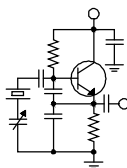


The Local Oscillator



The Newsletter of Crawford Broadcasting Company Corporate Engineering

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I'm tired of it. Tired of what? Tired of the whole Coronavirus thing. The new case count, hospitalizations and, of course, the death count. I'm tired of the endless politicizing of the pandemic on both sides. I'm tired of the conspiracy theories! The democrats cooked it up to get rid of President Trump. The Chinese did it in retaliation for the tariffs. It's Trump's fault! It's Bush's fault! The response is a dress rehearsal for martial law, for a permanent ban on religious gatherings, for whatever. And I'm sick and tired of the ceaseless arguments. Masks save lives! Masks are worthless and stupid and I won't wear one! Influenza has a vaccine and people still die! Can I get an amen?

Everything in our lives is touched by this pandemic. No matter what your view on the cause, government reaction, masks, social distancing or *whatever*, your life is different today as a result of the pandemic. Our businesses operate differently as a result of COVID-19. We shop for groceries differently. We worship differently. The way we do radio is different. I'm no prophet, but my prediction is that a lot of things will stay different, perhaps not to the degree that they are today, but changed nonetheless.

Think about 9/11 and how for a time, everything was dramatically different. No planes were flying (it was creepy). People huddled at home wondering what would happen next, where and when the next attack would come. But then things began to open back up. Airplanes began flying again. But the way we access air travel was forever changed. TSA agents, body scanners, no liquids, shoes and belts off, pat-downs. And here we are, almost 19 years from that fateful day and things are *still* different.

As I write this, things are beginning to open back up around the country. In some less populous areas, the restrictions have come off altogether. In more urban settings, we are seeing phased openings, with limited resumption of activities and businesses

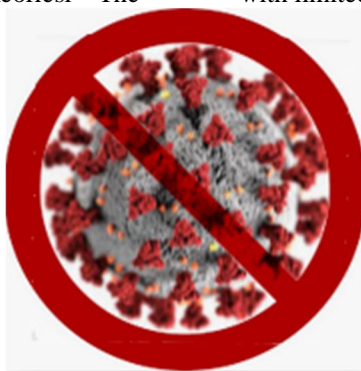
(how does one get a haircut while wearing a mask, anyway?). In Colorado, restaurants are being allowed to reopen with limited seating and other restrictions, but that means some folks will be getting their jobs back, and that's a good thing.

Around our company, in those locations where we had to essentially close our offices, we're opening up again with people reporting to work. Here in Denver, we

have been staggering work days to limit staffing to 50% as much as possible. Now, just about everyone is coming back full-time, and we are requiring people to socially distance and wear masks when in the hallways and common areas. It's weird, not very comfortable and inconvenient, but it's sure good to be back in the office.

As we climb out of this mess, we have a lot to think about and in some locations, some catching up to do.

In Detroit, things have never really slowed down for us, at least on the technical side. Mike Kernen has been up to his elbows dealing with a number of big issues, including an antenna problem at WCHB. For a couple of months now, we have been operation under an STA non-directionally on tower #2 of the daytime directional antenna. In recent weeks, we completely overhauled the RF feed to tower #1, which is a large, free-standing tower with complex feed system. We found that some of the feed tuning was being held to the tower steel by nothing



more than paint, a testament to the maintenance that the system received prior to the current issues.

With the feed revamped, the impedance returned to the ballpark of where it should be, but because of frozen phasor controls and arced/pitted RF contactor fingerstock, we were unable to adjust the system back to normal operating parameters. New fingerstock is now on hand and Mike will be replacing that as well as working on freeing up the stuck roller coils. I bought him a supply of Tarn-X to help with that. Hopefully we'll have WCHB back in shape very shortly.

Also in Detroit, the WMUZ(AM) auxiliary transmitter, a Harris DX50, is not working and there is a problem, evidently with the backplane, of the main Nautel NX50 transmitter. Replacing the backplane is akin to a heart transplant, and I'm not excited about doing it with no backup transmitter. The DX50 has all kinds of problems and we're going to have to get some help to get it going again. In the meantime, we have a DAX5 that Mike plans to connect as a backup to get us over the hump.

