The Local Oscillator

The Newsletter of Crawford Broadcasting Company Corporate Engineering

APRIL 2022 • VOLUME 32 • ISSUE 4 • W.C. ALEXANDER, CPBE, AMD, DRB EDITOR

Noise!

It's the bane of AM reception, and it is getting worse. It's been getting worse for a long time, with every year that the power grid ages and with every new device installed in every household or business.

Not that it's limited to the home and workplace. We've read in recent years about the EMI generated by electric and hybrid vehicles wiping out AM radio reception, and at least one manufacturer has thrown in the towel, solving the problem by eliminating the AM band from its automotive radios.

We've seen a number of proposals for dealing with the noise issue, with the pending increase in the protected contour leading the pack. Personally, I'm skeptical that this will ever go anywhere. Former chairman Ajit Pai, a friend to broadcasters, was driving the "AM Revitalization" effort, but since his departure, we haven't heard a word. It would appear to me that AM Revitalization is back-burnered at best and dead at worst, so it's unlikely that increasing the value of the protected contour, which would allow a power increase for many stations that would allow then to overcome noise, will ever happen.

Just recently, Xperi released a paper pushing all-digital AM as a way around the noise issue and encouraging auto manufacturers to hang in there with AM receivers. While I think they are right – all-digital AM does feature some good noise immunity that could get us around some of these problems – we still face the problem of critical mass. How long until there is a sufficient number of digital receivers out there to make switching off the analog a viable option? And will we reach that point before many AM licensees give up and throw in the towel – or the station license? My crystal ball is a bit cloudy on those questions.

Leaving the larger noise issue and questions aside for a moment, let me relate an experience I recently had that illustrates what we're dealing with and one way of dealing with it on a small scale.

Starting last fall, I began to notice a high noise level at my home on the HF bands. On 80 meters (3.7 MHz), a favorite where I visit with a group of guys on weekend mornings, the noise level was S9+10 dB, which works out to -63 dBm or 158 uV. That's pretty stout, especially considering that the signals that I was trying to hear are 10-20 dB below that level. The noise had a "bacon frying" quality to it – steady and with a definite pattern to it. The amplitude seemed to decrease linearly with frequency

I noticed that AM reception in and around the house was also plagued. Pulling into the garage, the noise level would come up and render all but our 50 kW station unlistenable. And forget about listening to any of the stations in the house. Very frustrating.

For months, I put up with the issue with the general belief that it was caused by the 300 kV cross-country power transmission line about 300 feet east of my house. Lots of insulators and lots of opportunities for corona, which sounds very similar in terms of the noise it produces. I even walked around the house with an AM receiver looking for the source of the noise, but it was ubiquitous, leading me to believe it was coming from those power lines.

But last month, at long last, I'd had enough and decided to try something. With my HF radio on a UPS, I killed the power to the whole house, and… the noise was *gone!* So at that point, I knew it was not coming from the power lines but was from a source inside my house (or powered from my house).

I got my wife, who is also a licensed amateur radio operator, to sit in front of the HF radio with a handheld UHF radio, and I grabbed another

UHF 'talkie and went to the breaker box. I turned off all the breakers, turned the main back on, then turned on each breaker one at a time until the noise reappeared. It was coming from our downstairs family room.

Next, I shut off the power strip feeding our A/V equipment – the noise was still there. All that was left was a little USB 5V power supply that powers the Amazon Firestick. I unplugged that, and – *gone!*

That little power supply, maybe 1-1/2" long, 1" wide and a half-inch tall, was creating all that RFI, and it was undoubtedly coupling it back into the house wiring, which made the source appear ubiquitous. And if you're wondering, that little Amazon power supply had all the right FCC and CE compliance statements on it.

So I grabbed another USB supply out of my junk box and the Firestick was back in business, sans noise. I was thrilled to be able to hear my friends on HF again, and to hear our AM stations in and around the house.

The point of all this is that just about *anything* can create broadband RFI that can wreck AM reception and even reduce the S/N ratio of VHF FM signals.

A couple of years back, I went through a similar exercise at home and found a CFL bulb in one of my outside lights creating a ton of RF hash. That was a little easier to find since I had only to flip switches to isolate the source. We have long since converted to all LED lighting, but I've read that some LED fixtures can create a significant amount of hash. Thankfully none have done so at my house. Yet.

