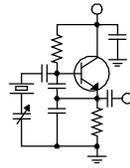


The Local Oscillator



The Newsletter of Crawford Broadcasting Company Corporate Engineering

OCTOBER 2012 • VOLUME 22 • ISSUE 10 • W.C. ALEXANDER, CPBE, AMD, DRB EDITOR

Flying Phasors and Other Amazing Sights

We continue to make good progress on the new KBRT transmitter facility. With the towers all up, the focus has been mostly on foundations over the past month. These include the footers for the security/screening walls that will surround the transmitter building and each of the tower base areas as well as the slab foundation and integral UFER ground for the transmitter building itself. Like everything else with this project, the regulatory burden has been incredible, and the foundations required no less than *five* separate inspections before we were allowed to begin stacking block or to place the prefab building on the slab. Thankfully we got through all these without significant issue.

With the first courses of block beginning to go up, the final shape of things is really starting to become apparent. The vertical pieces of rebar that will be mortared into the concrete block walls are all sticking up in the air. It was through this rebar jungle that we had to thread the transmitter building and the big equipment pieces that go inside.

On the morning of Wednesday the 26th of September, the ThermoBond transmitter building was waiting at the gate at the bottom of the hill on the flatbed semi-trailer that it had made the trip from the South Dakota factory on. The assembly crew from ThermoBond was also on hand to assist.

The crane and two flatbed bobtail trucks arrived shortly, and the work began transferring the building pieces (the 12 x 30 foot building was shipped in two pieces) from the flatbed semi-trailer to

the bobtails. The operator from Benson Crane was very competent, smooth and careful. His crew assembled a 12ø x 12ø frame that would keep the chokers from squeezing the tops of the buildings during the lifts. The transfer went off without any



issues and we were ready to head up the switchback dirt road up the mountain.

The trip up the hill was the part I was the most concerned about. Not only were there quite a few switchbacks (including one hairpin turn that would require some work to get around), but in some spots the roadbed was narrower than the 12-foot building width. The flatbed bobtail trucks were chosen for the

transport up the hill with the idea that they would get the building bases up several feet (about chest high) where the slope of the hillside away from the road would work for us. That worked out perfectly; the crane had more trouble getting up the hill than the building halves did. After a 30-minute drive, everything was up at the site, safe and sound.

Next, the crane had to get set up and the crane crew again rigged the lifting frame. The east half of the building was picked up off the bobtail and placed in the proper place on the slab. The ThermoBond crew bolted that half down and removed the framing and other materials used to ship the building piece while the crane crew readied the other half of the building for lifting into place.

The west half of the building was picked and placed on the slab with about a six-foot gap between the two building halves. The west end of the steel frame was hanging off the slab at that point, but that

was just a temporary measure to allow us to place the large phasor cabinets, transmitter, etc. inside before joining the two building halves.



Half of the building makes its way up the switchback road on a bobtail truck.

While all that was going on, the local agent for United Van Lines was transporting the phasor cabinets to the site. They had stopped by the warehouse in Corona where we had the transmitter stored and picked it up along with the transfer switch and some other items.

The crew from SWB Enterprises, our general contractor on the project, built a platform on the slab between the two building halves out of shipping skids and 3/4-inch plywood, with the plywood screwed to the exposed floor joists so that it was flush with the floor in the west building half. While that was going on, the crane crew was rigging the transmitter for lifting.



The east half of the building is placed on the slab.

The transmitter was picked off the lift-gate of the delivery truck and flown through the gap

between building halves and placed on the temporary platform. We removed the crate and skid and then rolled the transmitter into the west half of the building, using 3/4-inch water pipes as rollers. The process was repeated for both phasor cabinets, but we uncrated those before craning them onto the platform. At the end of this process, both 5øx 4ø phasor cabinets, the Nautel NX-50 transmitter, its power transformer (in the crate) and the generator transfer switch were in the west building half.



The ThermoBond crew installs the subfloor at the joint. Note the phasor cabinets and transfer switch in the east half of the building.

With that done, the lifting frame was used with the crane to lift the west building half into its final location flush against the east half of the building. The fit was tight and it took some persuasion at one point with a backhoe bucket to properly align the tops of the two halves, but once that was done, both the tops and bottoms of the two halves were bolted together with long pieces of all-thread and the gaps in the roof and walls were sealed and trimmed out.

The ThermoBond crew then got busy doing the rest of the assembly of the building. There was an amazing amount of work to do. Subfloor and wallboard had to be installed at the joint. Then there was a lot of electrical work to do, including installation of wire duct down the center of the ceiling, installation of the center light fixtures and wiring up of lights, outlets and HVAC in the west half of the building.

The following morning, while the ThermoBond crew was doing its thing, the crew from Wedge Electric got started installing the service entrance/meter base, 480-240 step-down transformer (we had used the crane to place that on the slab the day before), generator transfer switch and the

generator plug. The electric work is scheduled to wrap up the first week in October and be ready for inspection. As soon as we have that inspection, Edison will come out and pull in the 12 kV conductors from the tie-in point 0.8 miles southwest, set the transformer and energize the feed. That will represent another milestone day at the site.



Service entrance and meter base installed and ready to go.

Next on my agenda is getting the phasor cabinets and transmitter into their proper locations, installing the vacuum capacitors and OIB into the phasor, putting the power transformer in the transmitter and making the transmitter electrical connections. I also have to do all the rigid transmission line work inside the building in preparation for the connections to the underground transmission line runs to the towers.



The ThermoBond crew installs the electrical duct to the west half.

The crew from P&R Tower is slated to come back the 22nd of this month to pull in those

underground runs of transmission line and electric and control lines to the towers as well as set and connect the antenna tuning units. Steve Minshall from KCBC plans to be on hand to help with that part of the project. P&R also has to install the bottom insulators in each of the guy wires, and then they have to install the ground system, altogether probably a six-week deployment for them. Once that is done, we should be about ready to start testing and tune-up.

The temporary solar power systems feeding the LED tower lighting on the four towers has held up reasonably well. We had a couple of issues last month that we have worked through, both of which we believe were related to static electricity.



The building in one piece.

The towers are, of course, insulated. Before leaving, the tower crew had shorted across the base insulators with strap, but no ground rods were installed, so the towers were still essentially insulated from ground (except for whatever leakage there may be through the concrete base piers). On windy days, particularly when the wind was out of the east (from the desert), the inverters would trip off.

The general contractor has someone living in a travel trailer at the site for security, and that person was kind enough to reset the inverters when they tripped off. But in doing so, he inadvertently put them in the "battery saver" mode, which shuts the inverter off when the battery voltage drops below 12.5 volts (designed to leave enough power in the battery to start the engine in a car or boat installation). That had the inverters shutting down in the early morning hours after cloudy days. Once Bill Agresta found that issue and put the inverters in the right mode, the problem was solved. The inverters will now run as long as they can make 120 VAC output, regardless of battery voltage.



Bill Agresta holds the 11 GHz dish in place while I tighten the hardware. Note the heavy-duty tripod and mast.

