The Local Oscillator

The Newsletter of Crawford Broadcasting Company Corporate Engineering

APRIL 2011 • VOLUME 21 • ISSUE 4 • W.C. ALEXANDER, CPBE, AMD, DRB EDITOR

Documentation

In case you didn't know it, one of my pet peeves is missing or incomplete documentation in a studio or transmitter facility. Nothing is more frustrating, nothing is a bigger time-waster than having to trace out wiring and circuitry at a *critical moment* which could be much more productively spent dealing with the instant problem or issue.

In preparation for building out the new Denver studio facility, Amanda and I spent untold hours at the old facility tracing out undocumented wiring so that we could gain an understanding of how things *should* work. We were able to figure things out for the most part, although some things got missed (as we found out later, again at "critical moments").

As I planned out the new facility, I spent weeks laying out the wiring tables. Amanda and I then meticulously made all the cables, printing and affixing permanent labels to each wire. As the installation crew did their thing, they affixed prepared labels to the other end of each wire as it was cut to length, dressed out and installed.

Now, in those "critical moments," we have two places to look to determine where a particular signal originates and terminates – the wiring table and the wire itself. If a wire somehow becomes unplugged from its source or termination, it's a simple matter indeed to find out where it goes. So at the studio, we are in excellent shape. Any engineer worth his or her salt can come in and figure things out in short order.

That's not the case, however, at a couple of the Denver transmitter sites. I have been called in to assist Amanda with some vexing problems of late, the most aggravating of which is at the KLTT transmitter site. Stay with me here as I take you through the problem. We'll come back to the documentation issue shortly.

When we first built KLTT in the mid-1990s, transmission lines were chosen for the power distribution in the system. It would have been cost-prohibitive to run 3-inch or even $1^5/_8$-inch transmission lines 1,200+ feet out to the far corner towers. Tower #2 (SE) nominally receives about 5,300 watts during daytime 50 kW operation. So I was very comfortable using a $^7/_8$-inch air-dielectric line to feed it. Towers #1 and #3 receive a lot more power daytime, (about 27 and 18 kW, respectively), so those are fed with 3- and $1^5/_8$-inch lines.

I began to question the decision to use $^7/_8$-inch line at tower #2 just a few months after we turned the facility on. An arc developed in the #2 line just below the ATU (but thankfully above ground!), and to fix it we had to cut off a few feet of the line and splice in a new section. A few months later, the same thing happened, this time on the phasor end of the line. Over the next few years, we had at least one more failure in the line out at the tower and a couple more inside the transmitter building. It was to the point where we were stocking $^7/_8$-inch line as a "spare part."

The problem, it turned out, was that when lightning would strike towers #1 or #3, a momentary short would be produced across the base of the affected tower (as long as the arc across the ball gap was sustained). During that period of time, likely a few RF cycles, the transmitter would continue to produce full power, but with one or the other of the high-power towers shorted out, that power had to go *somewhere*, and that somewhere was tower #2. The trouble with that was that the transmission line was not rated to handle the higher power, possible 20 or 30 kW. We tried all sorts of things to cure the problem, including placing an adjustable ball gap across the transmission line input in the phasor, but nothing seemed to help very much.

Then Amanda's predecessor came up with a solution. He built a monostable multivibrator using a 555 timer IC, triggering it with the VSWR cutback alarm of the transmitter. The multi output drove an

open-collector NPN transistor that was in turn connected to the ñLow-2ò remote connection on the transmitter. The idea behind this simple circuit was that there are likely one or more brief VSWR events prior to a tower strike. The circuit will detect the very first guy snap or ball/horn arc and then put the transmitter in ñLow-2ò power (10 kW).

This circuit served us well for quite a number of years. In fact, we have not sustained *any* further transmission line damage since the outboard multi was installed, a testament to its effectiveness.

One Sunday evening in mid-March of this year, there was a power glitch at the KLTT transmitter site. The alarm company reported a 20-second power outage, but it had to be more than a brief blackout. The exgine in the Nautel AM-IBOC HD Radio generator failed coincidentally with the outage, and it was plugged into a UPS. When this was being investigated, it was noted that when switching from night to day power/pattern, the main transmitter would come up in ñLow-2ò power and stay there.