How do we combat this? I wish I had an answer. If a listener calls complaining of a noisy signal, you might suggest that he or she try shutting off lights and unplugging things to see if they can isolate the source. A number of years ago, Amanda and I went out to a listener's house on such a complaint – we usually don't do that kind of thing, but I was curious, and we usually don't get complaints on that 50 kW signal. We rotated the listener's loop antenna a bit to null out a local noise source and he was back in business. I wish they were all that easy.

Going forward, broadband RFI and EMI are only going to increase. Remember that little Amazon USB supply with the FCC and CE compliance stamps? I think that manufacturers, particularly overseas manufacturers, submit an exemplar for testing, and it passes, but the actual devices that are supplied to consumers lack the bypasses and filters that the exemplar had. Think Volkswagen emission testing. How do we deal with that kind of thing?

The only answer I can come up with is listener education, and that's a tough path to take. Unless your station has completely unique and indispensable format, listeners will just go somewhere else, like the FM band or the internet. But it's the best we can do, at least until all-digital takes off. Otherwise, I'm wide open to ideas.

Lead Times

Unless you live in a cave, undoubtedly you have heard about supply chain problems and chip shortage issues. I've heard all kinds of reports, commentaries and explanations for this, some denying their existence, but I can tell you that the effects, at least, are very real. Driving back from our home in the mountains we pass an area that is sort of the "auto dealer row" for the west side of the Denver metro area, and I see the lots for those dealerships are only half full of new cars, a definite symptom.

Much of my time and efforts of late have been spent in planning for some studio and transmitter site moves, and I am running into very long lead times on usually in-stock items. Microwave equipment is six months out. Computer equipment, such as rack-mount audio and file servers, is running 60-90 days out. Some RF components are 120 days or more out. All this makes planning much more difficult.

Keep that in mind as you do your own planning, knowing that an order placed today may not result in items on hand for many months.

The New York Minutes
By
Brian Cunningham, CBRE
Chief Engineer, CBC – Western New York

Hello to all from Western New York! The month of March has been a whirlwind of activities here in the Buffalo and Rochester markets, and only by the good graces of God, I am here to tell you about them.

To give you a little background, early last fall my general physician prescribed a 3rd high blood pressure medicine, and soon thereafter, I began to feel sluggish and tired all the time.

As the weeks and months went on, this feeling increased, and my physician blamed it on working a lot of hours. Her remedy was to take it a little more easy (great advice from someone who doesn't understand broadcast engineering!).

On March 11th, it all came to light, when I passed out in the lobby of a friend's radio station. They called for an ambulance, but by the time they arrived, I was up and coherent, although awfully weak. My wife immediately took the latest HBP pill away, suspecting that was the cause. She immediately began a regiment of heart rate/Co2 and blood pressure monitoring. My heart rate was barely in the 40s and blood pressure 89/40 at its lowest point.

We called my general practitioner, and she prescribed a Doppler on my neck, MRI, and a heart sonar, to see what caused the blackout. All three tests came back abnormal, so we scheduled a visit to the cardiologist.

Once he was able to go over all the data collected, he determined that I was grossly over-medicated on high blood pressure medicine. He stated that if my wife had not taken away the last pill prescribed, when she did, I would not be writing this report right now. Guys, as much as you hate to sometimes, listen to your wife!

I am slowly beginning to regain my strength, and on Monday April 4th, I am scheduled for a nuclear stress test to see if there is any damage to my heart. Any prayers you could send my way would be greatly appreciated!

There were a LOT of nuisance problems between Buffalo and Rochester this month, of which I will fill you in on in next month's report. My mind is still a bit foggy, and it will take some time to get everything that happened this month processed and put to paper. Stay tuned, there were some doozies!!

That about wraps up another month here in the great northeast, and until we meet again here in the pages of *The Local Oscillator*, be well, and happy engineering!

The Motown Update
by
Mike Kernen
Chief Engineer, CBC–Detroit

A time for rest – nope, yes, nope, finally!

I write this in anticipation of warmer weather. Not just because it's springtime and 17 (what?) lovely degrees outside, but because I'm leaving for a week and yes, I'm going to the sun! My wife and I have had no less than four vacation plans cancelled because of a particular virus whom I needn't mention. Not that we have gotten sick, thankfully not, but because everything became volatile in the world. The pandemic reality shattered normalcy for everyone and while spared the illness, both of us lost our jobs.

But the cliché is true that things happen for a reason. Me? I found a perfect opportunity here at Crawford, and my wife finally had the freedom to start her own businesses – yep, not one but two! But as the saying goes, all work and no play… so bye-bye Michigan; see ya wouldn't wanna be ya! Spring dern well better arrive there while we're gone.

