The Local Oscillator

The Newsletter of Crawford Broadcasting Company Corporate Engineering

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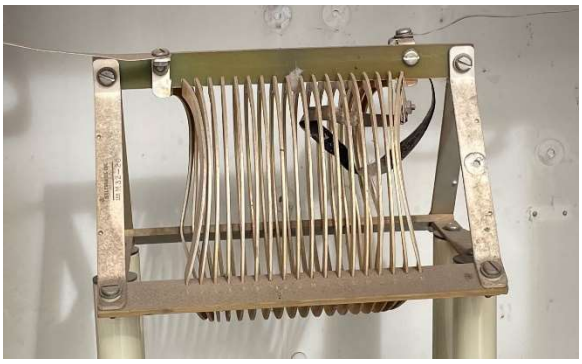
The Adventure Continues

For some time in these pages, I have chronicled the journey of one of our Denver stations, KLDC, from its home for the past 24 years to a new location. The station has, since 1998, shared a tower on Ruby Hill in Denver with another AM. The landlord for that site gave us a notice of non-renewal some time ago, and the clock has been winding down on occupancy at Ruby Hill ever since.

Not that we're all that sorry to see the Ruby Hill site in our rearview mirror… the site is not in a great neighborhood and it's anything but safe. In fact, I won't let Amanda (or anyone) visit the site solo. The building there was once the studios and offices of the other AM, and since the late 1990s it has been vacant – or rather unoccupied by people. It's been a storage facility for the site owner for many years. The roof has no integrity, and the drop ceiling and insulation has fallen in throughout the building. The odor of mold permeates the air inside. We try not to spend any more time in the building than we have to. Clearly the place has a long-overdue appointment with a wrecking ball.

On top of that, the site is a lightning magnet. It's the highest point in the city of Denver (or so I'm told… and so it seems), so the 400-foot tower is the highest antenna structure in Denver east of Lookout Mountain. Whenever the skies turn gray, the ball gap starts arcing like a spark plug and it's a challenge to keep our 1 kW transmitter on the air. Once in a while, the tower takes a "grand mal" hit and we sustain some damage to our equipment. The photo below shows a prematch coil at the tower base that has been physically deformed by a lightning hit.



This prematch coil, which is electrically connected directly to the tower, was physically warped by a lightning strike at Ruby Hill.

So no, we won't be sad to leave this site behind. We see this forced move as an opportunity to secure some much better, safer digs for our transmitter equipment and people.

My initial plan upon getting the notice from our landlord was to move KLDC to the KLZ site. I chronicled those efforts in these pages over the past year. Certainly that collocation could be done, but it would be a technical and, more painfully, a financial challenge. Because the KLZ site is in the north metro, there would be overlap with a first-adjacent channel station in Laramie, Wyoming and that would require a directional antenna to protect that station – either that or a significant non-directional power reduction for an already low-power station.

The KLZ site is also home to the 810 kHz KLVZ night facility, a four-tower trapezoidal directional array, and the plan was to build one new tower and share one of the KLVZ towers to create the two-tower north-south tower line. Of course filters and detuning networks would be required at the other three KLVZ towers as well as the two KLZ towers. All that added up to hundreds of thousands of dollars, a price tag that precluded further pursuit of that option.

So I began searching for other options and landed on a tower site on the near south side, a site which had, in fact, been the prior home of KLVZ

before it moved to Ruby Hill. The tower there is a quarter-wavelength high on 1220 kHz, and the ground system is also 90-degrees on that frequency. The site is currently home to 5 kW KGNU on 1390 kHz. We began talking to the KGNU folks last fall and quickly came to an agreement to share their site.

The KGNU site is only a couple of miles from Ruby Hill, and with the help of some ground conductivity measurements to the south toward a first-adjacent channel station in Pueblo, I determined that we could do a full 1 kW non-directional from the site. And the 170 kHz separation between the stations would make for a fairly easy diplexer design. I completed the allocation studies and filed the FCC application in September, and a grant was made in November.

Then came a monkey wrench. A third station had approached the KGNU folks about collocation, and the proposed diplex operation became a triplex possibility. That changed everything, increasing the complexity, size, loss and especially the cost of the combining equipment. Obtaining a workable bandwidth for all three stations, but especially KLDC and KGNU, was a real challenge.