In the AutoPilot daytime power/pattern change script, five seconds after the pattern change a check is made of the transmitter power. If it is below 50%, the script assumes that one of the contactors did not seat fully in the pattern change, so the pattern is then flipped back to night, then again to day, The check is repeated and this whole process looped five times if the power stays low, terminating in an error message emailed to Amanda and others in the station. With the transmitter coming up in ñLow-2ò power, the script would cycle through all five attempts every morning if someone didnôt intervene.

It didnôt take a long time to determine that the outboard multi was the source of the problem ï with the output wire pulled off the ñLow-2ò remote terminal, the problem went away. But the *reason* for the malfunction was a little more difficult to determine ï because there was *zero documentation* on the circuit and its external connections. At a critical moment, Amanda and I had to spend several hours tracing things out to figure out how things were *supposed* to work so we could troubleshoot and fix the problem.

In addition to the issue with the outboard multi, I had to figure out what was supposed to trigger the switch of the main transmitter to high power at the pattern change, because that had also stopped working. With the multi output disconnected from ñLow-2,ò the transmitter would stay in ñLow-1ò (night) power after the pattern change. A momentary dry contact pair is provided on the phasor controller for both the main and aux transmitters and high (day)/low (night) power, so that was the place to look. Incredibly, I found half of the main transmitter high (day) power pair disconnected. The high conductor was connected, but the common was not. And Iôm not talking about a bad connection hereé I mean that the wire was pulled completely off and folded back into the wire duct. How did it *ever* work?? I reconnected the common wire and that took care of the problem. Again, *where was the documentation*? Again, at a critical moment, Amanda and I had to spend several hours tracing out wires and reasoning out what has happening.

Iôll let Amanda tell you about the issue with the outboard multi later in this issue. But the missing common wireé well, that remains a mystery. All I can surmise is that somehow, a ground return path existed between the aux transmitter remote common and the main transmitter remote common and that return path somehow evaporated when the ñpower eventò occurred that Sunday evening.

This ñwire chaseò really drove home for me the need for good, current documentation of everything at a transmitter site and studio. There is really no excuse for not taking the time to document things and update existing documentation as changes are made. I fully realize that things are often done in a hurry, many times to achieve a quick (and sometimes intended to be temporary) fix to a pressing problem, but that doesnôt relieve the engineer of his or her responsibility to document what was done.

The obvious benefit of good documentation is to oneôs successors. Itôs not unheard of for some engineers of perhaps questionable character to deliberately avoid documentation as some misguided means to ñjob security,ò but I can tell you right now that sort of thing doesnôt fly with me ï Iôll send such a person down the road in a heartbeat and take my chances.

The not-so-obvious benefit, however, is to oneself. How many times have you had to take the time to figure out what you had done in a particular situation a year or two prior to the critical moment that you unexpectedly found yourself in? If youôre anything like me, that happens quite a bit. Having that accurate and clear documentation at oneôs fingertips will in every event shorten the time it takes to troubleshoot the problem and get things running again.

Soé do yourself a favor. *Document* your studio and transmitter site wiring ï audio, remote control, RFé *everything!* ï and keep that documentation *current*. It may be a pain right now, but it will be a lifesaver when it counts.

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

Hello to all from Western New York! While hooking up our new Sage Digital ENDEC EAS unit in Buffalo last month, I took note of how much we have come to depend on the Internet and Internet protocol in operating and maintaining our broadcast equipment. It seems that just about every piece of new broadcast equipment has the capability for an Internet connection or is communicated, programmed, or controlled via Internet protocol.

My IP address list is continually growing, along with user names and passwords for connection to all the various equipment. Trying to remember all of this information would be totally insane, so long ago I began keeping a log of all of the IP addresses, passwords, and port numbers of the equipment using this protocol. Keeping this information secure and away from those who could possibly hack into our networks has become top priority.

Aside from your personal list of all the above information, there should be someone in your organization whom you could trust to file this information away, and update the list as equipment is added to your facility. By updating and maintaining this list, should something happen to you, your replacement will avoid spending many hours deleting and changing passwords to all of the secured equipment.

