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AT LEAST NFL SUB REFS WERE WORSE

iStockphoto/Adam Kazmierski

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ALL STATIONS GREAT AND SMALL

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Automation Suit Takes Another Twist

Patents are to be examined yet again; case now seems likely to go into 2013

BY RANDY J. STINE

A decision by the U.S. Patent and Trademark Office is expected to delay further a prominent lawsuit involving radio automation technology.

The USPTO, citing "prior art" not previously available, granted second reexamination requests of the patents that lie at the center of an infringement suit that targets a half-dozen large broadcast groups. The development is encouraging for the defendants and other radio broadcasters, according to a patent attorney familiar with the review process.

The patentee and plaintiff is DigiMedia Holding Group LLC and its associated company Mission Abstract Data, which has been aggressive in pushing some radio broadcasters to sign licensing agreements. The patents pertain to the selection and retrieval of music from an online digital database stored in a hard drive for transmission by a radio station, according to the USPTO.

The office is ordering all or some of the claims from patents 5,629,867 and 5,809,246 to be reexamined again in light of what it calls "substantial new questions of patentability" raised in the reexamination request.

"A substantial new question of patentability affecting claims 1–10 of U.S. Patent Number 5,629,867 issued to [Robert] Goldman is raised by the request for ex parte reexamination. The requested claims will be reexamined," wrote a USPTO reexamination specialist in the most recent order. The USPTO issued a similarly worded statement about the majority of claims in the second patent.

Observers who have reviewed the USPTO findings said that new or addi-

(continued on page 3)

Station Chosen for All-Digital AM Test

Experiment details are still being worked out

BY LESLIE STIMSON

More information is dribbling out of the NAB Radio Technology Committee about its plans to test all-digital AM HD Radio technology on an existing radio station.

A test station has been chosen. Look for testing to begin "probably right after the presidential elections," said CBS Radio Senior Vice President of

(continued on page 6)

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PATENTS

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tional prior art has been discovered that bolsters claims of broadcasters and equipment sellers that the technology had existed in the marketplace prior to patents being issued.

CHANGED HANDS

The patents originally were issued to Goldman, an inventor, in 1997. They have changed hands several times before becoming property of Mission Abstract Data, which has been described by some observers as a "patent troll."

The ex parte reexamination requests, filed by Broadcast Electronics, were granted in August and allow the patentee 60 days to file a response. The deadlines for DigiMedia to respond are Oct. 21 and 23. It will be allowed to provide more information to the examiner about why each patent is different from the prior art.

Broadcast Electronics is an automation systems supplier to broadcast groups; it is not a defendant in the lawsuit.

The patent infringement suit, which has been followed closely by broadcasters, was filed by Mission Abstract Data LLC in March 2011. That federal case — in United States District Court for the District of Delaware — has been on hold since the presiding federal judge issued a stay late last year.

RW reported earlier this summer that the plaintiff had asked the judge to lift the stay and accused the defendants of employing a delay strategy. The defendants include CBS Radio, Cumulus, Greater Media, Beasley Broadcasting, Entercom and Cox.

Attorneys told Radio World it is unlikely the judge would lift the stay, given that the second reexamination requests were granted.

Fletcher, Heald & Hildreth communications attorney Harry Cole, a contributor to Radio World, wrote in his firm's CommLawBlog that another reexamination likely will take until early 2013.

"While the mere raising of questions doesn't rise to the level of final conclusions, we suspect that it can't be a good sign for anybody hoping to rely on the patent subject to such questions. We'll just have to wait and see how the further reexamination proceeding comes out," Cole wrote.

After the first reexamination, USPTO examiner Jason Proctor last year rejected many of the key claims in the patents held by DigiMedia but upheld others. But the company then amended some of the rejected claims; once reviewed by the examiner, these were later determined to be patentable.

The Patent Office is likely to assign a different patent examiner for the second reexamination to avoid any appearance of bias, according to Bill Ragland, a patent attorney with Womble Carlyle Sandridge & Rice.

"It's mostly to have a second set of eyes looking at the material. This can be very complicated material, with lots of subtleties," Ragland said.

Expect to see a see a similar schedule as the first reexamination, Ragland said.

"There will be some back and forth between the USPTO and the Mission Abstract Data people. Then the USPTO will decide whether or not any changes to the patents need to be made, whether any claims will be confirmed or whether any claims totally rejected," Ragland said. "And MAD can still appeal if they do not agree with the findings."

Ragland, who is familiar with the federal lawsuit but not involved with it, said the latest developments are "not all that common" but would not call the developments "highly unusual."

"Obviously, the new art is quite compelling for the USPTO to go to the extent of granting another reexamination," Ragland said. "The MAD lawsuit depends totally on the validity of those two patents."

Prior art submitted by Digilink and Dalet played a role in the first reexamination of patents. The new reexamination certificates cite new prior art from Katz, RCS and ENCO along with some existing patents held by several parties not previously viewed by the examiner.

Meanwhile, a number of radio broadcasters have reported receiving letters this summer from DigiMedia requesting they sign a licensing agreement in order

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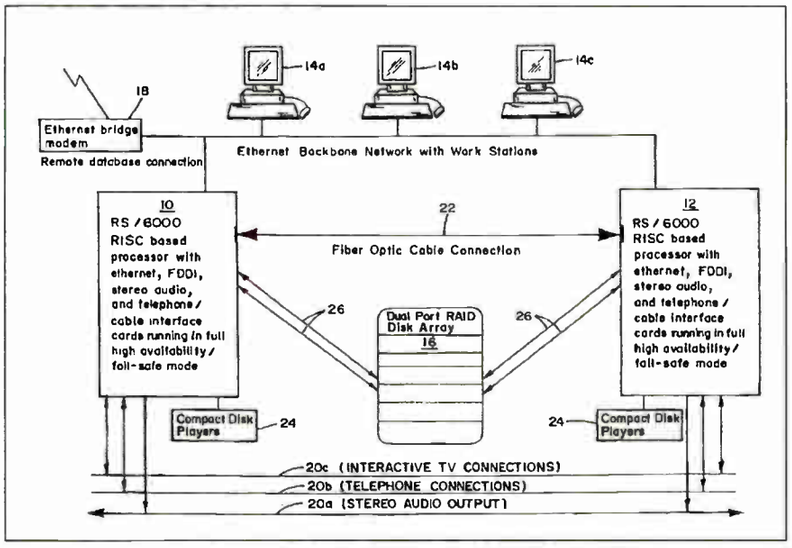

This is from a United States Patent & Trademark Office document describing the disputed patent for selecting and retrieving of music from a digital database.

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AUDIOARTS

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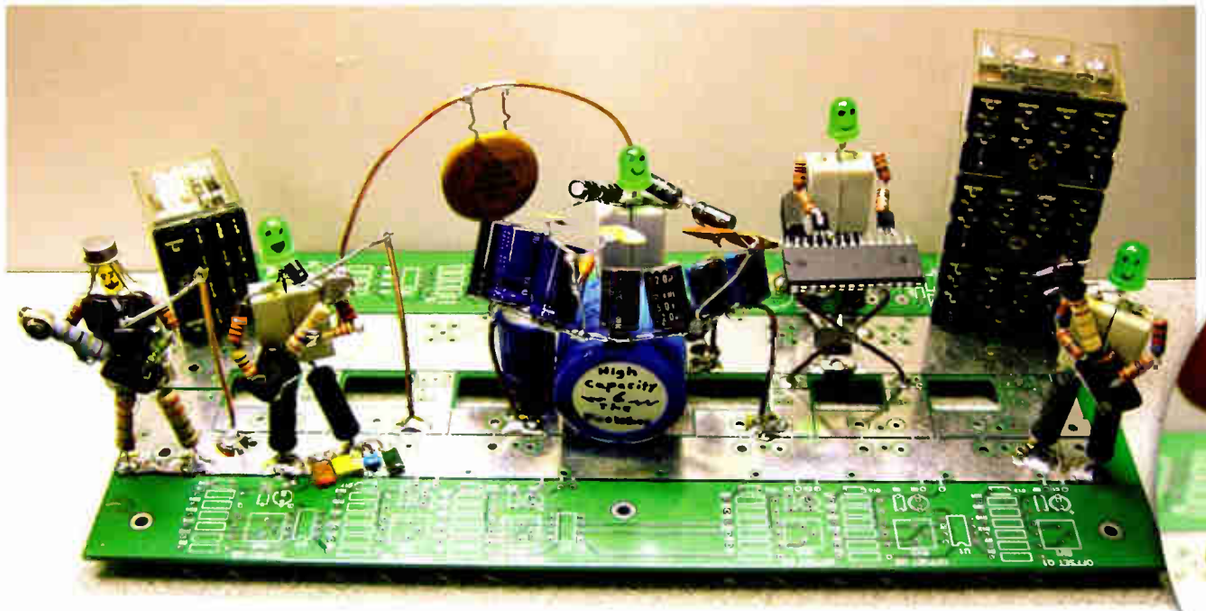
Willie, High Capacity & The Resistors

FROM THE EDITOR

Paul McLane



Every band needs a tight groove laid down by the drummer.

Willie Barnett recently spotted a picture on Facebook of a little three-piece "band" made of capacitors, resistors and LEDs.

He liked it, but felt it ws a little crude. "As soon as I saw it I was *inspired*, and started building my little masterpiece!"

Barnett was morning announcer, music director, production manager, traffic manager and chief engineer (all at once) for most of his 20 years at WFIF(AM) in Milford, Conn. He now is a part-time engineer at WIHS(FM) in Middletown and works as a service tech at Krell Industries. He also worked for several years in a small electronics shop, assembling, troubleshooting/repairing, prototyping and assisting in new product development.

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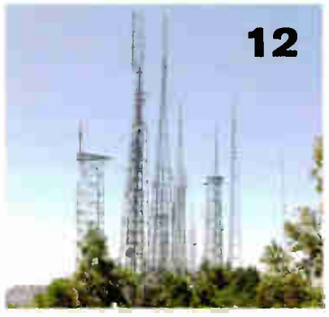

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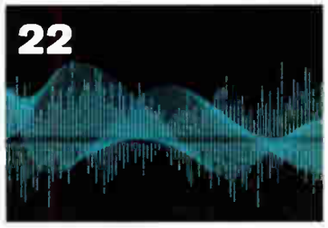

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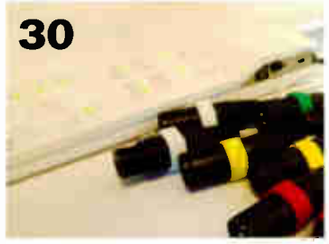

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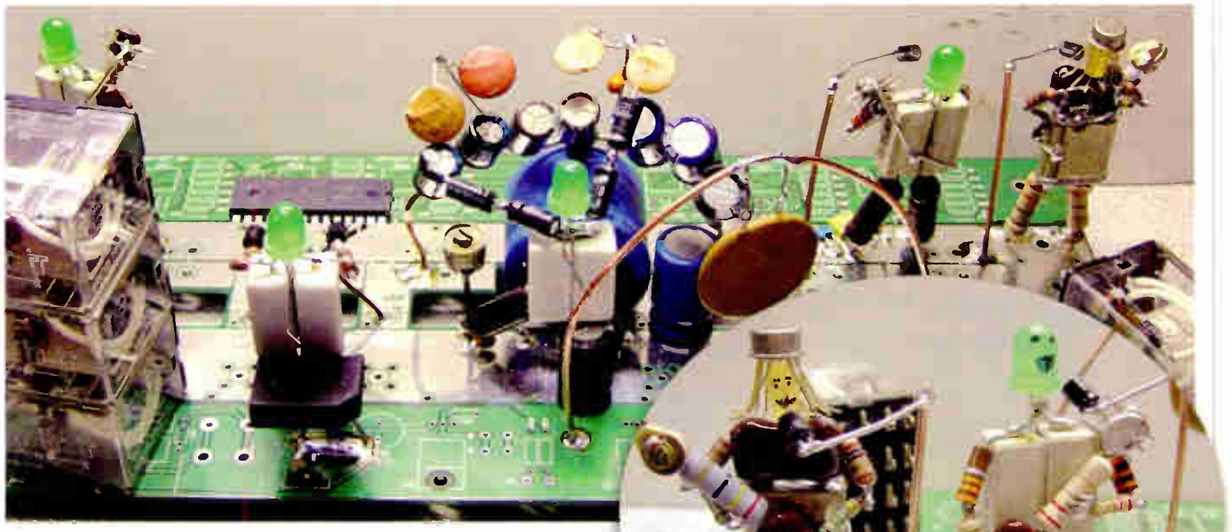

Above is the view if you have a backstage pass.

