The Local Oscillator

The Newsletter of Crawford Broadcasting Company Corporate Engineering

DECEMBER 2014 • VOLUME 24 • ISSUE 12 • W.C. ALEXANDER, CPBE, AMD, DRB EDITOR

Winding Down and Looking Ahead

Itôs always a bit of a relief when we get into December of each year, that is if we have gotten all of our projects done for the year. Thankfully that is the case this year. There are no eleventh-hour projects to wrap up. Everything is done and we can begin thinking about the coming year and its projects and demands.

The budget is finished and finalized for 2015. We pared it down quite a bit from the original draft but kept the essence in place. The big project for 2015 is the transition to Wheatstone AOIP infrastructure in several key markets, specifically KBRT (Southern California), Chicago, Detroit and Birmingham. We will also complete the transition to AOIP in Denver where the on-air Nexgen workstations have yet to be converted. WDJC-FM in Birmingham will get a new Nautel GV40 transmitter. We tabled RCS Zetta (replacement for Nexgen) until next year. There is simply too much to do in 2014 to give this omnibus project the time and resources it will require.

In addition to the Wheatstone AOIP transition, we have considerable work to do at KBRT to get the studio facility outfitted for a duplex satellite feed for both the KNSN simulcast/separate programming and the feeds to the KBRT transmitter site (STL backup), KCBC and KKPZ. The equipment for this is all on hand and will likely be installed early next year.

I will be sending out budget documents to our market engineering managers shortly so they know what to be thinking about and planning for. In the meantime, December will hopefully provide a time for us all to catch our breath before we dive into 2015ôs projects.

Changes

The past year has been one of changes in our engineering personnel complement. Last spring, we made some radical changes in Chicago, bringing Rick Sewell back to Crawford Broadcasting Company as Engineering Manager of that incredibly busy market. Mack Friday, the longtime Senior Engineer in that operation, retired at the end of September, and Art Reis departed to pursue his contract engineering business. In Detroit, another busy and important CBC market, Brian Kerkan came aboard as Chief Engineer. What a difference that has made in the technical excellence of that operation!

Last month, Bill Agresta left KBRT to pursue other interests. We wish Bill all the best and look forward to a continued good relationship with him. We have gone to a contract engineering model in that market.

Mike Duffy should be a familiar name to readers of these pages. Mike was studio contract engineer for KBRT from 1987 until 2012, when Bill Agresta moved from Catalina Island to the mainland and took over those duties. Mike has come back aboard as studio contract engineer, and we look forward to working with him going forward.

Over on the transmitter side of the KBRT operation, we hired Fred Fulmer as transmitter contract engineer. Fred comes highly recommended by our good friends at EMF Broadcasting. He has lots of AM and AM directional experience, and he has already jumped in to deal with a number of longstanding maintenance issues at the Oak Flat transmitter site.

We welcome Mike and Fred and anticipate a long and profitable working relationship with these professionals.

Finally, last month we welcomed Angella Thomas aboard as IT Coordinator at CBC-Chicago. For her own reasons, Angella took another position and departed our employ after just a few days on the job. We wish her well. Rick Sewell is back on the

hunt for a capable individual to fill that position.

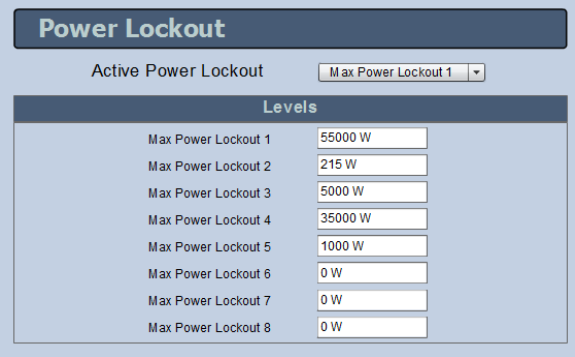
NX50 Issues

It seems that any new transmitter design has unanticipated issues that emerge as production models make their way into the installed base. That has certainly been the case with the Nautel NX50, although none of the issues have been serious.

The really great thing about the NX50 and Nautel in general is that the company is very receptive and responsive to the needs of its customers. With a phone call or email I can bring issues to the attention of Nautel engineers, and they always respond.

Last month, we had a power outage at the KBRT transmitter site that spanned a couple of days. We have the transmitter wired to the generator transfer switch so that whenever the generator is supplying power to the site, the power output of the transmitter is capped at 35 kW. This affects the station very little because with MDCL active it is a rare thing for the carrier power to climb over 35 kW to begin with (that only happens during periods of silence). We use a ñMax Power Lockoutò set to 35 kW to fold the power back to a 35 kW maximum when on the generator to prevent overloading the 70 kW generator. With the power so capped, the generator can easily handle the entire site load, including HVAC.