I sent my initial design to our friends at Kintronic Laboratories, and they employed some tricks they have developed over time to improve bandwidth. The result was as good as it could be, still not great but as good as it gets with a three-station multiplexer, but with all the added traps and filters, the cost to construct the system was way up there, far beyond what we would have spent to combine just KGNU and KLVZ. When presented with that number, the third station opted out, and we were back to a diplex operation.

Over the past weeks I have been tweaking the diplexer design. It will be a first-rate system that will make the best use of existing resources, starting with the three Kintronics cabinets (that we own) at the Ruby Hill site currently used to combine KLDC and KDCO (1340). There are some vacuum capacitors in that combiner that we can use in the new diplexer as well. The existing KGNU ATU, which is a Kintronics product and in one of their weatherproof cabinets, will be reconfigured and reused. We will use many of the coils and capacitors cannibalized from the KKPZ (Portland) phasing and coupling system, and we will still need to order a good number of components, mostly high-inductance coils and vacuum capacitors, to finish up the system.

The plan is to shut KLDC down, probably in August, and remove all the diplex equipment, taking it to the KLZ site where we have room to work, tools, water and a power washer. We'll strip the cabinets of components, power wash them and build the new filters for 1220 and 1390 as well as an L-network prematch in a separate cabinet (that started its life at our former station KCMN in Colorado Springs). We'll tune the filters and pre-tune the 1220 ATU network, then take the diplexer to the new site and install it in an overnight, getting KGNU back up and on the air by morning. We'll probably take another day to get KLDC back on the air.

Of course in the process, we'll have to move the existing KLDC main and aux transmitters, switch gear, processing, remote control and monitoring equipment from Ruby Hill to the new site. It will all fit in the existing prefab transmitter building, but just barely. Hey, an inch is as good as a mile, right?

What about STL you ask? We currently use a 20-year-old Motorola Canopy backhaul to get from the rooftop at our high-rise studio building to the (rotten) rooftop at Ruby, and that link has been rock solid over the years. The plan is to continue to use either that backhaul or some other 802.11 5.7 GHz link. We will use a Kintronics CAT5/6 isolator to provide a path across the base insulator, and we won't need much elevation on the tower for a clear line-of-sight to our studio building rooftop, which is only eight miles distant.

All this is a lot of work, but it's really not a huge project. There's no way to avoid a few days of down time for KLDC since we're re-using its existing diplex equipment, but that will pay off in money saved.

We very much appreciate the good folks at KGNU for being willing to work with us on this project, and we look forward to a long and good relationship with them going forward.

Anritsu Analyzer

Most of our engineers have at one time or another used our Anritsu MS2721A Spectrum Master portable spectrum analyzer. We keep it in a Pelican shipping case and it has been all over the company many times in the 15 years we have owned it.

Sadly, the old girl gave up the ghost a few months ago. We tried everything we could think of to fix it. The issue is an eight-leg surface-mount regulator, but we cannot find a replacement and the unit is no longer supported by Anritsu. Even factory-authorized service depots tell us they have no parts and can't help us. So we're out of luck.

We've got to have a good, working analyzer to perform FCC-required annual occupied bandwidth measurements, so the search was on for a

replacement starting in January. I found a couple of candidates on eBay and ordered one.

The unit arrived in good shape and looked okay, but the first signs of trouble appeared when we turned it on and it failed its self-test routine. A check in the field showed that it was deaf as a rock, 40 dB or more down in sensitivity. My guess is that someone blew the front end out by applying too much signal. Thankfully the purchase came with a 30-day money-back guarantee, so we returned it for a full refund.

That led me to order the other possibility off eBay. It also arrived in good shape, and unlike the other unit, it passed its self-test routine. We checked it in the field and all looked good. We did a firmware update to get the latest-greatest, and this B-unit (the old one was an "A") has a good number of handy features we didn't have before. It also has a tracking generator, which might come in handy at some point.

So the next time we ship you the analyzer, you might notice it's a little different. And better. Take good care of it!

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

Hello to all from Western New York! February is generally a pretty easy month engineering wise, except for any outdoor activities snow related. This year, the temperatures have been all over the place, I should have played the New York Lottery Powerball with the daily temperatures: 55, 17, 44, 9, 23 and 7 looks like a winner to me!

Western New York has experienced a lot of flooding due to ice/snow melt in recent days, and we were not spared minor flooding at the WDCZ transmitter site in Hamburg, NY, just south of downtown Buffalo.