Barnett credits this Facebook image for inspiring him. It was titled L.E.D. Zeppelin. He doesn't know who created it.

Rhythm and lead guitar/vocals.

L.E.D. ZEPPELIN

(continued from page 4)

It had never crossed Willie's mind to make a sculpture out of parts until his Facebook find inspired him. But he has several musician friends and has acquired a reasonable level of knowledge regarding band equipment and how it is set up. His project took about 10 hours.

I asked him what kind of reactions he has received to his creation. "Overwhelmingly positive! Anyone with even a small interest in electronics, or who has at least seen the inside of various electronic devices, appreciated it that much more." He has declined suggestions to sell it on eBay.

I think it's boffo. Willie dubbed the band "High Capacity & The Resistors" at the suggestion of his spouse Kim; he also thought of "High Fidelity," "Clear Circuitry" and "The Components." ("L.E.D. Zeppelin" is spoken for.)

Any other suggestions for band names? Write to *radioworld@nbmedia.com*. Best suggestion wins a Radio World T-shirt.

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AM DIGITAL

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HD Radio system is the most efficient path to all-digital at a time when spectrum is becoming more precious.

"Our government won't give us any spectrum," one source said. "They may not take away what we've got, but they're certainly not giving us any more."

Another observer commented that some critics may not understand the nuances AM owners face in trying to get a regulatory scheme through the FCC.

According to its backers, criticism of the iBiquity AM system serves little purpose at this point because it's the technology the industry has available to it. Meanwhile, they say, traditional "distance listening," long enjoyed by many analog AM stations, has become less relevant as more consumers move closer to cities. Further, people under 25 have no significant awareness of the AM band, so some action to improve the situation is needed.

"People simply don't look there for anything," said one observer of the AM band. "So if there's a new technology that gets them to what they want to hear with the device they've got, be that AM/FM, Pandora or whoever, it's up to the marketing to tell people where to find it."

It's an era when consumers generally no longer hit "seek" on a radio anymore to find a frequency or station.

Yet given the history of debate over HD Radio, particularly over its troubled implementation on AM, the discussion over whether and how to pursue an all-digital AM option is likely to be heated.

CONFIDENTIAL REPORT

Meanwhile, the NAB committee's report about options to improve AM has not been made public — and may never be. The association has said it has no current plans to release the document publicly.

A committee source said the report is extremely technical and would need to be heavily explained and/or possibly watered down for consumption by non-engineers.

A committee source said the report is extremely technical and would need to be explained and/or possibly watered down for consumption by non-engineers.

Asked why discussions about options for AM improvement are taking place behind closed doors, engineers told Radio World said they are following the wishes of the NAB board, which consists of executives from member radio groups.

Closed meetings are typical in such situations, according to the leader of one NAB member company. The executive said that if such meetings were open to reporters, no one would feel free to participate and no work would be accomplished.

PATENTS

(continued from page 3)

to use the technology.

It's unclear how many broadcasters have signed licensing agreements; DigiMedia has never released figures. Townsquare Media LLC, originally named as a defendant in the patent infringement case, was dropped from the suit in July 2011. That development fueled industry speculation that the two sides reached a settlement and likely entered into a licensing agreement; both declined to comment on the speculation.

Communications attorney Cole said he continues to caution broadcasters to check with competent patent counsel to determine the validity of the patents at this point, especially considering the need for a second patent reexamination.

"The MAD letter is based on the assumption that MAD has patents covering this particular technology. Therefore, the stations are infringing and should be paying MAD money to use that technology. The MAD claim falls apart if there are questions regarding the validity," Cole said. He, like Ragland, is not involved in the lawsuit.

Cole reminds broadcasters that the first reexamination narrowed some of MAD's patent claims but that "the USPTO ultimately did uphold them."

Meanwhile, the patents expire in 2014, Cole said, though that doesn't mean the plaintiffs are out of luck after that point.

"If they are ultimately to win at the USPTO and that the patents are valid, (MAD) could still say that broadcasters owe for historic infringement up until the 2014 date," Cole said.

As in the past, messages to DigiMedia and MAD seeking comment were not answered.

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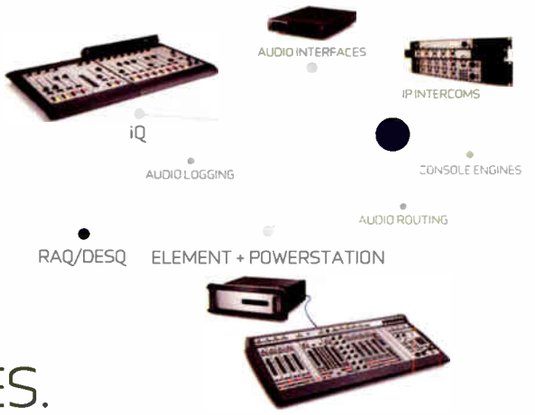

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But what sealed the deal was finding out you could run two RAQ or DESQ consoles with just one Axia QOR.16 mixing engine — you know, the one with all of the audio I/O, the power supply and the Ethernet switch built in. That brought the cost down so low that when you told your GM the price, he actually didn't swear at you (for once). Make another decision like this, and you might just be changing the sign on your door from "Chief Engineer" to "Genius."

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'Sometimes the Best Solution Is the Simplest'

But remember to label any temporary fixes as just that

Bill Harris is the market engineering manager for Cumulus Media in Albuquerque, N.M.

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

Recently Bill needed to use a 120 VAC relay to switch a low-voltage DC circuit at a transmitter site. He didn't have any little project boxes or other enclosures for mounting the relay. Then he spotted a spare plastic electrical tape box.

Bill cut a hole in the top to fit the socket, then cut a couple of slots for the wires and taped it closed. Problem solved. The finished product is shown in Fig. 1.

Sometimes the best solutions are the simplest. Thanks for sharing, Bill.

Reach Bill Harris at *bill.harris@cumulus.com*.

Phillip Vaughan is with KFRG(FM). He passes on a neat technique that he discovered.

Having a number of studio equipment racks with very poor lighting inside, Phillip used three or four white LED strips, mounting them to the back wall and tying them to a voltage supply with a power switch.

When you need to work in the rack cabinet, just switch on the supply. This eliminates the need for holding a flashlight or trouble lamp; and by using several LED strips, the interior is illuminated nicely.

Phillip found the white LED strips on the MCM Electronics website. We posted it on the Radio World Links page, *radioworld.com/links*.

Contact Phillip Vaughan at *philv@kfrog.net*.

Mike Murrey is technical operations director for TKC Inc./Vacationland Broadcasting. He poses a question to *Workbench* readers: "So what do you do when you don't have a spare 25 ohm, 100 W filament voltage rheostat lying around?"

Fig. 1: An inexpensive alternative to a project box.

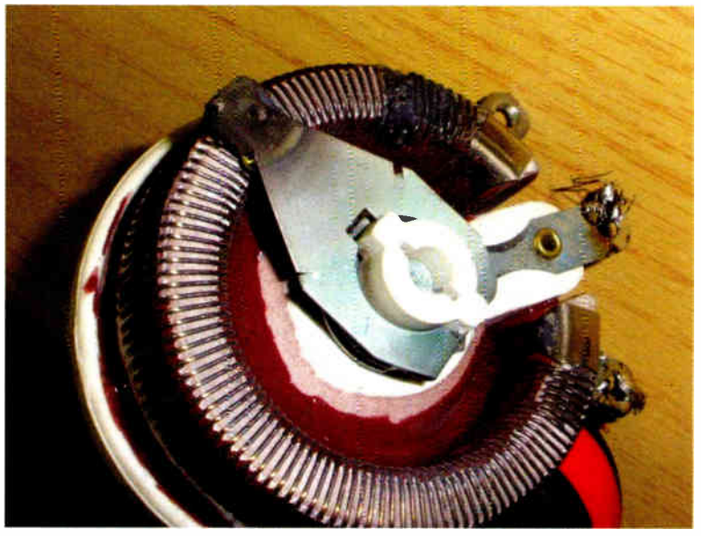

Fig. 2: A burned filament voltage rheostat.

Fig. 3: Disassemble to repair the bad contact.

Fig. 4: The repaired rheostat with its solder blob contact.

Mike's answer was to break out the surgical gear and do his best (or worst, depending on how you look at it).

When his filament rheostat burned (Fig. 2), Mike disassembled it (Fig. 3) and soldered a nice, big blob of solder to serve as a wiper contact (Fig. 4).

Don't laugh. It worked for about a week before he got a replacement installed. Yes, it ran kind of hot, but not hot enough to melt the solder. Ha! Mike FTW!

Broadcast engineers have a knack for temporary fixes. We sometimes need to think out of the box, just to keep equipment on the air. But the key word here is *temporary*. All too often, a temporary fix becomes permanent, and that's not good for the engineer's reputation or the long-term viability of the station.

If you have to do something unorthodox, make up a sign to post on the equipment noting its impermanence. This will ensure that you won't forget about the "fix," and it will alert any other engineer who may stumble upon the equipment as to the temporary condition.

Mike Murrey can be reached at *tkcinc2000@yahoo.com*.

Consultant and fellow Radio World contributor Tom Osenkowsky chuckled as he read in *Workbench* about radomes that filled with water because they'd been mounted upside down.

Tom tells of tower riggers using a fluorescent lamp to determine whether an antenna bay was radiating. Not a bad idea except for the RFR exposure issues. The same is true for unclogging radome weep holes: Be sure power is off or greatly reduced.

He passes on a related tip: Insects can clog weep holes in the base of AM towers.

Use caution when cleaning out these weep holes. More than once someone trying to unclog a base has been scorched by boiling water trapped inside. Of course, the RF to the tower is switched off when this happens, but still. Give the water some time to cool before you start the cleaning process.

Reach Tom Osenkowsky at *tosenkowsky@prodigy.net*.

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

John Bisset has spent 43 years in the broadcasting industry and is still learning. He is SBE certified and is a past recipient of the SBE's Educator of the Year Award. He recently joined transmitter company Elenos USA.

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The Taller the Tower, the Taller the Tale

From California to Wyoming to Texas, tower site experiences are as varied as the geography that surrounds them. Shown: Mount Wilson.

BY JIM WITHERS

In 46 years of hanging around, working at, managing and eventually owning broadcast stations, I have been to dozens of tower sites. Some of these sites are fantastic, others are mundane and some are downright nasty.

There is one that is located downwind of a waste-water treatment plant. I want to grab a bottle of Lysol every time I think of it.

All of them, though, come with stories.

MOUNT SUTRO

Mount Sutro in San Francisco is one of the fantastic tower sites. Sutro Tower was finished in 1973 and, at 977 feet (or 981, depending on whose figures you believe), is the tallest freestanding tower in the country.

But it's not about the height. Instead, it's about stature. The thing is immense but it's so graceful.

I have ridden the elevator (the one inside the west leg) up to the "waist" of the tower, and at that level, there are catwalks, also enclosed, that run around the tower with small equipment cabinets spaced around them. It is a very big structure.

My good friend John Swanson was director of engineering at Cox Broadcasting and the company's representative to the consortium of station owners that built Sutro. He once told me that the concrete and steel underground outweighed the steel in the air by about 50 percent, and the center of gravity of the tower is 12 feet below.

When the next big earthquake hits San Francisco, Sutro is built to just sway around the centerpoint below ground like a giant tippy-doll. All in all, Sutro is a "must see" for any serious RF engineer.

LIONS AND TIGERS AND TOWERS

RF engineers frequently find themselves driving, four-wheeling, snowmobiling or helicoptering up mountains, since, unlike stacked steel, Mother Nature's AMSL height is free.

Mount Wilson in Los Angeles is probably the most famous of these mountain sites, but it is by no means the only one. I owned an FM station in Wyoming that had a 60-foot "tower" on a mountain ridge called Pilot Hill, 8,900 feet in the air above Laramie (which, at 7,400 feet itself, was not exactly Death Valley).

The site was only about two miles off Interstate 80. Even so, it was far enough back on the rutted firebreak roads that, when I was up there, deep in the dark of night, I felt like Lewis and Clark must have, with St. Louis only a distant memory in the rearview mirror of the longboat.

