The Local Oscillator

The Newsletter of Crawford Broadcasting Company Corporate Engineering

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Mission Accomplished!

I'm a little hesitant to hang that banner from the superstructure, having watched "W" do that very prematurely back in 2003, but in this case I believe the enemy has been vanquished and we are done with everything but minor "mop-up" items. Of course I'm talking about the CBC-Denver studio and office relocation, which was a war of sorts. We won some battles, lost a few and came away with more than a few battle scars, but we "gotterdone," thank God!

We took a month off from publication of *The Local Oscillator* in August because we were still up to our elbows with the move. The move was mostly done by then but both Amanda and I were working fifteen-hour days at that time working through all the inevitable issues. We're back on track this month.

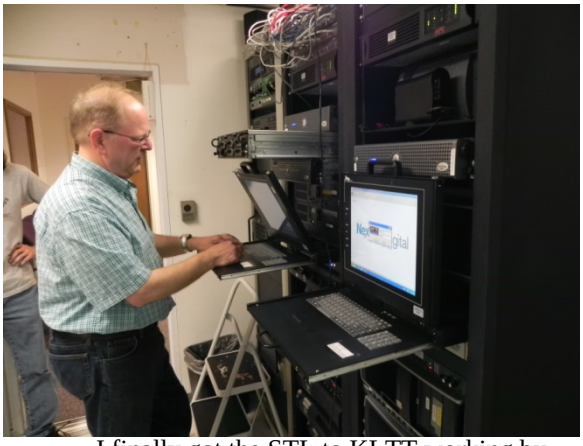
"The Crew" - from left to right: Art Reis, Derek Jackson, Cris Alexander, Jack Roland, Amanda Alexander, Stephen Poole, Cliff Mikkelson and Robert Payne. Note our snappy "CBC Engineering" golf shirts!

Here's a play-by-play…

Stephen Poole, Art Reis and Robert "Bubba" Payne arrived in Denver the weekend of July 17 and were on hand when we began the project late in the day on the 18th. At 8:00 PM that Sunday, I went to the KLZ transmitter site and switched its Intraplex over to the new 11 GHz microwave link to the new location. At 10:00 PM I went to KLTT and switched its Intraplex over to a new (temporary) T1 circuit to the new studio (more on that later). We took the other two stations off the air at 10:00 and began dismantling the engineering room at the old location.

There was a lot of stuff in that engineering room. While we had planned for it all, I don't think I had my brain completely wrapped around the volume of servers, switchers, workstations, audio processors, STL equipment and all that. We filled five vehicles completely with all the gear and by 1:00 on Monday morning were in convoy en route to the new location. Once there, it took us over an hour just to get the gear all upstairs.

Stephen Poole and I began working on "mission-critical" stuff – NexGen server, audio servers, switches and Intraplex STL units. Stephen had NexGen up and running very quickly, but just as quickly we realized that we were missing some cables, namely the special cables used to connect the mix outputs of the ASERV audio cards. We also had T1 trouble with KLTT, which is our top-biller and was the primary consideration at that point. By 5:00 AM or so I had made at least one additional trip to the KLZ transmitter site and had that station on the air, but KLTT, KLDC and KLVZ were all off. Stephen and the rest of the crew had done all they could do and they were exhausted after an all-nighter, so I sent them home for some rest. I stayed with it, somehow getting my second wind at about 6:30 in the morning.



I finally got the STL to KLTT working by 7:30 AM or so, and I had made something that would work in place of the missing ASERV cable. We had three stations up and running at that point – KLTT, KLZ and KLVZ. But I could not get KLDC to work; something was wrong with the Intraplex. We had good connectivity via the microwave link to the transmitter site and the Intraplex showed all green (I could communicate with the CM-20 at the transmitter site via the web interface), but we couldn't get any audio out of the Intraplex at the transmitter site. By 5:00 PM, I was too tired to go on so I called it a day

and slept for twelve hours.

The next morning (Tuesday) most of the crew, by then joined by local engineers Cliff Mikkelson, Derek Jackson and Jack Roland plus our general contractor Mike Kilgore, met at the old location to begin dismantling and moving the studios. I continued hammering at the critical issues, the most vexing of which was that the KLTT T1 kept dying. I was also working to get the satellite feeds all working. These feeds all come in at the KLZ transmitter site and are back-fed to the studio on the Intraplex. The trouble was, the back-feeds weren't working. I spent countless hours messing with this with Derek or Stephen on the studio end as I tried various things. Finally we got it going (I don't remember how).

By the end of the day on Tuesday, we had all the control and talk studio cabinets and equipment

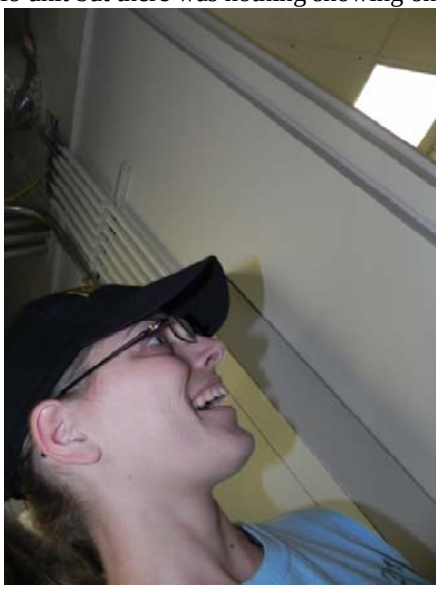
at the new location, piled more or less haphazardly in the hallway outside the studios. Mike Kilgore had two of the studio cabinet sets assembled, so we were ready to begin wiring those two rooms. On Wednesday morning this work began in earnest while Mike started assembling cabinets in the other two studios.

As I was driving in early on Wednesday morning, I noticed that KLZ was off the air. I figured there was something wrong with the microwave link or the Intraplex, but when I noted that there was no PSD display on the station on the radio in my truck I knew it was something else. I switched to the aux by remote control and got the station back up. When I got to the KLZ site I found that the transmitter itself was dead with a tripped main breaker. I reset it and it immediately tripped again. That always points to shorted rectifiers and that was the problem this time as well. I pulled the rectifier bank out and found two phases shorted. We didn't have any spares so I ordered replacements overnighted in.

From there I went to KLDC to look at the KLDC Intraplex. KLDC was still off the air, and the other engineers in our crew that had gone to the transmitter site to look at it had not been able to get it

up and running. When I got there I found what they had already found – all green lights but no audio out of the PTR-255 card. So I removed the whole unit and took it back to the new studio where I connected it to the transmitter Ethernet switch side-by-side with the studio end of the link.

I got the same indication in this configuration – good link, no audio out. I could see the LED indicators showing audio going into the studio unit but there was nothing showing on the



transmitter unit but an MPEG sync. A real head-scratcher. So I pulled the PTR-255 card from the transmitter unit and subbed in another one – and it worked! Bad card. Or was it? I put the old one back in… and it worked! Of course we had already reseated the cards several times, so I was baffled. I took the unit (with a spare PTR-255) back to the transmitter site and reinstalled it. It has been working perfectly with the original card ever since. I have no idea what the issue was. We'll call it "bit-lock" for want of a better explanation.

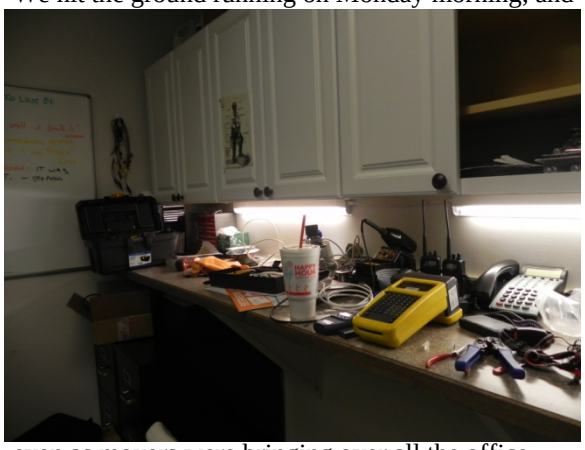
Wednesday through Friday our crew was working on wiring up control rooms and talk studios. Generally speaking I put a crew of two in each room, but there was some shuffling around as the situation called for different assignments. We were one person short. Keith Peterson was not available after Monday morning so I didn't have enough people to keep a crew of two in each room. Stephen Poole worked on servers, Internet, LAN, WAN, firewalls and switches while I ran from room to room answering questions and solving problems.