And add to that the failed Trango microwave link from the studio to the WMUZ(AM) site, which is still down. The 48-volt DC UPS used to power the tower-mounted radio was damaged in a lightning strike back in March, and Mike used a 48-volt power supply in its place to get the link back up and running. That worked for a while, but that power supply failed after a couple of weeks and the link went back down. We have the parts to repair the UPS, and Mike will be replacing those and getting the UPS back in operation shortly. After that, we'll know whether we still have a problem on the tower. I suspect a wiring problem – that 48-volt supply didn't die on its own.

In Chicago, a studio renovation project is well underway, with the building contractor doing its thing to enlarge the Power92 control room. New cabinets will be there this month, along with new Wheatstone LXE surfaces and a stack of additional blades and other equipment. Rick Sewell and his crew have their work cut out for them for sure. Look at the end of Rick Sewell's column for some in-progress photos of the LXE manufacturing.

Also in Chicago, last month we took delivery on a new Nautel GV20 transmitter to be used as a dual-station auxiliary for WSRB and WPWX. The antenna work for this aux was done several months ago. The FCC granted the CPs for both stations and the system is basically in place now, except that we are still awaiting delivery of the 2¼-inch transmission line needed to handle the higher power for the WPWX off-site auxiliary

system. That is scheduled to ship on June 10, and once it arrives, it should be a one-day project to swap it out for the existing 1½-inch line.

In Denver, Amanda has been dealing with a strange spurious transmission from one of the FMs. We wrote about this in these pages in past issues. When operated at more than about 475 watts for more than a few minutes, a spur develops on 121.85 MHz, which happens to be one of the Denver approach control frequencies. The spur is stable in frequency, and it is frequency-modulated identically to the 94.3 MHz main carrier, which indicates that it is being generated in the exciter somewhere and is not an IM product. Remove the modulation from the transmitter and the spur is a straight, steady vertical line, another indication that it is not an IM product. There are no other strong VHF signals within ten miles or more, so IM is unlikely in any event. And when we turn the collocated AM station off it makes no difference. Here's another twist: changing the length of the pigtail between the transmitter's N-connector and the transmission line changes the frequency of the spur. The spur is not present when operating into a dummy load. So – a real mystery.

BW Broadcast, which is in any event shut down during the pandemic, hasn't been much help. We did everything they told us to – resoldered all the joints in the PA and filter, tightened up all the hardware, etc., to no effect. Since the problem doesn't occur in a dummy load, it can't be the transmitter, right? But since the spur is identical to the main carrier and carries the same frequency modulation, it HAS to be happening in the transmitter, right?

For now, we're operating at reduced power (85%) on an STA while we experiment. Next on the list of things to try is shooting various components in the PA and filter with circuit chiller spray while operating into the antenna to see if we can find something that's temperature sensitive. As I said above, the spur does not appear instantly above 475 watts (unless it's been operating at that level for a period of time). It has to warm up. So that would tend to indicate something temperature sensitive might be at fault. Doing this little circuit chiller experiment will be a challenge, though. The transmitter is mounted in a Kintonics temperature-controlled weatherproof cabinet at the tower base, which is elevated because of the flood plain, so it will require a stepladder and some gymnastics. I can hardly wait.

I'm wide open to other suggestions if any of you have any!

Stay well!

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

Hello to all from Western New York! Here in the Northeast, we have transitioned from winter into summer almost overnight. It was less than two weeks ago we had below freezing temperatures and snow to deal with, even past Mother's Day, and almost instantaneously we began breaking high temperatures that have held in place for almost 80 years. On Tuesday the 26th the mercury reached a whopping 96 degrees, breaking a record high of 91 set back in 1944. Wednesday fared a little cooler at 90, but the humidity was at times unbearable. I have been in Western New York for 30 years, and any resistance to heat I acquired in Kentucky has been long gone. I'm not ashamed to admit that I prefer the cold/snow over heat/humidity any day!

Regardless of my personal preference of season, summer is upon us, and that means getting our A/C units cleaned and serviced, ready to protect our equipment from damaging heat. Filters, filters, filters, folks! keep them clean and changed often! Nothing damages an air-conditioning unit worse than a dirty, clogged air filter. Not only does it deprive the unit from clean filtered air, it causes the compressor to run longer/harder, causing excessive heat build-up and damaging high head pressure. A clean A/C unit is a happy unit, ready and able to keep your studios and transmitter plants clean, cool and comfortable to work in.

