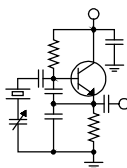


The Local Oscillator



The Newsletter of Crawford Broadcasting Company Corporate Engineering

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Cloudy Thoughts

Most of you are no doubt aware that there was a “hack” of Marketron last month which left a reported 6,000+ customers without traffic and billing services. That included, to some degree, some of our stations.

While details on the hack have been few, we know it originated in Russia, as have several other high-profile hacks over the last couple of years. I suspect it was a ransomware attack like those others.

We use Visual Traffic and other Marketron products in our company, but most of our use employs “old-school” on-premise servers and databases as opposed to using Marketron’s cloud-based services. As a result, we were for the most part able to continue business as usual while Marketron scrambled to get back up and running.

I don’t know what’s “under the hood” of VT and whether it does some sort of “phone home” operation for license verification or whatever, so as soon as we heard about the attack, before anyone fired up their systems on the Monday morning after the weekend hack, we air-gapped our systems for a time to make sure nothing evil would follow us home. That told us right away that they either did not do any kind of phone-home server contact or would run without a response. In any event, the systems worked, much to our relief. We ran that way for a couple of days until Marketron told us they were back up.

At this writing, Marketron is still working on getting some of its cloud-based products back on line, although its traffic system has been back up for several days now.

We were, by the way, scheduled to move our Chicago operation completely onto the Marketron cloud-based system the Monday after the attack. Needless to say we did not make that move and are still considering our options.

Then on September 27, Intertech Media, which hosts a number of our larger station websites, experienced some kind of outage. It’s unclear at this writing whether this was the result of an attack of some sort or an infrastructure problem.

These incidents have given us reason to pause and reconsider our willingness to move to cloud-based services and infrastructure going forward. For some things, we won’t have a choice. Telephone service, for example, is all going the way of the cloud and premise-based systems such as we now use in most locations are being phased out. Our corporate offices already use a cloud-based phone service, and we’re headed that way in some of the markets in the coming years no doubt.

But what about other parts of our infrastructure. We’ve already mentioned traffic and billing. What about automation/digital media? RCS and others are pushing their cloud-based products, and there are certainly advantages to going to the cloud for those things... but there are (apparently) also huge risks. Are we willing to take those risks? I’m thinking not, at least for now.

No Surprise

Throughout the month of September, I got the usual pre-convention emails from various friends, colleagues, vendors and manufacturers: “Are you going to the NAB convention next month?” We had, for safety and health reasons, cancelled our travel plans back in August, so I replied in the negative to all those missives. What I was thinking but did not state was, “...and neither are you.” I just had a feeling that the convention would be cancelled, and that’s exactly what happened.

While we’ll never be privy to the discussions that took place at the NAB, we can probably accurately speculate. In the months leading up to the convention, I heard of a number of groups

that had either cancelled or never planned to attend in the first place. Then several major vendors pulled out as “delta” became more widespread and the venue enacted strict vaccination proof requirements. I’m fairly certain that things reached a point where continuing with the off-season convention would not pay (I understand that the usual spring convention is the association’s main moneymaker). I think it was smart for them to call it off.

So we look forward to next spring’s convention with the hope that “delta” and other variants are well under control by then. I have no crystal ball to help with this, so it’s anyone’s guess, but hope springs eternal.

Not Again!

Late last month, as I arrived at the office at about 5:00 AM, I noticed two fire protection contractor vans parked in the loading area of our high-rise building. I entered the building with the two workers, who told me they were going to “test the pipes” and would not be setting off the alarm. I didn’t think much about it and went on up to my office, which is located on the 12th floor, just under the roof deck.

A few minutes later, as I was working my way through the stack of work that had piled up since the previous day, I heard a familiar sound – water hitting the top of the ceiling tiles in my office! As the first few drops started running over the grid, I grabbed everything I could and got it out of the way, moving laptop, files and other stuff to the sofa on the other side of my office. Amanda heard me yell and went running up to the roof to tell the fire protection guys to stop. She then came down and helped me move the rest of my stuff.