Friday morning the parts came in for the KLZ transmitter and I went back to that site to install

them. Surprise! The stud size on the replacement rectifiers was ½ inch; the hole size was $^{3}/_{8}$ inch! The new parts wouldn't fit! The good news was that I had a drill press at the site. The bad news was that I would have to go to Home Depot and buy a ½ inch bit! That's exactly what I did, and within a couple of hours (that I didn't have to spare), the KLZ main transmitter was back up and running. I still don't know what happened to cause the two rectifiers to blow. There were no storms, but I did have to reboot one of the HD Radio exciters. It had to be some sort of power surge.

By the end of the day Friday the situation seemed hopeless. We didn't have even one room finished. But by the end of the day Saturday, we had three on-air studios and one production room completed. Exhausted as we all were, I decided to call Sunday a "Sabbath" and give everyone a day off.

Stephen and Art and Robert left for home. Two of the local engineers had to move on to other things, so it was just Amanda, Derek and me on Monday morning. But the day off did wonders for us. We hit the ground running on Monday morning, and



even as movers were bringing over all the office furniture and "stuff" and the phone contractor was moving the key system, we got the rest of the studios, including two more production rooms, done. By Tuesday morning, even though there was still a lot of stuff not finished, we were ready for board operators, clients and live programs. It was chaotic at times and we didn't have our published phone numbers working, but we were on the air!

It took the rest of the week to get most of the remaining issues cleared. It wasn't until Friday that we got our published phone numbers assigned to the new DIDs, and even then we didn't have working hunt groups. I suspected that phones would be our

biggest challenge, and they were. I am really miffed at Verizon Business Services who doesn't seem to have a clue what is required by way of telephone connectivity to do business, and at Qwest who doesn't seem to be able to get a point-to-point T1 right the first time. But I'm also grateful for a couple of key people within those organizations who were able to jump through hoops and bypass a bunch of red tape to get us to who could actually get these things working.

What I didn't mention was that on Friday the 16th, yes, the day before the weekend of the technical move, we still didn't have a T1 to KLTT! I

called Qwest to check and found out from them that the installation had been pushed to the 28th! Thanks for telling me! Evidently there were some loads on the cable pairs out on the transmitter end that had to be removed and when that was discovered, they pushed the due date back a week without telling me or our account rep. She was a jewel, though, and started calling people until she found someone who could help. The central part of the circuit was done; just the two ends remained to be done. She started looking for an installer to do the two ends.

Stephen Poole proudly models the "Propeller Head" hat that Amanda got him. Hey, if the shoe fits...

While we were waiting, at 2:00 on that Friday afternoon, a Qwest installer came in to put in our ISDN lines. I knew this guy and knew he was good with DS1/T1 circuits, so I asked our account rep if I should shanghai him. She said, "YES!" and gave me the ticket number to give him, so I did. The installer had to call his boss to get the OT okayed, but that wasn't a problem. Within an hour, the studio end of the T1 was installed. Just before 5:00, they located an installer to do the transmitter site end of the circuit. He went out there and said he got it done, but I was unable to loop the NIU at the far end from the studio, a clear indication that we didn't have a complete circuit. The installer said that we would have to turn in a repair ticket, so I did.

The next day a repair tech found several errors in that final copper span, including a missing cross-connect at the fiber hut, a bad connection across the road from our building and a bad punch inside our building. I went in to the new location that afternoon and found I was able to loop up the far end using our T1 tester. We had a circuit.

But as you know from what you read above, that wasn't all there was to it. The circuit kept dropping out during the move, and I suspected that this was caused by Qwest testers going intrusive into the circuit. The clue was that on one occasion, the circuit came back up looped. That didn't happen without someone looping it. As it turns out, the paper ticket was never closed out on the installation, so the internal (central office) portion of the circuit was getting tested every day. Every time this happened, KLTT would go off the air. At long last I was able to get someone to close out the ticket and once that happened everything settled down. We have not had any trouble with the circuit since, but that last second installation followed by the paperwork snafu gave us untold amounts of grief during the technical move.

So what's the situation now? We still have a few things left to do. One of the production cabinet sets brought over during the move was not the right one. We need to change that out with the newer set that should have come over instead. We still need to hang the rest of the Sonex sound panels – we have some up in each room now to dampen out the echoes but have more to install, and our contractor will come in and trim them out with a wood frame. The talk studio tabletops in a couple of the studios need to be replaced, and we're still waiting on the mechanical door sweeps that extend and seal when the studio doors are closed – those have been ordered and should be in shortly. We have FCC grants on the two 11 GHz microwave licenses for KLTT and KLVZ, and the equipment has been ordered – as soon as it arrives we'll get it installed and get those links running.

But for the most part, things are complete and running well. We have a first-rate facility of which we can be very proud. Our CBC-Colorado staff has adapted well to the new configuration, I hear nothing but good things about the new location and we are all enjoying having ample parking! So I'm going to go ahead and string up that "Mission Accomplished" banner.

Thanks so much to all who worked so hard to make this project a success! In addition to the engineering crew, my wife Phyllis kept us fed, encouraged and motivated, Sandy Poole led cheer from the sidelines and Elizabeth McGuire ran interference and choreographed the office move. You're all rock stars in my book!

NanoBridge

Early in the second week of the move, a problem developed with the KLZ STL. The audio from the six satellite feeds coming back from the transmitter site started chirping and dropping out. The indication on the Intraplex was an "alert" light and intermittent loss of MPEG sync on the three PR-250 decoder cards. We had experienced this problem a few times intermittently during the technical move

but it always cleared and frankly I didn't have time to chase it down. On this day, however, the issue was killing us… it wasn't going away.

"The Old Man" installs the 11 GHz microwave antenna on the studio rooftop.

Suspecting that the issue was one of bandwidth, I started unplugging the CAT5e cables from the transmitter Ethernet switch (the switch into which all the Intraplexes, microwave links and Wheatstone connect). Sure enough, when I pulled the cable for the utility workstation, the problem cleared. It didn't take much more investigation to bring me to the conclusion that it was an Amb-OS download on that machine that was causing the problem. The Amb-OS receiver is located out at the KLZ transmitter site where it connects to the CRC satellite antenna. When the operator in KLTT started downloading from the unit, there wasn't enough bandwidth to support the return path for the Intraplex.

I knew the Trango Apex 11 GHz microwave link should provide us with 44 MBPS, so the choke point had to be elsewhere. A little investigation revealed the bottleneck: it was the Motorola Canopy that connected the Trango unit on the KLZ west tower to the transmitter building – it offered only 3.5 MBPS of bandwidth. The Intraplex requires 2 MBPS in each direction, so when the Amb-OS began transferring data, it hogged up all the bandwidth, crowding out the Intraplex. I had to find another, higher bandwidth means to link the Trango unit to the transmitter building.

On the recommendation of Cliff Mikkelson, I called a vendor up in Frederick, Colorado. This vendor, 3dBNetworks, deals in all sorts of wireless solutions. I explained the application and "Tee," the very knowledgeable account rep, immediately told me what I needed: the Ubiquiti NanoBridge M5. This is essentially an 802.11 device that operates on 5.8 GHz. It includes a 1-foot parabolic antenna and has the "radio" built into the feedhorn (which includes a cool LED signal level meter). It boasts throughputs in excess of 100 MBPS, which would more than take care of the bandwidth bottleneck and allow us to take full advantage of the Trango's throughput. Tee told me that a local television station (Channel 7) uses a pair of these between buildings and has several other sets that it uses for remotes. Considering the very

reasonable price, that was all I needed to hear. I ordered a couple of sets.

