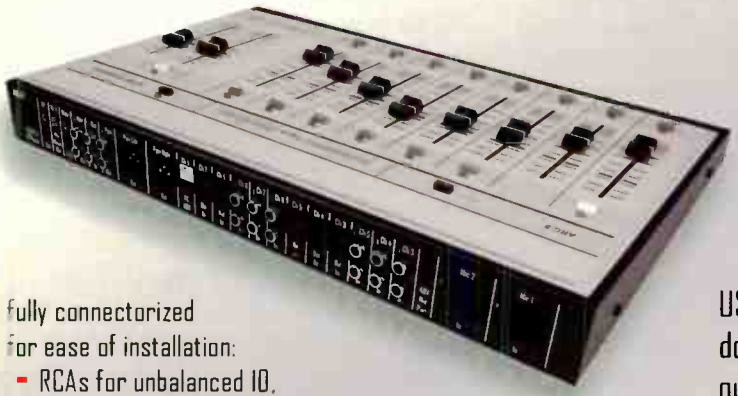

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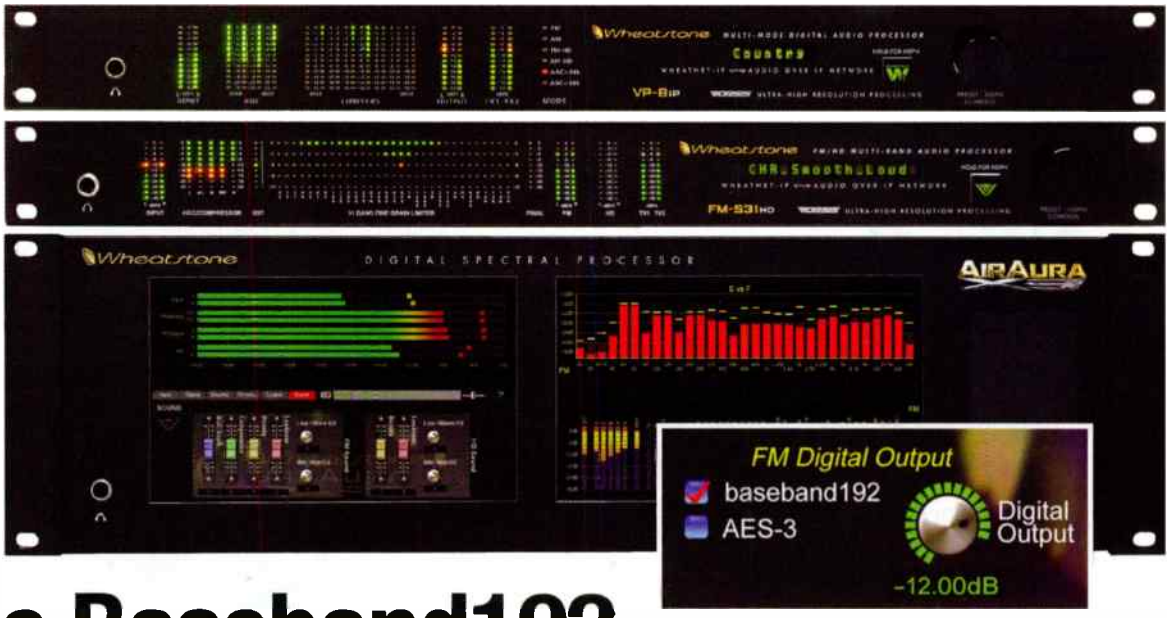

Wheatstone Baseband192

by Steve Dove
Wheatstone Corp.

It seems quite extraordinary given our serious computer-in-the-pocket lifestyle that it has taken until just recently for FM to become (potentially) digital end-to-end. Everything between the microphone and speaker can be digital, at last, all while maintaining the legacy FM RF path.

The main reason for the airchain processor traditionally sitting at the transmitter site has been to minimize communication aberrations: A few feet of BNC-to-BNC was, for the most part, less impactful on the signal than any STL. Now with baseband192 — where the entire MultiPleX (MPX) signal is generated digitally by the airchain processor, and captured and modulated digitally by the exciter with no intervening conversions or modifications — the processor can happily sit at the studio complex where it belongs. It can be where monitoring is good and its blinkiness adored by all. All in the sure knowledge that the signal isn't going to get even the slightest bit bent before it hits air, assuming a solid enough and wide enough link along the way.