What I found during the prolonged outage last month was that while the contact closure in the transfer switch would select the 35 kW max power lockout in the transmitter, the change to night power at sunset and the change to day power at the subsequent sunrise would override the 35 kW lockout, even though the hard closure from the transfer switch remained. I brought this to the attention of Mike Woods of Nautel, who got Brian Walker involved.



The existing Max Power Lockouts for KBRT are not in ascending order. Both they and their external wiring will have to be reordered.

Brian logged into the KBRT NX50 AUI and duplicated its settings, including software version, power presets and max power lockouts. The remote I/O was set up to select max power lockout with an active low. Brian determined that while the AUI showed active low, it was acting as an edge-triggered input, so the continued presence of the low on the remote input from the generator transfer switch was ignored as the transmitter went through its remote-selected night and day power selections (which also select different max power lockouts).

As it turns out, the issue was addressed by a software update that we have not yet implemented on the KBRT NX50. This software update also provides for a low-to-high order of priority in max power lockouts. Lower power lockouts take priority over higher power lockouts, so we need to re-order our power lockouts from low to high instead of the current somewhat random order. Another issue that was corrected was the need for the remote selection of max power lockouts to operate independently of the remote/local status of the transmitter ï remote lockouts need to work regardless of whether the transmitter is in local or remote.

This also has application in day/night and other operations with disparate power levels. Antenna control systems usually provide contact closures to force the transmitter(s) to the appropriate power level. The idea is that if everything is wired, configured and working properly, you should not be able to put the 50 kW day power into the 1 kW night common point of the antenna system. Really ugly, messy and smelly things happen when you do this (donôt ask me how I know).

We will very shortly be updating the software of all three of our NX50 transmitters to software version 4.3.1 and rearranging the remote max power lockouts in low-to-high order.

Satellite Changes

I mentioned above that we will in the coming months be replacing the satellite equipment at KBRT, KNSN, KCBC and KKPZ. This has been in the works for some time as a means to provide for a (sometimes) separate feed to KNSN in San Diego. What we did not know when we ordered the equipment was that our long-time space-segment and equipment provider, Clear Channel Satellite, would be closing its doors. For the most part that has already happened. CC Satellite has only a couple of employees still working, dealing with closing out existing inventory and finding its customers other vendors to provide service.

CC has indicated that it will honor its existing space segment contracts through their expiration date, which in our case is the earlier of the replacement date of the SES AMC-1 satellite or April of 2015. The last we heard was that SES plans to swap out the AMC-1 satellite in February, but that date has been somewhat fluid.

We have found another space segment provider and are prepared to make the move. Since we no longer use the CBC-2 and CBC-3 channels (distribution is now being made using the TieLine IP codec system), this affects only KBRT and KNSN, which we plan to move to a new 300 kHz channel soon anyway.

The bottom line here is that we will be moving to a new frequency for the KBRT feeds in the coming months, but the date of that change and the equipment swap (which must happen at the same time) is somewhat up in the air, no pun intended. Those stations that have received new satellite receivers should go ahead and mount them, set the IP addresses and get them ported to the outside world. We can then reprogram them for the new frequency and channels as soon as we are ready for that.

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

Hello to all from Western New York!

By now, Iôm sure all have seen and heard of the super snow storm that hit Buffalo the 3rd week of November, blanketing the suburbs south of the city with over seven feet of snow. This storm was massive, and took the lives of 13 Western New Yorkers. Most of the deaths were heart attack related. Several were from people stuck in their cars and froze to death before help could arrive.

In a city where snow is considered no problem, this storm brought Buffalo to its knees. If it wasnôt for the assistance of the National Guard, we would still be digging out from under the mounds of snow. Over 500 National Guardsmen were brought in along with more than 300 high lifts and plows from across the state to help dig out the south towns hardest hit. Governor Cuomo stayed the course in Buffalo, directing state assistance and communicating with federal officials with updates on the needs of the communities. It was good to see state and federal governments working together to help dig us out, and they should be commended for a job well done!

As far as the effect of the storm on our CBC stations, we came out well, with the exception of losing power at the WDCX-FM site for approximately 11 hours. On Wednesday night, during the heaviest portion of the storm, the supply feeder for electricity to the Boston, NY area gave way due to the enormous accumulation of snow on the overhead lines. In normal circumstances, this would be no problem. Our generator would kick in when the power was interrupted and we would have electricity to keep our broadcast going. In this case, however, the snow accumulation at the transmitter site was well over five feet. The generator attempted to start several times, but due to the amount of snow covering the exhaust port and flapper, it could not run. The exhaust damper is only 10 inches above the top of the generator cabinet. The diesel engine that powers the generator simply could not operate with the exhaust totally blocked.