Bill solved the other issue by installing a ground rod at each tower base and grounding the towers. This provides a discharge path other than through the inverters and solar panel frames. So far,

so good since installing the grounds. Of course none of this will be an issue once the ATUs are installed.

One other thing we got done in September was installation of the Dragonwave 11 GHz microwave antenna and transceiver on the studio roof. Todd had a contractor bolt the heavy duty (and I do mean *heavy*) tripod and mast to the central roof beam, which is a huge piece of laminated timber. Two of the tripod's feet were bolted to that beam, and the third was bolted to a piece of blocking installed between the trusses. That made for a very sturdy mount for the 3-foot dish. Bill Agresta, Todd and I installed the dish on the mast and got it roughly aimed. We put the transceiver on the dish and wired it into the rack. That end of the link is now up and running, ready for path alignment when we get the other end installed on the tower.

I try not to over-spiritualize, but in this project I have seen God's hand at work at every turn. Roadblock after roadblock has been knocked aside without explanation. Things continue to just work out, whether we are talking about scheduling, logistics or having the right people on the job. I am under no illusion that my own efforts have had much at all to do with this.

To borrow from Robert Frost, I still have miles to go before I sleep. There is a tremendous amount of work to do before this project is done, but things are starting to take shape and pick up speed. I hope to wrap everything up by early December and be ready to request program test authority. Stay tuned!

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

Hello to all from Western New York! This year, on October 15th, I will celebrate 10 years as market chief engineer for CBC's Western New York stations. To overuse the old cliché, it only seems like yesterday that I accepted the challenge of once again taking responsibility of the engineering duties of multiple stations.

I came to CBC after



working 11 years with S&B Communications, a broadcast engineering group here in Buffalo. We handled the engineering duties under contract for 42 stations in Western New York and Pennsylvania, and also traveled the country designing and building new broadcast facilities, and making upgrades to studio and transmitter facilities. The CBC Buffalo,

Rochester, and Syracuse stations were among those that we took care of, so in essence, I have been a part of the Crawford family now for 21 years.

Before joining S&B, I was assistant chief, then chief engineer for an AM/FM broadcast facility in Western Kentucky for 22 years. Making the transition from CE to contract engineer was exciting, as I was introduced to working on different types of equipment than I was accustomed to, and learning new methods and ways of doing things. In all, it has been a learning experience, and the opportunities to learn and develop my skill set continue on today.

A lot of changes have taken place in the past 10 years, and not only in the appearance and functionality of our facilities. Technology has advanced more in the past 10 years, and at such an accelerated rate, than it ever has before. With the addition of HD-R on both AM and FM stations, and the integration of IP in almost all broadcast equipment these days, today's chief engineer must be constantly learning new methods and staying ahead of the learning curve with the development and addition of each new product.

Not only has technology radically changed, it must be noted that federal regulations and rules governing the operation and management of engineering duties of broadcast facilities have also seen significant changes in recent years. So many of the FCC rules we lived by in the past have gone by the wayside, some for the better, some worse, but all in accordance with technology changes in mind.

Equipment these days is more reliable than its predecessors, therefore enabling the equipment to perform functions that the engineer had to take care of in days of old, such as auto-logging transmitter parameters and controlling equipment via computer generated macros, etc.

Who would have thought 20 years ago that an entire AM directional array could be designed and modeled in a matter of hours, when it used to take weeks, and in some cases months, to compile and record field measurements and data? Now, all this can be done with modeling software that can predict field strength along any given radial, and actually design the entire array with the input of a number of parameters with astounding accuracy. Having taken part in the past of walking and measuring radials, I can see where this would save the stations utilizing this method thousands of dollars and hundreds of manpower hours in compiling data and relentless hours in adjustments, more readings, and even more adjusting.

I cannot predict what the next ten years will bring, but I am confident that we have not even

scratched the surface of technological breakthroughs that are forthcoming pertaining to the broadcast industry. My only hope is that I can be around to experience and learn new products and methods, and be a part of a profession I have had a passion for since I was a pre-teen. I wish to give my thanks to Cris Alexander and Mr. Crawford for the past ten years of service to our Lord and the CBC ministry. I can honestly say that there is nowhere else I would rather be, and I relish the opportunity to do what I love best.

WDCX-FM, WDCX(AM) and WLGZ-FM

Each year, the 1st week after Labor Day, my wife and I take a week-long vacation to Gettysburg to relax and re-charge the batteries. This year was our 20th visit, and we had planned on taking one day to travel to the CBC corporate office to personally meet everyone, something we have talked about doing for some time. As we planned out our week, we had set aside Monday as the day we would make the day-trip to Blue Bell and visit. Murphy's Law, however, never takes a vacation, and he was working overtime while I was planning leisurely outings for the week.

In preparation for my vacation, I always insure that everything is operating properly at all my stations in the days before my departure. In the past nine years, I have never had any major failures or off-air occurrences while I was away. As I do not have an assistant, any incident that occurs while I am away I feel that I still must handle. In most cases I can talk someone through rectifying the problem at hand via telephone. I do have an emergency off-air backup engineer that I can call, but he is only physically available after regular business hours, as he has his own stations to tend to. This year I hit the grand slam: all three stations went off the air!

On Saturday evening about 6:30 PM, the WDCX-FM board operator called and reported that the station had gone off the air. I attempted to dial into the Burk remote control to determine what happened, but could only get a busy signal. Not being able to access the site via phone, I called Steve Napoli, the WDCX-FM production director, and asked him to drive out to the transmitter site and call me upon arriving. Steve has limited knowledge of the equipment, but can easily follow directions and was willing to assist me in getting the station back on.

Steve arrived at the site and called me stating that the generator was on, but there was no power in the transmitter building. I had Steve check to insure that the transfer switch had switched to emergency power, which it had, but still no power to the building or equipment. At this point, there was

not much else he could do, so I phoned Bill Stachowiak, my friend who was covering call for me, to see if he could head out and troubleshoot the problem.

While Bill was in route, I phoned the power company to see what had happened to the utility power. They stated that a line was down, and restoration was expected by 10:30 PM. When Bill arrived, he found that the generator was indeed running and the transfer switch was in the emergency power mode, but the generator was only putting out 80 volts phase-to-phase!

You could imagine my frustration while all of this was going on. I'm 400 miles away from home with a station off the air, and can't do anything! There was nothing else Bill could do but wait for power to be restored, which came back on about 10:20 PM. Bill insured that everything was okay and powered up the transmitter and other equipment before leaving. First thing Monday morning I called the generator repairman to schedule an immediate service call to repair the failed generator. He found that a regulator on the generator had failed, causing the power to cut back as a failsafe so it would not produce too much voltage. The repair parts were ordered and installed later on in the week.

On Monday morning, the day we had planned to travel to Blue Bell, I called all the stations to insure that everything was okay, just a check-in to put my mind at ease. Not more than an hour later, Earl Schillinger called from Rochester to report that BOTH stations were off the air! The transmitters were on, but there was no audio. I had Earl check the Intraplex unit, and he noted a fault light on the front of the unit. This indicated that the fiber-optic T1 was down between the studio and transmitter units, so a call was placed to Frontier Telephone to report the emergency.