We had approximately two feet of snow-pack on the property, and as temperatures began to rise above freezing on the 17th of last month, the ground became saturated and the water had nowhere to go. We had about 3-4 inches of water in our garage area that had to be pumped out, but fortunately, no damage was done to any equipment stored there. The remainder of the building is about six inches higher, so there was no danger of flooding on the transmitter floor areas. None of our other sites experienced any flood-related damage as far as I can tell.

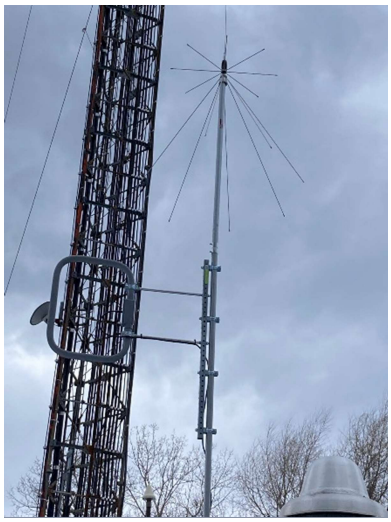
In Rochester, at WDCX(AM), the tower field is a virtual lake, but water levels have not risen to the point of doghouse entry. I'm so thankful that we had the foundations of the doghouses repaired several years ago. This event in all likelihood would have caused major problems otherwise.

We still have some work to do there that is foundation related, and it was scheduled to be done last summer, but our contractor was running so far behind due to COVID issues and he simply did not have enough time to get the doghouse walls sealed before the end of the season. The concrete block structures (walls) are severely cracked due to the strain of the sinking foundations. A stucco-like covering needs to be applied to all the outside walls to help strengthen and seal those areas that are cracked. We are hopeful that this will be able to be completed at some point this spring.

The WDCX(AM) studio relocation to Buffalo continues to operate trouble-free. If you recall, in last month's report, we were experiencing several instances of the codec dropping the connection and not automatically reconnecting. A check of the Tieline's programming revealed that everything was properly configured. I even went as far as having Brian Harper at Tieline technical support take a look at the units via the Web-GUI, only to find nothing. So far, we have not experienced this anomaly again, but we will have to keep a close ear on it to ensure that it doesn't happen again.

In January I was able to get the FM receive antenna mounted on the pole at the WLGZ-FM transmitter site that monitors our EAS sources for WDCX(AM). I am happy to report that the antenna is performing well, and we are sending the two monitor sources back to Buffalo via the Tieline with crystal-clear audio. We were concerned about the reception quality with so many high-powered FMs co-located, but we lucked out without having to add any filtering to the antenna feed to the Inovonics receivers.

We had a strange occurrence one evening on WDCX-FM. A listener contacted our GM, Brett Larson, and reported that we were off the air. Brett immediately phoned me about this, and I immediately connected to our Nautel NV-40's Web-GUI to look for the cause of the outage. Once connected, the readings were normal, no faults, and the modulation meter was even showing modulation! A quick check on my home receiver verified that we were not transmitting normal program audio, but some quick "blips" continuous, but without any pattern. I suspected the STL. Perhaps one of the DSP-6000's had failed, and I decided to head out to the transmitter site first. Upon arriving, I found that the STL was operating properly with audio on both channels, so I turned my attention to the Omnia.11 processor and found that it had locked up! Nothing on the touch screen could be activated, so a hard re-boot was in order. After removing and re-installing the Belden power cord, it came back up and has been working flawlessly since. I despise these kinds of failures, because you cannot provide a cause of the failure, and deep down you know it will arise again, at the worst possible time.



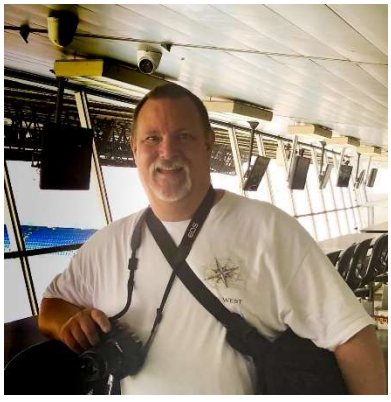
AM loop and "Disk-cone" FM receive antenna at the WLGZ-FM site.

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, and Happy Engineering!

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

Quadrants Come in Fours

From the 'a clean desk is a sign of a sick mind' files: Our recent painting project has forced me to clean my office. I despise clutter, and for some reason I am always finding myself amongst it. Organization always takes a backseat to getting things done in my world.