So what happened? Several years ago, the same thing happened in my office. The 4-inch cast iron drain line for the roof runs right down the underside of the roof deck on the east side of the building. There is a big tee connection right over where I sit, and another line runs west from there. The top of that cast iron stormwater drainpipe had rusted out. Normal drainage from rain and snowmelt would not completely fill up the drainpipe, so it wouldn’t leak. But when the fire protection folks would do the annual standpipe test and dump hundreds of gallons of water onto the roof in a few seconds, it would.



My office immediately after the deluge from the ruptured drainpipe. That roof water was not clean!

The building owner replaced the cast iron pipe running south through my office with PVC several years ago – after I had been dumped on a number of times in as many years, but they never did replace the tee or the pipe that came off it to the west. This time, top of that pipe had rusted out and I got the full load.

It took a solid week for the building over to get in here and replace all the bad pipe and then get carpet cleaners in to do what they could with the stain from the dirty water. I moved back into my office on Friday the 24th. They still owe me some new carpet, but for the moment anyway, I’m back in black.

The standpipe connection to the north part of the roof is red-capped downstairs because they weren’t able to complete the city-required annual test. I suppose that means that the contractor will be back at some point soon to do it all over again, and that’s when I will find out if the plumbers got everything right. I predict that I will be fine in my office, but since downstream cast iron pipe elsewhere in the building was not replaced, my guess is that our across-the-hall neighbors may be in for a big surprise when the top of the old pipe above their suite blows out under the pressure of that deluge.

I’m thinking that when I see those vans back in the loading area, I just might preemptively move a few things to the other side of the room... just in case!

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

Hello to all from Western New York! The weather has finally turned the corner, and we gratefully welcome the fall season here in the Northeast. The summer of 2021 has left its mark in the history books as the hottest summer since record-keeping began over 150 years ago! Our A/C units have never worked harder/longer than they have this summer, and judging by our repair bills, our HVAC contractor had a good year as well!

There is not a lot to report on this month. As far as breakdowns and equipment issues go, I had somewhat of a reprieve compared to the past several months.

Just a day before I left for vacation the second week of September, we received our new Dell Poweredge R340 NexGen server for Buffalo. I opened the box immediately to check for any shipping damage, and not finding any issues, I closed the box up and decided to bench test the server after I returned from vacation. When I got around to testing the server and begin to get it ready for the data transfer, it would not boot up!

I knew it was an issue with the motherboard but had to go through several hours of the dreaded “dog and pony show” with Dell Technical Support for them to realize what I already knew. I know these guys have a protocol they have to follow, but some of the procedures they have you do are simply a waste of time. We could have reduced our technical Q&A session down to 15 minutes if they would only listen to the procedures I had already performed. What took so long was the fact that my support representative had to relay each test result to his Tier 2 support manager, who makes the ultimate decision that repairs are imminent.

They finally agreed that the issue was the motherboard and agreed to ship out a new one overnight for me to install! Knowing what is

involved in swapping out a motherboard, I demanded an on-site technical support call from Dell. Removal and re-installation of a motherboard is not rocket

science. I have done many of these in the past, but the issue was the removal and re installation of the processor on the board, these can come out and go in easily, or they can be a PITA – one bent/broken pin and you're done! I wasn't willing to chance that everything would go smoothly, especially on a brand-new server!

The following day, the contract service tech

arrived to perform the swap, and everything went smoothly. I now have the file server ready for data transfer, just waiting for Samantha Johnson at RCSWorks to get us worked into her schedule. Hopefully, by middle of the first week of this month it will be ready for final installation.

At our WDCZ transmitter site in Hamburg, NY, we are diplexed with WHLD, a situation we inherited when we purchased the station and transmitter site nearly seven years ago. The station is Cumulus-owned, and I have been constantly after their engineering staff to make repairs on one of their tuning cabinets at tower #5.

