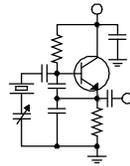


The Local Oscillator



The Newsletter of Crawford Broadcasting Company Corporate Engineering

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One Year Later

It's hard to imagine, but the new KBRT mainland transmitter site passed its first birthday on February 28! That was quite a day. Mr. Crawford came to the site and pushed the button personally. What an honor that was! Then he and I spent a couple of hours on "The Bottom Line" talking about the project.

The first year has gone remarkably well. I visited the site often during that year, some visits routine and others not so much. Not long after sign-on the power to the site was interrupted for several days. We were able to operate for a time from the old site on an STA, and the remainder of the time we ran from the new site at reduced power (40 kW with MDCL).

We have had a few power outages since, but nothing more than a few hours. Our automatic power-back during generator operation has worked perfectly so we use the ND50's Max Power Lockout feature to cap the power at 40 kW when the generator is on-line. The generator is only rated at 75 kW, and 40 kW with MDCL and HVAC takes it right up to capacity (but not over).

Then at the end of April we had a guy insulator fail, clearly the result of corona. Since the insulators were rated at several times the expected peak RF voltage, we surmised that the failure was produced by RF plus static electricity on the tower resulting from the dry Santa Ana winds that frequent the area. We doubled up the insulators at the top three levels on the high-power tower and installed corona rings. Bill Agresta makes frequent inspections of the insulators using a spotter scope and has not seen any further evidence of corona.

The only other issues have been ancillary. The Slatercom LED tower light monitor modules on tower 3 have given us some grief. For some reason the LED beacon on that tower draws a little less current than the other beacons, producing a false

alarm on the monitor module. We have since (mostly) corrected that, although we continue to dial in the reference voltage on the comparator. We still occasionally get false alarms, always when ambient temperature is low.

We installed a fiber-optic system for coupling the alarm outputs of the LED monitors across the base insulators. These have worked perfectly.

Other issues have involved fine-tuning our alarm and video surveillance systems. So far, so good. We have had no theft or vandalism (other than a little graffiti that someone drew with a Sharpie).

The last week of February, the site got a test of its drainage improvements, silt traps and silt dam. We got a *lot* of rain over a few days, and we observed the concrete V-ditches properly channeling the water right where it was supposed to go. As of this writing Bill has not been up to the site since the rain let up, but we can see on the security cameras no obvious erosion on the hillside southeast of the transmitter building, and there is standing water behind all the silt traps. My guess is that our downstream neighbor's pond is full of clean water, provided courtesy of our drainage and filtration system.

That "rain event" resulted in some rain fades for our 11 GHz microwave link and at least one rain fade of our Ku-band satellite link (STL backup). That's to be expected with the kind of rainfall rates we were seeing (several inches per hour), and I guess we can't complain so we lost probably 15 minutes for the whole year from fades, which amounts to 99.99997% reliability. That's a whole lot better than we got with the T1 to our old island site!

A Tale of Two Stations

This tale won't start with a line about the best and worst of times, and much of it has been related in these pages in the past so I won't go back into the whole history. The two stations are KBRT,

which took to the air on 740 kHz in 1953, and KFMB (San Diego), which began broadcasting on 760 kHz in 1961. An impermissible overlap was produced when KFMB signed on, something that the FCC waived over KBRT's objections, and that overlap has existed ever since. For many years, KBRT listeners put up with second-adjacent "monkey chatter" from KFMB, a situation that was cured when the NRSC voluntary bandwidth standard was implemented in the late 1980s (and was later codified).



Figure 1 - KBRT Exciter Output with Filter

In 2003 or thereabouts, KBRT began digital transmissions, and in 2007, KFMB began complaining about IBOC hiss on their signal in areas well outside their primary coverage area. KBRT cooperated with KFMB and reduced the level of its upper IBOC carriers, which occupy some of the same spectrum as the lower KFMB audio sidebands, to -51 dBc, some 23 dB below the nominal -28 dBc primary digital carrier level. We operated at that level for all the remainder of our time on the island and continued at that level from the new mainland facility.

Late last year, the KFMB people again began complaining of IBOC hiss on their audio up in Orange County, again well outside their primary coverage area. I did some investigation and found exactly what I expected: KFMB's signal was very weak in that area and KBRT's was very strong. Even at -51 dBc (the upper primaries were actually at -53 dBc by that time, which was as low as we could get them to go), that 250 mW equivalent did produce a "white noise" effect on the KFMB signal up in our primary coverage area.

While we should be protected from such interference complaints by the FCC's long-established "newcomer" policy, I nonetheless wanted to minimize any interference to KFMB because the

shoe could well be on the other foot. So I got with the folks at Nautel and they produced some DSP code for a filter that would go in the exciter, further reducing the upper primaries by another 30 dB or so.