On one trip, there was enough snow left on the ground that I needed a four-wheel-drive truck to get to the site. The sun was just setting as I swiveled out of the truck, slipped on the snow and promptly crashed to the ground on my ankle. Oops. Fortunately, I had my cellphone. This was the "yin" of the moment. The "yang" was that the phone was up in the jacked-up truck, which had seemed like a great choice of vehicle … until I found myself lying on the ground unable to hoist myself high enough to get to the phone.

On the ground in the snow, I thought about cutting my hand and writing a final message in blood on a large rock. "I'm sorry for all the bad things I did. P.S. — If we're still off the air when you find my remains, the spare final tube is in the box marked 'used but good.'"

As the sun set (and it seemed to descend from the sky very quickly that day), I was certain the noises I heard were coyotes (6 p.m.). Or mountain lions (7 p.m.). Or grizzly bears (8 p.m. and again half an hour later).

Had I been there at 9 p.m., I'm pretty sure my active imagination would have conjured Sasquatch, lurking around just outside my range of vision, as I tried to scratch a missive in blood, warning those who risked coming behind me.

But as it turned out, the imaginary animals stayed at bay and I finally managed to arrange my ankle well enough to drag myself over to the door of the building. Once inside, I leveraged myself up and found a broom that had been left behind by some tidy site engineer. I used it as a crutch to hobble back to the truck and made good my escape.

I took the whole episode as a sign. I sold the station and have avoided Wyoming ever since.

CELLBLOCK NO. 1

A couple of years later, I was building an FM in Beaumont, Texas. What could go wrong, I thought, 12 feet above sea level in 15 acres of pasture in a little pinprick of a town called Cheek and no snow since the North American plate had floated down from near Greenland a few millennia ago?

The guy who owned this piece of paradise used to invite me up onto his back porch to "sit a spell." His daughter would make us lemonade, and we'd chat about life while watching birds nest in the back seat of his abandoned 1967 Rambler with the broken-out windows. My kind of folks.

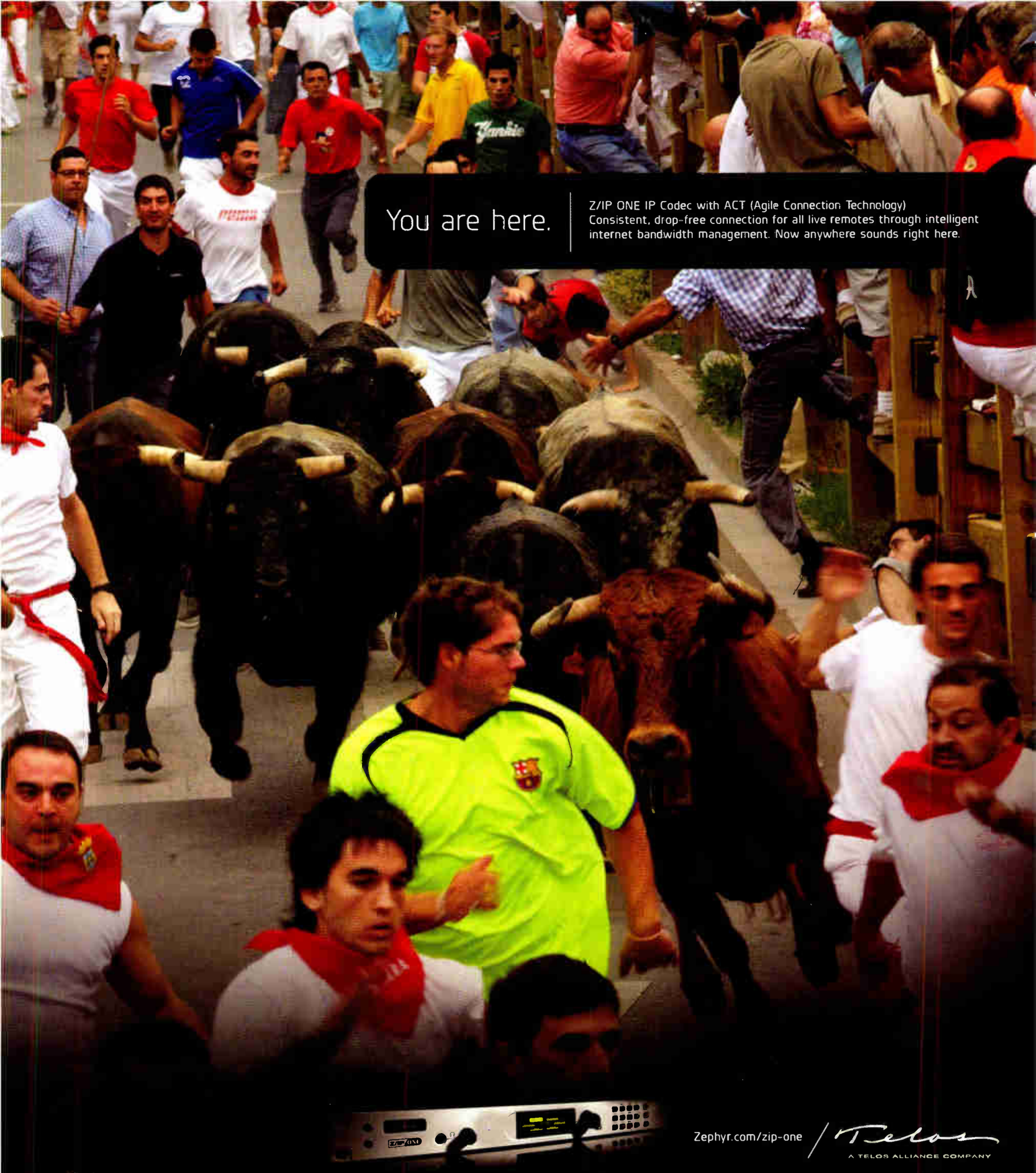
In any event, I decided that in hurricane country, I should be the little brick piggy instead of the little wood pre-fab piggy; so I had a nice, thick concrete block-building put up. With our August sign-on date approaching, I got my teenage son, Ryan, and another big chunk of a guy to help me unload the big Collins 20 kW rig.

The three of us — my son, the Incredible Hulk and I — got inside the windowless, powerless concrete cell, and down came the 1,500-pound-load-limit lift gate with the 3,000 pound transmitter on it.

This weight-carrying deficiency proved troublesome. Midway through our "prison's" only escape hatch, the hydraulics on the lift gate burst apart and the transmitter lurched into a posi-

(continued on page 14)

World Radio History



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World Radio History

TOWER TALES

(continued from page 12)

tion in which it would stay wedged for the next several hours. Oops.

Remember those trapped Chilean miners a few years back, stuck in the mine for days and days? The only difference between them and us was that they had much more room, and were most likely cooler, since our cell was at 105 degrees and climbing.

They were, of course, also trapped a bit longer than we were, but as Einstein proved, time is relative. The last time three hours passed so slowly, I was getting a root canal. Three sweated-out pounds later (one per hour), the new hydraulic cylinder arrived. Breaker bars were applied to the 831G, my son and I were saved, and The Hulk left to recover with a kegger.

At the time, like those rescued miners, Ryan and I solemnly agreed to never individually tell our stories, but I've made an exception for Radio World.

AN ILL WIND

Forget the old saying about an ill wind blowing no good. Transmitter engineers know that all wind is ill wind.

Back before satellites and fiber, a TV station I worked had its own microwave relay network from Los Angeles (the genesis of my visits to Mount Wilson), to Las Vegas. One of the three sites was on Calico Mountain, near the California ghost town of Calico. There were always three things on Calico Mountain (four, if you count lunatic RF engineers): rattlesnakes, rocks and wind. Lots and lots of wind.

I took my soon-to-be-wife up for a quick tour one day. ("You'll really like it, babe ... it's really cool!") It was so windy she couldn't get out of the truck. I gallantly offered to shield her from the wind but she turned me down (worried about snakes, no doubt).

Jim Withers stands in front of the remains of a radio tower, its destruction a byproduct of the forceful Texas winds.

Even after this unpleasant trip she agreed to marry me, so for the unmarried RF guy reading this: There is hope.

In any event, we lost the network feed from L.A. one night, so I set out for the site.

Going up the rock and gravel road, cut from the sheer side of the mountain, the wind was so fierce I thought the three-quarter-ton Ford was going over the edge a couple of times. At the top, I parked right next to the building, and got through the door standing up.

Hmmm. No RF output but good voltage. Screwy tuning. No receive signal from L.A., no transmit signal to the next mountain down the pike.

After a couple of hours I was still lost. The generator power was up, and that was the only thing common to both transmitter and receiver.

I finally decided that maybe the wind had blown the dishes off-axis. That would account for no receive signal, but why no transmit? I couldn't figure that out but decided to brave the wind and eyeball the dishes anyway.

"Off-axis," it turned out, was a bit understated. The dishes — and, not incidentally, the entire tower — were gone. Not bent over, or crumpled or laid out flat. Gone. Over the side, like those helicopters blown off the side of the ship in that famous Vietnam-era film clip.

I waited until the sun came up and found the tower and one dish, 15 feet over the edge of the flattened-off peak, but the other dish had sailed off in the night like a huge aluminum Frisbee, and most likely was now being used as a giant reflector for some desert rat's solar water heater.

EVERYTHING'S BIGGER IN TEXAS

My final big wind story is from Texas. I had gotten FCC approval to locate three of our four clustered stations on one tower. We were deep into the process one night, moving equipment from one site to the new combined site, about three miles away. Back and forth, back and forth. Racks, spare parts, odds and ends. Everything in preparation for moving the RCA FM20E.

About 3 a.m., though, the weather went south, and I made the command decision to wrap things up. (This was made much easier by the fact that our lovely community's waste treatment plant, 50 yards upwind from us, was cranking along in overdrive.)

Back in the hotel room, deloused and secure, I fell into a deep sleep, until 6 a.m., when the phone rang. I could tell from the tone, not to mention the words spilling over one another like a verbal waterfall ("Holy cow! Holy cow! You won't believe ... Holy cow!!") that something was amiss. Which turned out, as so often happens, to be an understatement.

We had gone off the air around 5:30 a.m. Not too unusual, since the power at this site was notoriously unstable during storms. Our operations guy had dutifully shrugged back into his clothes and headed back out to the old site.

We really should have called an iron worker, though, because when he got there he found the tower wrapped around the transmitter shack like a multi-layered, multi-colored pretzel.

The RCA, though, miraculously was untouched. With only a day's delay (to torch the tower sections apart and clear a path into the building), we were back in business.

As an aside, the FCC was very accommodating about giving us a fast-track STA, and we were only off the air for a little more than 24 hours before we brought up the new site.

From California to Wyoming to Texas, tower site experiences are as varied as the geography that surrounds them. Blasting through snowbanks, braving wind, rain and lightning or blazing sun, not to mention seeing sheep morph into mountain lions after dark, every RF engineer knows the taller the tower, the taller the tale

Jim Withers owns KYRK(FM) in Corpus Christi, Texas. A broadcaster since 1965, he has worked at and managed radio and TV stations in Missouri, Illinois, Texas and Nevada, and built and owned several AMs and FMs in Texas and Wyoming.

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The new ROC console from Logitek

The ROC is paired with the JetStream, a powerful 128-channel networked audio node.

When Logitek introduced its first ROC console back in the 1990s, it marked a revolution in audio console design. One of the industry's first router-based digital consoles, the original ROC boasted simple wiring and access to multiple sources at each fader.

Over the years, the router-plus-console Networked Audio concept has become the standard in console architecture. Although the original ROC was retired years ago, Logitek has continued to develop systems for both TDM and AoIP audio networking. The new ROC takes the best of the original design and pairs it with the latest technology and styling.

Available in multiples of 6 faders (up to 24), the ROC is housed in an attractive tabletop enclosure. Durable Penny & Giles faders, OLED source indication and intuitive controls make the ROC a natural for on-air, production rooms or even in temporary studio setups. Two monitor feeds, front panel headphone connection and user-assignable softkeys will please even your fussiest operators.

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World Radio History

It Takes Patience and Know-How ...

... to install connectors the right way

BY MARK PERSONS

Our radio broadcast facilities depend on many coaxial cables to get signals from one place to another. There are good and bad ways to install connectors on those cables, which can lead to reliable performance or to headaches. I've seen a number of connectors "kluge installed" by people who didn't know the correct methodology.

TECHTIPS

The work is not difficult. You just have to know how and it involves a little patience.

Type N and BNC connectors are similar but different in size. Both are "coaxial," which means that there is an inner conductor and an outer shield.