The posts that held the Kintronics filter/ATU cabinet were coming out of the ground due to frost-heave, and the cabinet was leaning at nearly a 45-degree angle. This summer, they finally rectified the problem. It took them over two years to get approval for the work!

Instead of digging down past the frost line and interrupting the ground screen to install a concrete foundation, they elected to create a 5-inch-thick concrete pad with an angle-iron frame to secure the cabinet. All five towers received the same, so this issue has finally been rectified! The contractor was not too happy about having to wheelbarrow the concrete out to each tower, but the ground there is



way too soft to attempt driving a 20-ton concrete truck to drive right up to each tower to deliver the concrete.

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

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

Beating Back Nature

There is one little smarty-pants woodchuck who thinks he's being too darn funny as he 'chucks' all of the sand he can through the chain-link fence gate at tower 3.

I'd afford him the luxury of living out there if he'd abandon this annoyance – I hate having to shovel my way into that tower enclosure every time I go out there! I packed the sand in his den with the tractor. He'll have to tunnel his way back out, but that seems to be his favorite pastime anyhow.

Another of these pesky guys decided to weewee all over our ATU (props to Steve for suiting up and dealing with that!).

We also have dealt with numerous wasps building nests inside ATUs. I suppose this is a plain and simple occupational hazard – we built on their land.

A few tips: Keep the ATU cabinets latched tightly; there's a reason why those knobs are threaded, so tighten them down every time you close one up. That has kept the wasps out for us.

It may sound obvious, but make sure you don't have rotted wood or even tiny openings in your structures. Mice can get in through super tiny spaces and they will!

Keep up with the underbrush. I bought a sprayer for our tractor so we can keep the tower enclosures from becoming forests. Stumps from wild shrubs and saplings can cause lots of damage if you let them grow around the towers and guy anchors. I'll be letting you know in future publications of *The Local Oscillator* how my spray efforts work out.

Tower 4, where are you?

Not a question you want a pilot asking while flying near your towers! The number four tower light monitor (TLM) wasn't working, but the obstruction lights were, so I opened its enclosure and watched as

at least a pint of water dumped out – gee what could be wrong with this?



At 560 WRDT in Monroe, four top-loaded towers sit on 43 acres and are lit with synchronized beacons and sidelights. As I inspected the electrical systems, which included some gems like unprotected Romex outside above the ground (see the photo below), bare wires stuffed into a fitting and capped with electrical tape and plastic boxes unfit for outdoor use hung by zip ties to the tower, I decided to redo it all. Obviously tower crews that erect such structures are not electricians,

and having been a cub electrician myself, I knew what to do.

Before I could address the electrical issues, one thing that had to be done was to rewrap the Austin transformer, which was badly deteriorated. If you're unfamiliar, an Austin-ring transformer consists of two

interlocked rings that form an air-core transformer. They're used to isolate the 120 VAC feed for tower lighting and controls and present an electrically open circuit at RF frequencies so as not to ground the tower.

Wrapping was only necessary for the primary ring on this transformer model and is done by painting the ring with Glyptal paint, adding layers of gauze-like fabric to the wet paint for adhesion, then once dry, adding several more coats to form a weather barrier to the copper coil.





Next was a complete rewire, from the underground AC feed to the transformer and then from the transformer to the SO-cable that runs up the tower. All of this is done in weathertight conduit, boxes, and fittings.

Finally, the TLM was relocated from the tower base to inside the tuning house. A NEMA 4 enclosure was used to protect the circuit board and the sensing coil (known as a CT or current

transformer), which was relocated to the tower's lighting panel.



Last, I recalibrated the TLM and reenabled its alarms. A NOTAM must be issued for any tower lighting or lighting monitor failure.

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

Sandy and I have been doing some remodeling at our house. I had forgotten how much work this could be. When you add in the fact that Sandy's physical problems have worsened of late, this basically means that I've been working through weekends to move furniture, remove pictures from the wall so that they can be painted, and you name it. But our little home is starting to look really nice.