Figure 2 - KBRT Output Spectrum with Filter and EQ

I made a trip to KBRT in mid-February and did both a software update and uploaded the filter code to the exciter. The result: not exactly what we had hoped for. Engineers from Nautel looked at the output of the exciter and confirmed that the upper primaries were indeed being attenuated as desired (Fig. 1), but the output spectrum of the transmitter still showed them in the mid-50s. That confirmed for us that what we were seeing was not the digital carriers themselves but rather third-order IM products involving the carrier and lower primaries. That explained why HD performance was off of those heavy IM products were confusing receiver decoders.

Nautel engineers jumped all over this, manipulating the equalizer in the NX50, and they were able to get the IM products in the 10.2-15 kHz range down into the low- or mid-60s (Fig. 2). HD performance perked up, and although I haven't personally listened, the "noise" situation for KFMB in our primary coverage area should be a lot better.

I could draw a lot of conclusions from this little exercise, and perhaps sometime I will do just that in a detailed discussion. For now, the one conclusion that I will note is that the folks at Nautel are the best of the best. They have been responsive to our particular needs and put in some significant engineering time to come up with a solution that works. My hat is off to Brian Walker, Ryan Swinamer and all the others at Nautel that worked so hard to make this work. Great job, guys!

The New York Minutes

By

**Brian Cunningham, CBRE
Chief Engineer, CBC – Western New York**

Hello to all from Western New York! As of 4:00 PM on Thursday, February 27th, Buffalo officially reached 104.1 inches of snowfall so far this

year. Most of the Northeast has seen its worst winter weather since 1950, and weather patterns all across the country have skewed from all normal weather activity to the extreme obverse. In the western part of the U.S. they are experiencing drought conditions. Some areas have been classified with exceptional drought conditions, which is the worst classification of

drought. To the extreme, the Northeast has been plummeted with periods of sub-zero temperatures, scores of heavy winter storms and arctic-fueled winds. And the United States is not alone. Malaysia, normally known for its steady tropical downpours, has begun rationing water to thousands of homes in Selangor, which is its most populous state and economic and industrial hub. Normally, tropical rains keep the lakes and reservoirs at acceptable levels, but the lack of rain and an exceptionally long dry spell have left reservoirs at critical levels. Australia and New Zealand recorded their hottest year on record in 2013, and so far this year, it appears that temperatures will rise even higher, with an estimated increase of almost five degrees over last year on average.

Weather conditions and patterns change from year to year, and since weather began to be tracked and recorded back in the late 1800s, clear and distinct patterns have been noted that resemble the weather patterns we are now experiencing. Many people are ready to blame severe weather conditions on greenhouse gasses and the enhanced greenhouse effect, which were brought to light several years ago, as scientists were monitoring the erosion of the ice fields in the north Atlantic. In theory, what scientists are saying sounds reasonable, that the thinning of the ozone layer has allowed more heat from the sun to penetrate further into our atmosphere, thus raising air

temperatures, and causing severe afflictions to weather patterns and the earth's ground temperature? Unfortunately, not enough solid evidence has been

brought forth to firmly make a believer of me that greenhouse gasses are causing these drastic weather pattern changes.

With adversity comes prosperity. One hundred miles northwest of Dallas, Texas, the town of Wichita Falls has been classified as an exceptional drought area. The town's main water source, Lake Arrowhead, is only at a 27 percent capacity and

dropping rapidly. In order to keep the town's residents hydrated, city officials have begun to test turning the city's waste water (sewage) back into the city's distribution system, saving nearly 5 million gallons of Lake Arrowhead water daily. The waste water is sent to the treatment facility for extra cleaning, filtering, and testing for harmful bacteria, and then sent on to the water treatment facility for distribution into the water system. So far, testing has seen remarkable results, and the program could become live as soon as April of this year.

**WDCX-FM, WDCZ(AM) – Buffalo,
WDCX(AM), WLGZ-FM – Rochester**

We have not experienced any problems related to the weather conditions at any of our stations. Driving to the sites can sometimes be a chore, but our facilities are weathering the storms without incident. I had mentioned earlier that the city of Buffalo has reached the 104 inch mark for snowfall totals so far this year, our transmitter site, located 25 miles south of the city in Boston, New York has already recorded 219 inches of snowfall, and areas further south have had even more! If we could only figure out a way to get this moisture out of California.

Along with the snow comes the trespassers with snowmobiles who think they can go wherever the snow is. I have been noticing snowmobile tracks



at the WDCZ transmitter site, but have not been able to catch anyone trespassing while I was there. We have no trespassing signs posted, but they usually knock those down and proceed on with whatever they intended to do. During my maintenance visit last week, I was fortunate enough to catch several people on our property with snowmobiles. A father and his two sons thought our 10-acre field would be an ideal place to teach his sons how to operate a snowmobile. I was able to talk with the father, who did not see any harm in riding on our property, as they were not near any fencing or towers. I had to explain to him that whether he was on our property legally or illegally, we are responsible should something happen to him or one of his family members. I also reminded him that he was on our property illegally, and trespassing is breaking the law. It's a shame he can't come back in the summer with several mowers to teach his sons how to cut the grass! just thinking.