While all of this was going on, Earl called back to report that NexGen had gone down on all workstations, and also the Internet was down on all three services! By this time, I'm losing my mind!

There was no way I could travel to the CBC Corporate office with both stations down, so the trip there was immediately cancelled. I spent several hours on the phone with Earl to try and get the NexGen network back up while Frontier worked on the STL issue. After several hours with little results, the WDCX-FM production manager, Michael DeMart, made the trek over to Rochester to work on the network issues. Michael was able to get all the workstations remapped to the file server, and found that the network switch for the Internet had failed, causing the Internet feeds to go down.

While all this was going on, Mark Shuttleworth was playing music at the transmitter site for WLJZ-FM using back-up music recorded on one of our old 360 Systems Instant Replay units.

After some time, Frontier was able to re-establish service to our T1, Michael had saved the day in getting NexGen back up and running along with the Internet streaming and Internet service, and I was really starting to wonder why all of this was happening while I was so far away from home. I think next year, if anyone can give me a number or address, I will personally call Mr. Murphy and tell him to knock it off while I am away. There is no worse feeling than to have an off-air experience, being hundreds of miles away from home, and not be able to do anything about it! Where are the antacid pills?

Things are moving along with the purchase of WNED(AM) here in Buffalo. There are some issues with the land subdivision, which the sellers are dealing with, and while we sit and wait for final approval of the purchase, work is still progressing on other issues pertaining to the acquisition of the station.

Cris and I had originally thought about sending the STL audio from the WDCX-FM tower site to the WNED transmitter site (both stations will simulcast WDCX-FM audio), but significant interference to our neighboring station's STL immediately ruled that out. Our only option was to send audio from the studio site to the WNED(AM) transmitter site, which is only a few miles south of downtown Buffalo, across a portion of Lake Erie.

As the STL dish is a 6-foot grid, it is too large to mount on our existing STL tower on the roof, so an alternate means of setting up the STL was in order. I looked at several options, and presented them to the building owner for approval. We decided on a non-penetrating roof mount that would support the large aluminum dish. Rohn has a non-penetrating mount designed for large satellite dishes that would be ideal for this purpose. The mount comes with a 4.50" OD x 10" pipe, which would be perfect to mount the grid dish on, and with the supporting pipe being 10" in height, there is ample room to elevate the dish to the proper height for reception on the receive end.

We are extremely excited about the addition of WNED(AM) to the CBC-Buffalo family, and the additional security it will provide WDCX-FM in reaching those areas in Canada that are affected by interference from Canadian stations on 99.5. Once we take control of the station, I will post some pictures of the facility for your enjoyment.

That about wraps up another month here in the Northeast. 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

Bob Dutko's Broadcast

Last month, Bob Dutko, our afternoon talk show host, starting doing his show from home once a week. For the most part, things have been going well. Initially, we were having issues with the dump button but found that we had a wiring issue back at our studio end. Also, the audio coming from the Telos ZipOne is not processed like the Zephyr IP, so we placed a DBX 160 on the output of the studio Zephyr. This has provided a better match in Bob's levels to the adjacent program material. Last, after listening to Bob's audio feed for some time, we discovered a very low amplitude tone. We have thoroughly investigated the issue but did not find it to be interference related. This high pitched tone is only present when we have the ZipOne and Zephyr IP connected to each other. I am going to note my settings and consult with the folks at Telos to see if they are aware of the issue.



Certainly I will keep you informed as to our progress and what we learn from the experience.

My iPhone 4S

My iPhone 4S has become my main communication device. So, when things go wrong with it, my day becomes very frustrating. I know many of you have iPhone devices and may be experiencing the same issues. After updating my phone from 5.1 to the new iOS 6.0 firmware update, the WiFi function is not working. In my case the soft switch to turn on the function is grayed out. I have combed the Internet and found that many folks are experiencing no Wifi functionality to intermittent Wifi operation. It appears that many carriers are just swapping out the phone for a new one since there is not a fix at the current time. Now my wife has the same phone, purchased about five months later, and the software update worked like a charm. The update has many new features including more applications for social media sites like Facebook. When I know more about this issue, I will report back to you.

Wheatstone Blade Project

I am anxiously awaiting the arrival of our new Wheatstone IP Blade audio router and associated control software. My understanding is the control software is similar to the Xpoint software that controls our bridge router. In preparation, we have selected a series of 1GB switches from Netgear. We hope to not only accommodate the needs of the new Blade but also improve the overall throughput of our audio LAN. From time to time, we find that there are very small amounts of latency between the actuating of a remote start and start of an audio element. Hopefully, we will not only improve our audio quality by eliminating our automation system's sound cards but improve the speed of control functions.

Vito Faletti, New Operations Manager

This month, our chief board operator was promoted to Operations Manager at our Detroit cluster. Vito has been a godsend to me since I have been at Crawford Broadcasting. He has always supported me and our stationing projects. Most of all he has been a good friend. He is now taking on new tasks in both the programming and facilities areas our fine company. I wish to congratulate him and promise to support him in his new position and future career endeavors with Crawford Broadcasting.

News From The South

By

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

Cris Alexander will doubtless post pictures from the KBRT project out in California. I know he's glad to see buildings on the ground after all the hassles he went through to get the permits out there. Earlier this year, anytime we needed to talk by phone, he'd mutter darkly about inspections and other nonsense. I'm sure he was glad to finally get the needed approvals, and I'm sure that he, Bill Agresta and the rest of the gang are delighted to see the project in full swing.

They say the weather is beautiful out there; I know that's for a wonder it has been gorgeous here for a few weeks. We had some flooding when Isaac passed through, but then it cleared up and the temperatures have dropped. We might actually get an honest-to-goodness autumn here. I'm not sure how to react to this; it's *unusual*.

We've had perfect weather to do the bi-annual recertification of the modeled AM array at WXJC in Tarrant, AL. Cris had Amanda send us the Agilent network analyzer, and I must once again brag on that thing: it makes measuring lines and impedances a snap. What used to take days with a bridge and a generator can literally be done in 15-30 minutes. It's a happy-making thing.

When I did the reference field strength points, I did note that some radials had crept up a bit from the original readings – no doubt due to the rain from Isaac. But everything looked good, the numbers were rational and I enjoyed the cool, almost-fall weather. Jimmy rode shotgun with me for the original set of field strength measurements back in 2010; Todd had the passenger's seat this time.

Be careful about asking Todd to navigate, by the way. He will go High Tech on you. I had one of those talking GPS units on the dash, but that was inadequate. Todd also brought his Android tablet and had loaded his smartphone with a GPS app. What grand fun it was, having all three units lying about where we were as we traveled through the weeds and woods around Birmingham! Ah, life and sunny days!

Actually, I recognized most of the points from two years ago. It brought back memories, such as when one guy ran over and asked me what I was doing. Given that he looked as though he might be able to toggle a light switch without serious injury, I didn't bother with a highly technical explanation. I just said, "taking some measurements." He glared at me suspiciously, then asked to see my identification. He told me that there had been some burglaries in his neighborhood, so he wanted to know just who I was and what I was up to.