The last significant breakthrough has been the digital FM exciter. Although Direct Digital Synthesis (DDS) and similar techniques have been around a while, it has taken the serious efforts of the transmitter manufacturers (tips of the hat, fellas) to perfect the technique, in particular the minimization of sampling-frequency artifacts. What we now have is a method whereby one input digital word results in a particular exact transmitted frequency. And does so next Tuesday, too, free of most inherent analog "wiftiness."

WHEATSTONE
252-638-7000
wheatstone.com
sales@wheatstone.com

YOU TRANSMIT DC AND DON'T KNOW IT

A less than obvious benefit to this is that the end-to-end frequency response of the system can now extend down to dc. It never really could before, since an oscillator capable of being frequency modulated also needed to be reminded where its center frequency was supposed to be, usually by a servo mechanism operating at and near dc. This precluded audio modulation getting too low in frequency. Indeed, over-enthusiastic amounts of LF energy could catapult a modulator out of lock and the station off the air. (Ask me how I know.) The necessary high-pass filters imparted either phase-shift and group-delay, or if done digitally with phase-linear filters, additional broadband latency. None of which are palatable.

Additional latency can preclude the use of the off-air signal for announcer monitoring, or for as a free cue path for remotes and such. As for phase-shift, any — that's any — modification to the carefully and exquisitely constrained signal leaving the airchain processor messes it up; while in this matter attention is usually focused higher up in the spectrum, LF phase shift from such high-passing counts. The main effect is to partially undo the hard-won and expensively crafted peak-control, creating overshoots. Either these have to be accommodated by reducing the average signal power (precious loudness, poor dears), or further re-processed out. A pure digital path finally does away with this perennial bugbear.

And hip-hop stations can rejoice in unfettered thumpiness.

IMPLEMENTING BASEBAND192

From the outset the Wheatstone processor hardware platform — essentially common across all our airchain products — has used 192kHz for internal connectivity, and our AES-format transceivers are programmable as opposed to constrained by the capabilities or otherwise of third-party chips. In short, implementing basband192 was a doddle — everything was already in place.

Additionally, we have always treated SCA sources differently. We A/D them at source, then add them into the overall transmission MPX digitally. Why is this important? The common way of dealing with RBDS and SCA signals (narrowband modulations typically centered at 57, 67 and 92kHz) has been to sum them into the MPX output in analog after the fact, which is obviously impractical in an all-digital stream.

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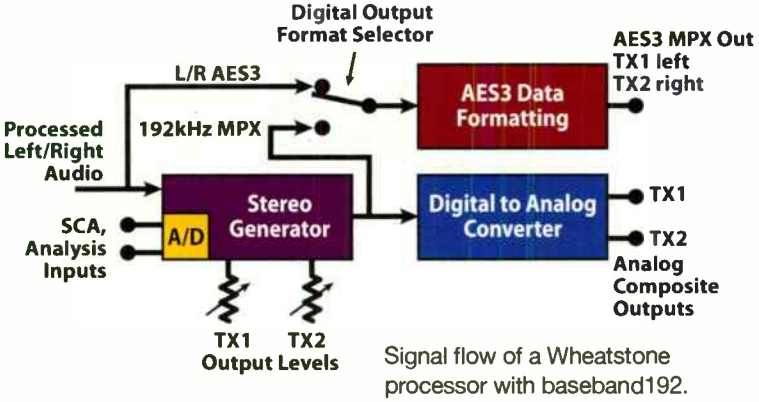
Doing so defeats the purpose and advantages. Already having the SCAs in the digital domain as part of the digital MPX stream gave us a complete, ready, baseband192 solution today without heroic redesigns to contend with.

BASEBAND192 FORMAT

The baseband192 AES3 format at first seemed puzzling — just using the left channel of a 192kHz sample-rate AES3 format. The engineer in me initially thought that ping-ponging left and right on a 96kHz AES3 would be probably both more readily generated and decoded — common chips handle 96kHz with ease — and was less problematic to transport. That said, running straight 192kHz does have the advantage of not requiring anything fiddly at the receive end to de-interleave the signal. However, since straight 192kHz was a given (determined by and obviously convenient to a transmitter manufacturer), unused capacity within the 192kHz stream exists, and has potential. Presently, Wheatstone processors are sending two separate transmitter feeds down the left and right channels of baseband192.