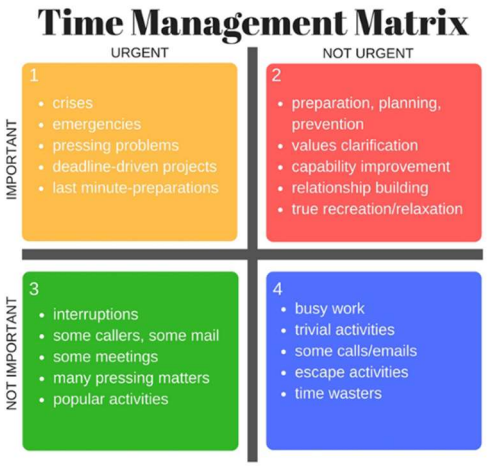
Similarly, the back seat of my truck is usually a good gauge of that imbalance. Both my truck and my office are now neat and organized because it is February, and tidying up is what I do over the Christmas lull.

Yeah, this year I didn't get around to it until now, and only then because of the painters – where was the lull? It's been a zoo 'round here and I'm finally dug out.

Now I can turn my attention to the projects that are patiently awaiting my attention, things on the back burner, and stuff that just irritates me. Personal challenge: stay organized so this doesn't happen again!

It's usually a time management thing, and it brings to mind Stephen Covey's *Four Quadrants of Time Management*. I have long been a subscriber to his basic but useful philosophy for which every aspect of one's work can be classified. But like any subscription, mine sometimes winds up unread and in the trash.

A certain amount of time will be spent doing items in each of the four spaces, but we have a propensity to spend the



bulk of our time on the left side, don't we? I know I do and it's probably not the healthiest thing.

Box 1 needs no introduction – we're familiar. In box 2 you can see that these items are important, and who among us doesn't aspire to do what is important? As I go through my day, I get interrupted constantly by things that are in box 3. And who doesn't love warm and cozy box 4?

Covey labels each box with these words.

Box 1, Manage
Box 2, Focus
Box 3, Avoid
Box 4, Limit

To be clear, just because something is not important and/or urgent doesn't mean it shouldn't be done. We all need some downtime. Plus, folks need addressed what's important to them – those "I can't print" type activities. By the way, box 3 is where you'll spend most of your time.

$3.14159 \cong \pi$

I can remember Pi out to five decimal places, but the older I get the more information gets tucked away in my head which it seems cannot be displaced by anything, important or otherwise. I know stuff that is neither useful nor helpful in any way – like the lyrics to every classic rock song. A moment ago, my wife told me something I can't now remember, but I do know that the '80s Ford Escort Pony could not be had with power steering. Is my brain now full (of junk)?

This cruel fact of life bestows itself on everyone at some point, but we can still learn if we try. Apart from football, I rarely watch TV. I'm consumed by YouTube videos of people working on cars, or reverse engineering electronics, or even taking their viewer through medical curiosities.

Recently I obtained my certification from the FAA to operate a drone. I learned that material and did well on the test. Today I sit for the SBE Certified Senior Radio Engineer exam. I hope I do well, but I'm betting there's still a lot more to learn.

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

When I prepare each month's missive for the *Oscillator*, I go back and look at previous issues to see where we were and how far we've come. One year ago, in the March 2021 issue, I was complaining about how cold it had been in February. We've certainly had some chilly days this year, but the big issue has been rain. Lots and lots of rain.

Sandy and I continue to do some remodeling on our home. One addition is a new outside storage building. The thing is built like a tank – 2x4s on 24" centers, genuine roof trusses and thick joists under a nice plywood floor – but the very day that it was set down, we had a heavy rain and lots of wind. I was nervous, but it never budged. Then we had another round of severe weather, including a few tornadoes scampering around our area, and aside from a bit of wind-driven water on the floor the next day, it didn't even wobble. I'm pleased. A little weather stripping should take care of the leak(s).

I'm sure Cris and Amanda would be better able to address this, but I was deeply saddened to hear of the passing of Robert Payne,

more affectionately known as, “Bubba.” He has helped us here in Birmingham a few times, so Todd and I knew him well. I know that he’s in Heaven and is happy now, but wow, we’re gonna miss him.

Stupid Vandals

Look, the argument could be made that anyone who tries to earn a living via theft or vandalism is a moron from the git-go. I have actually left notes at our sites in the past that say something like, “If you’re that desperate for $10, just let me know and I’ll give it to you rather than let you do $2,000 worth of damage just to get some scrap copper or a badly-used battery.”