We installed one set at KLZ, between the west tower and the building rooftop, and immediately found that we had all the bandwidth we needed. The units work fine in a high MW RF field, and they have survived some pretty good thunderstorms. So far, I'm impressed. We'll see how they hold up over a long period of time.

The second set will go up at KLTT when we install the Trango link there.

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

Hello to all from Western New York! It has been quite a while since we have shared time together here in the pages of *The Local Oscillator*! Here in Western New York I have been busy this summer catching up on numerous projects that have been pushed to the back burner for quite some time. We have been trying for the past two years to get the WDCX(AM) six-tower array painted, and this year we finally were able to get this project started. What we thought would be a simple tower painting turned out to be more than we expected, but more on that later.

The past several summers here in have been quite rainy and cool, but this year we have experienced the opposite with rainfall lower than normal and temperatures equal to those in the southeastern half of the U.S. Our heat wave began in late June with temperatures cracking the 90 degree mark for several days. I know, I hear the laughing from you guys in St. Louis and Birmingham, but we just are not geared for those kinds of temperatures with high humidity. This year marked the first time we have exceeded 90 degrees since 2007, and we have not gone longer than 10 days without rain since 1992!

With the high temps and humidity, we have experienced an abundance of wasps, hornets and honeybees at our transmitter sites. So far this year I have been stung by these pests a total of 19 times, and have gone through almost a dozen cans of wasp and hornet spray. Keeping these pests out of our tuning houses has turned out to be all but impossible. In each case I would locate a point of entrance and seal it up and destroy all the nests, but they would always find another way in and we would start the process all over again. The transmitter buildings have been spared of these pests as they are air conditioned and the wasps seem to prefer heat over coolness for their living quarters.

I think it's ironic that I have not seen a single snake at any of our sites this year! Normally, especially at the AM transmitter site, I would see them everywhere, especially in places I definitely do not want them (like inside the tuning houses), but this year I have not encountered a single one of them! That's okay, though; I cannot stand a snake and will kill them on sight.

WDCX – Buffalo, WDCX (AM) - Rochester

As I had mentioned earlier, Don Boye of Western Antenna and Tower Service began the tower painting July 26th at our Rochester AM transmitter site. We have scheduled this painting to be done for the past two years; however the weather has not cooperated with clear skies and low humidity to get the painting done until this year. Don began at tower #6 and has been painting two towers each week. No problems were noted at towers #5 and #6, but when he got to tower #2 he found that someone had shot one of the towers legs three times!

The bullet holes were approximately 3/8" in diameter, most likely coming from a hunting rifle. Don phoned Rohn Tower, the manufacturer of the towers, to obtain speciations on the thickness of the tower legs and determine the best way to repair the damage. Don was told that the thickness of the 2-½" diameter legs was slightly less than 1/8" and that welding on the leg was not advised –the heat caused by the welding would weaken the steel even further.

In order to repair the damage and restore the structural integrity of the leg, Don cut two 2-½" inside diameter stainless pipes about 10 inches long and clamped them with four stainless pipe clamps equally spaced, and then coated the clamps and pipe sections with a galvanizing spray to prevent rust and corrosion. This is the second such repair done on this tower, as Don noticed some years back while re-lamping the tower that the same type of repair had been done about 200 feet up on another leg. That

repair, however, was done using a split pipe, but was secured only with radiator-type hose clamps. The next trip up the tower, Don will remove the hose clamps and install stainless steel clamps, to insure that the repair will hold.

While Don was busy painting, I was cleaning out the tuning houses and checking all of the electrical connections for tightness and the network components for any signs of arcing or damage. This was also a good time to mark the position of each of the coil taps, lubricate each RF switch and check for any binding while switching patterns. Most all of the connections were in good shape. I only found a couple of coil clips that had to be replaced due to looseness.

While the insides of the tuning houses were in relatively good shape, I noticed upon closer inspection that the roofs of all of the buildings need to be replaced along with most of the soffit underneath the roof overhang. I am sure that the roofs have not been replaced since the site was built back in 1981. There was no indication of leaks inside the buildings but the shingles are dried up, curling and very brittle.

The soffits were loose and hanging down due to moisture accumulating over the years. I was able to secure most of it by nailing, but the wood is starting to rot and will need to be replaced next year. The roof at tower #6 had a hole in it big enough for me to stick my head through it along with the soffit underneath. It appeared that insects had chewed the holes through the roof but had not damaged enough that water would enter inside the building. To keep the network protected at tower #6 I purchased a good quality tarp and covered the entire roof and secured it on all four sides to keep the wind from blowing it off.

Each spring I spray the entire area inside of the tower enclosures with Ground Clear, a product produced and distributed by Ortho. In past years, this product has worked well. However this year, in the four areas I had sprayed, the weed killer did absolutely nothing! I spent the better part of two days clearing out the growth inside of all six tower enclosures and spraying weed killer on any remaining growth.

At the WDCX-FM studios we are experiencing some intermittent interference with our C-Band satellite receiver. From about 11 AM until 2 PM the programming received from the Unity 4000 receiver is unairable due to breakup in the audio signal. To temporally rectify the problem I installed a programmable switcher on our backup dish located at the transmitter site so the board operator can switch between CB-1 and SR-1 when those particular programs need to air. At some point I will connect a spectrum analyzer up to the receiver at the studio to try and determine the source of the interference.

WLGZ – FM - Rochester

We have experienced a number of brownouts and complete power outages recently at the WDCX (AM) and WLGZ-FM studios. After the most recent outage, when the power came back on, we must have received a spike in one of the three-phase legs, as we had some damage to some of our studio equipment. Most all of the non-working equipment only needed a fuse change, but the Eventide delay unit appeared to sustain the worst of the damage. It will light up, but no other functions will work. I will have to pull the delay unit out and send it in to the factory for repair as I have no service information available for this unit.

I recently ordered a new rebuilt tube from Freeland Products and went to install it Friday evening, the 6th of August. You may recall that a couple of years ago I began using the 4CX 15,000 EEV rebuilds from Freeland, and these have been working very well in our Continental 816-R series transmitters. The tube I attempted to install that

Friday evening was a complete dud! After several hours of trying to get the new tube to make power I finally gave up and re-installed the old tube. The following day I phoned Randy at Freeland and he agreed to send out another tube. This time I received a 4CX 15,000 R, which is essentially the same as an EEV; both have a screen mesh filament. This tube was considerably better, but required a lot more drive than the previous tube. Previously, the output of the IPA ran about 340 watts with the voltage and current at 34 volts and 14 amps respectively. I re-tapped the driver transformer to obtain about 44 volts and approximately 15- 1/2 amps on the IPA with an output of 440 watts. The shelf adjustment (shorting plane) was pretty close to the factory setting, within a half inch of the logged height of the shelf. So far, I have been extremely impressed with the tubes I have received from Freeland, this being the first one I had to send back for a replacement. The two previous tubes I have purchased went in with no problems at all, which is the way it should be!

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
Joseph M. Huk, Jr.,
P.E., CPBE, CBNT
Chief Engineer, CBC–Detroit

In the last issue of *The Local Oscillator* I mentioned that we have had a great series of thunderstorm activity. This kind of weather continued on through the month of August. Several of our keyboard video mouse (KVM) extenders failed again following a lightning strike.

I installed our new IOGEAR KVM units with a series of Polyphaser Transtector Ethernet surge protectors. The Mosley LANLink also failed. It turned out that failure mode of this device was different then we experienced in the previous month. Instead of getting damage to just the Ethernet port, we suffered a transient to the power input. I worked with Andrew Hankin with Mosley to determine the failure mode of the unit. We found that the input fuse in the transceiver was not blown and that conductivity measurements to the power input port showed a very high resistance compared with a unit that works correctly. Unfortunately, our LANLink unit was just out of warranty so we had to pay for a new one.