"Absolutely," I told him with a smile, "because most thieves carry Potomac field strength meters, wear Chaps and drive white Nissan Altimas. I certainly understand your concern." (I'm sure you'll be astonished to know that he didn't get the joke.)

This go-round, the only incident of note was a guy at a church parking lot on the 139-degree radial yelling at us while I was taking the measurement. They had added a barricade to the driveway to prevent people from driving through; I had to park and walk about 100 feet to get the reading. This apparently distressed him. I was in and out in a flash.

But all in all, I've said it once and I'll keep repeating it: if there is any way that you can do it, you should use a modeled AM directional array. It's worth it, believe me. I will gladly trade a couple of days of measurements once every two years for the old hassles of monitor points, reradiation and all that other noise. It's worth it!

Trango, Dragonwave and HD Woes

I mentioned last month that our Trango and Dragonwave links had failed and required factory service. Both have been repaired and as I write this, the Trango is back in line. We had to wait on a replacement POE injector for the Dragonwave; as I write this we just received it, so that unit should be returned to service shortly. But the time that it took to get them back in operation made us take a hard look



at keeping some spares on hand. I've put them in the 2013 budget. We'll still have to pay a tower crew to mount the spares, but that's better than scrambling for a signal.

But now there's a new issue (isn't there always?): WYDE-FM's HD generator, the FSi 10, has stopped working. Remember, these things are just glorified PCs in a bulky case with a few added cards. The first thing that Todd confirmed was that the power supply had failed, so we overnighted a replacement from Tiger Direct. I installed it while Todd was up at Red Mountain with the tower crew, but then discovered a new problem: the unit would hang during boot-up.

If you have to service one of these, the fact that it's a PC running Linux means that many of our usual tools can be used. At my suggestion, Todd ran the PartEd Magic bootable CD on it, executed the file and drive integrity checks, and confirmed that the hard drive looked okay. We carefully checked all of the connections and made sure everything was well-seated in the sockets and it finally booted up. But we're still not on air in HD and continue to troubleshoot.

The next suggestion, if you have more than one station, is to remember that the HD generator isn't frequency specific. While we troubleshoot this FSi 10, we're moving the one from WXJC-FM in Pumpkin Center to WYDE-FM. I'd rather be without HD on that smaller, more rural station than on one of our 100 kW FM signals. Obviously, you should only do this with units of the same type, but fortunately, all of our FMs use the FSi 10 as the HD generator.

Wine

I'm not talking about the fermented fruit juice, I'm referring to one of the most beautiful software packages ever written. You folks know that I love Linux; Todd, Jimmy and I run it on just about everything. Our company-provided laptops are using it (Jimmy and I run OpenSuse; Todd is a Fedora man). But let's face it, there is plenty of useful software that only comes for Windows.

Note to vendors: I wish you would keep in mind that there are many, many of us now who run other operating systems - not to mention tablets and pads that use Android or iOS. It is *not* a Windows-only world anymore. At the very least, confirm that it will run under Wine - not hard to do as long as you don't do anything too Windows-specific. (Super tip: avoid things like .NET like the plague; fortunately, that boat anchor appears to be dying on its own, which suits me fine.)

The LTSpice simulations that I've written

about in previous issues were all run in Linux on Wine. Crisis AM modeling software runs like a champ on Wine. If you've been hesitating to make the switch away from Windows to something else, do a Web search on your favorite software. Just go to Google and enter something like, "wine [name of software]" and you'll probably find that someone has already tried it. In most cases, it works, too.

What is Wine? In the finest geek tradition, it's a recursive acronym that means, "Wine Is Not an Emulator." What it does is to allow you to run most Windows software under -Nix-type operating systems, including Linux, the various -BSDs and even Mac OS X. It's my understanding that the latter takes a bit of work and is best for x86-based Macs, but once you get it installed, it works fine. Since I use Wine on Linux, that's what I'm most familiar with, and what I'll discuss here.

Wine includes a configuration tool and a setup utility for Windows software. If you receive a CD with a program that you want to run, for example, you insert the CD as you normally would, open a terminal, and then type something like, "wine /path/to/cd/setup.exe." Wine creates a virtual Drive C in your home directory, complete with the expected folders - My Documents, Program Files, etc. - and even creates a runt registry for the software.

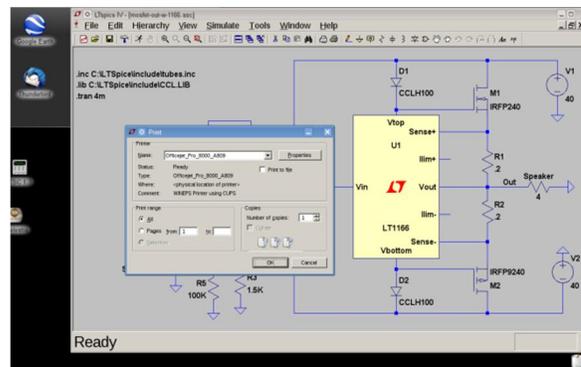


Figure 1: LTSpice running under Wine in OpenSuse

Better still, Wine translates requests from your Windows software into a form that Linux can understand. When you need to print, for example, Wine queries Linux to see what's available; your printer(s) will appear in a Windows-style dialog box. Internet access works as well; back when Linux was unable play a Web stream, I even installed Internet Explorer under Wine and used that to listen to our stations. Figure 1 shows LTSpice with a print dialog opened, showing my HP printer here at home. Figure

2 shows Cris's directional antenna modeling software; I'm using a Windows-style File Open dialog to search for some previous work.

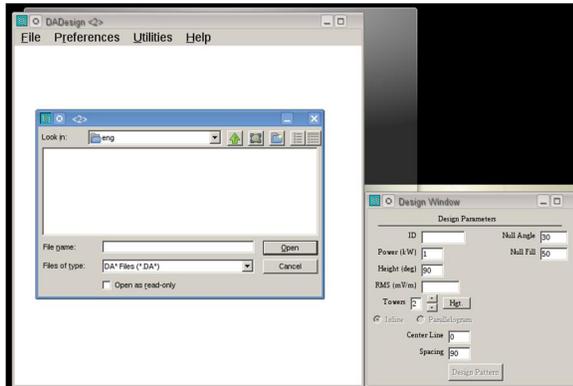


Figure 2: Au Contraire's DADesign Program Running Under Wine

Like most things, Wine isn't perfect. You will doubtless run across software that will require Windows, and Windows only. This is particularly true of software that requires specific hardware – sadly, and in particular, music and video editing tools. But even here, Linux makes this workable by allowing you to double-boot: simply put, if I really need to run a Windows program that just won't work under Wine, I simply reboot the computer and select 'Windows' while it restarts. Once I'm done, I shut down Windows and reboot into Linux. It's a good workaround that allows me to enjoy Linux's vastly superior security and reliability, without having to give up Windows software that's important to my work.