My preference is to solder with a clamp rather than crimp connectors. This may seem like the old-school method, but it is reliable. I remember receiving a factory-made cable that was crimped. When I picked it up I heard a clinking sound on the floor. A crimped center pin had fallen off. Right then, I knew that soldered connectors are much better.

HOW-TO

Let's go through the installation procedure for type N male connectors with the plan to get good results.

The most common cables are 50 ohm with a .405 inch (10.29 mm) outer jacket, such as RG-8, RG-213, RG-214, Belden 9913, Times Microwave LMR400 and other variants of this popular size.

A good connector to use on these is the Amphenol 82-202-1006, available from many places, as well as Digi-Key, where the part number is ARF1020-ND.

Start by cutting the end of the cable at 90 degrees. Cut it again if it is crooked. Open the connector package and remove the contents. Save the bag to the end in case you missed removing a part, such as the center pin. Slide the back nut, flat washer and rubber or plastic gasket washer over the end of the cable. Then use a box cutter tool to cut around the cable jacket about 5/16-inch back from the end. Try not to cut into the cable outer braid. Instead, score and then pull that end portion of the outer jacket away.

Then slide on the clamp, sometimes called a tapered ring, followed by combing and pulling braid back over the outside of this clamp. The backside of the clamp should fit perfectly into a groove on the rubber washer. If not, the clamp is backwards. Trim braid wires if they want to go back past the clamp lip.

Some engineers will solder the cable braid to the clamp, but tolerances are tight and it can be a tedious task involving filing down high parts so the connector fits together. I do not normally do that.

Use the box cutter again to cut dielectric away from the center conductor about flush with the folded-over braid. Again, try not to damage the center conductor with the knife

(continued on page 18)

1. Parts Lineup

2. Cutting Outer

3. Cutting Center

4. Ready for Pin

5. Soldering Center

6. Testing Pin

World Radio History

What will you do with all the extra rack space?

EXCLUSIVE "UNDO" TECHNOLOGY
Restores peaks and dynamic range to poorly mastered source material.

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Dynamically widens or controls stereo sound field, providing a consistent stereo image.

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CABLE

(continued from page 16)

blade. Slide the center pin over the center conductor. If it fits loose, then remove the pin and use your soldering iron to "tin" the center conductor with some solder.

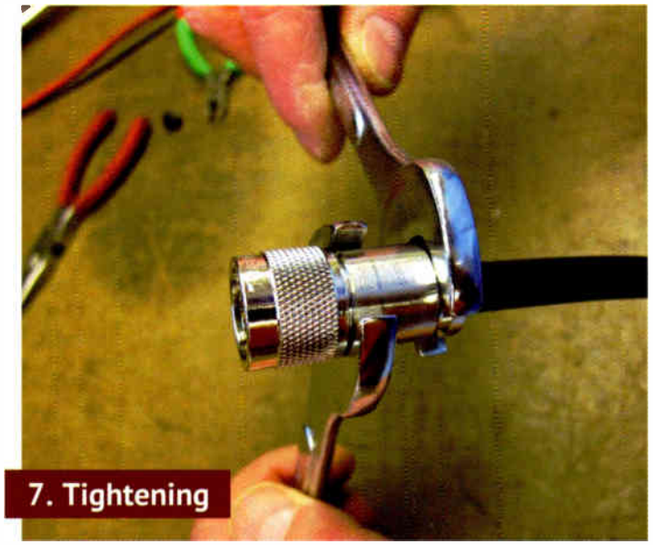
Slide the pin back on and feed solder into the hole in the side of the pin. The plan is to have solder "suck" through the hole to bond the center conductor of the cable to the pin. If there is excess solder left over, use de-soldering braid to clean it up by pulling excess solder off the outside of the center pin.

Use long-nose utility pliers to pull on the center pin to assure yourself that it is firmly in place and isn't going to fall off the center conductor. Eyeball the center pin in relation to the rest of the cable. Adjust its orientation as necessary to put it straight. Then slide the main body/front side of the connector on, pushing it until the tip of the center pin is flush with the end of the connector.

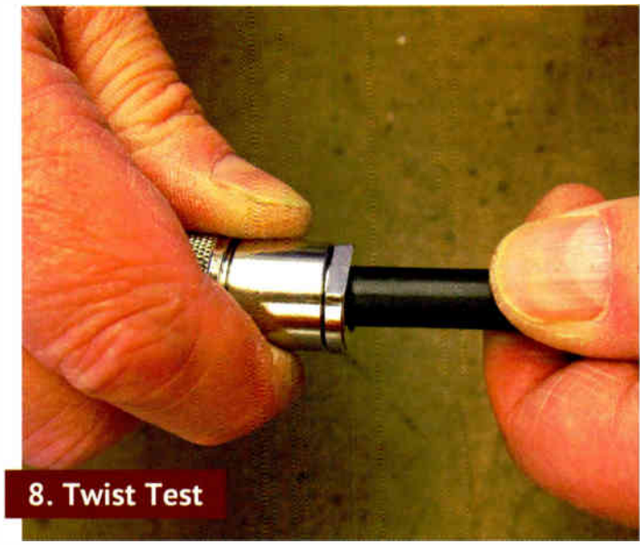
This is very important. A pin that is too short may fail to make good contact and a pin that is too long could damage the receiving pin on the connector to which it ultimately is mated.

In my case, I use 5/8-inch and 11/16-inch mechanics wrenches on the connector body and nut. The important part here is to turn the rear nut while holding the main body of the connector with the other wrench. You don't want to twist the main connector body on the cable as the action can shear off outer cable shield strands.

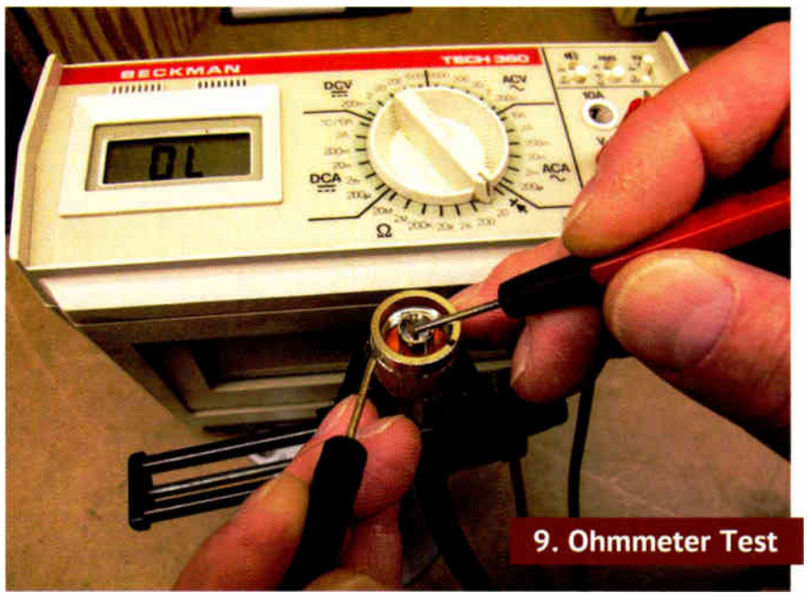
When done right and tightened, the connector will be firmly attached to the cable. Test it by twisting the cable in one hand with the connector in the other hand. There should be no give. If there is movement you have done it incorrectly. The connector should be disassembled and installed again. A loose connector is trouble waiting for a time to show itself.



7. Tightening



8. Twist Test



9. Ohmmeter Test

Look at the end of the connector. Is the center pin in the exact center? If not, use a jeweler's screwdriver to align it before you try to plug it with any other connector. An off-center pin can damage the center-receiving pin on a mating connector.

Use an ohmmeter to verify that the center pin on the connector gets to the other end of the cable and that it is not shorted to the shield by mistake. Take your time and avoid future problems now by doing it right.

Type N connectors are available in 50 ohm and 75 ohm. The 75 ohm models have smaller inner pins. Do *not* interchange these; center pin damage may result, or there might be an intermittent connection.

These are the most practical tips that I can pass on after building literally hundreds of cables over the years. Use them to get the job done right.

Mark Persons WØMH is certified by the Society of Broadcast Engineers as a Professional Broadcast Engineer with over 30 years experience. He has written numerous articles for industry publications over the years. His website is www.mwpersons.com.

WHO'S BUYING WHAT

KJOK Hangs a Jampro

New FM station KJOK in Altus, Okla., will use an FM antenna system from Jampro Antennas Inc.

"The configuration consists of Jampro's model JHPC High-Power FM Penetrator Antenna, complete with transmission line and RCBC band-pass filters," the manufacturer stated.

The city of license is Hollis. The station will be a C2 at 102.7 MHz.

VRT Chooses Dalet

Belgium's national Flemish-language broadcaster VRT has settled on Dalet's Radio Suite HD for a modernization project for its Radio 2 outlet and five regional stations.

The Radio Suite HD system will manage media assets in production and broadcasting applications. According to a release the installation for Radio 2 will include some 200 production workstations and 33 on-air workstations.

VRT has also licensed Dalet's One Cut digital multitrack audio editor for use in its facilities. A centralized depot at VRT's Brussels broadcast center will operate as a hub while the regional stations maintain independence for individual jobs.

The project is scheduled for completion in 2013.

KVSV Installs Nautel XR3

An AM station KVSV in Beloit, Kan., has installed a new Nautel XR3 transmitter.

The 3 kW box was purchased from Chris Kreger of RF Specialties of Missouri Inc.

Chief Engineer Bart Jones told Radio World, "KVSV is a live, local, full-service station that plays a lot of music, and the DJs have all noted the improved audio quality, even though no processing was changed." Jones also commented on the flexibility offered by the unit's six programmable power levels.

"The only thing I had to add was a Cat-5 line to the router, for some of the online programming functions ... and I doubt that was necessary, since all the functions are available from the front panel, but I just used the Web browser interface to set it up."

Jones added that station owner Harry McGrath hauled the 25-year-old previous transmitter away chained to his front-end bucket loader tractor. "He had a ball. Harry is a hands-off owner guy, and rarely ever shows up at the station, but he was there that night, at 1:30 a.m., playing with heavy equipment."

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this simple setup runs rings around any other AoIP network - at any

Meet the LX-24...Wheatstone's flagship, multi-award-winning advanced modular networkable console control surface

The design initiative behind the LX-24 was to create the world's finest control surface. The result is a console that redefines the entire genre. The LX-24 is an intelligent surface that can store and recall all your settings. Its totally modular design lets you configure it exactly as you like – you can even hot-swap modules at any time without having to reconfigure.

Assign any source of any type anywhere on your network to any fader. Each input channel can be assigned to four stereo busses, plus four pre/post-selectable aux sends, a stereo CUE bus, four mix-minuses and the panel's own bus-minus. Full Vorsis EQ and Dynamics let you sculpt and control your sound with the quality of the finest dedicated outboard processors. The visually-stunning meter bridge features up to four sets of bright, high resolution LED meters, as well as circular LED displays for auxiliary send levels and pan control. A digital count-up/count-down timer is also included.

The LX-24 is advanced in ways that can make a HUGE difference in your capabilities. But it's also immediately familiar to anyone who has ever sat behind a board at a radio station. Use it to make your programming the best it can be. Just plug it into your WheatNet-IP Intelligent Network – with it, and the BLADES across the page, you can, dare we say it, rule the world.

THE LX-24 CONSOLE CONTROL SURFACE FEATURES

Low-profile table-top design - no cutout required

Meter bridge with up to four bright, high-res LED meter sets

Control room and headphone outputs with level control and source selection

Two independent studio outputs

Stereo cue speakers and amplifier, built-into meter bridge

Onboard VGA and USB-Mouse connectors

Event storage (snapshots) and recall

Each input channel features:
- Four stereo bus assigns
- Four pre/post-fader aux sends
- Four mix-minuses
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- Source name display
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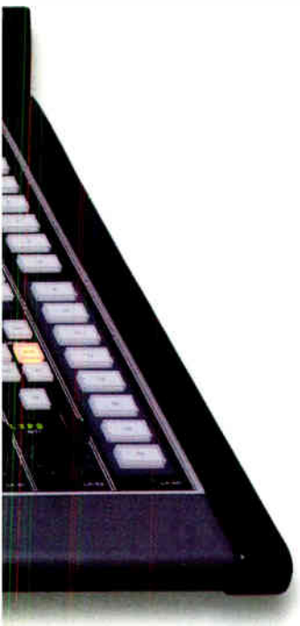
World Radio History

NT NETWORK

price. it's called The WheatNet-IP Intelligent Network, and it rules.