Cris, with his kind guidance, suggested I research suppression devices from Polyphaser or their Transtector division. I worked with Carol Rasier and Scott Yerxa at Polyphaser to identify a suitable series of suppression devices that could be installed on not only the Ethernet port but on the antenna connector and power input to the unit. With this holistic approach we hope to protect as many possible entry points to our delicate electronics. They suggested I use their TSJ-10/100BT suppressor for Ethernet devices and a bulkhead coaxial suppressor (DSXL) to protect the transmission lines entering the STL radios.

When I inspected the STL cabinet, I notice there was no ground connection from the transmitter room's system ground (copper ground strap) to the STL rack. Therefore, before any of the suppression devices were installed I connected a grounding strap from the STL cabinet to the system ground. In addition, per Cris's suggestion, I also connected an additional #4 gauge wire ground from the cabinet to the system ground to provide for a low-impedance, high-current path for lightning energy. This cable extends up to the lug nut on the Transtector device.

On the power input to the Moseley LanLink I installed an MOV and a series of fast-switching diodes to clamp any transients over 20 volts. An additional UPS unit was also installed for the radios in the STL rack. As time permits, I plan to roll out the installation of more suppression devices on the KVMs in our equipment racks. Right now their Ethernet ports are protected by the Transtector device.

Even though summer is coming to an end, I still suspect more tumultuous weather is on the way. At least we have made strides in trying to mitigate further failures down the road. Hopefully, next

month, I will be able to give you good news in our battle with Mother Nature.

Until next time, be safe, and if all goes well, we will be reporting to you from the pages of *The Local Oscillator* next month. Best regards.

News From The South

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

I Survived Denver...

No doubt Cris and Amanda will both share plenty of tales about the Denver studio move, so I'll just add my perspective from the one week that I was out there. On the plus side, I got to see them and Phyllis again as well as Art Reis and Robert "Bubba" Payne. I finally had a chance to meet Keith Peterson as well as some nice folks from the Denver area who were helping out.

Sandy accompanied me; we left on Saturday the 17th from Nashville, TN. (Ask me about that airport sometime: you can amuse yourself for hours, watching all the wanna-be musicians walking around with guitar and banjo cases. I even saw a trombone or two!) On Sunday, we visited Cris's home church and went to his Sunday School class, then headed to his house for some fellowship and some Jim N' Nick's barbecue with Cris, Amanda, Phyllis and Bubba.

On the down side, Murphy was also there. We moved the studios in the wee hours of Sunday night and Monday morning, fully intending to go on air by 5 AM, but (among other things) one of the key T1 lines kept dropping out. Stuff that was just fine when it left the old studios inexplicably stopped working as soon as we mounted it in the racks at the new location. On Tuesday morning, the KLZ transmitter blew a rectifier and by Wednesday, my right eye was watering so badly I almost rear-ended someone on I-225. I went to an optometrist for some eye drops, then got right back to work.

We were so busy and behind schedule, Sandy didn't get a chance to see many sights while we were there. To help make it up to her, on Friday I took her over to the Cherry Creek Mall and bought her a nice purse. (Works every time, guys.) But all in all, we enjoyed the trip and were glad to be able to help out. I mostly did networking stuff, which included moving the Web and FTP servers, the NexGen stuff, and (re-)setting up several firewalls. To help keep that simple, we made as few changes as possible to the networking topology, just adapting as needed to the new location and layout.

One key, of course, was to ensure that remote access (both Secure Shell and VNC) were working properly before I left. That way, we could go in and work on things from outside the building -- which I continued to do even after returning to Birmingham on Saturday the 24th. We're still tweaking as I write this; Amanda is unable to look directly at some of her security cameras from home, for example, but VNC and SSH are wonderful things. I can continue to tinker.

... And Survived The Return To Birmingham, Too!

The good news is, my stations here in Birmingham behaved reasonably well while I was in Denver. I knew they were in good hands with Todd "Damperfield" Dixon and Jimmy "Pelo Loco" Parker at the helm in my absence, but I still breathed a sigh of relief when they reported on Friday the 23rd that the week had been relatively uneventful. Sandy and I boarded the plane on Saturday morning, flew back to Nashville, burst into flames and poured sweat as soon as we walked out into the 100 degree heat at 80% humidity, grabbed the car from storage and then headed back to Hayden, AL.

But the relief was short-lived. On Sunday night, the mail server died. I was unable to get a response from Secure Shell, so I knew something

major was going on. I headed to the studios and discovered that one of the hard drives had failed suddenly, causing it to hang. A reboot and some tinkering got the other drive in our RAID to take the load, so I headed back home. I did the "work from home" thing on Monday to recover from the trip, but that evening, WDJC-FM went off air. We were unable to get it to respond to the remote control, so once again, I headed back to Birmingham.

You should be proud of me: I've written several paragraphs and haven't yet complained about the weather here in Alabama. But that's what bit WDJC-FM. Not only have we had a host of severe thunderstorms, one after another, for the past month, but the humidity has been unbelievable. As soon as I walk outside, my glasses fog up and my clothes actually become damp.

At WDJC-FM, as best as I can determine, this is what got us. The sun had just gone down, so it was still very warm and humid outside. We had a power failure due to a storm, so the generator kicked in. The air conditioner was still timing out when the transmitter came back on; the emergency vent and fan kicked in. This pulled a ton of very humid air into the building, so we had condensation everywhere... including *inside* the transmitter. Not good. The main transmitter had arced inside the HV multiplier cage, a near-repeat of what happened at WYDE-FM last fall. This time, the transmitter killed itself before it arced over into the RF cavity, thankfully. But the interior of the auxiliary was wet, too; we tried to bring it up and

Almost Deja Vu all over again ... but not as bad as last September at WYDE-FM!

it kept arcing.

That's when we used our Plan C fallback: we switched the HD transmitter to FM Only mode. This kept us on air while we dried out and repaired the main and aux transmitters. Todd and I got the main back up first (we simply bypassed the damaged HV multiplier and ran without it while we waited for a replacement). Meanwhile, Jimmy was inside the aux with a roll of paper towels and a vacuum cleaner, wiping up all of that moisture. Thank the Lord, we got it up and running as well.

So: that's how I spent MY summer vacation. How was yours???

From The Audio Files: The Processing Course

If you haven't checked out the SBE's Online University yet (www.sbe.org/edu_seminars.php), you need to. There are a number of courses and online "webinars" available for continuing education (including Cris's smash hit on AM Antenna Modeling!). They're reasonably-priced and not only help you learn how to do your job more effectively, they count toward your SBE re-certification credits.

Not long after I became part of the SBE's Education Committee, I offered to help prepare two courses: one on telco in the broadcast facility, and another on audio processing. Steve Church of Telos sent an excellent offering to me, and Frank Foti of Omnia Audio was nice enough to send me a draft of the chapter that he and Robert Orban (of Optimod) had written for the *NAB Engineering Handbook.* Naturally, I was excited.

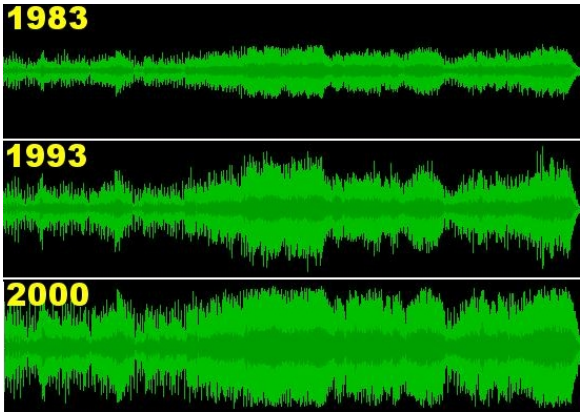
But then reality set in: given that I was up to my neck in the WXJC modeling project as well as putting out the usual fires during storm season, I just couldn't do both. We handed off the telco project to Art Reis, who did a marvelous job of editing and tweaking it for SBE's Online University. That left me with the processing course.

Then I realized that the format of the *Handbook* article, while superbly excellent and well-written, wasn't suited to an online course. There was a wealth of valuable stuff in there, certainly, but it would require a ton of editing to make it "fit" the SBE guidelines. Also, I wanted to cover the real-life adjustment and usage of audio processing in detail. Since I would have to do some heavy editing anyway, I decided about a year ago to just roll my own, using their material as an excellent base and reference.