On the evening of May 5th, I received one of those phone calls you dread ever getting. The Hamburg Police Department phoned me stating they were on site of the WDCZ transmitter site investigating a burglary attempt. As far as they could tell, entry had not been successful, but they needed me there to allow them access to the plant to ensure that entry had not been gained. Needless to say, I broke several land speed records in getting there, and even received some minor jostling from the officers on how quickly I made the trip.



The scumbag (and I mean this in a loving Christian way) tried several entrance points, doing damage at each location. One of the two overhead garage doors had been knocked off its tracks, and one of the high-tension cables had been cut into. As they had the door jammed to the right, they were unable to get to the other high-tension cable. If that had been accomplished, a simple cut of the cable and they were in.

Once this was deemed futile, they turned their attention to a boarded-up window next to the steel entrance door. They chipped away and pried some of the wood away, but I guess that too seemed too much work, so they shifted their attention to the steel entrance door. Looks like they tried prying the door open using a crow-bar, but again no entry.

At the rear of the building there is a steel angled box attached to the brick wall at ground level where the cables leave the phasor cabinet enroute to the towers. This box was pried away from the building, I guess they were thinking there would be enough room to get in, but again their actions resulted in failure.



The WDCZ transmitter building in Hamburg, NY.

We were indeed fortunate in the fact that entry was not gained. I shudder to think what the outcome could have been had they been successful.



The egress point for the transmission and sample lines was one of the places that burglars tried to gain entry.

All of the damage has been repaired, and I took a good look at what I could do to help secure our valuable equipment against theft. First off, the most vulnerable locations are the overhead garage doors. Once inside the garage, there are three doors leading into separate areas of the transmitter building. There is a set of double-doors leading into the workshop/utility room, a sliding wooden door leading to the main transmitter area, and thirdly, a stout solid 42-inch wooden door leading to the former living quarters (from when the plant was manned 24/7 by an engineering crew many decades ago). All three of these locations now are locked from the inside, so if entry is successful into the garage, they can go no

further. I have also ordered a security camera and DVR system which will be installed soonest to aid in monitoring the site for intruders.

Here in Western New York, we have been fortunate indeed that we have not had the problems at our sites that some other CBC facilities have had. I guess it was just a matter of time before economic conditions and joblessness woke up the sleeping bear. I will be looking very hard at conditions at my other sites, and plugging up any potential weak spots that could allow unauthorized persons from gaining entry.

Just as I was beginning to put words to virtual paper, I received a call from Earl Schillinger in Rochester informing me that the WDCX(AM) night pattern parameters were way out of tolerance. I phoned into the Burk ARCPlus Touch to see what was going on, and had difficulty in maintaining a steady, reliable phone connection. Unable to determine what was going on via phone, I made the trip over to investigate the issue. I found that the day array readings were spot-on, but the night-time array was way out of tolerance, with tower 6 showing no RF at all.

A quick check of the RF switching in the phasor cabinet revealed no issues, so it was evident that the issue was at one of the tower tuning houses. As it was pitch dark and the tower field was waist-high with vegetation (not to mention I didn't have a reliable light source), I elected to come back at first light to investigate further. I lowered power on the Nautel transmitter to keep from causing interference to other stations.

Returning the following morning, I put the array back into night mode and began walking the towers to see what happened. As Murphy's law always dictates, I found the issue at the last tower. The day/night switch had a burnt solenoid on the night position, therefore rendering the tower öfloatingö when in night mode. I phoned Kintronic Labs to obtain a replacement solenoid, only to find out that they were no longer made, but a retrofit kit was available to make the repair. Since we have a number of these RF switches in service, I thought it wise to order a spare kit in the event of another failure down the road. It's going to happen sooner or later, so why not be prepared?

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!

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

Ah, Alabama! Endless storms, flooding, and a governor to whom we fondly refer as öGranny Clampettö and öMee-Maw.ö The month of May gave us a few days of good weather, but as I write this, this entire week has been one wave of rain after another. Fortunately, we havenö had anything too severe lately, but weöre still cleaning up and repairing damage from previous severe weather.