Our BLADES carry out your orders network-wide at Gigabit Ethernet speeds - no bottlenecks

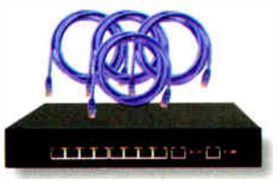
As an integral part of the WheatNet-IP Intelligent Network, BLADES interface, move, bend, shape, route and control everything you want to do with your audio. If it's audio, a BLADE will handle it - at lightning speed.

Use them organically with our control surfaces, run them from our Glass-E software wherever you have internet access, or control them from the front panels. BLADES make your life incredibly easy and secure.

As you need more functionality, just plug in more BLADES - they come in configurations to handle whatever you need (analog, digital, a/d, mic, MADI). Each BLADE is self-configuring and has the DNA of the entire self-healing network.

With BLADES, you can do everything from a simple (or complex, if you like) snake to STL-over-IP to full-on multi-studio/facility networking - even processing. And because of Wheatstone's partnership with the top suppliers of automation and remote gear, you'll have control over your entire system right from WheatNet-IP. Ruling the world has never been easier.

And this is ALL the extra stuff you need to wire-up the Intelligent Network:



Four CAT-6 cables and a low-cost switch that handles the gigabit speed WheatNet-IP runs at. Let's do the math - plug in eight connectors, power up a console and three BLADES, add your audio and you are ready to rock, roll and rule the radio world. Brilliant, you ask? Nah - just really, really intelligent.

Want to know more?

WheatNet-IP outperforms the other AoIP systems exponentially and is, by far, the most reliable network you can get. Log onto wheatip.com. There is a world of *real* information there. Or, give us a call. There's nothing we like better than talking about this stuff.

EVERY BLADE FEATURES

Two 8x2 stereo virtual Utility Mixers that can be used for a wide range of applications; for example, using Wheatstone's ACI Automation Control Interface, your automation system can control the mix for satellite or local insertion switching

Front panel bar graph meters switchable to display source input level or destination output level after gain trim

Front panel routing control — any system source to any destination on that BLADE

Front panel headphone jack with source select and level control — monitor any system source

Flexible GPI logic — 12 universal logic ports, programmable as inputs or outputs, routable throughout the entire system

Built-in web server so you can configure and control locally or remotely without having to run dedicated software

SNMP messaging for alerts

Silence detection on each output that can trigger alarms or make a routing change

Silent — no fans — can safely be located in a studio with live mics

Wheatstone

World Radio History

Reach + Frequency = Success

Frequency is a key element in convincing listeners to act

PROMO POWER

Mark Lapidus

What does it take to drive action through messaging on the radio? If you answered "reach, frequency and creative, clear energy," then give yourself a round of applause.

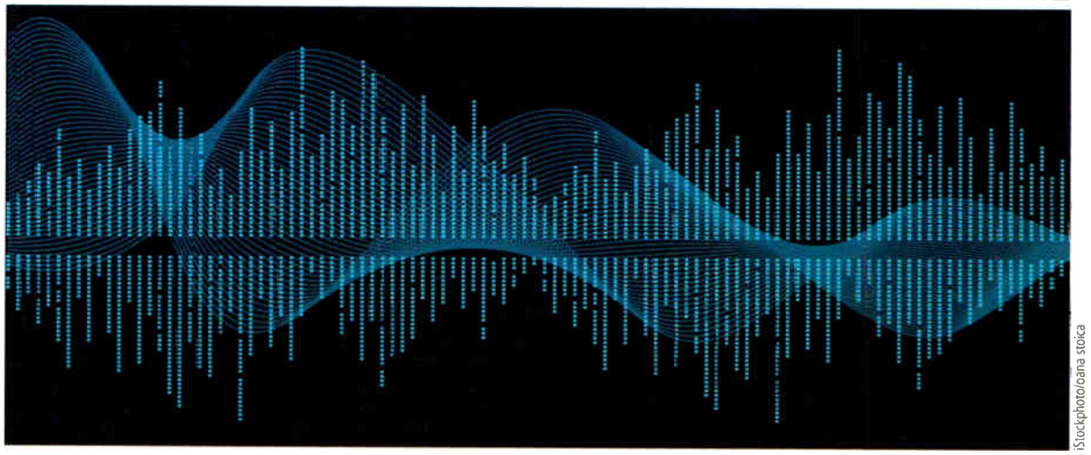
Now let's see if you can get this one: During a 6 a.m.–midnight rotation, how many spots must you air on your radio station in five days in order to reach more than 90 percent of your audience at least three times?

In order to figure out the answer, you don't need to do any complex math equations. You just need a little catch-up in the technology department.

Sales people who are on top of current trends are using ratings information and scheduling software to create appropriate schedules for clients. However, many program directors have never touched this latest software, which even rookie sales people know how to use, and don't know the basics of reach and frequency.

This must change.

If a PD doesn't know how many promos to schedule, and at which times during one week, he or she can't possibly orchestrate the promotional campaigns for that week effectively. It's obvious that the more listeners you can reach, the better. Not so obvious is that frequency is a key element in convincing listeners to *act*. The more they hear the message, the greater the chance they will act on it.



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Let's go back to our challenge of the day. If a PD discovers — through reach and frequency research — that it takes 45 promo spots between 6 a.m. and midnight, Monday through Friday, to reach more than 90 percent of the audience at least three times, then he can determine how many campaigns he can air in one week using all of the station's allotted promotional inventory.

Say that the station schedules two promos per hour, 18 hours a day. That's 36 slots a day and 180 slots a week. And now that the PD has a goal in mind, he or she has the ability to schedule four different promotional campaigns. If he or she schedules one more campaign on top of that, there is a risk of none of them being effective.

(continued on page 28)

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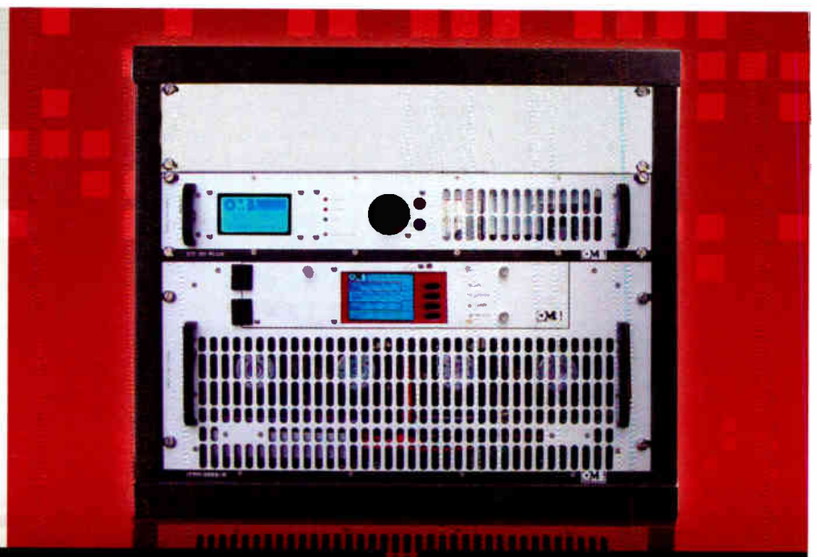

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World Radio History

Quu Aims to Make Advertising Interactive

A chat with Andy Skotdal about messaging on RDS/PAD, Web and mobile platforms

Quu Interactive, a Seattle-based company founded in 2007, helps stations use data messaging more easily.

NEWSMAKER

Its pitch: "Schedulable, dynamic RDS/PAD, Web and mobile messaging no longer requires an engineer for cross-platform integration. ... The Quu suite is the only offering built entirely around the core of the radio business: The over-the-air radio commercial."

Andy Skotdal is a Quu advisor and investor who owns KRKO(AM) and KKXA(AM) in the Seattle metro.

***RW:** What is Quu Interactive and what's your involvement?*

Skotdal: Quu Inc. is an interactive advertising technology company created by Joe Harb. Joe has a master's degree in engineering and taught fuzzy logic and methodologies in Montreal. Over the years, Joe cultivated a small team of talented programmers, and they moved with him to Quu.

Joe showed me his product suite in January. The dynamic, cross-platform advertising capabilities are so impressive, I picked up the phone while we met and scheduled a meeting in Los Angeles with Mary Beth Garber at Katz the following week, and we flew down together.

RDS/PAD management is only one product in the portfolio. New interactive loyalty products will be announced soon, inciting listeners to interact with commercials or music in a simple, elegant way. Quu is an effortless system on the radio side, completely trackable and scalable.

I joined Quu's advisory board in February. I've since become an investor.

***RW:** Who is using Quu?*

Skotdal: Quu has more than 200 radio stations from Seattle to Dallas to Philadelphia using the RDS/PAD platform, Beasley Broadcasting among them.

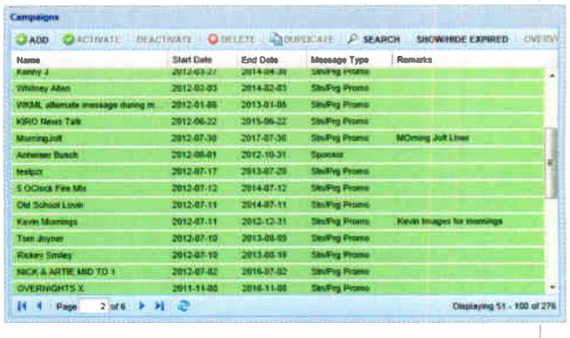
One hundred radio stations are using or implementing Quu's Web-based platform, and 80 radio stations are using the mobile application.

***RW:** Why should a radio group consider it?*

Skotdal: Sales managers recognize that they don't have to learn a new metric or new language.

When a commercial plays over the air, the client slogan can appear on the RDS/PAD display in the car as an upsell. Any staff member can append advertiser messaging to over-the-air commercials so the slogan and imaging appears on RDS/PAD, mobile and Web platforms every time the commercial airs, without the need for hard-coding. Even when your traffic department and

(continued on page 24)



Screen shot of the scheduling engine for RDS/PAD campaigns. Client slogans can be entered here to air as companion advertising on the radio display when the commercial plays, or separate RDS/PAD-only campaigns can be scheduled here.

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World Radio History

QUU

(continued from page 23)

production department populate data fields in a different way, the advertiser messaging will display properly across platforms every time the commercial plays.

Most important, the cross-platform advertising is managed within one interface. Engineering is only necessary to establish the initial data connections between Quu and the client station.

The role-based framework can manage cross-platform advertising campaigns at the station, regional and group level simultaneously. Groups can insert ad buys based on format, cluster, region or other criteria.

Quu is set up so that, down the road, agencies can manage cross-platform insertion orders for multiple groups using the Quu system, and hand-select criteria with groups or stations reviewing the buy.

RW: How, specifically, does it work?
Skotdal: The system ingests both traffic and automation data and applies sophisticated technology to synchronize cross-platform advertiser messaging or slogans to the appropriate commercial or song.

It doesn't matter if a commercial is manually moved to a different break in an hour, or even if the continuity department or programming department give the commercial a different name than traffic on a daily basis, Quu will track the change and dynamically match the correct advertiser messaging to the commercial on RDS/PAD, Web or mobile platforms.

The Quu system also provides client stations with affidavits and invoices for billing purposes. Marketron is integrating with Quu to create a seamless billing presentation.

RW: Give me an example of how this might be applied in an RDS/PAD campaign.
Skotdal: On the RDS/PAD platform, if your station is running a McDonald's commercial all day, a matching visual image or message can now be synchronized to appear on the listener's radio display every time the commercial is broadcast over the air. For example, in the morning when a McDonald's commercial airs, the radio display can read: "Egg McMuffin 99 cents today only," and at noon it can change to "Big Mac $1 Now," and change again to "Try a McSalad!" in the evening. The messaging can be easily scheduled by a regular, hourly employee.

The Wynn Hotel's logo is displayed on an Artist Experience HD Radio receiver when the hotel's commercial is playing on the air.

If Lady Gaga goes on tour, every time a song by Lady Gaga plays, the corporate sales team can schedule an RDS/PAD campaign that says "Lady Gaga on Tour, Tickets at Ticketmaster!" That message will display on every station playing a Lady Gaga song by group, region, cluster or just one station. Corresponding imaging can appear on selected Web and mobile assets, scheduled to start and stop on the fly within one interface.

Programming can use the system to schedule promotional and talent-related messaging. Sports and news stations can integrate to scroll real-time game scores from AP or another source. Stations can run messaging for hosts, morning shows, traffic alerts; and there is an EAS feature as well.