I have been in contact with our generator service company, and we are looking into raising the exhaust port four to five feet above the top of the generator so we will have the ability to rely on the generator to operate when storms of this magnitude occur.

Our AM site in Hamburg, NY, which is right on the lake shore, experienced no problems with the storm. I was concerned with the STL receive dish, as it is wall mounted only several feet above the roof line. Accumulating snow on the flat roof of the transmitter building could have easily blocked the

receive antenna entirely, but winds off of Lake Erie kept the snow depth on the roof to a minimum. Next year we should look at replacing the 5-inch pipe that the STL dish mounts to, to a longer pipe that will raise the dish at least six feet above the roof line.

Operations in our Rochester market have been humming along as of late, with no major incidents to report on. Rochester missed the brunt of the recent snowstorm, only receiving a couple inches of snow, which amounts to nothing more than a nuisance. All of our backup power has recently been tested, so in the event of a power failure, we will be able to stay on the air with bare essentials.

At the Rochester studio site, we have a portable generator rated with enough power to run our servers, audio processing and STL equipment only. At the WDCX(AM) transmitter site we employ a 50 kW propane generator which will supply us with ample power to run our operations at full throttle. We had installed a 500-gallon propane tank when the generator was purchased several years ago, and to date, we have not put a dent in the amount of fuel used up to now. This generator is very efficient, and can run almost 22 days and nights on a full 500-gallon tank.

At the WLGZ-FM site, we do not have a generator to rely on in case of commercial power loss. However, in the past twelve years, only once has the power grid failed at this site, which is a pretty good track record. In the event of an extended outage, Iôm sure our good neighbors at Entercom would allow us to tap into their generator for some emergency power, if needed.

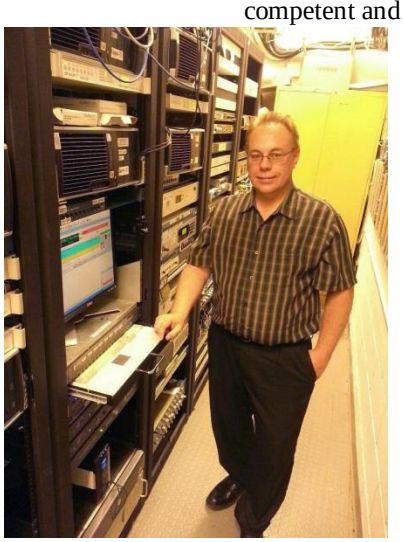
That about wraps up another month here in the great northeast, and until we meet again here in the pages of *The Local Oscillator*, be well, have a Blessed Christmas and a Happy New Year!

The Motown Update

By
Brian Kerkan, CBTE, CBNT
Chief Engineer, CBC–Detroit

Greetings from CBC Detroit! There has been a lot going on here over the last month. We have had our parking lot repaved, and installed new Wheatstone microphone processors throughout the plant.

The Wheatstone mic processors are amazing. I am impressed with the amount of control they provide and with how much more natural they sound on the air than other processors. The Wheatstone M1 and M4 can be controlled via software, allowing adjustments to be made on a PC screen. Talent can have a preset tailored to his or her voice and style. All of the processors are networked and can be adjusted remotely, making it easier to audition and to refine the final product.



We have finished installing our fiber-optic transceivers at WRDT for the LED tower light monitoring. The combination of the TLM-2 monitor from FM systems and the ñAlexander Fiber Boardò works well.

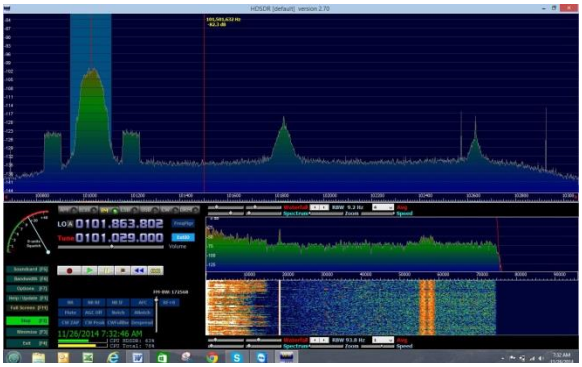
Back in October, we had our stations go through the Michigan Association of Broadcasters Alternate broadcast Inspection Program. This was a good exercise, and a great opportunity to make sure we were completely compliant. The inspector was competent and professional and he found a number of minor issues that we have since dealt with.

Recently, I have been using a new software defined radio (SDR) device that I am really impressed with. These devices can be purchased for $20 and feature a wideband tuner. Although they were originally designed for digital TV reception, several developers have software available to use the device as a spectrum analyzer. With a Micro USB adapter it can work on an Android phone.