384kHz sampling of the MPX has been suggested, with the samples interleaved ping-pong fashion onto the existing baseband192 192kHz stream; this would allow bandwidth capability far exceeding that ever used in analog FM, encompassing in particular the once-common 92kHz SCA slot, rendered marginal at best by 192kHz sampling. This, however, makes the assumption of a need for the bandwidth.



Signal flow of a Wheatstone processor with baseband192.

DON'T SHOOT THE MESSENGER!

A squint around a few markets minor and major with a baseband spectrum analyzer has shown modest SCA usage beyond 57kHz RBDS, and none at 92kHz. I'm certain there are some 92kHz SCAs out there somewhere, but — don't yell at me — this hardly seems a realm undergoing bursting growth. In fact, far from it. This is hardly surprising given the defection to more convenient, ready, and capable satellite or Internet distribution by those once interested in SCAs.

Although the additional capacity in baseband192 is a temptation, it should be borne in mind that whatever may be dreamt up for this fallow stream will require specific software/hardware to unfurl, something the present simplistic and AES3 compliant method avoids. Any additional effort and complexity beyond baseband192 is probably best put toward true network connectivity between processor and exciter.

That, as oft said, may well be "the rest of the story."

Dove is minister of algorithms at Wheatstone Corp., New Bern, NC.

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NEWPRODUCTS

Microphone | MicW

E150 Series: The E150 Series uses a micro-perforated stainless steel panel as a front grille with 2,300 holes and a diameter of just 0.25mm. The resulting effect reduces popping and sibilance without any negative impact on the overall quality. This technology is very common in aerospace and industrial audio measurement. It enables every nuance of the signal to be transmitted unaltered. Recordings sound extremely natural and rounded with high resolution and transient response. Polar patterns include: cardioid (E151), hypercardioid (E152) and omni (E153). Frequency response is 20Hz-20kHz with 48V phantom power.

mic-w.com

Stand-mounted acoustical panels | Auralex Acoustics

DeskMAX: These portable, lightweight, highly effective absorption treatment solution offers quick and easy setup and teardown. DeskMAX is intended for recording, mixing and performance applications. This pair of 2'×2'×3" Studiofoam panels mount to the included desktop stands and can be used to tame unwanted reflections in recording studios, live rooms, classrooms and or any location where boundary-mounted acoustical treatments aren't feasible or desirable.

auralex.com

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of
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www.hosatech.com

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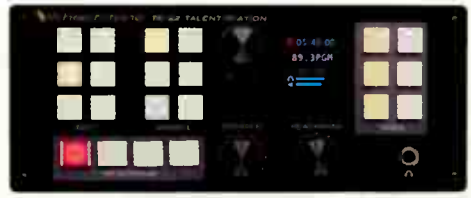


Talent station | Wheatstone

TS-22: The TS-22 talent station is a single panel controller that plugs into the Wheat-Net-IP Intelligent Network to provide controls for mic, headphone, amplifier and speaker levels all in one turret. No outboard equipment required and no wiring it all together. It's all in one IP-accessed turret, including power-over-Ethernet.

wheatstone.com

Eight-outlet vertical power strip | Panamax

Vertex VT-EXT: Panamax/Furman's Vertex VT-EXT provides integrators with eight outlets (three with transformer spacing), addresses ground loop issues with specialized mounting brackets, and simplifies cord management to reduce installation time. The vertical power strip is designed to be used in conjunction with a Panamax/Furman power management unit for providing clean, safe power. The Vertex VT-EXT features mounting clips with plastic spacers that allow the strip to be mounted vertically to an equipment rack while helping to prevent ground loop issues. The unit's vertical orientation allows integrators to use various length component power cords to save space, eliminate cord clutter, and drastically reduce installation time. In addition, the unit features a detachable 10' power cord that can easily be swapped out for a shorter cord if desired.