Companies pushing metadata content on satellite radio receivers can also port that information over to their terrestrial RDS/PAD infrastructure using Quu.

RW: What is Quu's relationship with iBiquity Digital?
Skotdal: Quu created and trademarked the Advertiser Experience providing the technology to display the advertiser images, along with the slogan, on Artist Experience-enabled radio displays. The technology is deployed and operational on more than 50 radio stations, with market trials underway by other major groups.

All the album art for music stations is available, too.

RW: What does it cost a station or group to participate?
Skotdal: The Quu product suite is modular. The max is $200 per month, including online, in-car and mobile modules, as well as companion ads — messaging when over-the-air ads play — and programming messages. And a capped "success fee" applies only when the station is making money from the product.

RW: How would you assess the market situation with in-car data displays? And how does HD Radio fit in?
Skotdal: RDS penetration is mature. There is a deep, underutilized platform available to be monetized right now. Any time you can reinforce an audio commercial with a synchronized visual message, it's automatically more powerful for the advertiser.

The fact that you can attach meaningful messaging to songs, like tour or contest information, makes this platform extremely powerful.

Broadcasters and receiver manufacturers have made a significant investment in infrastructure that can finally be utilized and monetized in an elegant way with the Quu system. ...

HD penetration is growing substantially, but it will be years before the installed base catches up to the massive existing platform of RDS-enabled radios.

World Radio History

Why does Axia outsell every other IP console? We've got connections.

Did you know that there are over 2,500 Axia consoles on the air? That's more than all other AoIP consoles — combined. Is it because our ads are so irresistible? Our marketing guys think so... but, no. It's because broadcasters know that a network's value increases with the number of devices that talk to it. And nobody connects to more IP-Audio devices than Axia.

With this huge installed base of broadcast studios around the world, we've attracted dozens of partner companies, all offering Livewire™-compatible products. A device with a Livewire port is instantly available to any other device on the network. So, if you're shopping for IP consoles, be sure you ask: "How many partners do you have?" Because a network that only plays with itself isn't very well-connected... is it?

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telosalliance.com/now

AxiaAudio.com/Partners

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World Radio History

PROMO

(continued from page 22)

Given a choice, I would much rather air more promos and one less campaign in order to increase the frequency and reach.

I'll admit, this can be a tough decision because great stations have a lot going on, all of which deserves promotion.

Once the algorithm is in place, it's imperative to spend quality time on the group first, you should take the time to try out anything you're unsure of to a few people around the office who don't already know the material.

After playing the promo to some random people, ask them to tell you what it meant. If after three or so people cannot explain it back to you spontaneously, you likely have a great-sounding promo that not everybody is going to "get."

This can be a problem when live copy is crafted poorly, so be sure that all of your messaging is clear.

If a PD doesn't know how many promos to schedule, at which times, he or she can't possibly orchestrate the promotional campaigns effectively.

creative. Whether recorded or live, a promo must not only grab attention, but also communicate an action. And don't just take it for granted your audience knows what you're trying to get them to do, especially when it comes to highly-produced promos with lots of sound effects, puns, jokes, etc.

While you may not have time to present every recorded promo to a focus

Is it possible to burn out a promotional announcement by airing it too much? I have never seen any research that supports the contention. However, I can guarantee that when stations do not air spots with enough frequency and reach, they waste time, squander energy and limit potential success.

Mark Lapidus can be reached at marklapidus@verizon.net.

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For information on affordable advertising call David
at 212-378-0400 ext. 511 or email dcarson@nbmedia.com.

PLAY-BY-PLAY

(continued from page 26)

5 THERE ARE TWO TEAMS IN THIS GAME

No matter how tempting it may be, overtly rooting for the home squad is unprofessional.

It's fine to be more excited when your team scores than when the other guys do, but get a grip. *Here's what a homer essentially is: a liar.* He or she makes routine plays sound like tournament-winners. He or she rips the officials. He or she whines about the opponent.

The paying customers can do that. Professional play-by-play announcers shouldn't.

Please don't say, "But you don't know my market." I understand the realities of local-market radio very well and here's a promise: No one who matters will ever criticize a play-by-play announcer for reporting professionally and enthusiastically without being a homer. No one.

Learn both the names and the *stories* of the other team. People crave entertainment and there are loads of great stories in every game that don't involve the home team.

6 COMMERCIALS MATTER

Radio is a lot of things, but in order to exist, it has to be a money-making venture. Sports pays the bills at many stations.

7 INCLUDE THE PLAY-BY-PLAY ANNOUNCER IN SALES CALLS

If he or she isn't already selling for you, his or her enthusiasm can help close a sponsorship deal. This trick isn't for every prospect — or for every sportscaster — but if you have one who can make an intelligent, planned contribution to a sales call and then shut up, why wouldn't you include this valuable, little-used tool?

8 TALK ABOUT THE GAME ON THE AIR — A LOT

We live in a vastly divergent multimedia world where simply running a few promos for the Sports Booster Club doesn't cut it. In this universe of short attention spans, your announcers should be talking up your coverage of a game as often as possible.

After the game, cash in on the fact that, in most cases, only you were there to cover it, not the all-music jukebox down the street.

Stream it.

Use highlights the next day and in future promos. Email them to your sponsors and prospects.

Get some mileage out of those play-by-play events!

9 THERE'S NO SUCH THING AS AN UNIMPORTANT GAME

I started my career by doing the seemingly humble Little League double-header of the week, lugging the Marti six blocks each way because I wasn't old enough to drive. Those games meant a lot to the kids who played them, to their friends and relatives at home and, of course, to me.

Every game deserves the best-prepared, best-sounding broadcast you can provide.

10 DRIVE LISTENERS AND REVENUE TO YOUR WEBSITE

Want compelling, original content that changes regularly? It's hard to top play-by-play. While your pro and college networks won't let you stream their games, nobody controls your local events but you.

Make the most of it: Stream your games. Have your morning show do features and interviews that are website-only events. Sell separate sponsors for your online broadcasts and replays.

Hey, you're the creative, revenue-driving monster around here. Whether you're covering a state champion or a perennial also-ran, community spirit — and sponsorship bucks — depend on whether you treat play-by-play as an obligation or an opportunity.

Doug McLeod is a longtime major league play-by-play announcer who started broadcasting Little League games at age 15 because they were sold and no one else wanted the gig. He is a frequent Radio World contributor.

World Radio History

Which is better for streaming: hardware or software?

Telos ProSTREAM:
Internet streaming in a box.

Everyone knows the answer is *hardware* — like a Zephyr! Introducing Telos ProSTREAM, the professional netcoder for Internet streaming, with Omnia multi-band processing built right in.

ProSTREAM makes sending programming to the Net easier than ever. Simple and bulletproof: analog or digital audio goes in, compressed audio streams out. Just hook up your input, select a bit rate and Omnia processing preset, send the output to your Shoutcast or Wowza server, and *Shazam!* Streaming audio, simple as 1, 2, 3.

And such audio…amazing. Thanks to our partnership with Fraunhofer (FhG), we were able to build a processing architecture that's specially optimized for MP3 and MPEG-AAC encoding algorithms. The result: detailed, commanding, blow-you-out-of-your-office-chair streaming audio, even at aggressive bit rates.

Telos

Telos-Systems.com/ProStream/

Omnia A/XE:
Internet streaming in a server.

Obviously, the correct answer is *software*, with the power to stream multiple channels from a single PC. Meet Omnia A/XE, the professional all-in-one software solution for Internet streaming.

Omnia A/XE can turn a couple of lonely servers into a supercharged streaming network. It runs in the background as a Windows service and can process and encode multiple streams in various formats simultaneously. Just hook up your audio, choose a bit rate and processing preset, select your Shoutcast or Wowza server, and *Voila!* Streaming audio, simple as A, B, C.

And that audio packs the clean, clear competition-crushing punch Omnia is famous for. Each stream is sweetened with its own adjustable wide-band AGC with three-band compressor/limiter, EQ and low-pass filter, and precision look-ahead final limiter. The result: clean, clear streams with more presence and character than you ever thought possible.

Omnia

OmniaAudio.com/AXE/

World Radio History

Cancun Is a Complete Recording Package

This slim sound card provides digital audio in the field

PRODUCT EVALUATION

BY TOM VERNON

With a laptop, recording software and the right accessories, making professional audio recordings in the field is a breeze. Many engineers use USB microphones, but that can limit your options. If you want to use the full spectrum of mics, including condensers, then you need a sound card that can take multiple mics and give you a USB 2.0 output.

THE PACKAGE

Digigram enters the market with two new products, the Cancun 442-Mic (four in/four out) and Cancun 222-Mic (two in/two out) series of mobile USB sound "cards." Both also provide simultaneous analog and digital AES ins and outs, up to actually streaming 4 in/4 out and 8 in/8 out. Analog input gain is adjustable from 0 to 55 dB in 1 dB steps. A 30 dB pad may also be inserted into each mic channel.

Cancun 442/222 devices are compatible with SMAART software, which enables live sound and audio engineers to analyze room acoustics and optimize the linearity of sound reinforcement systems. Included with Cancun is a breakout cable that goes from a 44-pin D-sub connector to 12 Neutrik XLR connectors for analog and digital ins and outs. Phantom power (48 V) is available on all mic inputs. A standard 6.35 mm/1/8-inch jack is provided for headphone monitoring. MIDI, S/PDIF and ADAT I/O is optionally

(continued on page 32)

PRODUCT CAPSULE

DIGIGRAM CANCUN
Sound Card/Interface

Thumbs Up
+ Both analog and AES/EBU I/Os in a compact package
+ Works on both Mac OS and Windows platforms
+ Novel interface with touchpads and LEDs
+ Low latency (<4 mS)

Thumbs Down
– LEDs not visible in direct sunlight
– Carrying case too small for accessories

Price: $790 for Cancun 222-Mic; $1,190 for Cancun 442-Mic

For information, contact James Lamb at Point Source Audio/Digigram in California at (415) 226-1122 or visit www.point-sourceaudio.com or www.digigram.com.

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World Radio History

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ACCESS 2USB

COMPLETE REMOTE STUDIO ON TWO WHEELS

We are pretty sure this is a first – an open-air moving studio broadcast on two wheels (well, six, technically).

All audio was fed to a Comrex ACCESS Portable, complete with optional mixer, which Dan used to mix the live on-air feed as the trio traversed the winding roads of Perth. How did it all work out? Absolutely flawlessly – the show went on without as much as a speed bump!

Dan Jackson, engineer for 92.9 FM in Perth, Australia was faced with a unique challenge. Breakfast hosts Paul Hogan and Lisa Fernandez would be cycling for hours in strong winds and pouring rain as part of the 92.9 Kids Appeal for Telethon.

The unique solution was to equip Dan's bike as a mobile production facility. The talent wore wireless mics AND in-the-ear monitors which communicated with receivers and transmitters in a rack bag on Dan's bike.

ACCESS Portable lets you send studio-quality live audio, real time over IP using 3G, 4G, Wi Fi, BGAN/VSAT, PSTN or DSL to make any remote broadcast really stand out. Connect with your audience from anywhere, live, with the easy to use, handheld ACCESS Portable!

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remotes.comrex.com

World Radio History

CANCUN

(continued from page 30)

available for both devices via a software upgrade. A carrying case is included.

Digigram has also released monitor/control software for Cancun, allowing users to monitor information such as gain values, driver setup, current state, VU meters and phantom power status, while simultaneously using their favorite desktop audio software. The software is available for both PC and Mac, but the Mac version was not available at the time of this review, so no comments can be made on its effectiveness. The software is not necessary for laptop operations, Cancun operated quite well with a MacBook Air and Audacity.

The first thing you notice about Cancun is its user interface. With no power applied, it looks like a plain white monolith. But jack it up to USB for power, and, Voilà!, LED level indicators and touchpad switches all come to life. When you're finished getting things set up, just swipe your finger across the lock pad so your settings won't be disturbed. It all seems futuristic and cool, and it is, unless you are recording outdoors on a sunny day. The LEDs simply aren't bright enough to compete with the sun, and the display becomes invisible. I had to construct a sun shade out of an old cereal box for outdoor recording sessions. (Editor's Note: Digigram says it acknowledges the problem and is modifying the Cancun shell to provide increased LED lumination and installing brighter LEDs. It said the reviewer was using a preproduction model.)