The tuner range is very wide, typically 25MHZ to 1.7 GHZ. I use it for spot measurements, to check RDS, and to check for spurs or harmonics. This device does not replace a calibrated instrument, but comes in handy for those tasks like peaking a dish, and it is a very flexible receiver that can fit in

your pocket. The new DVB dongle that I have been using is based on the R820T2 tuner from Rafael Micro. For the price, it is a great tuner and radio.

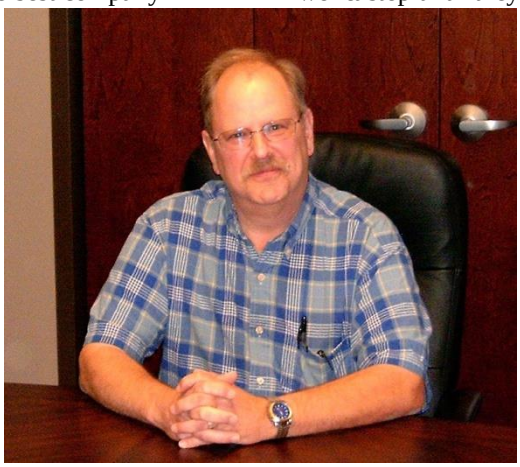
Happy Holidays and Merry Christmas!



HD SDR Screen Shot

News From The South
By
Stephen Poole, CBRE, CBNT, AMD
Chief Engineer, CBC–Alabama

Hope everyone had a great Thanksgiving! I give thanks to God for His love and forgiveness, for my wife Sandy, for my job with the best company in broadcasting, and so much more!



But another month has passed ... and weôve had another break-in. I suppose all of us should be watching for this, what with the sluggish economy and the price of copper going up again.

We were once again hit at the WXJC(AM) site in Tarrant. Weôve had thieves try the emergency vent on the east side of the building once before; this time, they apparently brought tools with them and made it into the building. The good news is that they didnôt take anything important, just a plastic box filled with terrible-looking scrap copper.

Hereôs something Iôve said many times in the past ï a thought that was echoed by the sheriffôs deputy who took the report from me: if these guys had any sense, theyôd realize that they could make more money flipping burgers at McDonalds. Less risk of jail time, too. Iôve had deputies tell me that on a single given theft, they probably wonôt be caught, but in the long run, almost all of them will be arrested. Theyôre not exactly mental giants and theyôll make mistakes that will eventually lead to cops to them. But once they start stealing metal, they wonôt stop until theyôve been jailed a few times.

This time, they managed to avoid the alarms. It didnôt help that we had a defective motion sensor in the back room. The front sensor didnôt detect them (quite possibly because I had absently disabled it when the system reported a failure and asked if I wanted to ñbypassò ... I may have hit the wrong button. Sigh). I had been there the afternoon before and everything had been fine, so we know that they hit us Sunday night. Monday, November 3rd, I went back to finish the work and saw where theyôd broken in.

Armed with a date and timeframe, we looked at the video ... and once again, it wasnôt very useful. The thieves wore masks and stayed out of the obvious areas of camera coverage. We have since added cameras and yet still more lights. ATT helpfully cleared some trees between the road and the building, so maybe the next time, theyôll be caught.

After talking to Cris, we hired Tryg Hoff and Sunbelt Builders to install some metal bars over that vent opening. This wonôt keep out a determined thief, but now, at least theyôll have to *work* to get that

$10 worth of copper.

So, be warned and prepared. For the longest time, we enjoyed a hiatus from copper theft. It appears to be starting again in earnest. Check those alarm systems and security lights.

Figure 1 - Sunbelt Builders installing security bars at 850 AM.

New Roofing

We had budgeted for a new roof on the transmitter building at WXJC, as well as a new parapet roof at 120 Summit. If you haven't had roofing work done in recent years, let me tell you, it's an eye-opener. A good crew can get it done in no time flat. At Tarrant, they started around 8:00 AM by 1:00 PM they were finished and cleaning up.

I had seen the same thing when Sandy and I had our roof done last year. This particular crew started on our home around 7:00 AM and were done a little after lunchtime. The folks that did our home were mostly Hispanic, and it was the middle of summer. I remember one of the guys standing on the roof of our shed, muttering, "Madre de *Dios*, es caliente!" ("Mother of *God*, it's hot!") Heh. I answered him in my terrible Spanish and he looked up, startled. Then he smiled, wiped sweat from his eyes, and continued the mission. He may have been hot, but he got it done!

The roofers then moved to our studios and offices at 120 Summit. This was a big job, even though they were only doing the parapet roof (the main roof is a standard, flat tar-and-gravel job). This took them a few days, not only because of the much larger area to be covered, but because that parapet is *steep*. I had already decided, having watched a roofing crew at my home and then at Tarrant, that I'd never do anything like that. But this was worse. They tied themselves off with safety lines, but still. Better them than me.