When the aforementioned severe weather was on the way, Todd and Jack checked our sites in Birmingham while I glanced at 92.5 and 101.1. The latter has an older generator that growls like an angry forest beast, but it has saved our bacon many times over the years. I had checked the fuel level; we still had plenty to keep us running until we could get up there with more fuel. Just before I left, I tried to crank it; it wouldn’t start. A little investigating revealed that someone had been inside the cabinet, apparently trying to steal diesel fuel. They had pulled the fuel line loose and had tried to hotwire the fuel pump.

Morons, as well as lazy. Figure 1 is submitted as evidence: like most stuff for a 12V negative ground system, red means positive and black means ground. It may not be completely clear from that terrible picture, but the geniuses who tried to hotwire our fuel pump put the red lead from said pump on the negative (-) terminal of the battery. Once can only imagine how nonplussed they were when no fuel issued from the feed line. Shaking my head. Seriously.

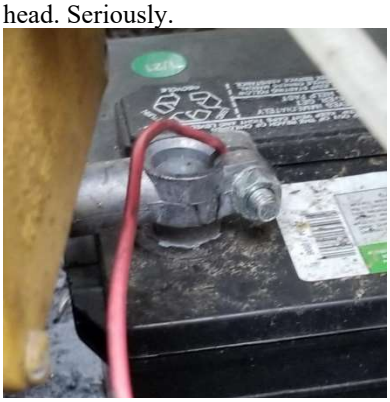


Figure 1 - Hot wire on the ground post. Morons.

At any rate. The storms were coming, and I am anything but a diesel expert. I could see where they had ripped the wiring loose, but over the years, some wires have been replaced and extended with all sorts of colors. Also, I couldn’t figure out what to do with a loose wire on the injector body. We called Perry, our generator guru; he asked for photos. After several phone calls and text messages, I had it wired up.

With crossed fingers, I went back around to the control panel, said a prayer and flipped the manual “run” switch. The generator honked, snorted and then growled into life. I was buried in a cloud of thick blue smoke, unable to breathe, but I smiled and said, “thank you, Lord.” We were already getting a light rain, so the deed was done just in time. I quickly switched it back into auto-start mode, closed it up, and had just started down the road from the site when the rain started coming down in earnest. Whew.

Don’t Stand Under a Tower

By the way, Figure 2 has nothing to do with the generator, but it’s a good lesson for you young whippersnappers out there who might otherwise stand under a tower without a good hat. (And an umbrella.) (And a coat.)

Forget the possibility that some hardware might be blown loose and crack you on the head. That picture illustrates a far more serious danger: birds like to build nests on towers and being birds, they have sprayer attachments that scatter guano to the four winds. We’re talking about a 1,300’ tower here, too. I’m sure that poo reaches terminal velocity by the time it hits ground level. From the huge splashes on that 5-inch coax, I’d imagine that it could really smart, should it smack you on the head.

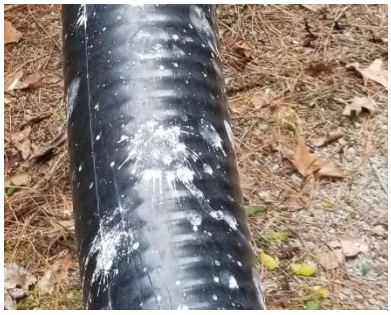


Figure 2 - Wear a hat when standing under a tower.

As soon as the weather clears and it warms up a bit, I’ll clean that coax again. Maybe I’ll use a sandblaster or some steel wool. I shall also wear my hat. Not the good one, of course. But a hat for sure.

850 AM in Tarrant

WXJC, our 50 kW AM, just motors on day after day. When I took the job here in Birmingham, that was my first big project. Cris redesigned everything and we installed all new ATUs, phasor and transmitters. It’s hard to believe that the system is now over 20 years old, but it is. It has also become clear that, once warmer weather arrives, we’ll need to give it a thorough going-over and lots of TLC.

In this horrible climate, most of the copper inside the ATUs has turned brown or even dark gray. The Kintronic contactors that we use to switch patterns need cleaning and adjustment. We were reminded of this in February when the system refused to switch to day mode on morning. Todd arrived at the site first and determined that Tower #4 wasn't switching over. He looked in the ATU and saw some burned fingers on the big RF contactor.

I've long since learned to keep spare "finger" contacts and position switches on hand and in stock. Todd, Jack and I were able to rebuild that contactor and restore proper operation on #4, but we still have a lot of cleaning and TLC to do in the coming months.