If at all possible, you should maintain a map of all your networks, indicating where all of the switches, routers and firewalls are located. Labeling all connections at your switch eliminates a lot of troubleshooting should a problem develop. Any good wire marking system will provide you with a clear, concise roadmap of your infrastructure and save a lot of time identifying where network cables originate or terminate.

With the addition of Internet capability to various wireless devices such as the iPhone, connecting to your broadcast network from practically anywhere has heightened the need for additional security. Storing usernames and passwords in these devices would be disastrous should you lose it and it falls into the hands of someone who wants to make your life miserable.

The same goes for your laptop, which is the most common tool for maintaining, troubleshooting, and communicating with your IP-based equipment. Unless you have all this information stored in a well secured, password protected file on your hard drive, never store your password/IP address list on an unprotected device. The harder you make it for a potential system hacker, the quicker he will give up and move on to easier pickings.

WDCX-FM Buffalo, WDCX (AM) / WLGZ-FM Rochester

In last monthôs column, I reported on a strange problem that had developed with our WDCX-FM HD transmitter. The BE FSi-10 HD generator was somehow adding delay to the audio signal, even with the diversity delay turned off in the processor. A call to BEôs technical support group offered little in the way of a fix to the problem.

BE suggested re-loading the software, stating that 60 percent of the time a file has become corrupt, and a reload would take care of it. Following their advice, I re-loaded the software, and it appeared to take care of the problemé for about two weeks.

There is no clear indication in the fault report as to what is happening, other than it is loosing packets or symbols. After a reboot of the FSi-10 and exciter, the diversity delay comes back to almost perfect, or what the delay was set to previously.

If any of you have any ideas, please give me a call. At this point, anything would be better than reloading the software every two weeks or so.

We have been experiencing some strange abnormalities with our satellite reception on the Wegener Unity 4000 CRC receivers recently. Have any of you noticed low RF signal alarms, or the Unity going into installation mode because of a low EbNo number? We have noticed this on separate receivers even at different locations.

I know that the bird that we receive programming on AMC-3 (formally GE-3) was launched in September 1997, and the design life of the satellite was determined to be about 15 years, which makes its end of life sometime next year, 2012.

For some time now, we have experienced breakups in our signal, lasting from one to three seconds, at sporadic intervals. When these ñblipsò occur, there is no indication on the receiver that signal was lost, and no warnings or alarms are indicated on the receiverôs front panel.

The óinterferenceô appears to be more pronounced in the early afternoon hours, usually about the same time each day, which leaves me to wonder if we are experiencing some form of interference from a local source. A look at the signal on a spectrum analyzer will indicate if this theory holds true. I have contacted a local commercial satellite firm to set up an appointment to investigate this problem. Hopefully I will have more information to report next month.

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

The BSI Skimmer Plus

For some time now, we have had issues where we needed to record two or more shows or programming elements at the same time and did not have any logger decks available to do the job. I liked the idea of having a separate system (Skimmer Plus) from the DRR so that if I needed to service either system, I had the ability to cover the most important programming.

Overview

The Skimmer Plus system we are using has a maximum of 4 input channels. Skimmer Plus is scalable and is sold as a kit with many of the Audio Science (ASI) sound cards and a GPI (General Purpose Interface) device for activation with a logic tally or closure. The record events can be sent up on a triggered or time-scheduled basis. For example, I have our morning show recording in its entirety from 6:00 to 10:00 AM on Deck 4. Each one-hour segment is stored as a file on the hard drive. Simultaneously, I am recording the same show in a scoped fashion in Deck 1. Deck 1 records only when the talent or guest microphone module is turned on. Once the microphone module is turned off, a file is then stored on the hard drive. This application gives the talent and programming staff the flexibility to review the show in a multitude of ways. If the talent wishes to just review their performance, the scoped aircheck is sufficient. If the sales staff wants to see the integration of the talent with the commercials present in the stop set, the full aircheck is also available.

Installation and Implementation

I used a couple of transistors and a relay to buffer the GPI device from the Wheatstone logic output tally. The circuit was designed so that the loading effect on the tally output was extremely light. When the tally voltage would go low, the relay contact would open and start the Skimmer Plus.