In Rochester, both stations are humming right along, with no major malfunctions to report on. I am currently talking with a local landscaping company about brushhogging services at the WDCX (AM) transmitter site for next year. We have not

received good service from our former contractor, so the time has come to look for a more responsible and caring contractor to take care of our needs there.

At the WLGZ-FM transmitter site, we are preparing for our contractor to begin construction inside our building to help control heat buildup inside our building. We will be installing heat reflective material up in the attic area along with sufficient fans to evacuate heat from the attic, drywall on the ceiling and a new thermostatically-controlled exhaust fan inside the building. Our A/C unit is about 16 years old and is also in need of some work. Our HVAC repairman is looking into the possibility of replacing the compressor only, as the rest of the system appears to be in good condition. The replacement cost of the compressor is substantially lower than replacing the entire A/C unit, so that will save us money in the long run.

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

The Motown Update

By
Aaron McEachern
Chief Engineer, CBC-Detroit

Greetings from Motown! Last month I upgraded the software on the WMUZ Nautel NV40 main transmitter to version 4.2.2.4. It was a very similar upgrade to the NX series noted in last month's issue of *The Local Oscillator*. I used a new Compact Flash card to transfer update to the transmitter.

I ran into a few problems after the successful software upgrade. The new software improves the balance of the power supply output, which forces the power supplies to operate more efficiently. This is a good improvement, but it caused a few components that were probably marginal to fail. After the update we lost a power amplifier and a power supply. Balancing the output will improve longevity of the transmitter components, but weak components showed up quickly. Nautel was generous to replace the out-of-warranty parts at no cost.



Along with the upgrade I found that we are authorized to operate our digital carriers at -14dBc, but we were running at only -20dBc. I raised the digital power with no problem.

The WRDT day site is about an hour south of the studio building and about two and a half hours from my house. At times we have had minor STL problems (we use a 950 MHz traditional STL), and such issues can be difficult to troubleshoot when off-site. Sometimes it is a flip of a coin: do I start at the studio, or the transmitter?

I found a software-based silence detector, the Pira CZ Silence Detector, which can email me if we have loss of audio on either end. Using Sprint's email-to-SMS option I was able to configure the software to send me a text message any time there is silence. This will improve response time, just by knowing what direction to move. Another use for the app that I was planning is to

monitor the web streams. Liquid Compass does a great job of monitoring the web streams and will send an email when there is an issue, but that can take time and my email does not buzz my phone.

My short time at Crawford Broadcasting Company has been great. I have accepted a position

at Townsquare Media in Flint, Michigan. I took the position to be closer to home and to have more time with my family. I want to take a moment and thank everyone for their help and support. Crawford has a great team.

News From The South

By
Stephen Poole, CBRE, CBNT, AMD
Chief Engineer, CBC–Alabama

For some time now, I have suspected that Alabama isn't really suited to human habitation. In addition to scorching, humid weather in the summer, this is the only place I'm aware of in which it can be simultaneously cold *and* humid. During our most recent bout of extreme cold and icy weather, the local meteorologists were even warning that we could get something called "frozen dewfall." What in the world is that? According to them, it would look like snow, kind of like frost, but it wouldn't be snow. Or frost, not really. I'd never heard of such a thing before.

Our two big FMs, WDJC-FM and WYDE-FM, have "sealed" buildings. The transmitter exhausts hot air directly into the room and we depend on the AC units to remove the heat. When it drops



Curse you, "Global Warming!"

below freezing outside, it's still warm in the building, so the thermostat calls for cooling. Given the fact that Alabama doesn't obey the normal laws of physics, and it's still very humid outside, the coils on the AC units will ice up.

We've had the units checked and they're fine. Coolant levels are good, compressor is good, no problems found. But they still ice up. We just turn them off, give the ice time to melt (which can be a while when it's cold outside), then turn them back on.

Then again, maybe the scientists just need to get a handle on this Global Warming thingie before we all freeze to death. Yeah, that's probably it.

Dragonwave

We continue to slowly (very slowly!) work toward completion on our two Dragonwave projects. The first is an 11 GHz link between WDJC-FM's tower on Red Mountain and the WXJC site in Tarrant. The second is a 6 GHz "double-hop" between Red Mountain and the WYDE-FM site in Cullman. Both were essentially brought to a screeching halt by the weather ... and by Dragonwave's hilariously slow customer service.

However, I have good news: as I was writing this, the radios came back in from repair. I had to pick Todd off of the floor (Jimmy was in Cullman, thawing one of the AC units, so he was spared the shock) when he saw them. But they're here!