We may have found a doctor who can actually help Sandy. Thus far, so good. On her first visit, the doctor repaired something that another doctor had poo-pooed, even though pressing a certain spot on Sandy's back would

cause her terrible pain. I deeply appreciate those of you who have responded to my call for prayer on Facebook. She's still in some pain, but she's already seen a good bit of improvement. Thank the Lord!



Now for work. This has been one of the wettest summers on record for Alabama. I mentioned last month that we'd had one storm or rainy day after another; that continued well into September, including the remnants of yet still another tropical storm. The weather finally started clearing the latter part of the month, and we hopped back on some projects that had been delayed.

92.5: New Transmission Line

This was almost a continuation of last month's situation comedy. Cris put in a rush order for the replacement coax, connectors, grips and grounding kits for the damaged line at WYDE-FM in Pumpkin Center, AL. The materials were shipped via ABF, a freight company that has generally been reliable in the past. Not this time: it supposed landed in Birmingham on September 9 and wasn't delivered to the tower crew's property until September 23. No explanation, no apologies. Two weeks late!



Figure 1 - Shiny ... for now!

The tower crew came out on September 28 and did the work. The old line was removed and the new was installed. A picture of the work in progress is in Figure 1: a nice new connector. Wonder how long it will stay that shiny? If you look closely, you might see the clouds starting to move in again. The weather is supposed to turn rainy (again) as I write this. The crew was outrunning both the weather and sundown to get the job finished; I'm grateful that they did.

Todd reported immediately after the crew finished that we were making full power with no measurable reflected, so let's call that good (and thank the Lord again!). Some work remains, mostly cleanup and re-plumbing. I had moved some of the coax around and had temporarily reinstalled an old Bird wattmeter while I was troubleshooting. To try to protect what we had from lightning, I ran a new ground across the floor. All of this needs to be straightened up. But we're on air and making kilowatts!



Figure 2 - Rotten wood inside this door means it will have to be replaced.

Budget Requests

Like the other engineers in our company, we're making up our budget requests now. Inventory is done and now we can focus on what we might need in the future. Cris's guidelines said to pay special attention to infrastructure – things like HVAC units, roofs, painting, that sort of thing. Figure 2 is an example of what long-term, week-after-week rain and dismal weather will do for you. This is one of the (supposedly) “steel” doors at WDJC-FM on Red Mountain.

I put “steel” in quotes because the door is wood with a steel outer jacket. Somehow, water has crept into the door, not only rusting the steel, but badly rotting the wood, especially near the bottom where the water pooled. The screws have also pulled from the door frame, which is apparently the same type of construction (steel over wood). This is going to be a certified beast to repair, because the door and frame come as a single unit and are embedded in the concrete of the building.

We also have some fascia damage and leaky gutters at a couple of sites. Once again, incessant rain, coupled with gusty winds, have ripped loose some of the wood under the overhangs and eaves at a couple of transmitter buildings. We'll be getting quotes for that as well.

Lots of TLC is needed after continuous storms. Those of you who deal with bad weather know what I'm talking about. I do thank the Lord that we managed to stop the floor at WXJC(AM) (850) in Tarrant from pooling water every time it rains. That

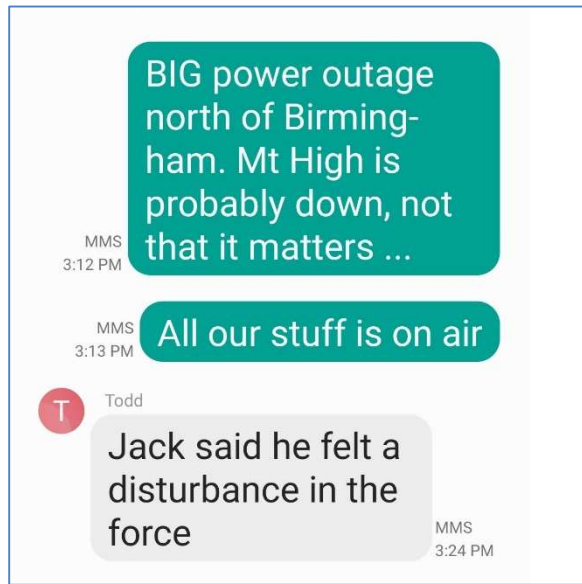


Figure 3 - It's nice to have assistants with a sense of humor!

was repaired with a new, water-resistant threshold, installed a year or so ago.