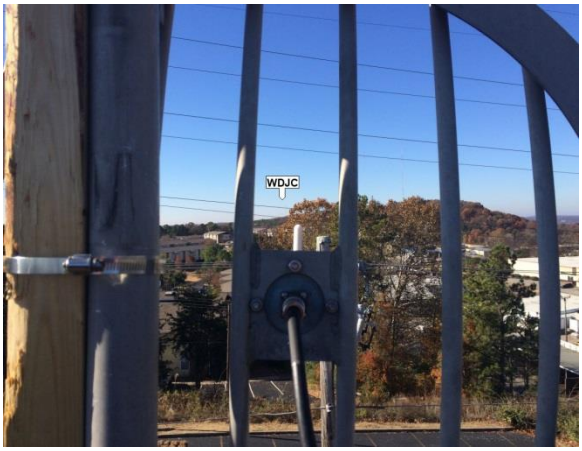


Figure 2 - Now THIS is engineering: the 950Mhz backup STL dish temporarily mounted on 2x4s.

To meet RF exposure requirements, we were forced to move our STLs around. We have two of them that shoot from the studios to the WDJC site on Red Mountain: an 18GHz Dragonwave link as a primary, and a backup 950MHz STL.

The 950 was the biggest offender, so we moved it to the back of the building and temporarily mounted it on 2x4s (Figure 20). When the roofers reached that area, we switched it off until they were done. The 18GHz Dragonwave, our primary STL, required a little more thought. I didn't want to take it down if we could help it, so we used a long 3' PVC pipe to raise it well above the heads of the workers (Figure 3).

The two dishes will be mounted permanently on that back wall. As you can see from Figure 2, it's not an ideal shot. We'll have to move everything to the left (south) side of the back wall to clear those trees, for one thing (we were in a hurry on that grid dish; you can see that the aim is a bit off as well). But we'll end up with better shots that we had with the dishes in their original spots. It's all good.

Driving MOSFETS

I've been tinkering again lately and you know me: I love to natter and chatter about what I've discovered. I truly believe that old adage, "Stop

Figure 3 - The Dragonwave temporarily moved well above the heads of roofing crew.

learning, start dying.ò

We had some modules fail in the Nautel ND5 at WYDE (AM). I did the usual bench repair, static-checked everything and put the NAP16 power cube back together. Todd took it down to 1260, put it in the transmitter and reported: ñWeôre still getting mod fail alarms.ò Daggone it. I told him to bring it back.

This time, I did something that Iôve been threatening to do for years, but have never gotten around to: I built a test rig that would let me power up the modules on the bench. For drive, I had a spare RF card from 850 (freed up when we converted to IBOC). All I needed was a few voltages.

If you look at the NAP16 schematic (see Figure 4 for a cropped version), it needs a -B voltage of about -72V in service. This powers the modulator and the RF finals. A separate +24V supply is used to power the protection circuits. The good news is, the two circuits can be treated separately for test purposes. I decided to use the same 24V supply to first repair the modulators and then to static-test the protection circuit.

The lowest acceptable -B voltage is limited by something really odd: the ICL7667 drive chip for the modulators. Those older modules actually float that IC at the -B voltage, dropping it by 12-13V to power the chip. 24V would give me enough to power the driver, but wouldnôt be so high that Iôd have things blowing up and making smoke if there was a severe fault on the board.

For PWM drive, I took a signal from

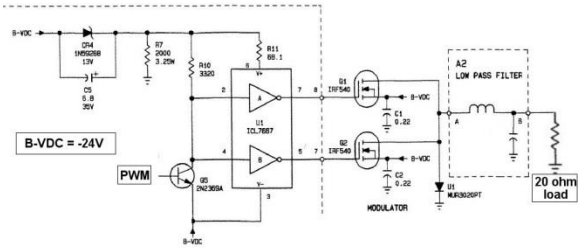


Figure 4 - A cropped and simplified schematic for an NAP16 module.

WXJCôs old RF drive board, with the pulse width stretched to 60-70%. I disconnected the PA from the mod filter (I disconnected the wires from point B in Figure 4) and replaced it with a 20 ohm load. On the first module, I got about -19V across the load, which was within range.

For the next test, I removed the load, reconnected the wires to point B and then static-tested the RF output transistors (not shown in Figure 4). I had no shorts, which was good. Finally, I moved the 24V supply to the +24V input with the RF drive connected. I put a dummy load across the RF outputs and watched the protection circuit. It didnôt trigger, so I declared that module happy and moved to the next one.