The 6 GHz units were done by our vendor in Colorado, 3dB Networks. They were able to get the firmware reprogrammed, so we didn't have to send

(or pay for the shipping to send) them to Dragonwave in Canada. They had kept our 11GHz link since the first of January, so we were really, reluctant to send four (4) 6 GHz units into Canada as well.

I want to give a special thanks to Keith Bergstrom of 3dB Networks. That fellow went the extra mile, reprogramming the 6 GHz radios at no charge, helping us correct some incorrect items received in the order, and arguing with Dragonwave on our behalf about warranty on the 11 GHz link. Good job, Keith!



All the dishes are up ... if we only had some radios!

Solid State Transmitters

I've joined a group on Facebook called "Take Pictures Of Transmitter Sites." That name is misleading. While the members do post pictures, it has essentially become an informal discussion group between engineers of all market sizes.

Most pictures that are posted there are of the old "Big Iron" systems from back in the heyday of AM, from old Continentals to giant RCA units. Not surprisingly, there will occasionally arise a friendly argument amongst the various engineers about whether these things were better than the current crop of mostly-digital, all-solid-state designs.

Arguments like these are no better than disagreements over how spicy salsa should be, or whether Trane makes a better air conditioner. Ask two different people, even very knowledgeable ones and you'll get two different answers.

You already know my opinion. I like looking at tubes. They're very pretty, especially in an AM transmitter, where you can watch the plates glowing with modulation. Some of those old tube designs sounded good, too, and they were very

resistant to things like mismatches and lightning strikes.

But I'd still much rather have a Nautel.

It doesn't help that many older engineers formed their impression of solid-state transmitters on boat anchors like the horrible Harris MW-1. They worked fine at first, but once they started eating transistors, they kept eating them. Speaking from experience, you quickly learned to keep boxes filled with the things handy. The MW-1 was horribly difficult to tune, and if one module was out of balance with the others, you'd quickly get a cascade failure of several modules. Pretty soon, your "1,000 watt" transmitter would be making 200-300 watts, if you were lucky.

But transmitters have come a long way since then. I am very, very happy with our Nautels. In the most recent Facebook discussion, I pointed out that our XL-60 has been chugging since 1999 without a single failed final transistor. I've had to replace the fuses (and a fuseholder, once) a few times, but aside from that, it has just worked and worked. We've had lightning strikes that were so severe, they destroyed components in the phasor and the ATUs ... but the XL-60 just ignored the rudeness and continued with the mission.

Gimme a good Nautel any day of the week. You have to clean and vacuum them from time to time and of course change or clean the air filters, but aside from that, you can forget them. They just work. Considering that they also don't have thousands (or even *tens of thousands*) of volts running loose inside the cabinet, and that you don't have to buy expensive tubes to keep them sounding good, believe me, I can get over the loss of the glowing, pretty glass-and-ceramic thingies inside.

I'm eagerly awaiting the day when my two BE FM-30s (the only tube-type transmitters still in main service in our market) finally reach EOL and will be replaced with Nautel units. I won't miss them a bit, I assure you. And if that offends the tube-lovers out there, well ... sorry. Let's just be friends and agree to disagree.

Gittin'erdone and DIY

The reason we're called "engineers" instead of "repairmen" is because we *engineer* things. We have to come up with unique solutions to unique problems ... on a budget. We're constantly looking for ways to save money here. I've written about Todd Dixon's ability to resurrect old computer systems in the past. This time, I want to give a quick tip of the hat to our other assistant, Jimmy Parker.



Jimmy as a child

While Jimmy might have been a little ... headstrong in his youth (see the picture below; fortunately, his parents were able to make bail), he has shaped up very nicely for us here in Birmingham. His actual background is similar to mine, minus the radio: he's a musician and actually went to school for studio engineering. He has been teaching himself electronics and now builds most of his own effects and amplifiers.

I've thought many times how fortunate I am to have such capable assistants. Jimmy, in particular, has learned to build all sorts of analog circuits. Like Todd and me, he is stingy. Like Todd and me, he looks for a way to save Mr. Crawford's nickel whenever he can.

We recently decided to redo the mike "snake" in WYDE-FM's talk studio. We were having intermittent dropouts on some of the mics and figured it was time just to do it again. We only needed about a twenty foot run, and the price of commercial snakes was too high to justify (at least in our opinion).

Besides, Jimmy's soldering iron was hot and he had his Game Face on, so he proceeded to glitterd.

If you've bought metal boxes lately, you know that they can be expensive. Plus, they're harder



Jimmy used a cheap plastic box, lined with copper shielding, for a mike snake.

to cut and drill, especially if need something other than a standard round hole. Jimmy went to the electrical section at Lowes and bought a cheap plastic box. Drilling one of these things is a breeze; in fact, in a pinch, I've done it by hand ó literally holding and turning the drill bit in my fingers.