Especially when I have to run around fixing storm damage, PLUS assist my poor wife, PLUS oversee a remodeling job ... it's a blessing to have two of the best assistants in radio. Todd and Jack have really done a great job during all this horrible weather. I don't know what I'd do without them. Best of all, they've kept their sense of humor, even when things get weird (Figure 3).

More Thoughts on Repairs

I mentioned last time that the older Nautel FM5 at WYDE-FM has a bad exciter, one for which parts are no longer available. Cris also mentioned this type of problem, and I'm afraid it's only going to get worse. Those of you who know me will remember that I actually love to build gadgets and on-offs to solve problems. I also used to enjoy repairing and refurbishing older equipment.

You can make do for many components. Resistors, capacitors, coils – you can usually find a way to replace a bad one some kind of way. You may have to get creative, and it takes work for it not to look horribly ugly, but it can be done. But what do you do when the ICs fail, and are no longer being produced? This problem comes in two flavors.

The first is a chip for which a replacement is available, but in the wrong package or pinout. You can buy adapter boards now that will let you take a little surface mount chip and install it in, say, a standard DIP socket, but that's not a trivial task.

The second, and the worst, is a chip that is just no longer available. This is especially true of the large-scale integrated digital circuits, such as computers or processors “on a chip.” The manufacturers of these semiconductors have very little interest in continuing to produce a 20-year-old design that is completely obsolete by newer chips.

And in fact, I've been reading that the latter problem is a key reason for the “chip crunch” that's affecting consumer and automotive electronics. As one story put it, auto makers are still using very old, arguably obsolete designs. The processing demand is quite modest, and the circuits still work; these auto companies are far more concerned with reliability than to jump on the latest and greatest ICs. The chip makers, post-COVID, are telling these automakers that they're not going to retool and rehire just to crank out obsolete chips at commodity prices.

Back to that exciter at 92.5 FM. I don't fault Nautel for this; they don't have a chip fab. But for many years, you could basically design something around good, reliable semiconductors and expect that they'd be available for years after you build your goods. That may no longer be the case. Even some of the classic op-amps that we've used in our audio systems for decades are becoming hard to find.

It's an interesting problem, and it'll be even more interesting to see how it finally shakes out.

Until next time, keep praying for this nation!

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

Back in the August edition of *The Local Oscillator*, I outlined my solution to a problem we had where the generator at our Burnham site couldn't handle the load that was created by not only the normal load but the recharging of the flywheel UPS.

We experienced some times where the UPS ended up going into bypass mode, having run out of energy with the generator "choking" on the transmitter plus flywheel recharge load. When that would happen, we were suddenly off the air for a few minutes as the generator took its time handling the load.

My plan was twofold: reduce the load as quickly as possible on the flywheel UPS to extend the time it could take the load, and allow the generator to recharge the flywheel UPS without any other load.

Years ago, I had set up a macro on the remote control to take the transmitter to half power after the generator was transferred online. This still meant that the generator was presented, at least for a few seconds, with full load of the site and the recharging flywheel UPS. We also had the generator transfer quicker.

After observing the behavior of the flywheel UPS over the years, I noted that it would discharge for two to three seconds when it was not a long enough outage for the generator to come on line. Anything longer than that would most likely result in the generator coming on line. So, the new macro included a drop in transmitter power to one-quarter TPO after five seconds of the UPS discharging. This

allowed us to lengthen the time capacity of the UPS more quickly, and that also gave us time for the propane-powered generator to come up and run a bit before transfer.