And that lets me finish with this month's rant:

Software And Design Patents

Folks, if the Republicans want to win the Geek Crowd (that would include me, even though I'm an older member of that group), they could do it overnight by simply recognizing that these things are killing small businesses and independent Free Software groups like the Wine folks. As I write this, Apple has won a huge award in a lawsuit against Samsung – and their primary claims were against Samsung for violating design and layout 'patents.'

What is especially troubling about the Samsung lawsuit is that, just before he died, Steve Jobs declared that his number one goal was to kill Google and Android. What's just as troubling is that

he didn't declare that he would do that in the marketplace; he made a specific effort to use Apple's giant portfolio of patents and copyrights for that purpose.

I've ranted about this here before: if you create a website, for example, you might put a button on there that automatically takes your viewers to a special web page. You don't know but that someone else has patented that, though, meaning that (at best) you'll have to change it when you receive the 'Cease And Desist' letter, or (worst case) even face an expensive court battle for infringement, especially if you're building websites for others for hire.

Most large businesses have big, bulging portfolios filled with specious patents – not really because they expect to license them and get rich, but to use as defense against the claims from *other* businesses. For example, Big Business A will send a letter to Big Business B: 'We think you have infringed our patent number so-and-so.' Business B will respond, 'We, in turn, think that you have likewise infringed *our* patent.' Translation: 'Let's negotiate.'

The thing is, only larger businesses with legal staff can even contemplate this. Smaller companies for whom a single trip to court might literally mean operating in the red for months, just can't. The net result is a chilling effect on innovation. Patents were originally intended for completely new and novel ideas, like Eli Whitney's cotton gin (we learned about that one in school, right?). But the current patent system is broken.

People ask me if I'm a Republican or a Democrat. I tell them that I'm a conservative who's for the little guy, which means that I'll vote for whomever I think will be best for that. The so-called Affordable Health Care act is a job killer and it needs to be repealed... but the current patent quagmire is just as dangerous to small business. Many, many patents have been issued that should never have been approved: as proof of that, do some Web research on the number of patent lawsuits that have actually ended with the patent being declared invalid, typically due to prior art. But the poor defendant in these cases has to bear the cost of proving their point.

Great free software like Wine proves that there are a lot of bright programmers around the world, most of whom do not work for Apple or Microsoft. I'm not saying that the latter's intellectual property should be totally unprotected; all I'm asking for is some common sense. When a patent is issued for something as obvious as a 'pinch to zoom' feature or a 'one click to buy' button, something is wrong with the system.

That's it for now; until next time, pray for this nation, and be sure to vote this November! It's

the most critical election in our lifetimes, so prayerfully make it count!

Valley Notes

By
Steve Minshall
Chief Engineer, KCBC

KCBC's sampling system was certified for MoM in 2010. 2012 came and almost went faster than expected. I recently completed the two year recertification of the sample system and field measurements.

The field measurements revealed some interesting discrepancies from the first round of measurements two years ago. Our coordinates were all supposed to be done in NAD 83 but it became obvious that some of the radials had NAD 87 coordinates. In one case the coordinates were off by 22 seconds from where the actual point of measurement was, looks like a typo occurred. The discrepancies were corrected and documented in the report.

I think the field readings done at the time of the initial certifications are essential in order to have an absolute check for stupid mistakes. By stupid mistakes I mean, for instance, getting the tower numbering wrong and having the main lobe go off in a direction that serves mostly coyotes, that has happened. Or another stupid mistake, that I caught at a transmitter site while I was helping, the installation of one sample transformer backwards.

A check of the field readings at the initial certification gives a clear indication of proper operation of the array. The subsequent readings, taken every two years thereafter, do not seem to serve any real purpose in my opinion. Perhaps that part of the bi-annual re-certification will eventually be phased out.

Navigating to the measurement points is actually kind of fun; at least it is a change of pace for a day or two. I did run into one frustration that I must rant about, however. At one point I was slightly lost, the notes and coordinates did not get me to the spot, so I pulled out my iPhone and found my location very quickly on the little map, *but it did not*

make any sense. I almost pulled my hair out until I saw the map start to rotate. Then I knew what was wrong, *this was not a "north-up" display!*

There was a time when I did not see the importance of "north-up" on a map. I was an Electronics Technician on a Coast Guard ice breaker in 1976-1977. While underway I would sometimes visit the radar room, better known as CIC (Combat Information Center), and I noticed their use of a north-up display. To my simple thinking it made more sense to use a "relative" display to see what lies ahead, as they did on the bridge.

Using bearings relative to the ship's heading on the bridge made sense since the lookouts reported observations relative to the ship's bow. In CIC, the ship and all "targets" were constantly plotted on navigational charts, which are printed north-up. So having north-up on the radar matched the charts and made plotting easy.

In the years following my service in the Coast Guard, I have had the privilege of doing many antenna proofs, and the use of maps was, until the days of GPS, integral to the task. The first thing you learn about maps is that north is up (most maps anyway), and that is the way you learn to navigate. Whoever developed the map program for the iPhone obviously never did any real navigation, at least not in real life. Not only was an indication of true north missing but there was no option for a north-up display.

Two days ago I upgraded my phone software to iOS version 6, and guess what; there is now an arrow to indicate north, so someone finally got a clue. Speaking of clueless people and navigation, whatever happened to red and green?

Ever sense the first night on the Ark, when Noah put lanterns on the bow, red has always meant



left (port) and green has always meant right (starboard). This is true in aircraft navigation as well, not to mention identification of parts, wheels, and tires used in industry and automobiles. Unfortunately for us electronic types, the standard has been corrupted beyond all hope.

I think the whole problem started with consumer electronics. A while back, manufacturers started coloring the phono jacks on the back of equipment red and white. Why could they not have used red and green? Oh well, red is still there and red is international color for left, so all is okay, except they labeled the red as the *right* channel!

A little over ten years ago I had a young engineer helping me that was complaining that the old guys use red for left, after all, as he told me, everyone knows that red is *right*. I tried to explain the international use of red and green that has stood for thousands of years only got a deer-in-the-headlights look from him. In his mind I was the idiot.

So fast forward to 2012 and I am helping at a new studio build and there are boxes and boxes of

audio adaptors. It's even hard to write this but they all had red marked as right and green as left. People are worried about global warming and the ozone layer but they are completely ignorant of the real threat to our civilization; the reversal of red and green.

The Mayan calendar actually predicted this to happen in 2012, it's true: you can check it out on Snopes. Eventually ships will collide, airplanes will crash, and the world will be plummeted into a radioactive winter as thermonuclear war breaks out between the superpowers of the future, Pakistan and New Jersey. All because some clueless guy decided to mark red phono jacks as right channel.

There is hope however. The implementation of AES and even IP audio conventions, whose channels are color-less, could save us, if there is enough time left. As for me, I will keep digging my shelter and keeping fresh batteries in my Geiger counter.

The Chicago Chronicles

By

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

Who wants to do it?

Alone of our facilities, possibly in the entire company, WYRB, which serves the Rockford/DeKalb area, has no real backup transmitters. We have two antennas there, a main and a smaller backup, the latter with decoders, but only one analog and one digital transmitter for the place; that's it. Understand, I'm not complaining here: These two transmitters, a legacy Nautel FM-5K and a BE FMi-73, are both exceptionally reliable.