To ensure that there was no hum, Jimmy lined the box with copper shielding (see the other photo), all thoroughly tacked to a good ground. The net cost was under \$10; we had some mike connectors and cable on hand. It was a win-win situation. Besides, it was pretty. I asked him to take a picture, which I've shared with you above.

That's about it until next time. I won't go on and on about the weather and spam email, which seem to be my most common topics of late. Instead, I'm hoping that next time, I'll have photos of the Dragonwave project. Until then!

The Blackstar Bill Report

By
Bill Agresta
Chief Engineer, KBRT

Greetings from Oak Flat! As I write this, today, February 28th 2014 marks exactly one year since we went live from our new mainland transmitter site at Oak Flat in the Santa Ana Mountains of Orange County. Mr. Crawford personally threw the power switch (actually he pressed the virtual button on the touch screen), turning on our new Nautel ND50 as I remotely turned off the Nautel XL12 at the old Catalina Island site.

Looking back, it has been a great year for KBRT. We have had nearly zero issues. Yes, of course we have had the occasional hiccup as we would find a device that needed some fine tuning, such as the Slatercom LED tower light monitoring system, and our HD Radio sidebands as we work with KFMB to reduce noise on 760 kHz, something Nautel had to work into a software update. These projects can be time consuming and require some outside-the-box solutions, but thus far all has gone very well for us as we remedy each challenge that comes our way.

So today is a day for us here at KBRT in Costa Mesa, California to give thanks to God and celebrate an awesome year of broadcasting His Word to all of Southern California. Our new 50kW signal has provided us with some impressive coverage as well as usable nighttime low-power coverage, something we did not have from our Catalina Island site.

It has also been nice to have much easier access to some top-notch contractors, making my job much more enjoyable and providing for a much higher quality end result. I am always excited to show off our new transmitter site so it is certainly a site to see!

Now that I have been off the island and my office has been relocated to our Costa Mesa studios, my workday looks a lot different than it did on the island. As I settle in here I am spending more and more time on projects at our studios, and there is much to do here. Not that the place is in bad shape or has major issues, but it those pages of little things,

things that in the past were set aside because there was no one here full-time to focus on them, those little things that when addressed will bring us to a point of excellence that you can almost feel when you walk into the door.

Of course, with the adoption of the studios into my workload, I also wear several other hats, many that I already wore on Catalina Island. Things like basic plumbing and other building maintenance issues have become common tasks for me, and it's in resolving many of these issues that our facility here is more and more projecting a feel of excellence and quality. So if you ever come to visit and find me cleaning the grout in between the restroom tiles, it's not a bad day for me because I'm looking forward to the end result, a place that projects excellence and an entire facility that is truly done as unto the Lord Jesus.

I bought a new car recently and it came with a stock HD Radio, something I have been wanting for quite some time. I know many of you have installed aftermarket HD Radios, and though many of them work very well, they are not a true representation of what a new car buyer is going to experience. I wrote an article some time ago about HD Radio reception issues after I had rented a Scion xB, one of those box things that seem to have become quite popular. The antenna was so small it seemed worthless and the radio made it very hard to navigate to the settings for HD Radio. This time I'm in a Ford with the Sony/Microsoft My Ford Sync package and it has been an interesting experience thus far.

I have been listening to not only KBRT's HD Radio signal but to many other AM HD signals around the area as well. The radio is a bit complex for most to operate, but I have spent some time with it and now understand it well. The reception, however, can be hit and miss. The antenna is not one of those tiny ones I seem to see on many of the new vehicles, but it still pretty short. It appears to be coil loaded and the base is a Sirius Satellite antenna. I get pretty good reception on most freeways in the area



but usually not so good in the canyons of the city. Keep in mind that our upper HD Radio signal has been attenuated to about -60 dBc because it was creating noise on the adjacent KFMB 760 kHz signal and some receivers seem to not like to lock into just one set of HD carriers. Though my radio seems to work fairly well with just the lower carriers, I have been doing comparisons to other AM HD signals in the area so my findings are more fairly researched. So far I feel that though more and more auto-makers

seem to be installing HD Radios in their vehicles, they need to pay more attention to making them, or at least to making the HD Radio part of them more user friendly and make sure the vehicle has an antenna that is capable of receiving the AM band clearly enough to make the radio usable for AM HD.

Until next month, the Lord bless you and keep you; the Lord make his face shine upon you and be gracious to you; the Lord turn his face toward you and give you peace.

The Chicago Chronicles

By

Art Reis, CPBE, CBNT, AMD
Chief Engineer, CBC-Chicago

EAS Issue

Our Chicago market stations are active in three EAS operational areas: Northwest Indiana, Chicago, and Rockford. There may be other station clusters which have to tend to more OAs than we do, but so far I haven't heard of them. Our required monthly tests thus originate at different times in one state as opposed to the other. In addition, both Illinois and Indiana alternate between running their RMTs in the middle of the night and the middle of the day. In Illinois, the tests are run between midnight and 1 AM on the first Tuesdays of even numbered months, and around 10 AM on the first Tuesdays of odd numbered months.