This also took much longer than I thought it would, but to be honest, I enjoyed it. It was fun. I went back to the days of the old Gates Sta-Levels, then to the Volumax-Audimax pairs that were the standard in the late 60's and early 70's. I used Linear Technology's LTSpice modeling software to actually build simplified analog models of various gain-

control circuits, gaining a real perspective on how they work in real life.

By the way, if you haven't tried LTSpice yet, you don't know what you're missing there, either. You can build circuits from pre-defined analog component models in a drag-and-drop GUI. It will even allow you to use WAV files as input and can create WAV files from the modeled audio circuit output, allowing you to get an idea of what your creation would sound like! Go to **www.linear.com/designtools/software** and fetch a copy. It's worth its weight in gold, but it's an absolutely free download.



Look at how this song has been more heavily compressed with each subsequent CD release!

One of the reasons why I wanted to develop a course like this was because of the horrible processing that we all hear on too many stations nowadays. A few years ago, Sandy and I were driving through Atlanta and tuned to a station that had just started playing "Owner of a Lonely Heart" by Yes. The guitar intro was so compressed, the reverberation "swooshed" and "roared" at the end of each phrase. It was absolutely comical-sounding, and I asked Sandy, "Ya think they *honestly* believe that sounds good? That their listeners truly want to hear something like that?" Obviously, they did.

But the sad fact is – as mentioned in the course – we're not the only ones who make this mistake. The public-domain image shown below (from Wikipedia, edited for use here, as well as in the processing course) shows how the song "Something" by the Beatles has been increasingly processed over the years. Notice how the most recent release is not only compressed, but peak-limited as well.

Now: feed that into an aggressive audio processor that's also squeezing the daylights out of the dynamic range, and you end up with the comical sound just mentioned. There's got to be a limit (pun intended) somewhere!

Mail Server Move

We also moved the mail server from our studios to a co-location at our ISP, Hiwaay Internet Services. We just can't get reliable high-speed DSL service at the studios; it will come and go, sometimes full speed, sometimes acting as thought it has been "throttled." At Hiwaay, the mail server is directly clamped onto Hiwaay's dual backbones from Atlanta and Huntsville.

So far, the difference has been nothing short of dramatic. Even though Hiwaay is only allocating 1.5 Megabits up and down to our server, it's an "honest" 1.5 that doesn't throttle or drop under load. We're keeping an eye on this, but so far, so good. I'll have a full report on that next time.

Until then, may God Bless, and continue to pray for America!

Gateway Adventures
By
Rick Sewell, CBRE
Chief Engineer, CBC–St. Louis

This summer has had some interesting challenges produced by electrical storms. We have had the usual times of KSTL getting knocked off the

air due to storms but there have been other problems that some of the more intense storms have caused.

I have had to replace tower lighting wiring on one of the KJSL towers that was completely disintegrated for about two feet inside the run of conduit that leaves the doghouse and joins the tower. This is always a challenge to pull the proper size wire through with the age of the conduit doing us no favors. I got it done despite the 100-degree heat. Working in the tower doghouse is a lot of fun in that kind of heat. I found myself actually going *outside* to cool off – this while the heat index was about 115 degrees outside!

The worst part of this was getting the junction box open on the tower. It was locked tight with paint and rust. It had a circular screw on lid. I had to use an 18-inch pipe wrench on it to get it open but still had no luck. I even had all of my 190 pounds pulling down on the wrench and couldn't get it to budge. It took a dose of Naval Jelly to eat through the paint and rust and then my 190 pounds to finally get the lid loose. Once that was done I was able to finish the project.

One of the more interesting effects of the lightning, at the same doghouse, was the cinder block being deteriorated by weathering and time with what seems to be a final push by an electrical strike. I have included a picture of the deteriorated block and this block actually had a copper strap attached to it coming from a spark gap to ground. The copper strap was detached from the spark gap and the block. As you can tell from the picture the block took some damage in the process. The place where the block is damaged is where the masonry bolt attached the strap to the block. Most likely time and normal weathering also played a factor in this as well.

Lightning damage to tuning house concrete block

Obviously, this block and the ground strap will need to be addressed and we will be taking steps to give it the TLC it needs. This is the first time I have actually seen a wall affected by the electrical storms.

Catalina Tales

By
Bill Agresta
Chief Engineer, KBRT

Greetings from Santa Catalina Island! Well, summer has certainly arrived here in Southern California with temperatures climbing each day. We were beginning to wonder if summer forgot to come this year as July brought us low temperatures and fog throughout each day. Even the 4th of July Independence Day fireworks show was fogged in to the point it was hard to view the fireworks from many locations in on the island. Now with the hot and dry weather finally here we're glad that we hit our brush clearance hard and fast and "gotterdone" before this hot weather arrived.

Ironically, after writing in July's *Local Oscillator* about how nice it was to have made it through an entire month without a power outage, we got hit hard with power outages in August. I guess they decided to save up the hurt and release it all at once or something because mid-August brought us one of the ugliest rides on the island's power roller coaster in a long time. For several minutes our power rode all over the place to the point our generator got hit while switching back to the grid only to try to refire while it was still winding down. Hearing that starter trying to engage a still spinning flywheel is an awful sound indeed! But we managed to ride it through, staying on the air for the most part but suffering the loss of several UPS units, my phone system and undoubtedly producing some ugly wear on our generator's flywheel!

I am always amazed how things like this continue to happen here and seem to be accepted as not being a major issue. I talked to one of Edison's employees and it was like "business as usual" even to the point that he suggested it is best not to run "sensitive electronic equipment" here on the island. Go figure!

Among other changes, we have a new Los Angeles County Fire inspector here on the island and he is quite interesting. Upon finally receiving my inspection report I realized that he decided to write us up for violations that do not exist! He cited us for things like out of date fire extinguisher tags even though they were all just recharged a month prior to his inspection and have the required up-to-date tags! And he hammered us for things like the Knox-Box that we have had on hand for over a year awaiting the fire inspectors to unlock it and show us where to install it as the former inspector required. The KBRT Ranch has always scored very high on our fire inspections so I guess the new game is, if I don't leave them anything to write us up for, they will just write us up anyway!

We are preparing to begin some signal testing and conductivity measurements from our new transmitter site property on the mainland and I cannot tell you how great this sounds to me. The timing could not be better as things here on the island have really begun to wear me down over the past months. Hopefully this will give me a lot of great positive things to write to you about soon!

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

Project Sheherazade

Last month's question was this: Given two FM antennas, one of which is half wave spaced and eight bays, and one of which is four bays and full-wave spaced, which one has the greater gain? Well, the gain of the two antennas is actually approximately the same. The name of the game here is aperture size. It's not as much the number of bays of an antenna of the type used in FM as it is but the amount of space which it takes on the tower that counts.

So, why have half-wave-spaced FM antenna when a full-wave spaced antenna has as approximately as much gain with few bays? That has to do with the vertical pattern of the antenna. The *vertical* pattern of a half-wave-spaced FM broadcast antenna is much smoother (fewer minor lobes) than is the case with a full-wave-spaced antenna. In certain directional FM antennas, that is, those with specific directional patterns in the horizontal plane, a half-wave-spaced antenna offers certain advantages over its full-wave-spaced cousin. Here at Crawford Chicago Opeartions, we have two directional FM antenna systems, and one of them, at WSRB, is a pair of bay levels, half wave spaced. It was made that way to help the pattern, they tell me.

[Half-wave spacing also results in tighter vertical plane nulls which produce less radiation on the ground in the vicinity of the tower base. As such, they are often used in situations such as rooftop or mountain-top antenna installations where RFR on the ground may be an issue. –Ed.]

Now, for next month's question: What is pattern bandwidth?

Just One of those Weeks

As I write this, I have to tell you that I did something that I rarely do: In my prayers the other day, I asked God to just let me return all of the past week and get a refund. The week was that bad, although not all of it had to do with my work here at Crawford (how about being halfway through an AM directional antenna proof before you find out that the station is operating at variance due to a solenoid with an open coil?), but a lot did. Sit a spell and let me tell you about how powerful evil thinks it can get.