Once the generator does come on line, the macro will turn on the auxiliary site transmitter and then turn the local main transmitter off, so that the only real load is the UPS recharging. After, ten minutes the macro will be bring the main transmitter back up and turn the auxiliary site transmitter off and then take the main transmitter up to one-half power.

With it being relatively quiet as far as power outages go at the main site, the only choice to test the macro, and the process would be to pull main disconnect myself. I don't really like doing that and figured that it would soon be put to the test by a real power outage since it was already August. Well, the first power outage didn't occur until late September.

It was a great opportunity to see how it worked. You never know how it will go until it's actually used in a real situation. It's hard to foresee every possibility you might need to program in a macro.

I was glad to look at the logs in the remote control and see it happen in perfect order and not have any off times, alarms or such. I didn't even receive any complaint calls from the programming staff. Apparently, they hadn't even noticed the process take place, which is exactly what I was shooting for.



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

It's Back!!!

I received a wonderful phone call right before Labor Day. Our tractor was finished, repaired, working. Somehow the shop got the part in sooner than expected and the shop was able to get it put back together. They had us bring our brush hog by so he could make the proper adjustments to it to hopefully avoid this issue in the future.

It was great taking it back to the transmitter site. I actually spent a good day on the tractor mowing the KLZ field. It ran great. In fact, I think it may have been a smoother ride than before. I noticed the brush hog wasn't making as much racket when I would accidentally go over higher ground without raising it up. It was wonderful. I couldn't get the whole property mowed but will plan on a couple more days when the weather is decent and cooler to spend on the Kubota.

KLZV Cameras

The PTZ camera at KLZV is not that old, We've had it just over two years, just long enough for the warranty to run out and support to end. It began having problems a couple months ago with the presets. I could set presets, and within minutes, those presets would be wrong. The camera could be pointing to the left or right of the preset. After getting support on the phone, it was determined the camera was done for and due to the age, they would not accept it for repair. We decided to buy a new PTZ.

This PTZ camera is important. It is very helpful in keeping an eye on the gate and tower bases as the fixed cameras for the towers don't have good enough zoom to get the up-close views.

We went to install the camera and found the post the cameras were mounted on in bad shape. We installed the post, a pressure-treated 4x4, back in 2011 or 2012 after the building was put in place. Years of Colorado sun and weather caused it to twist and bend.

My dad was having to work from home for

the week as his office flooded, so we decided that because of cooler weather, it would be the perfect time to replace the post, something we'd thought about but put off for some time.

We went and purchased a 12-foot 4x6 pressure-treated post. We then went to the site, removed the cameras, the Ubiquiti PowerBeam and the siren for the alarm system and GPS for the Nautel AM IBOC Exciter.

Then came the somewhat hard part. I had to sit on the roof with a grip on the old post while my dad got on the ladder and unbolted it. Once free from the building I tossed it to the side out of our way. It shattered when it hit the ground, further evidence that it was badly in need of replacement.



It's great to have the Kubota tractor back on the job at our tower sites!

Then came the really hard part, lifting up the new post. It was just my dad and me. He pre-drilled the holes, and the plan was to put a bolt partially in the bottom of the post, then raise it up and secure it with that bolt long enough to drill through the horizontal boards to which it was to mount.

This post was significantly heavier than the rotted post. I had the idea to use a ratchet strap to help raise it. My dad hooked the strap to the bolt and

I was able to pull while he lifted it up from the ladder. We were able to get it up and mounted.

We then began mounting the items we removed from the old post. This took some time, but we were able to get it done and make sure everything worked. It took the better part of the morning, into the early afternoon, to finish it up. Hopefully this post will last for years to come.

A/C Issues

The KLVZ site has for some time been having trouble with the two MarvAir A/C units. For a while there, AC-1 would fail but the building would stay cool because we have two units in a lead/lag/failover configuration, so the other unit would pick it up and keep cooling.