Server Component

The Skimmer Plus has a built-in server. This allows the user to retrieve files across the internal LAN or though the Internet. All one needs to do is port forward the computer to the outside world by way of the router. The interface is really simple to use. You can either stream the audio from the server or download the entire file. Streaming CD quality .wav files is not very stable across the Internet due to the size and bandwidth of the file format. MP3 or MP1 Layer II files with a 320 kbps data rate using 44.1 KHz sampling work and sound really good.

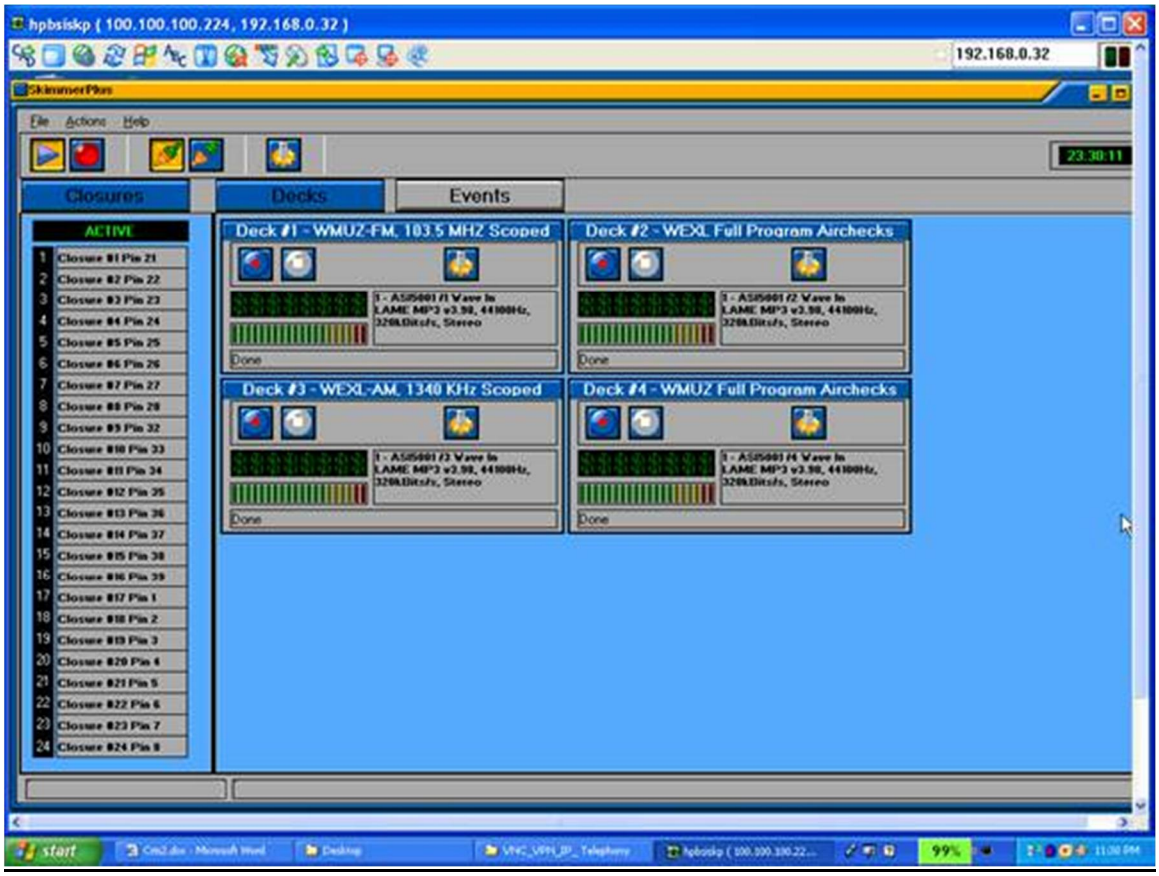
File Formats

The Skimmer Plus comes with many high fidelity codecs to use. If you would like to add other 3rd party codecs the software can accommodate it.

Conclusion

Weather you have the need to have scoped or full airchecks for review of shows and ñBest ofò programs, the Skimmer Plus is a great tool to have in your broadcast plant.

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.