So what's this leading up to? In short, a problem.

As is the case in most if not all states, Illinois and Indiana EAS RMTs originate from Civil Authority in the capital city of the state. In Illinois, the Civil Authority is the Illinois Emergency Management Agency (IEMA) in Springfield. All communications relevant to EAS are transmitted on the usual LP-1 and LP-2 to the LP-1 and LP-2 broadcast daisy chain. In Illinois, EAS RMTs and RMTs are also transmitted through what is known here as ISPERN, the Illinois State Police Emergency Radio Network. This aging but still-effective network operates on 45.44 MHz; every LP-1 and LP-2 has an ISPERN radio on site for the purpose. The point here is to highlight that despite its age, and occasional technical issues, the system is still quite effective.

On the night of February 3-4, I was traveling

to Kirkland to do some overnight work when the station to which I was listening transmitted an RMT. Of our Chicago market stations, WYRB was the only one with which I was in range at that point, so I

switched to it and listened. No RMT. When I got to the transmitter site I checked the Sage box there. No RMT. The studio board op called a bit later to take the transmitter readings. I answered, and in the course of the conversation he mentioned that both WYCA and WSRB had already received and transmitted their RMT, but that there was

none for WYRB. I confirmed that to him, told him to write it up, and made a note to contact the Area 5A (Rockford) EAS coordinator, Chuck Ingle, shortly.

My next-day conversation with Chuck was revealing. He too had observed that no RMT had come from Springfield, but that his own EAS box had received a test from WGN, *originated by them*. (Blessings on them!) Since Chuck only re-transmits RMTs coming from Civil Authority and not from broadcast/cable sources, his system did not re-transmit the test. Thus, no stations in Area 5A carried the RMT.

It didn't take much digging for Chuck to discover that *no* RMT had been issued by IEMA from Springfield, *at all*. And, this is not the first time this has happened within the last year. It's the *third*. No overnight RMTs were sent in April or August of 2013, either. All of the daytime tests had originated as normal. What had happened, we concluded, was that IEMA had fallen down on their responsibility to issue some overnight RMTs.



To my mind, this is a serious breach of public trust. I know of one Chicago station that had its LP-1 designation rescinded because it either relinquished it or the station just didn't live up to its responsibilities as an LP-1 anymore. It's not unprecedented. Maybe it's time for FEMA to act, if only to take IEMA to the wood shed. I think that heads should, and maybe will, roll for this. Maybe not, but that would be sad.

Why am I bringing this up? First, because I can. I know that there's a lot that Illinois Area EAS coordinators can do to deal with this situation, but I believe that more folks within broadcasting need to know that such issues as this can happen, and that if some semblance of discipline and accountability are *not* maintained, as has apparently been the case here in Illinois (three times!) then it can happen anywhere, and then the system will go down the tubes and lose public trust. Second, unlike the folks in charge of the EAS areas here in Illinois, I have a national forum with which to let folks know what's going on. I felt the need to speak on this, so I have.

I hope that by shedding light on the situation here in Illinois, some good for the system as a whole can come of it. I hope you agree. Rant concluded.

This's and That's

A couple of notes of "maybe" interest:

We recently upgraded our phone system from analog to VOIP. We're doing this more or less company-wide, gradually, on a market by market basis. Denver had a lot of hassle in their upgrade process, but surprisingly, Chicago's transition went relatively smoothly. That's a tribute to our local project leader, Mack Friday, who worked with the various vendors and with Cris to make sure that things stayed under control throughout. We had very few problems at cutover time, and most problems were dealt with in just a few days.

However, two issues, both in the business manager's office, lingered for awhile. In the first, a credit card machine wouldn't work properly at night, but did OK during the day. The difference was that the office manager was working the machine

manually during the day, while the machine was connecting with its "mother ship" automatically at night. Because of the delay between the time a number is dialed at the sending end, and the phone or device actually answers at the other, which in a digital system is substantially longer than is the case in POTS, the local card machine was already starting to talk to an automatic device at the other end, which hadn't answered yet. The solution was simple: Add pause characters to the dial string - just count the number of seconds it takes for the call to complete, and add a pause character (usually a comma) for every two seconds it takes for the receiving end to answer and establish contact, then add one more. Only one person here in the office knew about comma-pause, but once implemented, the problem was solved. This solution is years old, but apparently a lot of folks don't remember it anymore.