We've lost one exciter (a BE-Fxi-60) but we have a spare, and when the one on the air went off the air, downtime was as minimal as circumstances would permit. We have many ways to bring the place back on the air remotely in case of power glitches or audio processor lockups, and we have a way-oversized emergency power generator to cover you know what. We've needed it more than a few times, and we did have to work to make the thing reliable (read that,

rodent-proof, including the use of fox kidney squeezins to provide discouragement. Even so, that old gen still works very well.



That leaves only the three audio feeds which come from the mother ship back east, and therein lies the story. Remember, with WYRB, there's too much distance between studios and transmitter to allow for an over-the-air STL. That means a wired STL setup. We have two T-1 lines going to the Kirkland site, one from Lansing

and a newer one from Hammond. What problems they have are usually not the telco's fault, and our vendor, Cimco, provides outstanding service in case anything goes wrong. But!

There is a saying in the underground utility industry: "Since the advent of the backhoe, *nothing* is permanent." You can say that again. But then again, you can say that about the ground auger as well, and both of *them* are pikers compared to the trencher. An

auger or a backhoe will take out maybe two or three feet of cable or fiber optic line and the damage will be discovered almost instantaneously. With a trencher, ten or twelve feet of fiber cable can be reduced to plastic junk before anyone will notice. I know. I've seen it happen twice. Actually, in the ten-plus years we've been using T1s for our STL, we've suffered maybe five outages caused by T1 line destruction. Average outage time: four hours. You can make book on it. That's a lot of downtime, and not just for air audio. Remote control goes as well. We have to have a silence sense option out there to shut down the rigs whenever this happens. For the record, we've lost one smart jack in all that time.

How much nicer it would be to have some way in which some sort of standby audio could be put on the air, from within the site, on a moment's notice, a source which would last for up to six hours, just to keep the station on the air, even without commercials! Hey, isn't just that sort of thing already being done with memory sticks? (I know, some of you call them thumb drives; you call them what you want, and I'll call them what I want). The typical memory stick can hold as much as 16 or 32 GB of data these days. If your memory stick audio is encoded linearly, that is, in WAVE format, with a 44.1 kHz sample rate, one CD's worth, about 80 minutes, is around 750 MB. Do the math. That comes out to maybe 30+ hours of music on one 16 GB thumb drive, give or take. This means a really potential for making a backup air audio file.

Nautel's VS series of transmitters provides for this, in their analog-only models. A memory stick, loaded with the station's format, is inserted into a USB port in the back of the exciter, and just sits there, waiting for an audio outage. When it occurs, the memory stick is switched onto the air and proceeds to do its thing until the studio-originated audio is restored. Our decision to buy one of these rigs for WYRB this year was contingent on both the memory stick backup, and HD Radio in that transmitter, and the order would be signed only when both requirements could be met. Well, to this point, no transmitter.

But in thinking about it, with a little help from Jeff Welton at Nautel, I realized that a problem arises when HD is added to the mix. In the current Nautel design, transmitter audio from the memory stick goes through its own on-board audio processor, an available Orban 5500 card. But, the HD audio process requires an additional step, the conversion of the digital audio into an IBOC bit stream. The logistics required to handle that step makes it very difficult to engineer and provide cost-effectively.

That brings up the question: Other than alerting the system that the transmitter suddenly has no audio feeding it, why have the transmitter become directly involved in the process anyway?

Let's look at that process for a moment: The first thing to remember is that the audio which disappears at the transmitter audio input, whether said audio is digital or analog, could have failed anywhere ahead of the transmitter, not just in the STL. The audio processor itself could go kaput at any time for any reason, a circumstance with which we have become quite painfully aware. Or the defect could be in a switcher, an audio DA, a bit rate converter or whatever! So, what is needed is a box which functions totally independently of the rest of the audio chain, needing only a no-audio alarm signal. That signal need not come from the transmitter itself, since when the memory stick is feeding the transmitter, the alarm is effectively deactivated because, well, there's audio there! Rather, it would be on the audio line which normally feeds into the transmitter.

This would dictate that the box must be the last device in the audio chain. The box would monitor the transmitter input audio line ahead of the switching relay; the audio could either be analog or AES. When the audio at that point disappears for more than so many seconds (user-programmable) the memory stick audio would be started, feeding analog or AES audio at 44.1 kHz sampling rate to the FM system of the transmitter, and another AES 44.1 kHz feed to the transmitter's IBOC exporter. An optional on-board audio proc card might provide processing and the IBOC delay to the analog FM transmitter; a second, integral processor for the HD audio might be made available as well.

Once activated, the box audio sensing input would continue to monitor the main audio line which provides the normal audio feed to the transmitter, waiting for its return. The box might include the facility to fade across seamlessly from memory stick audio to normal audio; the system could then pause the memory stick at the point where the audio is transferred back to the STL, in case another audio outage occurs shortly after the last one. The idea is that it's not good to start memory stick audio back at the beginning again.

Finally, the box would have provision to provide a closure to a status channel on the transmitter site remote control in order to alert engineers and other personnel of the audio emergency, so that corrective action could be taken soonest.

Now, there's the challenge: There is a nice

bunch of companies out there which manufacture gadgets like this for broadcasting. Which of them wants to take on this assignment? I'm not advocating that the big three processor manufacturers get involved. I mean, aren't their products busy enough as they are, just doing audio processing? Why shouldn't some outfit like Broadcast Tools, or some other such company, take this idea and run with it? Do that, and just maybe, I'd be able to get my new main transmitter for WYRB because the project won't be held hostage anymore.

Now ó who wants to do it?

KVMs

Maybe I'm not searching in the right places, but I've been looking for information on the proper setup of Keyboard/Video/Mouse switches, with little success. Must be pretty hard stuff to find.

Recently I've been trying to set up two new Avocent KVM switches, (or just KVMs, as they are usually called) at two of our transmitter sites, but they didn't seem to want to behave. In at least one case, one computer to which it was attached just quit working. At that point, I turned for help to Larry Foltran, our IT guru in Detroit. Here are a few of the tips he told me:

First, the smaller the KVM, the more snarky it tends to behave. I can attest to the converse of that. We have a 16 port Belkin in our rack room which is an absolute pussy cat. On the other hand, we have a couple of two-port jobs that I'm relegating to paper-weight status. The big ones have the ability to be programmed for various features. The little ones, well, there are few features and, in my experience, little if any instructions. As to the Belkin, I must note that it's the second one we've had. The first one lost its life in a lightning strike. So well did it work before its demise that we wanted another one like it.

Actually, we needed one *just* like it. Which leads us

to theí

Second lesson: Especially on the larger KVMs, make *sure* that you know what you're getting. Even within the same make and model, there may likely be variations in features and connection types, which means careful selection, even planning, of any KVM order. Yes, do your homework.