panamax.com

World Radio History

Loudness Quality Logger | RTW

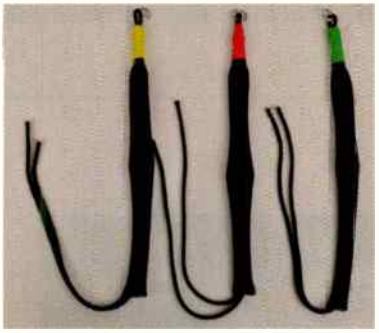
LQL: LQL is a tool for logging, true-peak data analysis and reporting that is compatible with the TM7, TMR7 and TM9 TouchMonitor line of products. It enables data to be derived directly via an IP-connection from a capable TouchMonitor audio meter, as well as from external storage media such as a USB stick. Also included in the software are dual limit weighting, status information, marker and various other reporting features. The new PC software is free of charge to users, however the SW20014 LQL license is required to enable a TM7, TMR7 or TM9 series meter to be compatible with data export and additional display functions.

rtw.de

Desktop rack stands | Lowell Manufacturing Company

LRS Series: Made in the United States with 100 percent certified U.S. steel, the LRS has a small footprint with just enough rack space (8 or 12RU) to hold smaller AV or IT equipment arrangements where space is limited and a full-sized cabinet is not needed. The compact design works as a freestanding rack or it can be bolted to a desk. Either way, it's ideal for convenient access to mounted electronics. The LRS desktop rack stand features 11-gauge steel rails on a 10-degree angle for easy viewing of mounted equipment. It's engineered to meet EIA rackmount standards and has a load capacity of 80lbs.

lowellmfg.com



Cable-pulling tool | FSR

DR-SOCK: DR-SOCK is a handy and affordable cable-pulling tool designed to simplify and accelerate every installation requiring cables and connectors. It is pre-assembled, easily accessible in frustration-proof packaging, and re-useable. It protects cables and connectors from being damaged by taking the stress off the connection points while pulling through a conduit. The design opens up to 1.25" and features brightly colored sleeve tips to enable easy identification, and a steel ring to allow quick and positive attachment of a pull snake.

fsrinc.com

Studio monitors | KRK Systems

Rokit G3: Available in 5", 6" and 8" options, the Rokit G3 features a lightweight yellow composite woofer and a unique tuning process that treats the woofer, cabinet and port as a single, integrated whole. The analog, bi-amped, class A/B amplifier has also been enhanced to maximize headroom while retaining minimal distortion. KRK monitors are engineered to deliver clean, accurate sound at any volume level. Each monitor in G3 line features an upgraded 1" silk-dome tweeter that provides response up to 35kHz.

krksys.com

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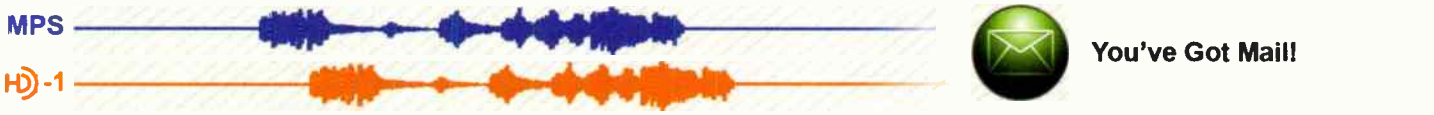

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NEWPRODUCTS

Portable recorder | Yamaha

Pocketrak PR7: The Pocketrak PR7 provides high-quality recordings whenever and wherever you need. Equipped with a newly developed crossed XY stereo microphone, the PR7 captures high-resolution stereo recordings, achieving consistent quality and natural sound. Additional tools for music recording include an onboard tuner and metronome, while overdubbing and marker editing, which are easily accessed via a simple, intuitive interface, can be used for field recording. It also features five optimized presets tailored to a variety of applications.

yamaha.com/proaudio

Sound loops | Steinberg

VST Loop Sets: Three new VST sound loop sets include Klanghaus, Platinum Guitars and Guitar Spheres. Klanghaus offers nearly 300 experimental sounds, created by German musician, instrument maker and composer Ferdinand Forsch. The loops and samples concentrate on rhythmical patterns and percussive elements, perfect for a wide variety of music styles. Platinum Guitars comprises more than 300 acoustic guitar and electric guitar loops of rhythmic phrases, melodic leads and catchy riffs. Guitar Spheres has more than 300 guitar loops including a broad scope of processed, six-string ambience.