That said, the sound quality of the test recordings was excellent. I recorded live outdoor concerts of singer-songwriter and blues music using the Cancun, MacBook, Audacity and four Shure SM-57 microphones. The sound is best described as transparent, careful listening reveals more issues about microphone selection and placement than might be noticeable with a less transparent box. Powering Cancun off the laptop's battery will reduce your field recording time, but I was able to make one hour recordings with some juice left over.

The Cancun breakout cable brings I/O to 12 Neutrik XLR connectors.

From a more objective perspective, the mic preamps boast a flat response from 20 Hz – 20 kHz, +0/–0.5 dB. THD+N on analog inputs at maximum gain is rated at –105 dB unweighted, EIN is –128 dB, according to Digigram.

The sound is best described as transparent, careful listening reveals more issues about microphone selection and placement than might be noticeable with a less transparent box.

Cancun comes with a well-made vinyl carrying case. Sadly, it is a bit too small. There's just barely room for the 422 and breakout cables. Most engineers pack their favorite adapters, instructions or other personal doodads. You'll need to find another place for your personal accessories, because they won't fit in here.

Cancun provides excellent sound quality in a small package. Its USB, analog and AES/EBU outputs can deliver simultaneous audio feeds. The case appears to be rugged enough to handle the accidental dropping and occasional abuse to which all field recording equipment occasionally is subjected.

GR
Gorman Redlich Mfg. Co.
Is CAP-able

The CAP-DEC1, Gorman-Redlich is a stand-alone CAP-to-EAS converter for use with your existing emergency alerting equipment. This cost-effective device allows broadcasters to easily meet Common Alerting Protocol (CAP) compliance requirements mandated by the FCC without requiring the purchase of an additional encoder/decoder system or other costly equipment. The CAP-DEC1 is CAP 1.2 compliant and requires only one unit of rack space. Trust the experts with over 35+ years experience in the emergency alerting industry to help you meet your broadcasting needs. Visit our website or contact us today for more information about the Gorman-Redlich CAP-DEC1. We continue to support equipment we made 35 years ago.

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WANT TO BUY

Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST - 214 738-7873 or sixtiesradio@yahoo.com.

AUTOMATION EQUIPMENT

WANT TO SELL

It's free and it has been expanded. The only cost is to keep us informed as to how the system is performing and let us know how you are using it. DIY-DJ, is a Linux based radio automation system and now sports a record scheduler (DIY-DJ-RECORDER) which allows you to schedule the recording of a network or any other program for replay later as well as a basic logging system. Beside these additions the system schedules music, does voice tracking (ALWAYS hit the vocal), create a shell, live assist, exact time events, join satellite feeds, automated temperature announce, do unattended remote events and more. Call (406) 679-0527 or email krws@digitaldevelopment.net for a copy today.

WANT TO BUY

Wanted: old analog automation equip, filters and EQ, tube amps, reel to reel, cart machines and parts. Pacific NW area. 503-493-2983.

CONSULTANTS

FOR HIRE

New Manager Owner Needed: North MS Broadcasters w/2 FM's wishes to retire in 36 to 48 months. Looking for a radio station manager/sales manager with a good track record to take the reins and show me how good you are. If all goes well, I'll consider a financing package to the right person. Call 662-808-0140 for a confidential interview.

MICROPHONES/ HEADPHONES/ SPEAKERS/AMPS

WANT TO BUY

RCA 77-DX's & 44-BX's, any other RCA ribbon mics, on-air lights, call after 3PM CST, 214 738-7873 or sixtiesradio@yahoo.com.

MISCELLANEOUS

WANT TO SELL

Radio broadcasts of Major League Baseball, NFL, and some college football games that are on cassette tapes, approx 100 to 125 games, time period of entire collection os from the 1950's – 1970's, BO. Must purchase entire collection. Contact Ron, 925-284-5428 or ronwtamm@yahoo.com

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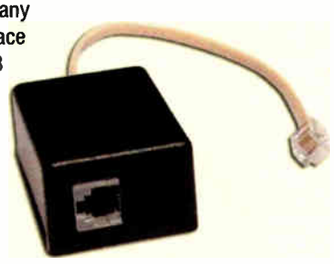

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Model AM-1 is for AM Broadcast Band radio interference.
Model RF-1 is for Short Wave, Ham Radio, CB etc.

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WANT TO BUY

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World Radio History

READER'SFORUM

TO DAVID WEBSTER: WELL DONE ON AM COLUMN!

I really enjoyed David Webster's piece ("How to Help AM Radio in Six Steps," Aug. 1).

A number of points that he made, I have also made, without much success of changing anyone's opinion.

One of the points — the one about synchronized transmitters — has been around since the '80s, and no one has bothered to even give it a try.

The suggestion he made that I really pushed for is the use of the old TV channels to expand the FM band to allow for moving AM stations into it. (Just like Europe does.) I caught wrath over that comment from all quarters.

As I have written before, former chairman Minow and I were at odds in the '60s over how the broadcast bands were managed; but as I have admitted, he was right and I was wrong. Chairman Minow kept all broadcasting viable by limiting the number of stations allowed. During his chairmanship, we had our clear channel stations and our regional stations to serve a large population base.

All of those "super stations" have been cut back to almost nothing.

I loved Webster's comment about antennas, and couldn't agree more. Back in the early '80s, I built out a two-tower array with a truly bazaar pattern. It was a standard 1/4-wave system, but in my mind, I wanted it to be super-efficient and to provide maximum coverage of the city of license with the given power.

I was able to do this, and was quite proud of my achievement. However, I was told in no uncertain terms that I had to change it to what they wanted, which was totally inefficient and substandard; even though I clearly demonstrated that the required pattern had been met.

I maintain a four-tower array that is every bit as bad, but I learned my lesson well. Just go with whatever they want and don't think.

Another point Webster made that was well worthwhile was on LPFMs. This is a limited access situation, for a special group, and nothing more; yet it ties up spectrum like crazy.

The FCC tried this with the Class D FMs and then blew it up as a bad idea. I think LPFM is even worse. As I have pointed out (to those who will listen), the broadcast pie is divided into pieces that are too small. No one wins. It's that simple, yet it seems to be missed by all concerned. I cite the Lubbock Texas and Phoenix Arizona markets as my prime examples.

In regards to 26 mHz, I used to listen to a station in Costa Rica that, at 2,000 watts, put out a great signal almost all the time. If the FCC would get off this "it must be directional and 10 dB" kick and allow U.S. broadcasters to use DRM, things would be a lot better for all concerned.

With today's technology, there is no reason to run 50 or 100 thousand watts.

With an efficient antenna and 2,000 watts, I can do pretty much anything I would hope for. (And I sure don't want to be a VOA monster station for any reason.)

Anyway, thank you for presenting some really good ideas. As Webster pointed out, we need to look at everything that is available to sort out the mess and make broadcasting even better than it is.

Mike Payne
Contract Engineer
Townsquare Media
Twin Falls, Idaho

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OPINION

How to Help AM Radio in Six Steps

Antenna Improvement, Power Increase Are Just Two of Many Ways to Revive an Ailing Band

COMMENTARY

BY DAVID WEBSTER

AM radio needs help right now. Broadcasters must find ways to keep themselves relevant and heard to finally regain, or at least stabilize, listenership at current levels.

In order to do this, we must improve the received quality of current stations, while transitioning to a new digital broadcast band. Here is a set of suggestions that I believe could add health and longevity to the service.

1. We should seriously reevaluate Richard Arsenault's proposal — which the FCC was quick to dismiss without even opening it up to comment — for an across-the-board power increase for all AMs. This would allow stations to punch through the current interference that renders stations unlistenable, and would not require the purchase of a single new radio to get the payoff.

It wouldn't have to be the "10 times increase" as proposed, but there may be a reasonable middle ground at which improved signals can be cost-effective and politically palatable.

2. It's imperative that we implement a plan to move stations to a new broadcast band, such as the Broadcast Maximization Committee's proposal for the Channels 5 & 6 spectrum, or the alternate proposal from the DRM consortium of establishment of local DRM digital in the 26 MHz space. In fact, the proposed use of IBRM in the 26 MHz band has already been successfully field tested in Mexico, Germany and Brazil, with papers documenting its viability.

Broadcasters need a modern infrastructure that can be competitive and take AM into the future — one that is not prone to the unfortunate physics and haphazard allocation history of the current AM band.

3. We should allow mechanisms for "band congestion thinning," which would allow stations to propose "negotiated" interference between each other or allow for signals to be bought for the sole purpose of surrendering or adjusting licenses to allow for stronger or better-positioned stations to up power or open their directional patterns.

Troubled or non-competitive stations could sell "accepted interference" or go dark for payment by an interested party, which is certainly a more positive option for cash-strapped signals that may be headed for permanent darkness and insolvency.

A pay-for-play environment would accelerate deals of this nature. This activity could be simultaneous to current stations making the switch to transmitters of a new digital band. An extension of this concept would allow a station that had attained a translator to go dark on its AM and transfer the translator status to a new type of LPFM class license.

4. Let's look into synchronous AM transmission systems. A smaller number of synchronous "AM nodes" at lower power, scattered throughout a listening area, could keep power densities high near listeners, yet have a lower interference and skywave profile.

With GPS and today's ability to lock transmitters in time, self-interference could be kept quite low on the same frequency with this solution. The picture becomes more interesting with digital transmission, in that the idea of SFN (single frequency network) with HD Radio or DRM was considered and designed into their systems from the beginning. Examining this idea of a sort of "cellular AM" might help solve some of the current issues. Additionally, it could be implemented with low-profile, albeit less-efficient, transmitting antennas and at relatively low cost due to the much lower power levels involved. Perhaps some cells could be located at business concerns, and lease considerations could be bartered for advertising time.

5. Let's reopen the case for transmission antenna improvement. It's astonishing that with all the supercomputing power available — which allows us to simulate everything from protein folding to nuclear weapons detonations — that we would not be able to apply our technological savvy toward creating a viable "anti-skywave antenna" for AM.

The idea of stations "turning off" or greatly reducing coverage at sunset is unbelievable today, and it harks to a different time. You certainly don't have a fighting chance to compete with FM, SiriusXM, TV, games or Pandora ... if you are effectively off the air.

6. Finally, the Web and streaming are here to stay and are quite good, if not the easiest to locate and tune into for non-techie listeners.

How about putting a data signal in AM and FM transmissions that will tell an IP-connected/enabled radio where to find it in cyberspace? When it gets a lock, it will transition to the stream. A kind of pilot tone or beacon for the Web. This could further be developed to allow for narrowcasting, casting of material or advertising based on demographic profile or the location of the receiver at a given moment.

These are just a few suggestions, and there are many more out there. But one thing is for certain: If things stay as they are now, the service will not survive, and that would be a terrible loss for current and future listeners.

I find it amazing that the conversation about opening up the airwaves to new local or niche broadcast entities via LPFM rages on, while we already have thousands of local AM broadcasters who could put up innovative and locally focused content if the revenues were there for them.

It's simple math: Less listeners equals less revenue. If they can't beat you, they can't listen. I hope the ideas keep coming and that we can all put our heads together to move this service into the future.

Comment about this or any story to radioworld@nbmedia.com.

Dave Webster is CEO of VSE/HD Media in Binghamton, Conn., which offers media-related production and technical services. He can be reached at dwebster@visualmedia.com. Find information about the Broadcast Maximization Committee and the IBRM papers at http://radioworld.com/links.

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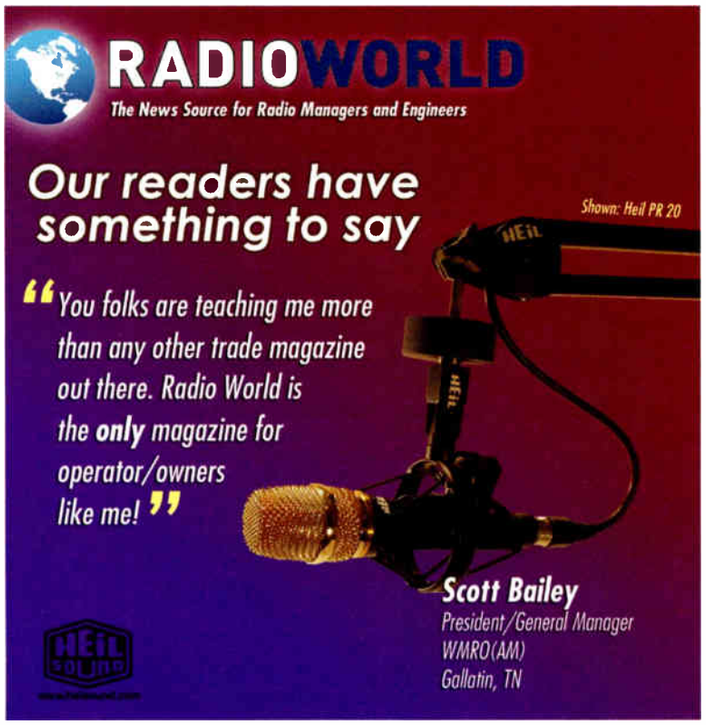

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World Radio History

Engineers Bring Energy, Passion to the Job

Wisconsin Broadcasters Association VP salutes you

COMMENTARY

BY LINDA BAUN

Have you ever heard it said, "Don't ask anyone to do something you're not willing to do yourself?"