Third, and this is especially true with the smaller sized KVMs: Don't mix your connector types. Either stay with PS2 connectors everywhere, or with USBs. This is why one of our computers, an importer, no less, got an attitude when hooked to our 4-port Avocent with PS2 connections, and shut down. It had always been connected to its mouse and KB with PS2s, but when the new main importer came into the picture, with USB instead of PS2, the importer crashed in a full-blown snit. We ended up biting the bullet and getting a new 16 foot KVM cable with USBs on the computer end. I don't know how the computer uses a KVM with USBs to figure out which connector has the mouse data and which has does the KB, but it does. No, the connectors aren't marked, either. Only the box knows.

Fourth, when first using the computer with a new KVM, Larry advised me to try this trick: With the computer off, plug in both the mouse and the keyboard into and then boot it up. Once the computer is showing desktop, remove the keyboard and mouse and immediately connect it to the KVM. Move on to the next computer and repeat the process, and so on, until all the computers are plugged into the KVM. Lastly, plug the mouse and keyboard into the KVM, and from there the system should work. Let me know if it doesn't. I'dl *try* to help. I'dl know where to go if I can't.

Next month, a continuation of a topic discussed in my column last month: why the ótower within a towerö?

Until thení

The Portland Report

By
John White, CBRE
Chief Engineer, CBC-Portland

Several months ago, I mentioned a security project with the access gate at Mt. Scott. I never did report the conclusion of the project, so thought now would be a good time to report on the results. A couple of incidents with strange people at the transmitter / studio building left staff members nervous, so the idea of keeping the entry gate closed all the time was born.

Interestingly, one of the solutions turned out to not be the typical hardware solution. Mt. Scott is located near the southeast boundary of the Portland metro Urban Growth Boundary. KKPZ is located on the north peak of Scott and shares the area with private and government land mobile communications as well as the local water district storage tanks. Scott has an excellent view to the southwest, west, north and northeast.

Of course these attributes also attract high-end residential usage of mountain lots with views. Most of the radio and water use long predates our residential neighbors who have moving in to the area. Although most people would think commercial and residential don't mix, most of the old line users at Mt. Scott have made an effort to be good neighbors.

Both residential and commercial residents of the Mt. Scott area have had an ongoing problem with theft. Copper theft, pilferage, auto break-ins represent a constant irritation to all. Ultimately the solution will come when victims stand up and say NO while perpetrators understand there is a penalty.

We have plenty of the former but not so many of the latter. Perhaps the best indication of lack of consequences is demonstrated by a recent study claiming to justify the release of more prisoners. That study, purporting to show nearly 1,000 low-risk prisoners, began by including three death row inmates. From there the quality of the study did not improve.

As a result, when I received the report of the "strange people" incidents, I looked at both facilities and enforcement solutions. One of the non-facilities thoughts was a trip to Happy Valley City Hall and a discussion with the neighborhood watch staff person.

I like to think that as a result neighborhood watch signs have begun to pop up all around the neighborhood.

On the security gate side of the equation, I was working with a limited number of conductors to the gate operator. When the operator was installed some years ago, I included a control cable run to the building along with the power feed to the operator. That was good foresight, but I have begun to think a Murphy's Law factor is required.

Simply stated, if Y number of conductors is projected, then 10 times Y conductors should be installed.



Completed call box at the gate.

In this case, building the control multiplexer to accommodate the additional conductor needs was relative simple. The result was a cast aluminum box with the circuitry included that is placed in the gate operator.

The intercom to talk to visitors at the gate

was less simple. As I mentioned in the past, the requirement was for a simple master remote system. The master intercom in the building would talk to simple remote speakers at the gate and doors. No such product existed. I found multiple master systems, networked systems, and video systems, but nothing simple.

One vendor did provide simple speaker/mic with call button as accessory attachments. However, none of their product advertised a master station capability. After looking at a number of products on the counter and finding none of them were able to provide the required functionality, I was about to give up. Then as a last effort I did a search on the accessory peripheral attachment.

I did find multi-remote masters with capability of 128 and more remotes. Just the thing for multi-floor office building security and way overkill for my application. After looking through many documents, I happened on one which referenced a multi-master product. Although the

brochure did not mention a master/speaker slave capability, the installation manual did show that kind of connection. "Eureka!" I thought as I wondered why advertising and brochures would neglect to mention this simple capability. Each of the distributors I had talked to had the same question.

Once the multiplexer and intercom problems were resolved, that left installing the remote speaker at the gate. The post with the access key panel for the gate is six inches in diameter. None of the mounting brackets are anything like that large.

I was able to solve that problem with a simple solution. It turns out the many swing gate hinges are sold in two parts. The attachment to the gate and post are separate items. That way the hinge bracket can be selected to fit the gate post size. The six-inch post hinge attaches with a U-bolt and has a flat surface that will accommodate the remote speaker. Problem solved.

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

ARC Plus

I had the opportunity to try out Burk Technologies ARC Plus with Plus-X Dual IP-8 Adapter, along with AutoPilot 2010. Last year I tried out AutoPilot 2010 with our ARC-16s and did not have much luck. The sites would not stay connected, and it was just all-around unreliable for our setup. We needed to upgrade to the ARC Plus, but with our setup, it would have been a real mess to upgrade. I spoke to Burk about this and they informed me they had been thinking of working on some sort of adapter so stations with my setup wouldn't have to rewire their sites to upgrade. It took them a year, but they finally got it done and I got to be the test dummy.

I must say, I am impressed. Hooking everything up was a snap. Just mount the equipment in the rack and then move the ribbon cables from the existing IP-8s to the new adapter. Then just start

setting up the ARC Plus to read correctly and set up AutoPilot 2010.

I have had it hooked up at 810 KLVZ for a few weeks now and, as with any product, it has its good and bad points. I definitely enjoy how easy it is to get it set up and to create Jet flow charts for doing various things. The biggest issue I have found is the reporting system. The old AutoPilot 3 logs everything, so if there is an issue I can easily run a report and see everything that has happened in the time frame I choose. It tells

me when scripts run, what the power is at certain times, etc. AP 2010 doesn't do this. I mentioned this to Burk, once I realized the issue, and am currently waiting for a call back in hopes of getting this figured out.

Adobe Audition

Last month I mentioned our issues with



Adobe Audition 3.0 and 2.5. Displayed audio levels tend to lag behind the actual audio and it skips on playback. I had tried moving this over to a newer soundcard and thought the issue was resolved. After another month of testing, we found that the newer sound cards react the same way as our older soundcards. So my idea of just replacing the sound cards will not work after all. The next step in this long-standing problem is to find another program to use. We have tested Audacity in one of our rooms and have found it to work. There is resistance to using this from some of our producers because they love Audition, but if it worksí they will just have to migrate.

KLDC Lightning

Last month, we had a few evenings of bad weather in the Denver metro area. The 26th was a very electrical night. I had received emails saying KLDC had switched to night pattern successfully and after that I didn't really worry much. At low power the site is usually okay. Around 9:00 PM, I received a text that KLDC was silent. I assumed someone forgot to take a pause out of the logs. Instead, what I found was the site was at full power, but with no audio. What happened?!?!?

I told AutoPilot to lower power, no response. I told it to switch to the auxiliary transmitter, still nothing. I knew I had to go out there because I had no control, with AutoPilot by dial-up. As I got close to the site, I noticed there were no tower lights.