The 2nd one had a bad ICL7667 chip. It had static-tested OK with my multimeter, but actually stressing it with some voltage made the problem show up. My test rig had just ñpaidò for itself. I replaced the chip, did the remaining tests, and declared it happy. The third module was OK as well. This time, when we reassembled the cube and Todd reinstalled it, sure enough, the fail lights were out and we were back at high power.

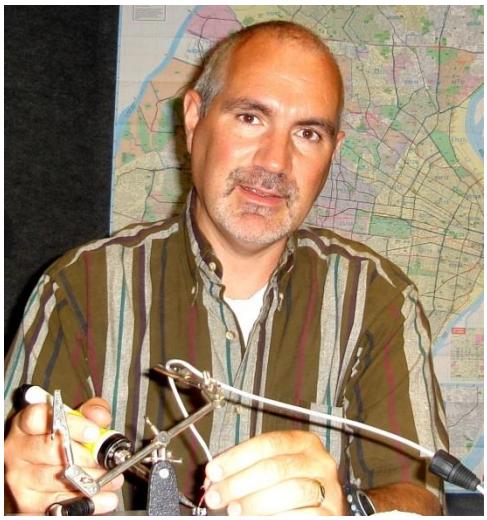
Donôt ask me why one bad module out of three should make all three of the ñmod failò LEDs light up on that cube; I donôt know. But being able to bench test these things with actual voltages and drive signals is the best thing Iôve done since the last best thing Iôve done. I intend to refine this as I get time, and extend the jig to work with all Nautel modules.

Until next time, keep praying for this nation!

The Chicago Chronicles

By
Rick Sewell, CSRE, CBNT, AMD
Engineering Manager, CBC–Chicago

Seventy mph winds ï they're not necessarily something that is a problem for broadcasters like, say, a really powerful electrical storm. Still, I was not very surprised when my phone went off with a text letting me know the generator was online at the WPWX transmitter site. This site's power lines run through a forest preserve, and high winds cause power outages on a normal basis.



However, the text that came next, that the main transmitter was off air, was a bit of a surprise. The main is a Nautel NV40. And while they may lose individual components from time to time, they usually will come on with at least some modules working. So as quick as I could, I put the auxiliary transmitter on air and then went out to the site to investigate why the main transmitter was not coming up.

Examining the alarms present on the transmitter, there were alarms for two of the 16 power modules having "output network" alarms. Assumedly this meant the two modules were looking at some kind of high VSWR and were shutting down because of that. This still didn't explain why the rest of the transmitter was not coming up. It's supposed to work even if it has some bad modules.

We proceeded to do the normal things you would do under those circumstance, like resetting the power in case it was just getting a false alarm ï after all, this event had occurred during a switch to generator. Factor in that we have the remote control switch the transmitter to half power when the site goes to generator, so maybe some weird power issues occurred. Resetting everything using the transmitter AUI reset and power cycling the transmitter didn't make a difference.

We then turned the enable button to "disabled" on those two modules which should have disabled them and taken them out of the equation. This still didn't get the transmitter back on. We finally got hold of Nautel support and they asked to go through everything we had already tried. But the one thing they suggested that we didn't try was to actually physically pull the modules from the transmitter. This worked and we had the main up and running, but at about 4 kW lower than normal TPO.

It appeared that we had two bad modules that needed repair. So, the next step was to take them apart and figure out what was going on. When I had them apart, I did look at each individual power amplifier, even though there were no alarms indicating that any of the PAs were bad. They all looked good, showing no physical characteristics you often see with a burnt out PA. My biggest concentration was is on the combiner area of each module. Since we had the "output network" alarm on each, my suspicion was that would be where we find something that was burnt or I would find a short on the center conductor to ground. Again, everything came up clean on both modules.

I was left with the feeling that we were stuck ordering the module exchange for the two modules, which was going to be quite an expensive proposition. Around that same time I had some conversations with Mike Woods at Nautel and he felt that there might not be anything wrong with the two modules.

We set up a time when I would be at the site and he and some colleagues would log into the transmitter's AUI remotely. When they logged in, they were able to very quickly get the transmitter back to full power, even with the questionable power modules back in place and enabled. Apparently taking transmitter IPA values back to factory default did the trick.

They also noticed that each of the problem power modules had a bad PA, even though they hadn't shown up in the transmitter alarms. The alarm for a bad power amplifier is generated by a "no current" measurement on that particular amplifier. In the case of the two bad amplifiers, there was just enough current to keep an alarm notification from

happening. Despite those bad PAs, Mike and the other experts at Nautel didn't feel that was the main cause of the transmitter not coming back on air.

Their evaluation led them to believe that the main reason the transmitter wasn't coming up was due to differing individual module settings between the two power settings of full and half power. Mike informed us that our half-power preset ñé had a different set of IPA bias values which made the RF modules originally in slot 2 and 9 look like they had low power, which the transmitter interpreted as a possible combiner issue and therefore shut down the power.ò He went on to say this was ñaggravatedò by each module having a bad power amplifier.