A Dell Dies

We received some new Dell computers recently to replace older units in our NexGen system. Todd and Jack have been taking care of that while I dodge poo and rewire generators and stuff. One of these new audio servers kept freezing up for no apparent reason. Todd called Dell Support (this PC is just a few months old and still well within its warranty), and they dispatched a technician. Said tech ruled that it needed a motherboard; we received it and Todd installed it. Very shortly thereafter, it started freezing up again. Not good.

Todd is a bulldog. He gnawed at the problem, checking everything that he could find. To make a long story a bit shorter, he narrowed it down to the new Kioxia hard drive. Kioxia is a spin-off from Toshiba; they're making the drives now under their name. (Or so I'm told.)

There's no driver available for the particular model that we have at Dell's Web site. The machine was shipped with a 2006-era driver that may or may not work with the latest model of this drive. At any rate, he's still chatting with Dell and I suppose they'll have to send a replacement drive.

I mention this because, as everyone knows, supply chain issues continue to plague every vendor and manufacturer. Todd wondered if they hadn't pulled this hard drive out of older stock somewhere because they were unable to get the ones that they prefer. But the only advice I can share, if you run across a true head-scratcher like this one is, (a) suspect everything; (b) try everything; and (c) be sure to close one eye and hold your mouth right. Call the manufacturer repeatedly until they get it right.

A New Kitty!

Okay, not so new. I mentioned her in a previous issue; she just took up with us one day ... and in fact, wouldn't take "no" for an answer. I was finally able to get a decent picture of her (Figure 3). She's on the windowsill over our new kitchen sink; in this image, we still hadn't finished cleaning up, but being a cat, she wanted to get up there right then and she did, so there.

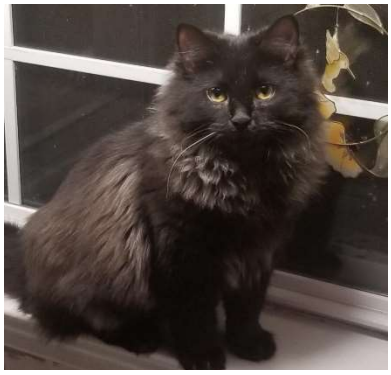


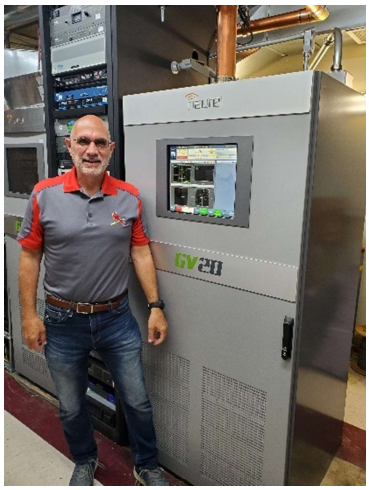
Figure 3 - Miss Annie, the newest member of the family.

Sandy did some research on Miss Annie, trying to determine the breed. The closest match she can find is called a "Chantilly Tiffany," and one of their distinguishing characteristics is the fur that turns gold or silver when the light hits it at the right angle. Note the highlights and you'll see what I'm talking about. They're supposedly a high-dollar, fancy-dancy breed that (to be honest) we'd never heard of. I don't know if that's right and I certainly don't know if she's a full-blooded Chantilly. I do know that some breeders will simply dispose of cats or dogs whose bloodlines are diluted (the classic example is the male who "jumps the fence" and mates with the full-blooded female, chortle and n'yuk).

Whatever, we're glad to have her. Until next time, keep praying for this nation!

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

A few years back we added another Burk ARC Plus Touch remote control in our rack room at our studio and offices in Hammond, Indiana. The main reason we did this was to track when the studios and rack room were running from the generator. It was an issue because if a power outage occurred during off hours when an engineer was not on duty, we often didn't know it happened. Either the board operators didn't realize we were on the generator, or they wouldn't bother to tell us.



The other thing we wanted to use it for was to track silence alarms from our monitors and PPM alarms from the PPM monitors. So, we purchased a basic ARC Plus Touch with no RSI or command unit. We just bought the Plus X Input unit so that we could take status reports from the above-mentioned sources; this included metering. But since there are not any transmitters at this location it was that important to us.