The tower is atop a hill known as Ruby Hill

in Denver. It is the tallest hill in the Denver city limits, and the tower is about 400 feet high on top of that. So, big hill, no tower lightsí uh-oh! I called Al Stewart with Colorado Public Radio, who owns the site and shares it with us, and found his station was having problems, too. He arrived shortly after I did.

We first noticed a lovely smell coming from his transmitter room. I found I still had no control over my site using the ARC-16. I flipped the breaker trying to reset it and still nothing! After trying a few different things and finding that all the equipment looked normal, even the ARC-16, I decided to start power-cycling individual items. I started with the first thing in the first rack which just happened to be the ARC-16. As soon as I powered it down, the transmitter turned off. I powered the unit back on and at that point I had full control again of our site.

I have never had this issue before and I am still not sure how nothing was really damaged. I am grateful though. Colorado Public Radio had its backup transmitter come on but it got stuck running into the dummy load. It ended up overheating and causing a nasty smell. Al had to wait until this morning to look at the tower and still isn't sure what all the issues are. The lighting choke was charred, so he will replace that first. His Delta RF ammeter is stuck at 1 amp. He hopes those are the only issues. We know we'll have to re-measure the impedance and probably file with the FCC when we're done because of the lighting choke change.

Well, that about wraps it up for this issue. So until next timeí That's all folks!!!

Digital Diary by **Larry Foltran** **Corporate Website & Information Technology Coordinator**

Solid State / Hard Disk Hybrid

A few weeks back, I received a call from a good friend of mine asking if it were possible to speed up his desktop computer. Knowing that this person had purchased a very high-end computer just a few months back for his photo editing work, I knew his request did not stem from the computer's RAM or processor. After digging



a bit deeper, he shared that he wanted his computer to boot up as close to instantly as possible and wanted his software to launch quicker. After a bit of pondering and his comment that "money was no object," I came up with a plan to replace the current OS drive with a Solid State Drive (SSD) and reallocate the existing 1TB HDD to simply a storage drive for his vast

amounts of photo data. Although Solid State Drives are generally geared towards laptops, my thought was that it would meet the expectations he had for his desktop.

He purchased a 250 GB 2.5" SSD simply due to availability at the local computer hardware superstore. 3.5" drives were available, but only via mail order. Since he is an extremely impatient person, he preferred to purchase it locally. Installation was the same as you'd expect with a traditional HDD, but the OS (Win7-64) installed much quicker than on an HDD. Along with the OS, his preferred photo editing software and other small applications were all that were installed on the SSD. After a data back-up and format, I moved his other data back to the 1TB HDD. This would provide him with enough storage space and we could certainly expand in the form of additional drives in the future if necessary.

Based on my experience, hard drives used for multimedia editing, whether video or photo, tend to fail sooner. Perhaps simply attributed to overuse and near constant writing, I tend to back-up my video and photo data on a weekly basis just in case. For more dependability, it would have been nice to store the photo data on the SSD. Unfortunately due to the amount of data my friend keeps stored, we would have needed a second and perhaps third SSD just to accommodate it on a more secure platform. Although cost was no object at the start of this project, it did suddenly become a problem when I brought up that option.

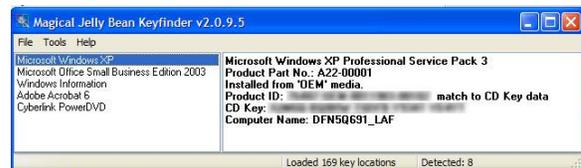
When all was complete, we saw a significant increase in speed while booting up the computer as well as launching his various applications. We also didn't notice any significant speed decrease while accessing his files on the separate drive. Of course I must add that his storage drive is a Western Digital VelociRaptor drive spinning at 10,000 RPM and boasting a 6 GB/s transfer rate. In my opinion, this is the fastest HDD drive on the consumer market today and at about \$250 each, it better be.

I still believe that the best application for a SSD is in a laptop. The SSD offers the dependability for those who aren't 100% careful with their laptops along with the speed that people on-the-go desire. I don't intend to upgrade my laptop to a SSD any time soon and that's mostly related to the cost factor. I need a ton of storage space on my laptop and certainly can't swallow spending in the neighborhood of \$2,500 for a 1TB Solid State Drive. On the other hand, perhaps an SSD in my workhorse desktop could be in the future.

Magical Jelly Bean

Not too long ago, I was in the process of backing up the data from one of our production machines in preparation for a clean rebuild when I noticed that the Windows OS license sticker had been partially peeled off. Because my intent was to upgrade to a new and larger storage drive, I would certainly need the key code to install the OS. Google lead me to a great tool that solved my problem and, in my opinion, has many helpful applications.

Magical Jelly Bean Keyfinder is a small, freeware application that scans your machine and retrieves the key information from the various applications you have installed over 300 as claimed on their web site. For a more robust option, they offer Recover Keys (\$24.95) which supports over 3600 programs and has a variety of other features including the ability to run from a USB drive as well as save the data to a variety of formats. The free version does allow data saving, but it is limited to



TXT and CSV files.

One additional feature I discovered within this application is the ability to modify the registry information via a very simple to use window prompt. Perfect for those who are nervous to dive into the registry in normal circumstances. As an example, the name and organization entries prompted when installing most Microsoft software applications can be changed easily through this program.

More Windows 8 News

As the October release date for Windows 8 quickly approaches, more information is surfacing regarding this OS and what users can expect. Based on the benchmarking data I've been reading through, Windows 8 appears to be faster in all but a few areas. Those running Microsoft's OS can expect quicker boot times with or without an SSD and simply fast reaction while performing day to day activities.

Windows 8 is definitely geared towards the tablet and touch screen computer market and it appears that users will have some getting used to with the new interface. One example is the fact that Windows 8 boots to a grid or window pane type GUI rather than the desktop as we've grown accustomed to. Proceeding to the desktop requires an additional click on the appropriate pane or perhaps better

referred to as *õpainõ* instead.

Some will appreciate the ability to run the new Metro format apps as well as traditional applications within the same OS, but will this be enough to cause happy Windows 7 users ó and still many XP users ó to upgrade to Windows 8? In my opinioní no. Because Microsoft is trying to put a leg into the tablet arena, it makes sense to develop this type of OS. In fact, it could be a plus for those

who want a seamless experience between their PC and their tablet. But for the majority of users, Windows 8 may appear like a step backwards. I intend to happily stay with Windows 7 and, at least for now, put Windows 8 in the same category as Vista and the annoying ribbon interface in the recent MS Office versions.

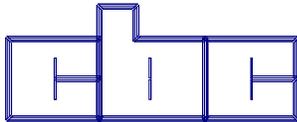
í until next month!

The Local Oscillator
October 2012

KBRT • Avalon - Los Angeles, CA
740 kHz, 10 kW-D, DA
KCBC • Manteca - 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

CRAWFORD
BROADCASTING
COMPANY



Corporate Engineering
2150 W. 29th Ave., Suite 300
Denver, CO 80211

email address: crisa@crawfordbroadcasting.com