Apparently in the past, the main power setting had been optimized by running an IPA balance from the AUI. This past summer, we decided to create a half-power setting to have less stress on the generator. Being fairly new to this transmitter, we didn't know that the IPA balance needs to be performed on all power levels for the transmitter to run properly, or that it had an IPA balance run on only the main power level preset. Unknowingly, we had set up a trap that was just waiting to catch us at the right moment. This time it was during drive time on a Friday afternoon.

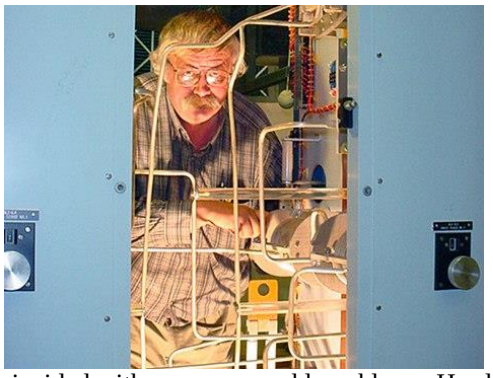
We had successfully switched to the half-power preset on many occasions this past summer and fall when we had to go to the generator. There hadn't been any issues in those cases. Perhaps the bad power amplifiers were something new to the equation this time. Nautel support did think the bad PAs had aggravated the situation and were part of the problem with the transmitter not coming back on the air.

We changed out the bad power amplifiers in the two modules and then ran the IPA balance at both power level settings. Nautel support did log back in after all the changes and gave the transmitter a clean bill of health.

The Portland Report

By
John White, CBRE
Chief Engineer, CBC–Portland

An old song proclaims, ñIt Never Rains in California.ò Thatôs the opening theme for this monthôs column. Translating to an Oregon dialect, ñIt Never Snows in Portland.ò



Located on Mt. Scott, the KKPZ studio and transmitter have one of the most stunning views in the area. From our location, Mt. Adams, Mt. Hood, and Mt. St. Helens are readily visible. Knowing where to look, the tip of Mt. Jefferson can be seen. On a clear day Mount Rainier can be seen. But perks can have a down side.

This yearôs attack of ñglobal warmingò came early and coincided with cold temps all across the country. It was one of the earliest snaps of cold in recent memory. As usual, Portland, which panics on sighting one single snowflake, didn't see this one coming. As temps plummeted to the 20s, a front moved in to drop precipitation, coating higher elevations with ice. And thus began the epic Portland winter storm.

The first typical barrier to travel is the auto-not-mobile with four bald tires and no-wheel-drive. The worst defect is the inoperative driver. The best example was some years ago as I was crossing an overpass. The open air roadway with a gentle upward slope was coated with ice. The vehicle in front of me stalled three quarters of the way across, spinning tires with no forward motion. I was forced to stop as first in a line of waiting vehicles. I rolled down my window to offer assistance, then thought better of it as I observed the male passengerôs arms waving and mouth engaged in full motion. Soon the passenger door slammed open. He stepped out to fall on his bleep-bleep. He clawed his way up the door, slammed it and again fell on his bleep-bleep. Again he clawed his way up and used the vehicle to work his way to the back, and there he fell on his bleep-bleep. He worked his way to the driverôs side door, pulled it open, and ï you guessed it ï bleep-bleep.

He then shoved the female driver over and climbed in (presumably to show her how itôs done, fully disregarding bleep-bleep). He disengaged his brain, put the car in gear, engaged the foot and spun

the tires as I watched the car slide and slam into the Jersey barrier. He really showed her, I think as I hear the driver behind me whistle, cheer and clap. Way to go guy! Then we all applied a SMALL amount of throttle and passed him by.

The shaded area of the KKPZ parking lot was an ice rink for days after the storm.

For years, drivers like bleep-bleep have been the major hazard for travel to and from Mt Scott. Until recently, the small city of Happy Valley (KKPZ at Mt. Scott is on the Happy Valley/Portland border) operated out of a converted farm house which served as city hall. Access to Mt. Scott was left to the principal of ñfend for thyself.ò

Now that Happy Valley has become a ñbig cityò with an expanded tax base, more services are available, which is a mixed blessing. With more resources available the city can apply deicer to the streets. And when they get caught without deicer they have the resources to block access with the blue and red bubble machines. The bleep-bleep drivers I can get around. The officer with blue and red I canôt.

The next morning with deicing applied, the roads were passable. The parking lot, which is now paved, was an ice rink even days later. In areas where the sun shines, ice will sublimate even when temps are below freezing. Shaded areas remain icy even days later. The photo shows shaded areas of KKPZ parking days later.