WDJC-FM is under a NOTAM because its tower lights arenö working ... as best we can tell, anyway. The tower light monitors at WDJC-FM and WYDE-FM arenö reporting any voltage, probably because of lightning damage. This leaves Mark One Eyeball as the only way to confirm that theyöre blinking, but the LED beacons that weöre using are almost impossible to see from the ground. Either the tops of the towers are obscured by clouds, or when itö sunny, the light is washed out, even with binoculars. The only way to be sure is to either look at night, or to use the drone (hard to do when itö windy).

Hmm. Sounds like Iöm complaining. Iöm not. One of the keys to the happy Christian life is learning to find the öjoy of the Lordö in all situations. I laugh about stuff like this, because itö just the way things go. I love my job and thank God for it. And I can assure you of this: Iöm not in the least interested in going back to the days of tubes, incandescent lamps and turntables. The way I look at it, nothing is perfect, everything is what it is, and we deal with it cheerfully.

Tower 5 at WXJC

When I left you last time, we were in the middle of repairing one of the guy wires on Tower #5 at WXJC (850 AM) in Tarrant. As I mentioned then, the clevis on the replacement fiberglass insulator that we were able to purchase was much larger than the original. To keep the tower from falling, we did a temporary repair by simply looping a preform around one of the tower legs. Meanwhile, I worked on a way to get that much-larger clevis on the insulating rod

connected to the tower.

There are two things that are true about a lot of the stuff that we use for towers nowadays. First, most of it is actually power line hardware for the electrical utilities. Guy wires, insulators, fiberglass rods ö itö actually stuff for poles and transmission towers. Second, most of it comes from China. Imports from that country have been spotty since the COVID-19 outbreak. Add in the COVID lockdown and the fun was multiplied.

Thanks to Granny Clampettö severe lockdown orders for Alabama, most of the local supply houses were closed, or would only do curbside after a phone call. You had



Figure 1 - My idea would have worked, but it was ugly.



Figure 2 - Southern Tower came up with a better idea.

to know what you wanted, and to be honest, I am not exactly an expert on what all this stuff is called. Swivel eyes, jaws, turnbuckles, clevis shackles I had to learn quite a few terms. I also had to be mindful of the working load. The guy wire on tower #5 is rated at no more than 4,000 pounds of load, so I assumed that my hardware should at least handle that.

By the way, when I was looking up the specs on the stuff I wanted to use I that took some work and quite a few web searches I was a bit surprised at how much stronger ordinary galvanized steel is, as compared to stainless. Chris discourages the use of stainless anyway, because it wants to spall and seize. I knew it wasn't a very good conductor and I knew that it wasn't magnetic. You learn that early. But I just assumed that stainless, being more corrosion resistant and shiny, would be stronger. It isn't. In fact, it's roughly half as strong as good galvanized.

The first solution that I came up with had stacked plates that would fit around the eye on the tower (Figure 1), but I wasn't happy about the added length. Southern Tower had a better idea (Figure 2). A shackle, a super-heavy link (like a chain link) and some grade 8 galvanized hardware took care of it.

Once they had it in place, we retweaked the phasor and were able to get very close to the original, pre-failure settings, which is exactly what we wanted to see. Thank you, Lord!

Tower #5 Top Beacon

See above re: my silly rant about not being able to see these things from the ground. There's nothing magical about this; LED tower lights work (at least in part) by focusing the beam into a very narrow vertical beamwidth. The older incandescent beacons that we used to have were actually overkill, spilling light in all directions. Plus, with two bulbs inside that big red enclosure, it was easy to see at least the top lamp from the ground, even at a relatively steep angle.

But, using the drone, Todd was able to confirm that the replacement beacon was flashing (or, as we skilled engineers like to put, *was nice and blinky!* see Figure 3; tower #1 is in the background). Life is good. As soon as the weather permits, we need to use the drone at WDJC-FM to see once and for all what's going on. We had a problem at WDJC-FM a few years ago with the wind



Figure 3 - The replacement beacon, nice and blinky.

blowing off the lid on the beacon, allowing rain to swamp the insides, obviously not good for the fancy electronics. We were able to repair that beacon by replacing the power supply. But to repeat: life is good.

WYDE-FM

The top beacon on this tower, because of the way it's situated in the woods, is especially hard to see. The site isn't very easy to get to, either, because the dirt road to the transmitter building is very steep. Not an issue for my 4-wheel drive Ford truck, but it can get interesting for Jack in his little compact. Plus, it seems like each storm wants to push a limb or rotten tree across the road. Unless they're unusually large, my Ford will just gnaw and tractor itself over them. Jack and Todd have to pull them out of the road. Larger stuff requires the chainsaw, which we've kept at the site lately.