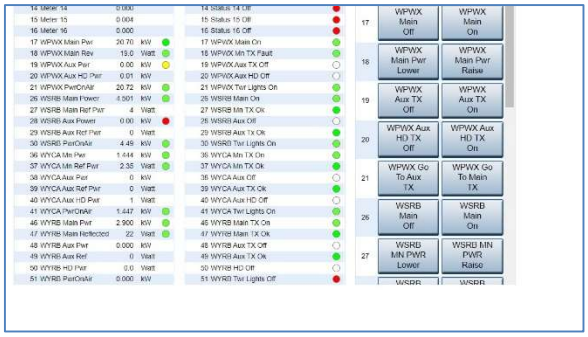
Having a command unit started to become something we thought could be useful. For one, the only way we could communicate with remote control was through the internet, which was fine most of the time. But if the internet was down, we were in the dark. So, having a command unit with added phone capability allows us to call in and reset the internet equipment. There are other resets that unit would help with as well.

Another rather important reason why we wanted a command unit was to be able to tell our generator transfer switch to transfer. We found that the Automatic Transfer Switch (ATS) was wired incorrectly, and when phase three was the only leg out on our three-phase utility, the ATS wouldn't recognize it and transfer. We found we had to manually use the switch on the front panel of the ATS to make the transfer. If an engineer was around and got it in time before the UPS units died, that would be alright. But if no one was around, we only had about 20 minutes of run time before we had four stations off the air.

That's why we wanted a command unit, so that we could wire an output in parallel with the transfer switch on the front panel of the ATS and do so remotely. Just recently we upgraded the rack room remote by adding the Plus X Output (command) unit and the RSI card (phone). We also added the SNMP license to the unit so that we could take advantage of the equipment in the rack room and other locations on our site that have that capability.

Having all this installed, we are beginning the wiring to the desired locations. I also, at the same time, changed the IP address to our transmitter site's subnet; I was previously on a rack room subnet. With the move to the transmitter subnet, it allowed me to network all the other Burk ARC Plus Touch remote controls on the network at the transmitter sites.

Additionally, with the SNMP license, I was able to use that to connect this unit with the Nautel transmitters that have that capability. This would allow me to still get reporting and control of those transmitters if the remote control at the given transmitter site went down.



Rack room ARC Plus Touch remote screen.

The other thing I wanted to accomplish with networking and SNMP was to be able to look at the most basic/important functions at all four transmitter sites in one place. So, after getting all this together, networking the remote controls and using SMNP to the transmitters that have that feature, I added metering, status and command channels to the rack room unit that puts all these in one place.

As you can see in the screen shot, our engineering staff can make a quick check to see all four sites at one time. It's not everything at each, just the most basic functions of main and auxiliary transmitters and tower lights.

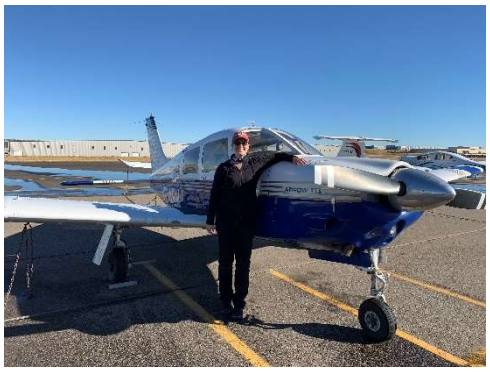
I am still having difficulty networking our Kirkland, Illinois ARC Plus Touch since it is not on the local subnet as it is 100 miles away. It can only be accessed through the internet. I was, however, able to use the SNMP function and get access to the main transmitter through that means. I figure if I play with the port forwarding enough, I will eventually get the rest of the site into the ARC Plus network.

Now that I have brought all these resources together, I now have the itch to add Auto Pilot to the unit so that I can make a pretty display that will include better views. This will make it easier to view all the sites at once and then make that available in each of our four control rooms so that the operators can view all four stations. At times, we are in walk-away mode for some of our stations and an operator from another room will sign on their log and keep the readings.

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

Garage Stuff

I was finally able to get the garage door openers replaced at the KLZ site. It was a cold day, and I feel bad for the guys doing the installation, but then again, it is their job.



To have a reliable door opener is great. The buttons on the wall work, the car clickers work, the keypad outside the door work and the app works. It is good I can get notifications when the doors are open or closed.

One thing I wish the app did, that my Aladdin (Genie garage door opener) app does is it allow me to set a rule that states something like, if this door is open for X minutes, close it. Or if it is after 11PM and the door opens, immediately close it. Or even if the door has been open for X minutes, notify me. That has helped me, including recently when my husband, who parks his work car in our third garage, left for work and didn't realize the door didn't close. I got a notification and after several attempts to get the door to close, I went home (thankfully the office isn't too far). It ended up being a snow turd that fell off his car as he was leaving. The door would go down to the chunk of ice, hit it, not be able to close and would open again. Without the app, I never would have known this, and the door would have been open all day, allowing anyone access to the items stored in that garage.