Mired in Muck

I'm no stranger to off-road adventure. I've owned countless 4x4s and even did a frame-up restoration of a 1977 Jeep CJ5 which I converted to look like a newer Wrangler. Someone decided that they needed that one more than me and took it off my driveway in the middle of night. That taught me a lesson – never lift a truck too high to fit inside your garage!! Anyway, I owned it long enough to have big fun in the woods of northern Michigan where I had for years ridden dirt bikes and snowmobiles. Once, while trying to impress my girlfriend (now my wife), I buried its supersized BFGs up to its heavily modified axles in mud. I nearly ruined my winch pulling it out, too, but no harm no foul – I had what I needed to do the job and after pulling for a while we were back on the trail.

Fast forward to the last Friday in March. Steve and I needed to troubleshoot an almost certainly wet tower 1 lighting monitor at WRDT's Monroe MI transmitter site. Tower 1 sits 700 feet due east of the transmitter building, which is a long walk with an extension ladder and tools, so we always drive my truck. Unlike the obvious mudhole I carelessly launched my Jeep into all those years ago, the field at the 560 site looked pretty solid, and indeed it was until its elevation started to drop.

Proceeding with caution and 4WD locked, I pressed ahead slowly until the truck slowed and stopped. Knowing not to spin the wheels, reverse and look for solid ground I thought. Nope… too much gravity. We're stuck.

Remembering I have roadside assistance benefits through my car insurance I called for a wrecker. I needed a winch. Here's where the story changes from unfortunate to just ridiculous.

A very new Century car carrier tow truck shows up and proceeds into the field where it gets immediately stuck. The driver didn't even think to engage the truck's four-wheel drive. Duh! Then he tells me he has just 75 feet of cable on his winch.

"Ok, well, grab some chain out of your tackle boxes."

"I don't have any."

"Cable, straps?"

"Nope." Just some crappy, rotted wheel straps that immediately snapped. What could we do but leave the vehicles in the field, give the driver a ride home (irony), and agree to return in the morning?

Saturday morning finds me back at the transmitter site awaiting the ill-equipped wrecker driver (who I'm pretty sure owned the company he represented). He shows up at about noon to retrieve his truck with another truck just like his and two bags of chain he'd just bought at Harbor Freight. Still nowhere near what he'd need to pull us both out. Fortunately, I'd brought with me a few vehicle-recovery straps I still had from my off-roading days. Using those we pulled my truck free then he connected his truck to the winch on the newly arrived wrecker and promptly snapped one of my lighter duty straps. Nearly sticking that wrecker too, they finally worked the original tow truck free and left.

My takeaway from all of this is a lesson in preparedness. Neither the wrecker company nor I were prepared for that field that day. I should have surveyed the area prior to driving into it, even though

I'd driven over it to the towers many times before. I didn't have the knowledge I needed -the melting frost in the ground and the recent rainfall had changed the playing field if you will. Just because something was safe is no promise of its present safety.

SBE and Me

Having never lived in the proximity of an active SBE chapter, I had never sought membership therein. For years I had eyed certification and even investigated a few times, but never took the steps to really do it.

Cris Alexander and Crawford are very active in the organization, and with support and encouragement from Cris, I'm now a member. Not only am I an SBE member, but I've also just passed a certification exam and became Certified Senior Radio Engineer.

I'm writing about this experience because it's incredible. It's valuable in that it lets others know you're qualified in a field where scant or no academic organizations exist for one to obtain related knowledge and credentials. Whereas a doctor must achieve qualification by way of a stringent collegiate education and the AMA to become licensed to practice medicine, broadcast engineers are left solely to gain knowledge through the rigors of experience and their own resourcefulness, often by trial and error and mentorship.

The SBE certification program is possibly the best way to outwardly demonstrate an individual's achievement in broadcast engineering. Potential employers, current employers and colleagues know it carries weight and is a bona fide testament to an individual's experience and proficiency. Also, it feels great to have.

I was anxious for weeks after the exam while I awaited the results just because I wanted it so badly. I am proud to have this certification and I wholly recommend it to everyone in our profession. It's an achievement that you earn and having something you've truly earned feels like absolutely nothing else.

News from the South
by
Stephen Poole, CBRE, AMD
Chief Engineer, CBC–Alabama

Thanks to those of you who supported our family with prayer after my mother passed on March 27th. She was a devout Christian who loved the Lord, so she's in heaven now. She's finally free of the physical problems that have plagued the last several years of her life.