With that in mind, I would like to tell you about my first encounter with broadcast engineers, shortly after I was hired as a secretary/receptionist at a small UHF station in central Indiana.

While I was happy to have a job working in broadcasting, the reality of my responsibilities was more complicated than I had imagined. I had eight bosses, representing eight departments, all of whom barely talked to one another unless absolutely necessary.

Also, there was no money to spend, no overtime pay and — guess what? — low morale. (I guess some things never change.)

However, there was one department that seemed to have "fun," mostly at my expense, and that was the engineering department.

THE SBE, A FAMILY

Rumor had it that no one ever stayed in my position very long, so therefore the engineers "had fun" by playing little pranks while that person was there. Early on, I was asked to "please call extension 100." Of course, when I tried to do that, it wouldn't work and they kept paging and paging.

I paged the whole building saying I couldn't get extension 100. Then three engineers strolled into the lobby laughing, and informed me that extension 100 was me!

Fortunately, they spared me the dead mouse in the drawer trick, which was deemed the "final" joke for any soon-to-be-departing secretary.

All laughs aside, as time went by, I noticed a special bond among this group of engineers. They were always there for each other, and although they complained when they had to go out at 2 a.m. to "fix" something that had knocked us off the air, they would all have smiles on their faces the next day as they recounted what was wrong and how they solved the problem. They enjoyed their jobs.

The engineer who affected my career the most was an older guy named Larry. One evening, he was sitting in the lobby stuffing envelopes, as I had seen him do many times before. I was curious. Larry explained to me that he was preparing meeting notices for an organization called the Society of Broadcast Engineers. He had no family but considered the engineers in this SBE group to be his family.

He continued explaining to me that engineers were a unique bunch, and therefore other station departments didn't always know exactly what they did or how to relate to them. He said that the SBE was made up of these unique individuals, who were dedicated to helping each other.

Larry then told me that his boss, Doug, the director of engineering at our station, also thought SBE was a great organization; so valuable that he personally paid for all the station engineers to belong. This was particularly interesting to me since the DOE was one of those eight bosses I spoke about earlier.

It seemed the DOE had a tradition of not introducing himself to the new secretary unless that person had been there more than six months ... after all, with the frequent turnover, why bother? Over the next few months, Larry told me about the SBE certification program and how proud he was to be a certified SBE member. Before I knew it, I had gotten past the first six months and it seemed like I was there to stay.

Shortly thereafter, I finally did meet the station's chief. About a year into my tenure, the DOE called me on the phone. He traveled a lot and was rarely in the office, but in this instance he told me he wanted me to consider a new job. Boy, did I take that the wrong way!

It turned out that he knew of a job at this organization called the SBE, and thought I might be a good match for them.

I decided to apply for the job and began work at SBE in 1991. While there, I began to meet a lot of engineers who shared the same passion and dedication to their jobs that I had seen from the engineers at the TV station — though mostly without all the practical jokes.

I noticed a special bond among this group of engineers ... They enjoyed their jobs.

At SBE, the more I recalled Larry's pride in his certification, the more I was drawn toward the certification program itself. I was honored to become SBE's certification director in 1996, upon the retirement of WTMJ's Jim Wulliman.

Jim's final charge to me was to love the certification program as much as he had. Certification continues to have a very high priority within SBE, from the Board of Directors to the SBE Certification Committee and its chairs, past and present, to the SBE staff, committees and chapters. Everyone at SBE gives their time, support and passion in order to support this craft called broadcast engineering.

Like all stories, there is an epilogue, and this one is rather sad. My friend Larry, though a seasoned engineer, was fatally electrocuted in a terrible transmitter accident. As I mentioned, he had no family; but the engineer who was with him at the hospital, alongside of me, was Larry's best friend and a fellow SBE member.

KEEPING ENGINEERS MOTIVATED

So where does your passion come from? I know that some readers are looking forward to retirement, having dealt with so much change over the years. But most of you still find the time to participate in SBE and help mentor the next generation of engineers.

I'm now at the Wisconsin Broadcasters Association and after six years here, I can say that President and CEO Michelle Vetterkind, the WBA Board and its members also have a passion for broadcast engineering.

The WBA, which comprises 188 engineers representing 160 stations, just completed the first year of the Media Technology Institute, a program that offers practical instruction for prospective, novice and working broadcast/media engineers.

The website of the Wisconsin Broadcasters Association foundation features the first Media Technology Institute

Other initiatives include the WBA Engineering Fellowship, the Broadcasters ID program, the WBA Engineering Internship and a full day of technical sessions offered at the yearly WBA Summer Conference, with an even more comprehensive program at the fall Broadcasters Clinic.

There is no other regional show in the country that provides a significant broadcast equipment exhibition along with three days of technical training, with presentations featuring the Best of the Best in the field of Broadcast Technology. (The 2012 Broadcasters Clinic was held Oct. 9–11 near Madison, Wis.) For more information, visit *www.wi-broadcasters.org*.

I sincerely hope you share my concern for the future of our industry, because it is your passion and expertise that enables us to continue and expand the work we are doing to preserve and expand the profession.

Linda Baun has been the vice president of the Wisconsin Broadcasters Association since 2006, a position she arrived at after more than 14 years as certification director at the Society of Broadcast Engineers.

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World Radio History

OPINION

CPB Should Boost Small Stations

Without continued and increased public grant funding, many short-range signals can get lost

COMMENTARY

BY PETE SIMON

The culture war for public radio stations came into focus 31 years ago, when President Reagan's budget director David Stockman fired the first verbal shot by announcing he was going to zero-out funding for the Corporation for Public Broadcasting. That action ushered in three decades of inconsistent congressional funding, grandstanding, threats and panics within the system. Still, CPB decided to continue funding new radio stations in un-served or under-served markets.

Somewhere in recent years, however, this strategy collided with the financial realities of CPB-qualified stations, leaving the system in dire need of some sort of reform. At stake is the very soul of the public radio system, including the life of independent, community-based small-market stations.

Small-market stations have far fewer resources, especially when major-market "cousins" close by drop in for a "visit." I can't think of a better example of where this crisis plays out than on bus bench advertisements that were recently placed in Salisbury, Md., in the heart of the Delmarva Peninsula.

More than 100 miles from its home base in Washington, public radio stalwart WAMU(FM) decided to place "tune-in" ads on bus benches in Salisbury. Why? The story goes: to increase awareness of WAMU's new associate station in Ocean City, a station started to serve loyal WAMU listeners vacationing at the beach.

There are two problems with this explanation: 1) The Salisbury bus benches are 40 miles west of the Delmarva coastline, and no one vacations in Salisbury, and 2) one of the cute bus bench ads was placed just across the street from the studios of WSCL, one of three local public stations struggling to survive in this very small radio market.

The WAMU bus bench ad story led me to write to the CPB, which is in the midst of evaluating and revising the way it distributes Community Service Grant funds to CPB-qualified stations. This commentary contains a great deal of the message that I sent to them.

Since the 1970s, we have seen phenomenal growth in the number of public radio signals available across the country, from large to small markets.

In Colorado's Eagle Valley (including Vail) and Summit County (including Breckenridge), no local public radio station exists. But today three public signals are repeated from stations from across the Continental Divide in Denver and Greeley.

This type of situation is ideal for places without a local station. But the rub comes when a small-market CPB-funded station, with relatively limited financial resources, must compete with a new major-market station signal that has arrived in their small market.

In those situations, if we are to see the survival of the local station (and the programming diversity and training opportunities that it brings), funding has to be altered in favor of the local station.

SPEAKING FROM EXPERIENCE

When I worked at WSEA(FM) in Georgetown, Del., in 1977, the closest public radio signals were more than 100 miles away. Aside from the fun part of my job hosting album rock, I worked in the sales department during the day and came face-to-face with the challenges of selling advertising in a small market, scattered across Sussex County, Del., and the Eastern Shore of Maryland.

It isn't nearly as easy or lucrative as maintaining multiple accounts in a section of a major city.

Raising money for radio on Delmarva is tough, period. But with CPB support and with the University of Maryland, Eastern Shore on board, WESM(FM) signed onto the air in 1987, followed closely by WSCL(FM) from Salisbury State University.

Knowing this market, I had to pinch myself the first time I heard strains of "Kind of Blue" and Mozart coming over my radio during a 1989 vacation in Bethany Beach.

Bringing unique programming to Delmarva is a challenge. WSEA(FM)'s format was changed in late '77 to a more marketable disco/hits format, so I can fully appreciate the added burden for WESM(FM) and WSCL(FM) when WAMU(FM) set up shop in Ocean City, airing some of the same programming to a relatively small-but-faithful NPR listener base in the area.

HERE'S WHAT I'D LIKE TO SEE

When reporting their annual Non-Federal Financial Support (NFFS), WAMU should be required to isolate their reporting of NFFS from Delmarva (at least the eastern half of the Peninsula, clearly out of reach from WAMU's primary signal). That portion of WAMU's NFFS should be divided equally between WAMU, WSCL (with two stations) and WESM; matched by CPB accordingly.

It was CPB that started us on the path to fund and nurture small-market stations. If they are to survive, CPB must make adjustments, now. It must revamp CSG distribution so that stations not enjoying major-market listener and business support potential are placed at the front of the CPB funding line.

It's nice that WAMU enthusiasts can listen non-stop to their station all the way from Washington to the beach, from Lewes, Del., south to Assateague Island, Md.

But the question remains: With all of CPB's investment in local small-market radio thus far, is maintaining the funding status quo akin to throwing in the towel on what seemed like a great idea, just a few years ago? And, if that is true, what kind of national public radio system is CPB building now?

I look forward to a timely decision by CPB because, this just in, WHRO(FM), Norfolk is also setting up shop on Delmarva with its own repeater in the coming months.

One can argue this is a climate of desperation experienced by all public stations, but that is an issue that Congress has yet to address adequately.

Pete Simon has worked at community and/or public radio stations as manager, program director and reporter/producer. Stops have included WHYY(FM); KCSU(FM), Fort Collins; KPRN(FM), Grand Junction (before and after the creation of Colorado Public Radio); and KVNF(FM), Paonia, Colo. Recently he has been a volunteer jazz host on KUVO(FM).

iStockphoto/Brian Jackson

To avoid being squished by bigger rivals, the author says, local public stations need more favorable CPB funding rules.

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NewBay Media

BLUE BELL, PENNSYLVANIA

left:
MCCC's new ON-AIR control room
below:
Morgan Betz, Assistant Professor (left)
Shawn Sealer, Technical Services (right)
below left:
Gregg Heimer, Manager of Media Services

RADIO MCCC WHAT THEY DID ON SUMMER VACATION

"At MCCC my department usually does all our own integration. But Radio Systems made our lives so much easier with this install."

Gregg Heimer,
Manager of Media Services

Montgomery County Community (MCCC) is never short on media education with real-world training for its students.

Located in Montgomery County just north of Philadelphia, the College is consistently ranked among the top schools in the country for its use of technology by the Center for Digital Education. And Montco Radio is part of the reason why.

Montco Radio serves as both a student club at MCCC and an integral part of the school curriculum via a Campus Radio Workshop focusing on creating and producing original content for radio. As part of this course, students conceive, create, produce and distribute programming about the College and student life for the College radio station, and other community-based media outlets.

This new studio, installed just in time for the new fall semester in the Advanced Technology Center, which also houses a state-of-the-art TV studio, an observatory, and biotechnology laboratories. Radio Systems drew on our own long-term experience (we were founded 35 years ago as a college broadcast company) to specify the gear, install the studio and train MCCC's faculty in its service and use.

below, from left to right:

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Vice President

Daniel Braverman
President

Michael Sirkis
Chief Engineer

Dennis Greben
Manufacturing Manager

Jo-Ann Dunn
Sales Manager

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