However, as far as the lights go, Todd was once again able to confirm "good blinky" with the drone. I'm working on a replacement tower light monitor so that we can confirm this remotely. The NOTAM expires in a few days as I write this. This remote site is also the only one in our Alabama cluster that doesn't have a data link. AT&T can't give us DSL (sorry, they call it "Universe" lately), either.

The station was popping on and off the other day, so we had to drive to the site to check things out. Jack went first and reported that we were getting high temperature alarms on one of the modules, over and over. These were very brief, typically 20 mS in duration, and would quickly return to normal. I drove to the site and, after talking to Nautel support, did the obvious first check: we swapped the modules to see if the problem followed the module. It didn't, so the problem is apparently on the backplane.

In the newer Nautels, the backplane is actually a board filled with sensors and data acquisition, with RS485 communications between all of the sensors and the central controller. It allows for extremely precise metering of everything. This is amazing to an old guy like me; I would have been happy with mirrored scales on all of the analog swept-vane things that we were stuck with way back when. Better yet, back in the analog era, if something wasn't metered, you had to work at determining if things were right. Break out the 360 and some clipleads (and hope you didn't connect it

backwards!).

Ryan at Nautel told me that they'd had some problems with one of the analog-to-digital chips on the backplane. As it turned out, the mere act of swapping the modules seemed to cure the problem, which didn't make me happy. (I'm fine with miracles as long as our Lord is doing them; I don't trust them otherwise.)

Using the excellent metering built into the transmitter, I set up a quick view of the heatsink temperatures and a few other parameters. I've noticed that the readings for slot number one do tend to jump around a bit at times, so I suspect we'll end up replacing that backplane board. Fortunately, we have a ready-to-go auxiliary out there, the old Nautel FM5, which has been a workhorse for many years. It'll be a simple matter to fire him up while we replace the backplane, with very little downtime.

More Proof That I've Been Working

Figure 4 shows the result of a little boo-boo that I had while working on the replacement bracket for 850 AM. We have a nice, big Ryobi hammer drill that we use for any heavy-duty drilling work. All I had on hand at the site was a step-bit, and I wanted to enlarge some holes in a rather large galvanized bracket. (This was an early idea, later discarded.) The step-bit decided to snag in that thick galvanized, and it kicked back so hard that my hand was sprained.

Not broken, thank the Lord; it easily could have been. I tossed the Ryobi to the side and drove to the store to purchase a brace (Figure 4). I had to wear it for more than a week. My hand is finally returning to normal, but such is life. Getting older is such fun, isn't it?

Until next time, keep praying for this nation!



Figure 4 - Oops!!

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

Over the last few months, we have talked about the new off-site auxiliary for WPWX at the Lansing transmitter location, which is the host for the main transmitter site for WSRB. The original plan was to install a new auxiliary antenna for WSRB on the tower that would be capable of handling both station's frequencies. We also installed an antenna switching network so that the new WSRB Nautel GV5 main transmitter could be switched to this new aux antenna and then used for WPWX on its frequency while WSRB's aux transmitter would be moved to the main antenna and used for that frequency.

That was all accomplished in early February, and we filed for the license. This would provide an emergency auxiliary site for WPWX, but only at 5 kW. This was due to the limitations of the transmitter and the transmission line because we had actually installed an antenna for the aux site that would handle 30 kW.

It was at that point that it was decided that if we installed a new transmitter on the aux antenna that could handle both frequencies and then upgrade the transmission line to the aux antenna, we could do so with an 18 kW signal for WPWX and not have to interfere with WSRB while swapping the transmitter between antennas.

A Nautel GV20 was purchased due to the fact it was frequency agile and capable of operating on either frequency with a simple change of presets. It also has two different audio inputs, with an analog composite and AES input. This would also allow us to have a preset for each station, each having its own audio input. So, just switching presets and turning the transmitter on would make this a quick backup for either station.

We received the GV20 this past month. We immediately set about the installation. We used an adapter plate to install it for now to the 1-5/8" transmission line as we are still waiting for the

shipment of the new 2-1/4" transmission line and then a tower crew to install it. This means for now we are still facing the 5 kW limit on the WPWX signal.