The new 4x6 post supporting the array of security cameras as well as PowerBeam, GPS antenna and alarm siren at the KLVZ site. The floor of that building is ten feet in the air, so the top of that post is way up there!

I had a company go out and look into this as well as do some general maintenance, cleaning up the units and making sure all was good. This maintenance seemed to correct the AC-1 failing often, but a few days later I noticed AC-2 failing. Again, the building kept cooling because the other

unit picked it up.

After having the same tech go out, we found a control board died while he was working on it. He ended up grabbing parts from the one working unit to get the other unit working (I am still a bit fuzzy on these details). However, the unit didn't work well. It kept failing daily, sometimes multiple times a day.

I called the owner of the service company and discussed the issues with him. He went out and after some time was able to determine the issue was a failing control board. He ordered two new ones for the units and replaced them the next week.

This fixed the problem temporarily. When the units switched after a week, one of them decided to throw an alarm. I am now waiting on a tech to get to the site and see if they can figure out what is going on. Thankfully, the other unit seems to be picking up the load and keeping the building cool.

Horizons

I received a call after hours when a satellite show didn't air on KLZ. The satellite antennas and receivers are located at the KLZ transmitter site, and we use the Worldcast Horizon Nextgen codecs to backhaul the satellite feeds to the studio. I immediately began working on the issue and very quickly found the Horizon at the studio not responding.

I went into the office and found that Horizon with only the power light on. No response at all after a power reset. I grabbed out spare and put it in and that got us going for a bit. It definitely had its issues, though, dropping tens of thousands of packets a minute. The audio sounded good for the time being, so I left it.

The next morning, I put a call in to Wordcast support and was told to do an SD reset of the unit. I had the old 1.0.0 on an SD card, so I did that, which brought it back to life. Then I was told I would need to bring the unit up to 4.0.1 because of a serious bug, which most likely took that other unit down.

I was able to get them all up to date quickly, with only a couple issues, and with the exception of the KLDC transmitter site. What I failed to realize was that the KLDC transmitter site codec was on an older firmware version than all the rest, and when I used the WorldNet NMS program to do the update on the other units, I did not uncheck that unit, so it tried to update it from 1.5.2 to 4.0.1. This bricked the unit, and despite my best efforts, I cannot get it to respond.

At present, I am trying to get Worldcast to provide me with a new board to wake the unit up. Otherwise we have to send it to France (FRANCE?!)

for repairs. I really need to get through until January when we plan on upgrading our units.

These Horizons have served their purpose and have become an increasing problem for us. It doesn't help that anytime there is an issue, we're told to upgrade firmware, which never goes as planned. I have not done one single update that did not have an issue of some kind.

Antenna Monitors

We have had problems, on and off, at all three of our sites where we have directional arrays, with the operating parameters going weird. We have determined it isn't really happening because everything else is okay, and many times, if the parameters really are where they say they are, the transmitter would not be happy.

I have begun cleaning the Phoenix connectors where the remote indications are ported out of the monitors, and checking the security of the wires in those connectors. This seems to fix the issue for a time. Of course, every time this happens, I go to the site to work on it, and it is behaving again. All I can do is check all the connectors to verify they are

good. We will just have to keep at it and possibly send the units in for repair as needed to get them back to working well.

Upcoming

I plan on continuing to mow at the 50-acre KLZ tower site. My hope is that another full day or two will get the site completely mowed. I also purchased a 40V Ryobi weed eater for me to use. We have a nice, Stihl gas-powered one that Keith uses a blade on, and rather than go back and forth, I decided to get a lighter unit I can handle. I will go to each tower base and make sure things are completely cleared out. Not that they are in bad shape, there'd just has a bit more growth around the fences than I would like.

I also have plans to spend some time at each site doing some cleaning. The ATUs no doubt need to be cleaned out, plus inside the buildings is getting a bit rough. I have plans to begin dealing with that myself. I have no doubt October will be a very busy month for me.

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

The Local Oscillator
October 2021

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



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