In years past, she was always a very active person, but several falls had so badly injured the bones in her hips and legs, she could barely walk. She was a cancer survivor as well. She made it to the age of 90, so I think we can call that a certified Good Run™.

In other news, as I write this, we have more severe weather coming. Hey, that's just Alabama for you. The pattern in March has been for one or two severe weather and flooding rain events per week. The wind is howling outside right now, and we're supposed to have gusts to tropical storm force by this evening. Fun, fun.

The Reluctant Dell®

Todd had fun with one of our new Dell computers in March. Cris is very proactive about making sure that we replace our hardware at regular intervals, and it was time for some new NexGen audio servers. This particular computer, however, didn't want to act right: it kept hanging and glitching. Since it was under warranty with on-site repair, Todd called Dell and said, "Fix it."

On the first trip, the tech condemned the motherboard. We had to wait several days for a new one to arrive; the tech came, installed it, and left. The unit was still hanging and glitching, so Todd called them back.

I've mentioned here many times that Todd is a genuine bulldog on stuff like this; he kept poking and prodding and wondered if the driver for the hard drive was the correct one for Windows 10. (This has become a common problem, by the way. The Oki Microline printer on my desk won't work with

Figure 1 - He is finally happy.

Windows 10 because there's no driver available; they stopped supporting it at Windows 8. Crazy.)

At any rate, the tech returned and replaced the motherboard (again) and the CPU. This time, it seemed to do the trick. The computer is up and running and seems to be happy.

Cameras

We've had some trouble over the past year with kids damaging the generator at 101.1 FM in Cullman. I mentioned last month that they'd pulled some wiring in an attempt to pump fuel from the tank. And in fact, one year ago, in the April 2021 issue, I noted that someone had stolen the battery. That one actually cost us quite a bit of downtime (and lost revenue!).

Figure 2 - Smile, kids! You're on Candid Camera!

Look: cameras aren't a panacea. Copper thieves, for example, are sophisticated enough to wear masks or to avoid them altogether. But it's something. Cris approved the order of new video systems for both WXJC-FM in Cullman and WXJC(AM) in Tarrant; Todd and Jack installed them. They've put one camera on that old generator in Cullman just to see if we can catch a photo of the thieves/vandals. If nothing else, can hope that it discourages them from tampering with it.

A Blown Chip

I built a little Arduino monitor that watched for the generator to start at 101.1 FM in Cullman. After a timeout of about 15 minutes, the monitor program would lower power on the transmitter to help conserve fuel. Putting diesel juice in that monster is a job and a half, and given that the roads up there tend to be impassable after a bad storm, it just seemed like a good idea.

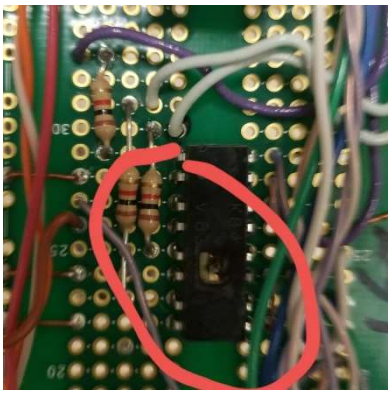

Figure 3 - Someone let the smoke out ...

It worked well, too. The monitor program would send an email telling us that the transmitter was at reduced power and that the generator was running. When utility was restored, it would raise the transmitter back to normal and send another email.

After one particular severe storm a while back, the monitor stopped working. I finally had time to examine it closely the other day and discovered what you can see in Figure 3. The generator is located about 40 feet behind the transmitter building. It's an older model that uses simple relay closures to indicate status. We use a shielded wire inside of conduit to bring that closure into the building, where another relay is used to further isolate it. Count 'em: one, two relays.

In spite of that, we apparently took a bit of lightning that let the smoke out of one of the isolator chips. Either that, or we had some kind of a weird surge. Either way, that chip is obviously bad and I'm in the process of rebuilding that little monitor board now. It won't be in place for the severe storms this evening, but I want to get it working again ASAP.

The Joys of Programming!

This is where I get to be a curmudgeonly old man. I actually enjoy programming, but working on that online POR stuff for our company has been a special case. In no particular order, I shall share what has made this so joyful.

First, HTML, the language of web pages, was never really intended to be used as a user interface. The original specification would allow

different font sizes, images, and even frames with separate menus. But it was really intended for static pages: “Here’s some pictures of my trip to Buffalo Holler!”