steinberg.net

UPGRADES AND UPDATES

V-Soft has issued a summary of the updates made available to its FMCommander program since the beginning of 2013. These updates and other fixes can be found under the Help menu by selecting Show Update Version History. (v-soft.com) ... **Nokia**'s business unit HERE announced that Mitsubishi Motors North America has launched HERE Traffic including real-time information on traffic and weather, and is the first to offer updates on fuel prices delivered by HD Radio for drivers in the U.S. (hdradio.com) ... **IBiquity Digital** has relaunched HDRadio.com and released the first HD Radio Guide App for iOS and Android. (hdradio.com, ibiquity.com) ■

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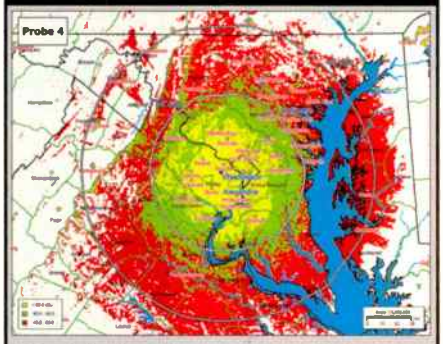

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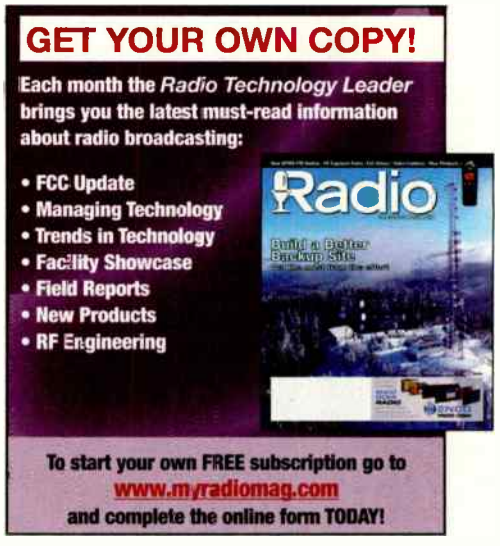

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The History of W9BSP

by Chriss Scherer, editor

In 1922, Marshall H. Ensor, a 22-year-old industrial arts instructor at Olathe High School in Olathe, KS, just outside Kansas City, earned his amateur radio operator license. His interest in radio began in 1916 when he built a spark-gap radio that he operated until the end of WWI in 1918.

Above: 1937, Loretta Ensor W9UA, with brother Marshall H. Ensor. Right: The transmitter in 2013.

This story sounds very much like other early radio operators around the United States early in the 20th Century. But for Marshall Ensor, his hobby continued to grow. In 1929, Ensor began working with the American Radio Relay League to broadcast radio lessons to the listening. He did so under the call sign W9BSP. With the help of his younger sister Loretta, who earned the call sign W9UA, the two taught "Radio by Radio" nightly during December and January for more than 10 years. Their radio transmitter was located in a small room off the kitchen of their parents' dairy farm home.

For his work in educating other radio enthusiasts, Marshall Enso Marshall was nominated to receive the coveted Paley Award for "Distinguished Service to our Country by an Amateur Operator" in 1940.

He and Loretta made plans to turn the dairy farm into a private museum, free by donation. Marshall died in 1970. Loretta continued using the transmitter until 1972. She died in 1991. The museum opened in 1975.

The transmitter sat unused after 1972. Larry Woodworth, WØHXS, the manager of Ensor Park and Museum since 2003, and others agreed that it was fitting to restore the original transmitter. Original hand drawn schematic diagrams of the unit were found in 2003. Harry Krout, WØYQG, and his son Joe Krout began working on the project in May 2010. On Jan. 2, 2011, at 1:32 PM, the classic transmitter returned to the air.

The volunteers at Ensor Park and Museum are proud of their work to preserve this piece of radio history, and will eagerly share all the stories you want to hear. The Kansas City chapter of the Society of Broadcast Engineers (Chapter 59) visited the facility for a meeting this past summer.

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