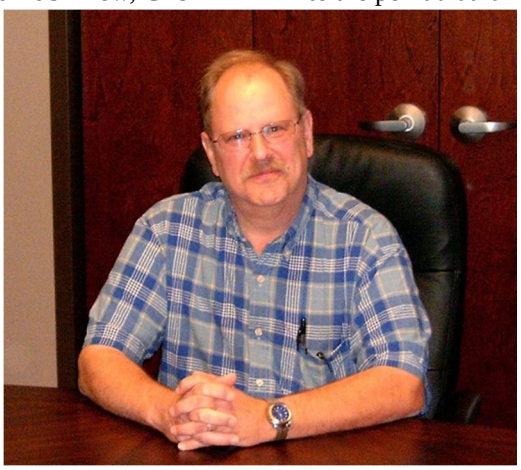


BSI Skimmer Plus Running on the CBC-Detroit Server

News From The South

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

Because of the limited time that Rick Sewell has to work on things at KSTL and KJSL now, Cris decided to send Todd out to St Louis to help change NexGen fileservers. He gets a big ñattaboyò for doing a great job in just a couple of days, and Iôll let him share his experiences at the end of this article. Iôll cover a few odds and ends, and engage in a brief rant, before I turn things over to him.



A Washout

No, Iôm not talking about what happened to my Duke Blue Devils in the NCAA tournament; Iôm referring to torrential rains over the weekend of March 4th-7th. When I arrived at work on Monday morning, some of the tenants on the first floor of our building were complaining that there was water on the floor. This being a ñnot goodò situation, I quickly went to take a look.

We had received several inches of rain within a 24-hour period the day before, and in addition to severe erosion along the walkway to our 2nd floor suites (see figure 1), water had poured down the slope and had overwhelmed the little 3-inch drain at the bottom floor fire exit. The water had risen to the point that it flowed under and around the door, flooding one of our tenantôs spaces.

Figure 1 - Erosion at the Studios

A shop vac removed most of the excess water; we also placed a fan on the wet carpet to help dry it out. In the meantime, I called Sunbelt Builders to give us a quote on increasing the length of the retaining wall to help channel the water away from that door and drain. We hope to get that done sometime in April, weather permitting.

Weôve also talked to the ever-reliable Danny Dalton about planting some additional cover shrubs on that slope to help slow the flow of water. In the upper right of the picture, you can see where the rain washed away the cover soil around the walkway beam, exposing the original paint. Now *that's* erosion.

The Broadcast Tools WVRC-8

Manufacturers, take note. You may technically and legally cover yourself by saying, ñOur warranty excludes surges/lightning,ò and, ñItôs the end userôs responsibility to provide adequate filtering.ò But look at it from the customerôs point of view: if your equipment keeps getting zapped when *nothing else in the building seems to notice*, the customerôs going to ï correctly, in my opinion ï decide that your stuff isnôt ready for prime time and choose a different product.

No one expects a piece of equipment to survive a direct lightning strike; that can represent millions of volts and tens of thousands of amperes. But again: if everything else in the building can chug along without notice, why canôt your equipment? Even more to the point, if the same type of equipment from a different manufacturer seems to ñweatherò just fine, why canôt yours?

It always grieves me when I have to recommend against buying something, but the WVRC-8 remote control from Broadcast Tools has now fallen into that category. This company is

known for producing all sorts of neat gadgetry for broadcasting, and most of it represents a great value. Their audio switchers, for example, are reasonably priced and yet do the job nicely. We have several in use here ï in fact, with a little creative macro programming, weôre able to use a single DAS 8.4 Plus on our NexGen system to eliminate two older ACU-1 analog switchers. Weôre pondering an expansion to four stations, eliminating two other ACU-1s.

Thus, we had high hopes for the WVRC-8 when we purchased five of them a couple of years ago. They were less than a grand each and offered both a web interface and dial-up capabilities. The unit would send email status reports, too, another nice feature. But we soon started running into problems.

There were annoyances: the dial-up and the web interface are completely separate things. If you calibrate one, it does *not* affect the calibration of the other; channel labels and other settings must effectively be entered separately as well. Some configuration options can only be done with one or the other: for example, time-of-day events can only be done via the web. Finally, the dial-up interface canôt be configured with the touch-tone pad on a telephone; you have to lug a computer with a serial port to the site.