Trying to get a particular button to go right there, and not to move around as the screen is resized, is a trick and a half. The HTML specification has been improved over the years, but it’s more kludge than straightforward programming. The latest and greatest is HTML 5, which I’ve targeted. All modern browsers support it, but we had to draw the line somewhere. If one of our employees has an older computer running Internet Explorer 6, well ... it’s not gonna work.

To make active pages, you use something called “AJAX” – Asynchronous Javascript and

Figure 1 - Smile, kids! You’re gonna be famous!

XML. Javascript is a decent little language, but thanks to past security problems, it is extremely anal about what it’ll let you do. For example, you cannot directly open a disk file in a client’s web browser. You can’t directly write a file, either. That has to be done on the server end.

I need to mention that when I say, “Javascript,” I really ought to say, “Which one? Which version, which framework?” If I Google something like, “How do I warp a widget with Javascript,” I’ll get a bunch of good examples. But some will be written in plain-Jane Javascript; some will be in a condensed version called “Jquery;” yet still others will use the new Mozilla “Fetch” framework. Fun, fun.

Of course, each has its devoted adherents. If someone posts an online forum question in plain-Jane Javascript, someone else will inevitably reply with, “You oughta use Jquery.” A third will say, “Here’s a Fetch example.” That’s not a showstopper, but I had to learn all three dialects.

Javascript runs on the client side (i.e., in your web browser). On the server end, the most common tool that’s used to send things back to your browser is called “PHP.” WordPress and a bunch of other content management systems (“CMS,” because we don’t have enough acronyms yet) use it to build web pages on the fly. PHP examples are pretty straightforward, and my Googlin’ there has been quite profitable. But as usual, there’s a twist: the PHP folks will sometimes make changes between versions that are incompatible with older versions! Thus far, I haven’t run into any showstoppers, but I’ve been careful to target the version that we use (PHP 7).

Completing the joy -- the icing on the cake, as it were – is that Javascript is strictly client-end, while PHP is server-side, period. If you right-click on a Web page and select, “View Page Source,” you won’t see the PHP. It will all have been translated into HTML in the web server, then sent to your browser. Because PHP is strictly server side while Javascript runs in the browser, they can’t actually talk directly to each other in your web page, either.

For example, I use PHP (which CAN write files and CAN query a database on the server) to save and fetch values. Let’s say I want to display something for you in the browser. The page on the server will contain something like ...

```
<?php                          <- start doing PHP code
$value = [get a value from disk or a database];
?>                             <- end the PHP code
<script> <- start the Javascript
   var doodat = <?php echo $value;?>;
   document.getElementById( “name_of_the_widget” ).value=doodat;
</script>
<?php                          <- More PHP ... ... ..
```

This has to be done for each and every widget that I need to change on the Web page. All of the weird “<?php” and “<script></script>” tags must be in just the right order, too. Sure, I can put this into a loop that will run through a bunch of values and do them one at a time, but it’s still a bit tedious.

There are other joys; all PHP variables have to start with “$.” Each line has to end with a semicolon. Each Javascript variable has to be declared before use (the “var” tag in the example above).

The first version of our POR stuff was written in WordPress. I kept running up against things that just couldn’t be done the way we needed. WordPress is a fine CMS and a lot of people use it, but it’s also slow, bloated and, as I said, really unsuitable for a page that needs to display and fetch user input. You can do it, but you have to add “snippets” of PHP and Javascript anyway, so I finally just to decided to write it myself (in my copious spare time, of course).

The Chicago Chronicles
by
Rick Sewell, CSRE, CBNT, AMD
Engineering Manager, CBC–Chicago

Sofia Site Monitor

We recently received our second Inovonics Sofia 568 Site Monitor.

Last year we purchased one for our Kirkland, Illinois, transmitter site, which is about 100 miles away from our main studio and operations center in Hammond, Indiana.

As engineers it was a great new tool that allowed us to better manage a site that was so far away. It allowed us to monitor audio and many other necessary parameters for the main analog signal, as well as the HD1, HD2 and HD3 signals. It was particularly useful to be able to login and listen to any of these four signals.

It could also be used to listen to other stations in the market. While that was not something I found myself doing, a programmer that was out of the market would definitely find this useful for keeping up with what the competition is doing.

The one thing that the Sofia site monitor could also help with was monitoring the Artist Experience portion of the signal. Now we didn't have this feature on the station in Kirkland, but we did have that with two of the local stations in the Chicago market. I realized that the Sofia 568 Site Monitor would be very useful there as well.