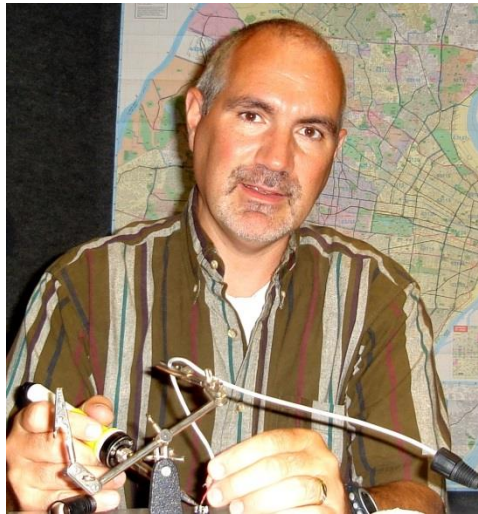
However, at least we don't have to do all the antenna switching to get the auxiliary site running if we need it. WPWX still has an on-site 30 kW aux at the Burnham transmitter site.

The GV20 installation was straightforward since we had already installed the GV5 at that site, twice. While I always still connect wires for on and off, and forward power to our remote control, most interfacing with the ARC Plus Touch remote control system would be through the SNMP connection over IP.

This worked well for the most part, but I did find an interesting challenge in getting the preset status identification to work on SNMP. When the SNMP module in the remote control queries the transmitter for this status an integer, or number is returned. In the case of transmitter on or off, there are only two possibilities, a 1 or 0. Since a status is a logic function this works fine. If a one is returned the transmitter is on and the status on the remote control is indicated.

In the case of querying the status of the current preset, the transmitter could return several different numbers, since the possibility of numerous presets exists. So, when I tried to set up a status for the two presets we would use, I would get errors. I was afraid I was going to have to get out the wire and use the tried and true method of physical relay to physical status on the remote.

I really didn't want to give up on SNMP for this important indication, so I trudged on. Now maybe some of you found another way to do this, but what I did to get around this was to create a meter channel on the remote control using the same SNMP query. So, no matter what preset was selected a number would be returned and show up on that meter.



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Once I did that and saw that it worked and changed with each preset selection, the rest was not too hard. I created a virtual channel status channel for each preset, one for WSRB and one for WPWX. Each virtual channel was given an `if` equal `to` statement corresponding to the number now present on the previously created meter channel. If the right number was returned on that meter, the statement was true and the status for showing that preset would give indication. As I stated, there is probably another way to make this work, but that is what I made work.

Besides the new transmitter and transmission line, we also had to rearrange the electrical feed to the transmitter. The previous transmitter had been connected to the main breaker

box with a 60-amp breaker. The caveat here was that the breaker box could only handle 100-amps and the other transmitter and equipment was also on this box.

We ended up having to wire around this box all the way back to the main inside disconnect and put a 100-amp breaker/disconnect switch on that box specifically for that transmitter. The biggest issue with that is the transmitter will not be available for use during a generator event.

The next step will be switching the transmission line from 1-5/8" to 3-1/8" on the inside of the transmitter room and to 2-1/4" on the outside run up to the antenna. Once this is all accomplished, we will then have a high-power off-site aux for WPWX.



A few pics of CBC Chicago's LXE surfaces being assembled and tested at Club Wheat in New Bern, NC

The Portland Report
by
John White, CBRE
Chief Engineer, CBC–Portland

We are open. Sort of. And that takes some explaining.

The Multnomah County (the city of Portland) and Clackamas County border crosses Mt. Scott just north of the peak. The KKPZ studios are collocated at our transmitter location on Mt. Scott just south of the border in Clackamas County. Although our primary service area is Portland, technically we are in Clackamas County and the happy city of Happy Valley.

With that in mind, we actually have “sort-of-squared.” In late May, Clackamas County adopted a phase 1 reopening, which allows limited public business activity. At press time, it’s not clear what the limits and requirements of the first phase might be. So the answer at our studio location is “sort of” and “a work in progress.” More details to follow, and the solution is left to the individual business.