Codecs

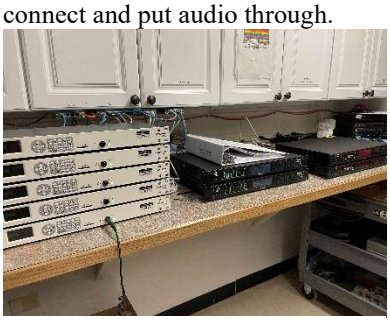
The last week of February we received our Tieline order of Bridge-IT XTRAs and Gateways. I am very excited to get these programmed up and installed at each site.

We have used WorldCast Horizons for years and while, when we first got them, were good units. Over the years, support has become difficult, often with the response of, "Send it in for repair." Not to mention they always require the unit to be at the latest and greatest firmware. I don't think I have ever had a firmware update go well with these units, including this last time, going to version 4.0 – I had several units "brick" on me. I was able to get them to get me the procedure and files to do an SD restore, which was a lengthy process. Only one unit didn't make it, and it is now scrap metal.

We have used Tieline products throughout the company for several years and I still have nothing bad to say about them. Every firmware update goes quickly with no issues. Tech support is amazing! And the sound is incredible. As I write this, we have already set them all up on the bench, tested them and have deployed to the KLZ, KLTT and KLVZ transmitter sites. We are planning on doing Lookout Mountain and KLDC sites soon (depending on weather).

Apart from KLZ which has a more

complicated setup, the installation of the units went quickly. We were able to just swap out the Horizons and put the XTRAs in and have them immediately connect and put audio through.



Two Tieline Gateway-8W codecs, two Gateway-4s and five Bridge-IT XTRAs all configured and connected, ready to deploy.

The big test for us will be KLZ. This site is more complicated because we back feed satellite audio and relays (XDS). We are moving away from having the receiver get a relay, that relay then triggering the tone encoder which brings the tone to the studio decoder and then triggering a break. We did this for many years to keep the satellite audio and relays time-aligned. Our hope and belief is that using the Gateway's control port will make these closures instantaneous (our workbench tests would indicate so).

This will also give us some more flexibility because we will be able to use other relays generated by shows. One thing I was asked months ago that I had to say no to was the top of the hour closure. One of our shows (maybe more) will send a relay so the local stations can air a quick promo rather than what the satellite show airs. I look forward to testing this out and seeing what else we can do with our shows. We wired four relays through and they appear as LIOs in Wheatnet, so we can do what we want.

Coming Up

March will be a time for me to gear up for Spring. I have said it a hundred times that this year: I will be more hands-on with the maintenance of our sites. While installing these codecs and doing other work at the sites, I noticed the ATUs are gross. While I know they can't be completely clean, the amount of dirt and bugs is astounding. We thoroughly clean them once a year, but…

We are going to order new weatherstripping and replace it on many ATUs. I will take an air compressor and blow out what I can, vacuum and even use 409 or something inside to get things polished up. To get these units to my liking will take a lot of work and time. I look forward to it though.

Main and backup Gateway-8W (Wheatnet) installed and feeding five sites and eight signals!

I also have plans to remove each power cube from KLTT's ND-50 auxiliary transmitter and clean it out. When we had the module blow last month, I noticed mouse poop where the cube sat. Based on the amount, the mouse didn't hang out long. We do have issues at this site and do our best to keep them out. Maybe I just need to get a cat to live out there. Okay, that would be a lonely cat and I couldn't do that anyway. I need to figure out ways to tighten up the building. There is too much light that shines through around vent openings and above/below the entry doors. This is how all the bugs get in.

I'd also like to figure out how the flies get in at the KLVZ transmitter site. We have plugged all the holes with light shining through, even put screens across the vent covers for our HVAC units. But still, they remain. Even when we had the old trailer at the site, we had fly problems. I would like to find a way to not walk into a scene from a horror film when I go to the site.

There is a lot more work to do regarding our cyber security changes, and I will get those done early in the month, most likely by the end of the first week. It is amazing all the things you must remember when making changes. We want to lock down our networks in a way that protects us and keeps people who don't need on out. We do have some complicated setups that I am having to deal with, and I have no doubt when it's all said and done there will be some screaming.

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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