Most of our engineers do not have HD radios in their cars, and those that do don't have radios with the Artist Experience features. We were literally blind when it came to monitoring to make sure the station logos, album artwork and advertiser logos were making it to dashboard displays.

It made sense to be able to have the Sofia in our rack room to keep track of these important features. Even if you have the full HD experience in your car, your car may not always be where you can get the HD signal and check the audio and graphics. The Sofia 568 allows you to check this anywhere you can get a decent Internet connection.

The Listener Experience tab on the Sofia's web page gives you the ability to look at graphics from the "simple" perspective of the listener on their car's display. Or you can select the Advanced/Broadcaster mode and see all the artwork that will be in the HD radio waiting for the station to trigger it to display when the song is actually playing.

One feature that really stood out to me was that the Sofia568 will identify when there might be an "Image Issue." I was surprised to see that both our station logos had this warning. The message doesn't say that the image will not work; but it may not work well with some receivers. A quick scan of the FM band showed that we were not the only one with this issue.

Fortunately, the Sofia 568 Site Monitor will suggest a website, hdlogoverify.com, that will let you drag your artwork or HD logo into the site and then share with you the errors that are present with your logo. The best part is that this site will actually fix the problems and then let you download the repaired logo.

The Sofia 568 Site Monitor has many features that are not covered HERE. Many of these are typical of the features you would find in a common modulation monitor, plus there are some features that you wouldn't necessarily get, like RDS and the above-mentioned HD features.

Below are some screen shots from the Sofia.