These are minor irritations, though; after all, how often will you be changing the channel labels? But the next annoyance that we encountered during actual operation was the fact that the web interface would lock us out if someone entered the wrong password more than three times. You have to go to the transmitter site and physically reboot the machine. When there is an alarm condition, the unit will send an email each time it occurs. I have received (literally) dozens of emails about a marginal alarm condition before I could get to the transmitter site!

Then we discovered that if you ever set the alarm limits on a channel, even if only by accident, the values can never be effectively ñzeroedò again. All of our WVRC-8s (those that continue to function, anyway ï see next) immediately start squawking an alarm as soon as we go in with the web browser. Plus, you get all the aforementioned emails unless you disable the alarm reporting on that channel entirely.

But again, these are annoyances, not deal breakers. These units are relatively inexpensive, after all. But the big killer, and the one that caused us to budget for three Burk VRC2500s this year, is the fact that the WVRC-8 simply cannot take a power surge. At all. Most recently at WXJC-FM, we had a repaired unit on:

- A good UPS with surge filtering
- A separate power line surge filter (and the entire building is on a TVSS)
- Two big disc-type varistors on the phone line
- A separate commercial phone surge filter

... and yet, the thing still died when the next storm came through. Nothing else in the building was damaged. The big LEA TVSS on the wall *didn't even show a surge event*. The ADS alarm system on the same phone line survived, as did our HD-R generator on the exact same UPS.

And yet, the WVRC-8 stopped working. Again. And speaking from experience, if I send it to Broadcast Tools, it will be declared ñlightning damageò and weôll be out another several hundred dollars for a motherboard. Easier just to learn from the experience and throw the thing in the trash.

So... while weôll certainly still use Broadcast Tools products at our studios, itôll be a long time before I ever again place anything with their logo at a transmitter site. Thatôs just my opinion, but there it is.

The Future of Radio

Years ago, I did some contract engineering for an FM station in the Sandhills of NC. If you like whacking little white balls with clubs, Iôm sure youôve heard of Pinehurst, the self-proclaimed ñGolf Capital of The World.ò The place attracts northern retirees who enjoy the game and the warmer weather, making for a disproportionately large elderly population.

It should come as no surprise that this station was quite successful with an ñEasy Listeningò format. On Saturday evenings, they even did a special program of big band music. At the time (early 1980s), there were many retirees living in Pinehurst/Southern Pines who had grown up with Glenn Miller, Les Brown and Woody Herman. They absolutely loved that show.

That station later increased power to ñmove inò to a larger market and changed formats. I donôt think they ever made it as successful as theyôd hoped. But the original owners knew the secret to good, profitable radio: give the listeners what they want and do it well.

What brings this to mind is that weôre going to kill ourselves if weôre hard-headed or nearsighted. The cranial impenetrability is insisting on doing

things the same way, regardless of whether theyôre working; the myopia would be refusing to see the clear trends.

Trends, by definition, occur slowly; things donôt change overnight. But recent polls of younger Americans (say, under 25 years old) clearly show that most of these people rarely if ever listen to radio nowadays. While tape and CD made it into our automobiles, these younger Americans are far more likely to take an MP3 player and connect it to the car stereo. At home and in the office, if they want music, theyôll listen to that same player, or to a web radio ñstationò that allows them to set up their own playlist.

I wonôt get into the classic conundrum: how does one reach the younger listeners while not alienating the older, established audience? Greater minds than mine will have to figure that one out. But since ñWeb Radioò looms on the near horizon as the Great Boogeyman, I can and will address that.

First, we remain competitive, especially in automobiles, because no one has figured out how to get truly reliable, wide-area Internet service into vehicles... yet. What will we do when that happens? The key words here are ñyetò and ñwhen.ò We have some breathing room in which to work, but we need to make wise use of it. HD-R was implemented, at least in part, to help compete with new digital delivery methods, but if we finally determine that HD-R isnôt doing that, we need to look to something else.

Thatôs why Iôve said here in the past that, to hedge our bets, we also have to make sure that our streams are as good as possible. Our stations donôt treat streams as throwaway additions; in some cases, especially with our more successful formats, we even use dedicated processing just for the stream.