The second issue involved the office manager's FAX machine, a late model HP. It had worked well in its brief life on a POTS line, but when the line was switched to the new digital system, it refused to work properly at all. One clue we found was that the older Brother FAX machine that had been replaced with the HP worked just fine. That meant that the problem was in the HP machine, but there was no reference to it in the HP instruction manual. A call by Mack to HP's Customer Service Department yielded the solution. Simply obtain one of those phone/DSL filters such as can be obtained from your local internet supplier (AT&T actually gives you more of these than you can use, or so it seems) and stick it on the phone line going into the FAX. Use the phone side of the filter going into the FAX machine. This will likely work, not just on HP brand FAXes, but on any other machine suffering similar problems. Somehow, the minute amount of digital noise on these VOIP lines is enough to knock these FAX machines right out of the box.

Everybody knows what those DSL/telco filters are good for. It's just that not everyone thinks of using them in an application such as this. Frankly, it's so nice to see a solution so simple.

Until next month, blessings to you all!

The Portland Report

By
John White, CBRE
Chief Engineer, CBC-Portland

So I was embarrassed, as the weather was cold here in Portland. Cold in the teens and much lower, but no precipitation. All the while the East Coast was suffering with six inches to a foot of snowfall. Meanwhile, Portland was cold and dry in a much colder year than in the recent past. The normal snowpack in the coast range was nearly nonexistent with the threat of a dry year as well.

January of 2014 dawned with several threats of ice and snow storms, none of which appeared. As February approached, so did the anticipated end of the severe weather season. And yet I awoke to an early birthday present in the form of a series of snowstorms.

Now the first thing to know is that upon the rumored sighting of a snow flake, Portland traffic freaks out. Just one example: the driver of an oversize load truck decided to take an alternate route, clipping phone and power lines for several blocks before the truck was finally stopped.

Overall, the road to Mt. Scott was passable and remained clear of stalled traffic, although I was forced to follow a 4WD vehicle at the blazing speed of 2 MPH. Just the same, so far the winter storm wasn't bad. That changed when the storm became a mix of snow and freezing rain. Fir trees with snow laden limbs received a new added coating of ice. Ice began to load up on the towers as well.

The coating of ice did make transportation more difficult and for some reason, ice is much slicker in Portland than other areas of the country. Compared to southern Idaho where I grew up, the roads here are definitely slicker. Finally a week later the temperature began to warm. With the warming the ice began to fall, which took out limbs on the trees at Mt. Scott. The photo shows one tree that lost several 6-inch and larger limbs.

Ice falling from a tall tower can cause serious damage. At the station facilities I lost one ATU, which went to a very high SWR. By the next afternoon, I started to investigate. As I approached the tower gate I heard a snap followed by bang-crash.

Chunks of ice four inches thick were still falling off the tower. From three hundred feet up, the ice chunks had developed a firm understanding with gravity. Common sense being the better part of valor, I made a quick retreat.

Once the ice was completely clear, I found the ice had hit hard enough or often enough to dislodge a variable tap clip on an inductor.

Reconnecting the tap returned the ATU to service. Subsequent investigation at other nearby towers revealed detuning skirt and communication antenna damage, a testament to the impact of falling ice (pun intended).

One blessing from the February storms is the snow pack is now approaching normal, helping greatly to avoid a drought emergency.

The winter storm reminds us all to be prepared when winter weather strikes. The local SBE chapter here in Oregon has established a local emergency preparation committee. We adopted the following mission and strategies statement.

Mission: To develop and strengthen the ability of our stations to deliver warnings and critical information to the public in times of crisis.

Strategies:

Promote Preparedness - We will promote individual and company-wide preparedness.

Encourage Relationships - We will encourage building of relationships and development of redundant communication paths between our programming staffs and emergency response agencies.

Sharing Information - We will seek out and share information in



support of the broadcast industry ability to remain on-air, transmitting more detailed emergency information to the public.

Our committee is targeting responding to a disaster, particularly the disaster response time period after an EAS warning has been issued and prior to the emergency situation being controlled sufficiently to allow normal business recovery.

Some of the projects currently in progress are:

Real Time Critical Public Information Distribution. Many areas in Oregon are equipped with a local relay network consisting of RPU equipment configured as a cross-band repeater.

While the LRN was initially created to distribute EAS messages, the network can also be used to distribution of information from Emergency Operations (EO) to the public via broadcast media.

Personnel Identification Program. This project is to produce a system to provide a common system of identification for broadcast engineers.

Tabletop and Other Exercises. We hope to produce a series of exercises which promote preparation for disasters. These exercises would provide a series of challenges to be solved to keep broadcast signals on the air.

The broadcast industry has a track record of being there when it counts. My hope in the coming months is to be able to report we are better prepared than ever.

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

KLDC Burk

I know February is a short month as it is, but it still flew by ó I am assuming because it was a fairly busy month. We finally got the Burk remote control wiring redone at the KLDC transmitter site. With the move of KBRT and the fact that the remote control was all done fresh, we were able to inherit the IP-8 from the Catalina Island site.