Figure 2 - Simple Listener View

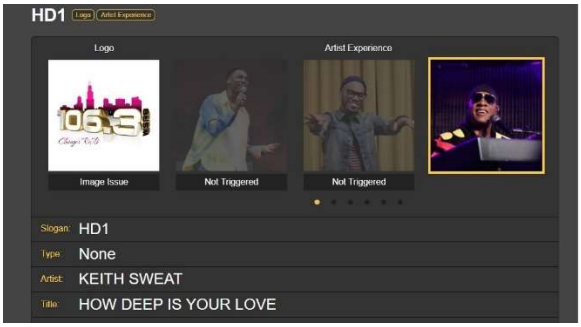

Figure 2 - WPWX HD-1 View

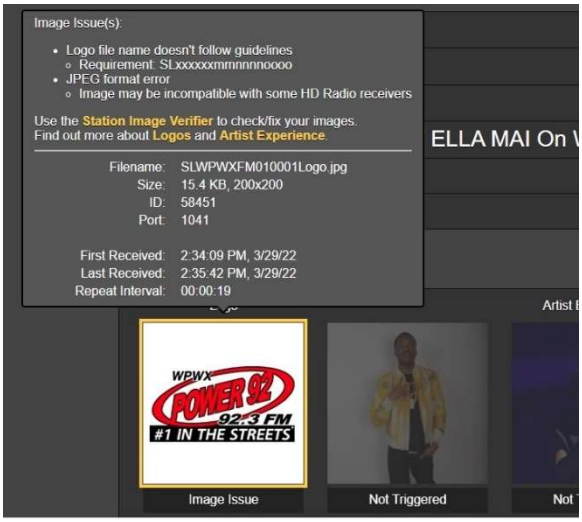

Figure 3 - Image issue

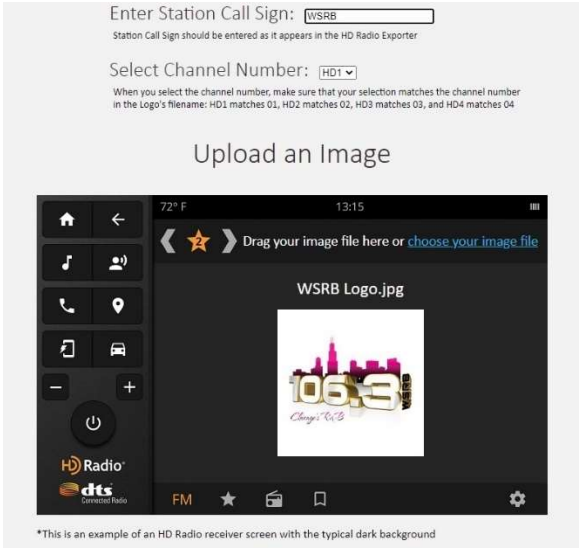

Figure 4 - Image verification on hdlogoverify.com

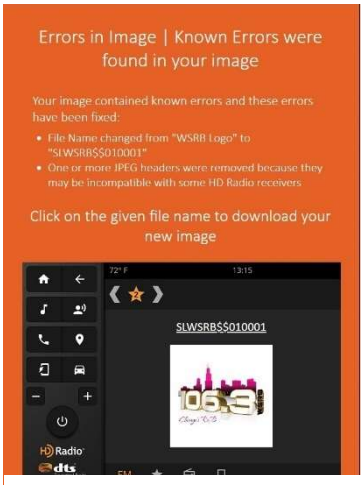

Figure 5 - Image issue fixed on hdlogoverify.com

Rocky Mountain Ramblings
The Denver Report
by
Amanda Hopp, CBRE
Chief Engineer, CBC - Denver

Burk Alarms

Is having too many alarms set up for a station a bad thing? I found recently that it can be.

The KLTT ARC Plus Touch began having some sort of network issue. It lost its connection to the Plus-X Dual IP-8 Adapter. In the Site Settings of the unit there is one checkbox that ended up biting me for Alarm on Lost Plus-X Device. When the unit lost its connection, I began getting e-mails and text messages (because that's how I have it set up).

I can't remember exactly what time it was, but it was close to 8:30 PM on the 13th when the onslaught of notifications began: "KLTT-IP-8 Link not found" (or something like that). I have my phone on Do Not Disturb around this time and I am dead to the world. It wasn't until I got up at 3:45 the next morning that I saw all the notifications. Every minute the unit would look for the IP-8 and when it wasn't there it let me know about it.

Because the link was down, I had no access to the ARC Plus Touch. I finally just changed the email password the unit uses and that at least stopped me from receiving the alarms.

I was able to head to the site that morning and found the unit on. I power-cycled it and it came right up as if nothing ever happened. While I was trying to correct the issue remotely, I found no reason for the loss of communication. Our network wasn't being bombarded, I had access to everything except the ARC Plus Touch, even the IP-8 it said it couldn't communicate with.

I did a couple of reboots of the IP-8 with no luck. The ARC Plus Touch was even running macros locally, changing from night pattern to day pattern when the time came, so somehow it was communicating with the IP-8. It's like the ARC Plus Touch's ethernet got scrambled and the power cycle set it straight.

I'm not a fan of these issues as they typically come back. I have at least unchecked the alarm box for lost Plus-X device comms, so I won't get notifications of that particular issue by the minute anymore.

Lookout Mountain Network Issues

I often check our backup links to the transmitter sites. We use Barix Exstreamer 1000s over the internet for backup to the Part 101 microwave links. Every once in a while, I'll see the transmitter side isn't receiving anything, and a simple reboot of one or both ends correct the issue.

I had recently checked the status of these units before we switched out the WorldCast Horizon units for the Tieline units, and all was good. We were needing to do some work on the Gateway 8 at the studio and had to put each station on the Barix. I noticed the Lookout Mountain site, which is home to 95.3-FM (KLVZ) and 100.7-FM (KLZ), was not receiving anything on the Barixes. Reboots did not fix anything.

The network at the site is a bit weird as we have our microwave link connected studio network but also Comcast internet. We set up a Linksys Dual WAN router a few years ago to allow us access to both sides with no real issues. It would allow us to reach the equipment at the site either on the LAN or on the internet. We found that it was routing properly on the studio network, but not at all on the Comcast WAN.

After hours of troubleshooting, my dad, in setting up a new router, found a setting that had somehow been changed. Instead of being set for load sharing between the two WANs, it was set for failover with the studio network as primary.

I have no clue how that could have happened as I do not mess with the settings of that router, and I know he doesn't either. We are the only two who have access. Regardless of who or what caused it to change, since putting the setting back things seem to be working the way we need.

KLZ Antenna Issues

We have been having tower parameter issues at KLZ lately. The parameters would be perfectly fine one minute, then the next be high or low the next. There is nothing gradual about it. I have tracked it and there is no rhyme or reason for it. It does not appear to be related to temperature or precipitation.

To give us a baseline for further troubleshooting, we measured the self-impedance of both towers with the bridge and found them close to the values measured in the proof. When another sustained shift occurs, we will re-measure and see if something is changing above a base insulator. We already looked carefully at the ATUs and filters and tightened up all the coil clips and hardware.

As I write this, it has been behaving with only a few brief shifts, then it goes right back in tolerance. Weather is preventing us from doing much more right now, but when it warms up and dries up, we can really begin digging into it.