Our studio facility was vandalized in one seven-day period recently, not once, or twice or three times, but actually *four* times and possibly a fifth! *In one week?* Yup.

It all started early Wednesday, when the board op from Power 92 called at 5:00 AM to tell me that Tom Joyner wasn't coming in on the satellite. Since we carry Joyner on most of our stations and the feed for the others comes in on ISDN, I had him switch to that feed and came on in.

I arrived at the station to find the rack room smelling like burning Bakelite which, once smelled, is never forgotten.... in the same sense, so to speak, as the smell of skunk, or marijuana. Anyway, the smell was coming from a burned up satellite distribution amp. What could have caused that? A visit to the satellite dish, sitting in our parking lot behind the building, gave the answer: a person or persons unknown had ripped the satellite feed cables out of both of our dishes, the Ku-band dish for CBCSat, and the C-band for our commercial satellite programming. The perp had had to use considerable force to pull the transmit feed for the CBCSat dish. That's a very sold connection, though not anymore. Fortunately, the CBCSat system is off at our place because we haven't used it in a couple of years. The C-band feed, on the other hand, that one is used daily, and the perp had really done a number on that one.

We spent the next day rounding up the parts and repairing the big commercial dish, gave the CBCSat dish a lick and a promise, and put the big dish back on the air. With the satellite DA ruined, we had to order a new one from Dawnco, which was tricky because there's no account with them. The next day the sat DA arrived and we put it on line. Everything worked fine, for about two hours. Then the system failed again and the brand new DA started burning up again. A quick trip to the dish revealed that the perp had come back, this time with some kind of *large* bolt cutters or some such which, and cut our hard lines for all of the dishes. Said person had

literally walked in our open front gate, did the deed and disappeared. It was obvious that this monster knew exactly how to hurt us financially, or try to, and was doing his or her best to disrupt our operation by whatever means. Or was it done by someone on the inside? Frankly, we just don't know, but if we find said perp, we are definitely prosecuting.

Transmission lines to the satellite antennas were severed below ground level in one of the vandalism incidents

Yes, we filed the required police reports, and Hammond PD was really very nice and professional about it, but this is the problem with what I call "socialized protection." They simply can't be watching us *all the time*. And I understand that. However, it also underscores the need for us the victims to take care of ourselves, to protect ourselves, which is the thing which the courts are trying shut down. But I digress.

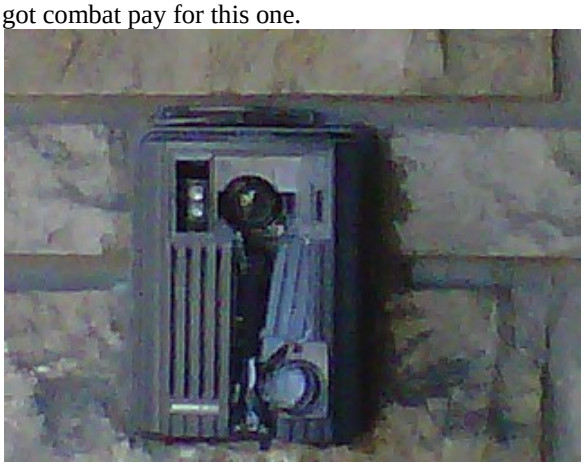
As I write this, the satellite receive system is still down, but the bunch of us in engineering have formulated a plan on how to deal with the problem, and we have on hand most of the parts to put the plan together. The rest of the parts will be here long before you read this.

We've decided to switch from 1/2" foam filled line to RG-6/U line, made for outdoor use, at the point of the vandal's cut, and put it into conduit from there. Where the original four-inch underground conduit comes through the asphalt, we're adding a small outdoor electric vault to protect the line from both the vandals and the elements, including a hasp and lock. The other side of the box will connect to a length of 3/4" rigid pipe which will go 12 feet up the dish, to near the top. It will be supported by strut for part of the way up, and then by attachment to the dish structure at the top. From there, the RG-6 will exit the rigid pipe via a weatherhead, and go across the back of the dish to one of the LNB support struts, which will take it to the LNB. There is a weather boot on the F-connector there, and that rubberized water-seal/toffee will be added to complete the project. In short, the vandals, unless they use a big ladder, won't be able to get to the dish's cable to destroy it. I'm hoping this works, because the next phase is an eight-foot-high fence with electrified razor wire on top to encircle the entire dish area. Frankly, I don't want to have to go through that again.

We weren't done with travail that week, either. The following Saturday morning I was headed out of town for the aforementioned DA proof when my assistant Warren called. The office area in the old (north) part of the building has flooded. Someone had stuffed one of the johns in the old section (which is supposed to be off-limits during the weekend) with toilet paper and left the water running in the john until the whole place was flooded. The flooding had also been going on for hours, because most of the flooring in the old section was affected. I quickly called our office manager, Jen Snyder, and our

Smashed Ku-band feed

janitorial service, which had been in the night before and left the place in good condition just before midnight. Tommie Davis, our intrepid maintenance man, came out, and all three agreed that a professional service had to come in to deal with the situation the right way, before mold had a chance to get a foothold on the place. They were contacted, they came out, and they did the job. At how much cost, I don't want to know. Tommy and or janitress got combat pay for this one.



Front door camera/intercom - destroyed

Damage? Let's just say that the damage was considerable, especially to the promotions department, which has a large stash of cardboard boxes filled with T-shirts, posters, and other water-damagable items, right in the middle of the flood area. They lost about 50% of their goodies in that incident. That's a lot of monetary damage.

I find this to be interesting: the staff is almost evenly divided on whether the restroom incident was sabotage or incompetence. I won't say which side I'm on, but I'm now a lot more vigilant around here than I used to be. As a neighborhood, the one around our studio site has deteriorated considerably in the last few years. I wonder how long it will be before we again hire security guards. I also wonder how long it will be before the area around our Burnham transmitter site is again developed as a viable business park. If and when that happens, maybe we should move our entire operation there. It would be a lot more secure in that case. But, then again, I guess I'm just dreaming. For now.

With that issue dealt with, we turned our attention back to the satellite dish system. And, as we were to find, that story wasn't over yet, either, not by a long shot.

As I mentioned, we had decided to completely enclose our coaxes in rigid steel conduit and a electrical vault box, attaching the vault to the underground conduit going to the engineering room. That underground channel had been in full use since it was installed in 1997, but the cable above the pipe had been naked, without protection all these years, and without a problem. We were now obliged to formulate a way to protect every inch of it. So we set to work, getting the supplies, doing the metal work on the new box and mounting it to the pipe that came out of the ground.

At one point all of us left the scene for a few minutes to run errands, answer phone calls, or whatever. At that point, the perp struck *again*, using a piece of 'brought' concrete to smash what was left of the pipe and cut the coaxes down to below ground level. The monster also smashed the N-female coax connection off the back of the CBCSat HPA, and knocked the receive LNB and its mount completely off the feedhorn, destroying that system for any future use. For the third time, the police were called. They took the report but acknowledged that they couldn't do anything.

So now we had three simultaneous projects on the place: Replace the existing main satellite feed system, rig up some sort of camera system so that the place could be watched by personnel inside, and then plan a beefed-up security system on top of that.

The first two items actually got done that day. The entire engineering department got involved, a three-sixteenth inch thick messenger line, 60 feet long, was purchased, with all the trimmings, and the line was run from the top of the dish mount, some 12 feet up, to the highest point which could be reached on the side of the building. Almost four hours later, the main satellite dish, from which we get our national talk shows, was on line and doing just fine.

Cameras were next. For years there have been four cameras in the parking lot, and two of those have been in continuous use. We spent the rest of the work day (Mack Friday worked until 11:30 PM on this part) locating the point at which the cables from the cameras emerge inside the building, then extended the wiring to one of the control rooms, at which point we added a video switcher which was lying around somewhere, hooked it into the control room video monitor system, and let 'er rip. Well, not quite. Mack went down to our Beecher transmitter site, 'borrowed' the site's Ganz multicamera DVR, took it back to Hammond and installed it. We now have not only full time human monitoring of our 'back yard' but it's now also on 'Memorex' (so to speak).