As it was, KLDC had the wiring done with an old Getner relay box and a home-made status/analog interface panel. It wasn't poorly done, just over the years things have gotten messy and it just looked bad (not to mention difficult to trace the wiring on). We decided we wanted to make it like the other sites, so we planned a day to go out and began documenting everything and swapping out the old relay box and interface panel with the IP-8.

This was a rather daunting task. It took us the better part of half of a day, but in the end things were working, with the exception of turning the aux

transmitter on and the DB-25 connectors not having any type of nut to secure the ribbon cable connectors to the IP-8. Once back at the studio I was able to find some nuts that would work. The next day I installed them and can now rest easy knowing the ribbon cables will not fall out. We also found the NO/NC was reversed on the Getner box from the way the IP-8 was laid out, so we couldn't simply move the wiring from the Getner device to the IP-8 ó the wiring had to be completely redone. And we figured out that the aux transmitter requires latching contacts to work. Once we got that configured, things began working very well.

Tractor

I am proud to say we will soon be getting a new Kubota B3300S tractor. We were able to take a trip to Front Range Kubota out east in Kiowa to view the tractor and get an idea of the size it will be. I must say, I am impressed. This will not be a beast. It will be rather simple to use. With the new tractor we are



looking to sell or trade in the current trailer. We purchased the trailer specifically for the Massey-Ferguson tractor, which is a real beast. We now need something a little bit smaller, and since the Kubota weighs in at under 3,000 pounds, hopefully something we can pull with an SUV so that we won't have to hire someone to come out and move the tractor when it is needed at the various transmitter sites. I am definitely looking forward to being able to keep up with the growth once we are able to move the tractors ourselves. It will make things a million times easier.

Wheatstone Production Surface Installation

You might remember me mentioning testing out the new Wheatstone equipment we are purchasing. This includes an E6 surface and the IP Blade system. After bench testing it for several weeks and some training from Wheatstone, we decided to let the animals have it. Well sort of. We put it in one of the production rooms. This is the room the writers tend to use. They seem to be picky and vocal about what they want. They were impressed.



Jordon Hopp cuts the hole for the E-6 Surface

The only issue we have had so far is not with the new Wheatstone system at all but rather Adobe Audition 3.0 (more on this below).

After having this all in the room for a few weeks, we spoke to Wheatstone and we will be keeping the demo control surface since we have now placed an order. We had my husband, Jordon Hopp (who happens to be a general contractor) come out on a Saturday and cut a hole in the cabinet tabletop for the surface. It was a rather quick process. We did find we had to modify the cover below, where we run the wiring. The part that opens up could not be closed because of the DB9 connector on the back of the E6. Jordon simply cut off part of the top of the wire chase cover it and now it looks and works great. We will have him back out once we receive the new equipment and are ready to install it.



New E-6 surface installed in Production C

Audition 3.0

As mentioned above, Adobe Audition 3.0 still plagues us. All of our information pointed to out-of-date sound cards. Well, with the new Wheatstone setup, you could say we have brand new sound cards of the very latest and greatest in fact (Wheatstone driver). While Adobe Audition 3.0 worked, it was a pain. From skipping randomly to the cursor rarely lining up with the audio when editing, it was becoming a nuisance.

After giving Aaron McEachern a key to Adobe Audition 1.5 some time back, I found they have relaxed their rules on using the same key for multiple installs. Don't worry, Aaron had a licensed copy of 1.5; he just couldn't find the license key, so it's all legal.

I decided to try to install 1.5 on a Windows 7 machine, and guess what, it worked! Since we have purchased licenses for 2.0 and 3.0, I figure we

The Local Oscillator
March 2014

should be able to do this. It's just an older version but they still got their money for the product. While the cursor still does not line up exactly with the audio, editing audio has become much easier. Our only other option was going to be to find a new product, that is reasonably priced, that will do everything Audition 1.5 does. I'd rather not have to do that.

This Month...

March will undoubtedly prove to be a busy month as we are hoping to have the roof at the KLZ transmitter site replaced, take delivery on the new Kubota tractor and possibly even receive all the Wheatstone stuff. I have several minor things to deal with as well.

I pray you all stay safe and warm. So until next time! That's all folks.

The Local Oscillator
March 2014

KBRT • Avalon - Los Angeles, CA
740 kHz, 50 kW-D/0.2 kW-N, DA-1

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

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

KSTL • St. Louis, MO
690 kHz, 1 kW-D/18 W-N, ND

WDCX • Rochester, NY
990 kHz, 5 kW-D/2.5 kW-N, DA-2

WDCX • 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

WLGZ-FM • Webster - Rochester, NY
102.7 MHz, 6 kW/100m AAT

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

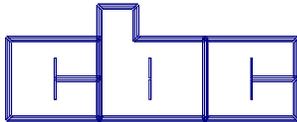
WYDE • Birmingham, AL
1260 kHz, 5 kW-D/41W-N, ND

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

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