Ice melt is the solution. You may have heard of just-in-time stocking. In Oregon we use not-in-time stocking. Each store had two (2) bags for sale.

This summer the FCC acted on a longstanding KKPZ complaint relating to one non-detuned tower that is very near the KKPZ three-tower array and which distorts the KKPZ pattern. In that action the FCC sent what amounts to a demand letter asking the tower owner, TriMet (a multi-jurisdictional county agency) to respond, describing their intent to either detune or show their tower is not impacting the KKPZ pattern.

At the moment I am not aware of any response to that request. I have, however, heard some local rumors that some activity nay be in the pipeline to detune the tower. Given the interaction with other towers at the facility, this should be an interesting project that will bring the entire group of towers into proper detuning adjustment. Ultimately, five structures will be involved. How that adjustment will work out will be the subject of a future column.

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

Canal Work

We were finally able to get the canal work done at the KLTT transmitter site. There is an irrigation canal bisecting the 50-acre KLTT property. It is operated by the Farmers Reservoir and Irrigation Company (FRICO). When we bought the property, we made an agreement with FRICO, which owns the canal easement, wherein we would do the maintenance on the canal (so that their maintenance people wouldnôt wreck the ground system). We hadnôt done anything significant to the canal in the 19 years we have owned the property, and years of growth had taken their toll. It wasnôt for lack of trying, but maintaining the canal is difficult, especially when the reeds and other vegetation in the canal does not burn.

Mike Kilgore used this excavator to clean out the canal at the KLTT transmitter site.

We hired Kilgore Construction to come out with a big excavator (think ñGold Rushò and youôre on the right track), and Mike Kilgore was able to pull up many trees as well as dig out the silt in the canal. I think Mike had a little too much fun while working. He was like a kid in a candy store in that big excavator.

While at the site keeping an eye on Mike and the canal work, I noticed some prairie dogs kept mysteriously dropping dead. One was right behind the building. I predict it was lead poisoning.

We got the work done and our next step is to rent a wood chipper from the local Home Depot and go around and get rid of the many small trees we had to pull out of the canal.

Barn

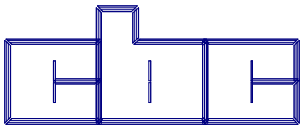
We finally found a use for that backhoe we bought with the tractor earlier this year. We havenôt really needed to use it just yet but when Tim Cutforth called wanting to get one of his transmitters out of our barn, we knew weôd have a good chance of using it. We ended up hooking the backhoe onto the tractor mainly because we needed it out of the way. We ended up using some ratchet straps and yanking the transmitter out. It was definitely a project, but with some work we got it out in one piece and loaded onto Timôs truck.

With Thanksgiving, it was a rather quiet month. I know I am very grateful for that. When the holidays hit, things can get a bit hectic. As of right now, we donôt have any big projects planned. I am looking forward to Christmas and that final week of December as I am taking a full week off work between Christmas and New Yearôs. I normally take a week in August for our family vacation, so taking another week off at the end of the year is a first for me.

I guess that about covers it for this edition. Until next timeé thatôs all folks!!!

KBRT • Costa Mesa - Los Angeles, CA
740 kHz, 50 kW-D/0.2 kW-N, DA-1
KNSN • San Diego, CA
1240 kHz, 550W-U
KCBC • Manteca - San Francisco, CA
770 kHz, 50 kW-D/4.3 kW-N, DA-2
KKPZ • Portland, OR
1330 kHz, 5 kW-U, DA-1
KLZ • Denver, CO
560 kHz, 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, 50 kW-D/1.4 kW-N, DA-2
KLVZ • Denver, CO
810 kHz, 2.2 kW-D/430 W-N, DA-2
WDCX • Rochester, NY
990 kHz, 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, 5 kW-U, DA-1
WDJC-FM • Birmingham, AL
93.7 MHz, 100 kW/307m AAT
WEXL • Royal Oak - Detroit, MI
1340 kHz, 1 kW-U, DA-D
WRDT • Monroe - Detroit, MI
560 kHz, 500 W-D/14 W-N, DA-D
WMUZ • Detroit, MI
103.5 MHz, 50 kW/150m AAT
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, 5 kW-D/41W-N, ND
WYDE-FM • Cullman - Birmingham, AL
101.1 MHz, 100 kW/410m AAT
WXJC • Birmingham, AL
850 kHz, 50 kW-D/1 kW-N, DA-2
WXJC-FM • Cordova-Birmingham, AL
92.5 MHz, 2.2 kW/167m AAT

CRAWFORD
BROADCASTING
COMPANY



Corporate Engineering

2821 S. Parker Road • Suite 1205

Aurora, CO 80014

email address: crisa@crawfordbroadcasting.com