That's not the end of it, on two fronts. On the day in which this part of the article was written,

someone showed up at our studio front door and, with a hammer, smashed our security camera/microphone/doorbell box and left. This time, they may have caught the perp, a mentally ill person well known to both our staff and to police. Hopefully, the latter have picked him up for questioning. I know that none of us want to. Brian and Mack have been working to try to get it to some level of functioning again, but it is quite apparent that that system will have to be replaced.

Satellite cables now run overhead supported by a steel messenger cable

As a result of all of this, Corporate has rightly become even more concerned about the safety of us Hammond-ites and all the corporate stuff, so the security camera system which was formerly used at the old Denver facility has been packed up and is headed our way. We already have plans for most of the package; in addition to new views of the satellite dish area, three cameras are going to be activated in the studio area hallways (so folks can see what really goes on here on Sunday nights!) and one will be inside the front door to replace the now-broken camera system there. This package is a really high quality system, with indoor and outdoor cameras and mounts, an auto-switcher, DVR, and Internet-based connectivity. All we management and engineering types are getting in on the monitoring game along with the control room workers by getting UltraVNC installed, IP address and port number info, passwords, and the non-emergency number of the Hammond PD (since most of us engineering and management types tend to live outside of Hammond and thus out of local 911 range). The goal is simple: Catch this slut of Satan before others get the same idea. We will not be messed with. Not for long, anyway.

You've got questions, we've got dumb looks

As I was finishing this month's column, Mack Friday came by to tell me that he had gone into a local Radio Shack today and he ended up walking out of there shaking his head like the AFLAC duck. Seems that the very good and knowledgeable store manager, who has kept that place together for years, is gone, and apparently not even with the company anymore. Competence does indeed have its rewards at the Shack.

Mack had gone into the place to get a small speaker to replace the one which got broken in the front-door intercom caper that was mentioned in our "Vandalism Special" earlier in this report. Mack was told that there is no longer a manager there at all, and the person with whom Mack talked seems to need more than just managerial training. The response that Mack got to his request for a speaker was that the store doesn't carry speakers, it carries buzzers. And to add to the situation, the employee (perp?) said that the only speakers that they have now run on DC only. What, no audio? But then again, I doubt that this fellow would know how to answer that question. And this guy votes, I tell you!

And with that, enough is enough for this month.

The Portland Report

By
John White, CBRE
Chief Engineer, CBC–Portland

In my last column I discussed some of the problems I had getting service from the perspective of the image that good or bad customer service can create for a business. This month I want to follow up a bit from a different perspective. How do we or any business look to our customers when we do business on a day to day basis?

My experience with our building entry and fire alarm system monitoring service is illustrative. The system was installed more than 30 years ago, originally using a "scanalert" line. That's a dial line that is polled by the telco central office using a Bell 103 modem format. (The same 300 BPS format is still used for dial credit card/check validation today.)

Seven years ago, the local telco stopped supporting the old scanalert, so our alarm system was upgraded. Then beginning a few years back I noticed the service problems begin to grow. My first clue was a trouble closing event.

Occasionally, depending on wind, the door would close but not latch. When that happened the alarm would not set properly, resulting in a trouble closing event. Supervisory events of this nature are to be handled differently than other events according to the following schedule.

1. Test. When any zone or function is on test, take no action.

2. Supervisory. Call our company contact list and report. No authority call.

3. Entry. Call company contact list, report to police if directed or no call list answer.

4. Fire. Immediate report to fire authority, then call contact list.

My first false alarm event was a trouble closing. I got to the bottom of the hill when I got a page, so I turned around to call back. I call; it's the alarm company reporting trouble closing.

About that time a Clackamas county sheriff deputy walks in the door. Fortunately I have worked with him on some timber cutting and copper theft problems so he knew who I was. I asked the alarm company the obvious question: "Did you report trouble closing as an entry alarm?" The answer, "NO NO we didn't do that." The deputy rolled his eyes and I apologize for the false alarm.

That was just the beginning.

I have lost track of all the false alarms, so the following are just some of the highlights.

The upgrade from scanalert included an analog cell backup. The alarm company tech was on site because analog was no longer supported. He called monitoring and began working on the system. Ring, Ring, this is the alarm company we have reported to the police….

During the remodeling work some changes were required to the sprinkler system. We placed the fire system on test for the work. The alarm company reported a fire….

The system began to trigger false fire system alarms. All indications were that the system was detecting RF causing the problem. I placed the fire system on test for all the good that did. The next day the alarm tripped when 1640 switched to day power. The fire department was called while the system was on test!

I could go on, but the bottom line is we looked around for a better alternative and found one. So I called to cancel the alarm company service at the end of the coming month. They told me no, I have to fax a letter. So I did that.

Thanks to Elizabeth McGuire's sharp eyes, we caught that we were billed for the next three months. She called the old alarm company, and no, they didn't know the service was canceled. She and I both sent in another round of faxed cancellation letters.

Now comes the fun part. Three weeks later, right on schedule, out goes the alarm company's system and in goes the new system. Much better. Then three days later I got this call. "Hi, this is the alarm company. The system is not responding." "My-oh-my," I replied, "I wonder why? Did you not notice that your service has been terminated?" To this they said, "It takes 4 to 6 weeks for us (monitoring)

to get notice of cancellation!" I wonder if it would take that long for non-payment, but I guess that's just me wondering.

But that's not the funniest part. A few weeks later Elizabeth got a bill for a bunch of money for early cancellation of the alarm system company contract. Well, the system hadn't been under contract for years. So Elizabeth simply said, "Oh, could you send me a copy of that contract?" Heh.

One last point. Some years ago I talked about the Fire Department Supra key box at our gate. That box with the building key meant the Fire Department didn't need to force the doors, saving us repairs from all the alarm company's false fire alarms. Word to the wise.

Now for the best part. With the increased traffic, I expected someone would trip the entry alarm. One Sunday I got a call. "Hello Mr. White, we just had an entry alarm. When we called the building, Mr. X answered. We just wanted to call to see if this is correct."

BINGO! Exactly correct!

Rocky Mountain Ramblings
The Denver Report
by
Amanda Alexander, CBT
Chief Engineer, CBC - Denver

I have officially been working from the new office space now for over a month. It seems like it has been a lot longer though, perhaps because of all the long hours before I was working over here at the new location.

The move went well for the most part. At 9:30 PM, Robert Payne, Stephen Poole, Art Reis, Keith Peterson and I met at Wheeler Block (the old studio location). We planned out what we wanted to do. My dad was at the KLTT transmitter changing it over to the new T-1 so when we got KLTT up it would be ready to go. At 10:00 PM on the dot we were able to take the four stations off the air and began to disassemble the equipment in the racks. This took us a couple of hours. Once done, we loaded the equipment in our cars and made the trek to the Pavilion Towers, our new studio location. Unloading and carrying everything up to the 12th floor took what seemed like forever.

We made a plan and put together a rack at a time. Our goal was to get KLTT back on the air for the first paid show which was 5:00 AM. The 5:00 AM deadline came and went. We had no station on the air. It seemed as though nothing was going to work. We worked well into the morning but finally all went on a nap break (all except my dad, who kept working) and planned to reconvene in the afternoon. We had all been up since the morning of the previous day. We all tried to nap during the day but our minds kept us awake.

In the mid-afternoon we went back to work and were finally able to get KLTT to be stable on the air instead of popping on and off (the trouble was with the T1 line to the new studio). By the end of the day we had three working stations. It was very exhausting and we still had a lot of work to do.

The next day we went to Wheeler Block with a U-Haul truck and began disassembling the cabinets in the studios. We then began assembling them in the proper studios at Pavilion Towers. It took us the rest of the week to put the studios together and get them working. Many thanks to Derek Jackson, Cliff Mikkelson, Barry Walters and Jack Roland for coming over and helping us get this done.