Computer Central

It feels like I've been setting up many computers. One important thing I want to do this year is begin replacing our call screener computers. I am not getting anything fancy, just some cheaper refurbished Dell computers from Micro Center. I will be doing them in pairs, and KLZ was the first station to get a new screener computer.

Thankfully, the call screener computers have nothing much on them by way of software. Antivirus and the call screener program is about it, so, the setup was quick, a couple of hours, at most, most of that doing Windows updates.

I have also been working on getting Nexgem Remote Studio set up for one of our KLVZ voice track hosts that lives in Dallas. She does afternoons on the station and has been using Tieline's ReportIT app to FTP her tracks to us. The person who used to grab those, convert, and then load them into the proper spot in the logs has left our employ, so the decision was made to make things a bit easier and less time consuming for our people locally. After some back and forth with RCS, I was able to get the computer up and running. It has been tested fully and verified to be working. I am waiting on one additional piece of equipment to show up. I will then do a final test of everything before packing and shipping the computer to the host.

Spring

Spring is finally here. Colorado is always a holdout, but we are seeing more days of warm with rain here or there rather than snow. This is one of my favorite times of the year. It means outside work will be here soon, no more being miserably cold outside, and I can begin planning my days out of the office.

My husband and I will be able to open our mountain cabin as well. We are just waiting for the overnight temperatures to be right at freezing or above, and once that happens, after a couple weeks, we will be able to go to Grand Lake and get things opened up. I am looking forward to being able to spend my weekends up there again. There's just something about fresh mountain air, and peace and quiet.

I will be keeping an eye on weather and as I'm able, will be planning more outside work. Many of our ATUs need a new weather seal and a good cleaning. How wet the month of April is will determine if I can do much of anything. It can be hit or miss it seems from year to year as to how much rain we get. With that rain comes growth, meaning days on the tractor. Spring is here and I couldn't be more excited!

That about covers it for this edition. I pray you all stay safe and well.

KBRT • Costa Mesa - Los Angeles, CA
740 kHz/100.7 MHz, 50 kW-D/0.2 kW-N, DA-1
KNSN • San Diego, CA
1240 kHz/103.3 MHz, 550W-U
KCBC • Manteca - San Francisco, CA
770 kHz/94.7 MHz, 50 kW-D/4.3 kW-N, DA-2
KLZ • Denver, CO
560 kHz/100.3 MHz, 5 kW-U, DA-1
KLDC • Brighton - Denver, CO
1220 kHz, 660 W-D/11 W-N, ND
KLTT • Commerce City - Denver, CO
670 kHz/95.1 MHz, 50 kW-D/1.4 kW-N, DA-2
KLVZ • Denver, CO
810 kHz/94.3 MHz/95.3 MHz, 2.2 kW-D/430 W-N, DA-2
WDCX • Rochester, NY
990 kHz/107.1 MHz, 5 kW-D/2.5 kW-N, DA-2
WDCX-FM • Buffalo, NY
99.5 MHz, 110 kW/195m AAT
WDCZ • Buffalo, NY
950 kHz/94.1 MHz, 5 kW-U, DA-1
WDJC-FM • Birmingham, AL
93.7 MHz, 100 kW/307m AAT
WCHB • Royal Oak - Detroit, MI
1340 kHz/96.7 MHz, 1 kW-U, DA-D
WRDT • Monroe - Detroit, MI
560 kHz/107.1 MHz, 500 W-D/14 W-N, DA-D
WMUZ-FM • Detroit, MI
103.5 MHz, 50 kW/150m AAT
WMUZ • Taylor - Detroit, MI
1200 kHz, 50 kW-D/15 kW-N, DA-2
WPWX • Hammond - Chicago, IL
92.3 MHz, 50 kW/150m AAT
WSRB • Lansing - Chicago, IL
106.3 MHz, 4.1 kW/120m AAT
WYRB • Genoa - Rockford, IL
106.3 MHz, 3.8 kW/126m AAT
WYCA • Crete - Chicago, IL
102.3 MHz, 1.05 kW/150m AAT
WYDE • Birmingham, AL
1260 kHz/95.3 MHz, 5 kW-D/41W-N, ND
WYDE-FM • Cordova-Birmingham, AL
92.5 MHz, 2.2 kW/167m AAT
WXJC • Birmingham, AL
850 kHz/96.9 MHz, 50 kW-D/1 kW-N, DA-2
WXJC-FM • Cullman - Birmingham, AL
101.1 MHz, 100 kW/410m AAT

Crawford

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