At KKPZ, we early on decided to implement procedures of remote access, limiting the number of people in the building at the same time and sanitizing shared areas for those times when physical presence is required. With the prevalence of electronic equipment in our industry, finding compatible

cleaning materials was a concern. The iPhone guidance has recently been updated to approve the use of Clorox wipes and isopropyl alcohol wipes. The recommendation is to gently wipe surfaces and allow to air dry. Do not scrub aggressively.

We obtained a stock of Clorox wipes, and at the end of each in-person shift, common facilities will be sanitized. KKPZ is adopting this for our control, production, and talk studios, which are sanitized after use.

We are carrying forward the sanitizing procedures and preferring screening of guests and staff checking for cough or fever and other symptoms.

Meanwhile, the second element of sort-of-squared Multnomah County (Portland) plans to have a phase 1 opening plan is a seek or so. To be fair, Multnomah County is the most densely populated, and small business activity is more complicated. So 800,000 people have to wait for at least two more weeks.

As an old engineer/rock jock, I will close with a musical comment. When COVID became an issue, I recalled an old song by the Animals called “The Black Death.” It’s worth a few minutes to look up the lyrics of that song.



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

Normalcy

I must say, it has been nice getting back into the office some. I am doing some work from home and some from the office each week. Thankfully, it gives some normalcy to each day. I don't know when we will ever get back to being "normal." Colorado went into Phase 2 of reopening 5/27, and with that, restaurants can reopen with limited capacity for dine-in. Many other things will reopen as well. I think the threat of COVID-19 will remain for months, even years to come, but at some point we will just need to suck it up and go on living.

Part of that going on living was getting away to our mountain cabin in Grand Lake for Memorial Day weekend. We are secluded up there, not having to deal with the public, so it made it nice. Getting out of town for a long weekend was much needed.

Legends FM Transmitter

As you may recall, we have had issues with the 94.3-FM transmitter interfering with some FAA frequencies used by Denver approach control. We have been operating under an STA at reduced power while we work on the issue. After doing various troubleshooting, we concluded the issue is in the transmitter. We checked all the components and found nothing. The odd thing about all this is on the frequency where the interference happens, we can hear and see the station's modulation, and that's all. The modulation tells us the issue is somehow in the exciter. However, BW Broadcast, the manufacturer, has no fix for us. My dad has been hard at work finding a way to get us back to full power so we don't interfere, and only time will tell if whatever fix he comes up with will work.

Network Issues

Anytime I have to deal with network issues,

purple smoke starts coming out of my ears. The most recent issue was at the Lookout Mountain site. We have a dual-WAN setup there. We have a Comcast

IP network with a static IP and we have our main studio network via a Part 101 11 GHz link. Ideally, we should be able to go to one of two IP addresses to gain access to any of our equipment. We recently noticed things weren't always working and had to go up there to begin digging. With the help of Stephen Poole, we were able to get things working the way we need. There's still some

confusion with some equipment (some routing is working but we don't know how!), but for now, everything seems to be working.

Upcoming

The grass and weeds at my sites are growing up fast. We have the Kubota tractor ready to go at the KLZ transmitter site. I have no doubt that we will need to move it to the other two sites (KLTT & KLVZ) very soon. We like to wait as long as possible so we don't have to mow more than once a year and make multiple trips with the tractor. Keith has already been hard at work mowing at the tower bases and around the buildings to keep the growth down there.

We will also hopefully get a fix for the Legends 94.3 FM transmitter and will be able to be at full power the beginning of June.

The sites have been getting cleaned up and we will continue doing work at each site getting things good and clean as well as. There is organizing to be done, things to be tossed, and dust to get rid of. It is a never-ending battle. My hope is to finally get ahead of it all so we have a better place to go from in future months.

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



The Local Oscillator
June 2020

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

KKPZ • Portland, OR
1330 kHz/97.5 MHz, 5 kW-U, DA-1

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

KLWZ • Denver, CO
810 kHz/94.3/95.3 MHz, 2.2 kW-D/430 W-N, DA-2

WDCX • Rochester, NY
970 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
970 kHz, 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, 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

WXJC-FM • Cullman - Birmingham, AL
101.1 MHz, 100 kW/410m AAT

WXJC • Birmingham, AL
850 kHz/96.9 MHz, 50 kW-D/1 kW-N, DA-2

WYDE-FM • Cordova-Birmingham, AL
92.5 MHz, 2.2 kW/167m AAT



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