By the first week in August we were completely moved over to the Pavilion Towers. At that point we were putting the finishing touches on everything to ensure proper operation. We still had a lot to finish up, but those things could wait if need be. We did what we could and the second week, we went on our yearly family vacation to Lake City, Colorado in the beautiful San Juan Mountains. The trip was much needed. We rode ATVs, went shopping, fishing, and just hung out and relaxed.

Now back at work for my second full week since vacation, things are beginning to get back to normal. The studios are working as they should be. It is nice being a little closer to home and in a much

nicer, safer area I am very familiar with. I have only had one major technical issue as of late, thankfully.

Burned out Austin Ring transformer at KLZ

I received an alarm via text on Sunday the 22nd that the tower lights for KLZ's tower one were out. I called the FAA and reported it and waited until Monday night to go visually check the lights. I was expecting to find a beacon out; what I noticed instead was the whole tower was dark, including the tower base security light.

My first thought was the photocell. I went ahead and replaced that, and… nothing. So I flipped the switch in the control box on the tower and… nothing. It was dark, so I was unable to do much troubleshooting at the tower itself. I went into the transmitter building to check the tower breakers there, and all was fine.

The next day my dad went with me and we got inside the old doghouse to take a look at the breakers in there. It was daylight, so we had no problem seeing. Sure enough, a breaker had been tripped. We reset it and immediately a hissing sound and smoke started coming from the secondary of the Austin Ring transformer. The transformer was in bad shape as it was. It had gone through years of neglect. I had no idea how to maintain, or that I should maintain it. It was not something I ever did with Ed. After seeing the cost of a new one, I have made it my mission to check all of the Austin transformers at all our towers that use them and make sure they are in good shape. It is better to spend a few hundred dollars on a repair kit then to spend several thousand on a new one.

I did have a close encounter with a snake out at KLTT. The growth out there had gotten out of control due to the move (I hadn't been to the site in several weeks), and seeing the ground was difficult. I had to open the gate and use force to get it over the massive weeds. As I was opening it, I noticed something moving. It was a big bull snake coiled up and ready to strike at me! Thankfully the fear of the snake sent me jumping about ten feet away from the snake. However, I went away from my car as well. So I stood there, patiently waiting for it to move along, which it eventually did. I did have one of the tower workers, J.P. from GRP Construction, close the gate when they got done working on the tower, which wasn't long after I met the snake. We named the snake Nancy (as in Pelosi – if the shoe fits…).

That about covers it for this month. So until next time, that's all folks!

Digital Diary
by
Larry Foltran
Corporate Website & Information Technology Coordinator

The Eyes of the World Are Watching.

Some time ago, when the term "social networking website" was just starting to hit the mainstream, I made the broad statement that sites like Facebook and MySpace were simply cesspools of spyware and viruses. Aside from the folks who wanted to give me a double word score for my use of the word cesspool, I received a lot of flack from avid users of these sites. Although my opinion has lightened a bit, I feel that assessment was accurate in those days and users should take care when using social networking sites presently for a myriad of reasons.

Based on current statistics, the danger of falling victim to an actual computer virus is extremely low given the quality of anti-virus software available to computer users. Computers today are most susceptible to spyware and malware attacks, some with the potential of causing considerable damage to a computer and equally to the nerves of the victim. A hacker's desire to simply destroy a computer and the data loaded on its storage device has given way to making a dollar, or millions of dollars in some cases, at the user's expense. But to do so requires a dependable method of delivery. In the past, we've seen malicious software delivered via chain-emails or bogus sites set up to take advantage of the top search of the week. One prime example developed as news of Michael Jackson's death began to spread. Malware laden emails claiming to contain photos of the singer's body and spyware delivering web sites, rich in Michael Jackson related keywords began popping up nearly instantly. For many, their curiosity was the weak link that lead to the demise of their data.

As the popularity of sites such as Facebook, MySpace, Twitter, and even LinkedIn have increased, so have the efforts from hackers to utilize these sites as dependable delivery systems for their malicious applications. One report published earlier this year by Sophos showed that there has been a 70% increase in malware and spam present on social networking sites during the previous 12 months.

Why has there been such an increase? Hackers will go where there is a dependable delivery system that can reach a very large number of users quickly and easily. Although social networks such as Facebook have invested an extreme amount of effort to clamp down on such issues, it must be very difficult to watch several million users to ensure everyone is playing nicely. At times, users actually open themselves to such attacks by providing access to their accounts to deceptively titled games, quizzes, or other applications. One example actually occurred quite recently. Over 290,000 Facebook users were duped into clicking a link called "I'm NEVER texting AGAIN" claiming to contain a video of someone who died after sending a text message via their cell phone. Once permission was granted to this application, it reposted the same link and message to that user's account. Although there are no reports that this application has done anything malicious aside from the posting I mentioned, I feel it's a prime example of what can be done and how quickly something like this can spread.

Aside from simply serving as a delivery system for malicious software, these types of sites provide hackers with a wealth of personal information about each user. For spammers, the user profiles provide email addresses. For more devious cyber-criminals, information that can be gleaned can include their home town, their mother's maiden name, home address, phone number, and a variety of information that can be used to open credit card accounts, gain access to bank information, and many other things that I'm sure I haven't thought of.

I ran across a brief yet interesting article recently that described an experiment conducted by an internet security expert in which he developed a fictional character, complete with photos and personal information, and created related user accounts on several of the top social networking web sites. Without going into every bit of detail contained in the article, this experiment showed that it was quite easy for him to gain access to private

information such as email addresses, business connections, and other vital information. Using a combination of actively requesting friend connections and simply sitting back and waiting for the users to come to him, he was able to accumulated 226 Facebook friends, 206 connections on LinkedIn, and 204 within Twitter. All of these linked to an account representing an individual they had obviously never met because he never existed.

Ironically, it seems as if people feel a greater sense of comfort to share personal information via these web sites than they would share with someone in person. Further, there is sometimes the belief that if someone online is friends with their close friend, then the other person must be okay. While writing this article, I decided to take a look at some of my friends' profiles and was surprised to find a few users with over 1,000 Facebook friends. I sent out a quick note to these users asking if they knew everyone on that list. The reply every single time was no. In some cases they were friends of friends and in other cases simply someone who sent them a request and they seemed like a nice person. In one case, the user has 1,642 friends, most of them a result of the various games available on Facebook and obviously people they have never met. Pushing my disbelief even further, this specific person does not utilize any of Facebook's privacy controls to limit the amount of information these strangers can see.

So how can we keep from falling prey to either malicious software, handing out our email address to potential spammers, or providing cyber-criminals with the information that should remain private? The simple solution is to not use social networking sites. Please don't think that I'm against the use of social networking sites. I honestly believe there is a lot of benefit to using these sites, provided they are used properly and users remain vigilant to the amount of information that is made public via these sites. For those who don't want to be bothered with that, I suggest you cancel your account today.

In some cases, whether related to work or the need to expand business connections, that's simply not possible. For users who fall into that category, I suggest either limiting the amount if information you make available within your profile or utilizing every privacy tool the web site developers have made available to you. Further, only accept friend requests from users you know. You obviously wouldn't allow a stranger who came knocking at your door to look through your drawers and file cabinets, so why let them see every piece of personal information you've added to your online profile?

In the course of writing this article, I have found myself taking a very close look at my social networking accounts. Although I initially limited the information posted to these accounts, I'm in the process of further "refining" my friends list and find myself asking how certain items posted can be used to my determent. I'm also considering moving all of my business related contacts to a dedicated business account, leaving my personal account for only family or close personal friends, and moving the remaining contacts to a separate yet generic account. Paranoia to an extreme degree? Perhaps. But as the old adage goes, it's better to be safe than sorry.

…until next month.

KBRT • Avalon - Los Angeles, CA
740 kHz, 10 kW-D, DA
KCBC • Riverbank - San Francisco, CA
770 kHz, 50 kW-D/1 kW-N, DA-1
KJSL • St. Louis, MO
630 kHz, 5 kW-U, 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
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
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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