But I still think that the real answer is the same as what the original owners of that easy listening FM in the Sandhills figured out: give the listeners what they want, and (ha!) *what they can't get elsewhere*. Those web ñstationsò that allow you to set up your own playlist are a neat trick, but you know what they canôt do? They canôt do live, real interviews with the listenersô favorite artists. They canôt even do traffic, or warn listeners when severe weather is approaching.

The real key to radio is *personalities.* Look at the most successful stations and youôll see real show hosts who talk to real listeners. Youôll see salespeople who treat their clients with care and respect. Youôll see engineers who are passionate about how the station sounds, who think of new ways to tinker and get one more ounce of performance from the equipment. Simply put ï and I believe this with all my heart ï youôll see people who love radio, who believe in radio and who want radio to continue to be a success. Iôve loved radio since I was a teenager, and God has blessed me with a great job, working for a great company. I couldnôt be happier, and overall, Iôm still positive about the future of my industry.

Now, letôs turn it over to Todd; until next time, remember to keep praying for America.

Server Moves
by
Todd Dixon
Assistant Chief Engineer
CBC- Birmingham

Well, we finally got our primary and secondary file servers in place in Birmingham. There was a fair amount of trepidation in the air when we put the countdown in effect and started knocking out our checklist. If youôve been following along, we needed to make a switch in our server operating systems from Novell Netware to Window Server 2008 R2. When we upgraded our servers last (circa 2005 with Hurricane Ivan blowing through town), we were probably one of the last full Novell server upgrades that RCS (Prophet) did. Most of our calls to Nexgen support representatives normally contained the sentence, ñOh, youôre still on Novell Netware?ò Suffice it to say that the documentation for such a move is nearly non-existent.

From our overall computer experience and a scant outline we received from Jeff Hillis at RCS, we were able put together a plan to get our audio data transferred. Even *Baron Von Damperfield*, as Stephen so eloquently calls me, did not halt the progress of the move. We had a few NexGen log and audio glitches that were easily cleared up after the transfer and all has been well with our servers for several weeks. Everybody seems to be happy with having newer hardware and more storage space (nearly 930 GB) on our servers.

No Room at the Inn in St. Louis

Our St. Louis cluster also needed to have its server upgraded. The staff there was constantly bumping against the serverôs storage capacity of only 100 or so gigabytes. They were having to remove audio in order to make room for shows that needed to run! We had already had their new file server here in Birmingham, building it up with Windows Server 2008 and setting up the 1 terabyte RAID 1 configuration (mirror), and they were currently working with Windows Server 2003.

I have been with CBC for nearly nine years and had never been to another market. I loaded up and got to St. Louis on a Sunday night. The next morning, with a fresh four-inch layer of snow on the ground that I apparently brought from Alabama, I did the initial data copy that took about four hours. I got to meet other Crawfordarians that I had only talked to on the phone and updated several office computers the rest of the day.

At about 11:00 PM, I went back to the studios. The only thing I needed to do was put the two stations in Emergency Control Room (a NexGen feature that allows operation without an operational file server and/or audio server), move any audio that had been changed since my initial copy, and then shut down the NexGen database on the old server and restart it on the new server.

That work was done relatively quickly, but then I began to live up to my nicknameé when I went to restart all the NexGen workstations and get them up on the new server, none of them could see the server. A call to NexGen support and two hours later, my damper field began to dissipate and I realized the firewall on the server was not ported for NexGen. I just disabled the firewall for a few hours, got all of the workstations up and running, called Stephen the next morning to give me the ports that needed to be opened, and then re-enabled the firewall.

Besides the issue with the firewall, the only negative effect from the move in St. Louis was that one log had to be rebuilt. God really blessed both of these installations and I was thankful to be a part of them!

Valley Notes

By
Steve Minshall
Chief Engineer, KCBC

The production room at KCBC uses a Tascam DM-3200 digital mixer. When this console arrived a couple of years ago, it was quite a change from what we had been using. The capabilities were amazing. It was obviously very complex electronically and it came to my mind that this might prove difficult to repair, should that need arise.

The console was installed and worked wonderfully. In fact, it is by far the quietest console we have ever had in the studio. With a 50 kW AM transmitter in the building and a 175 kVA power transformer just a matter of feet away, we always had some little hum or noise way down there. This console is dead quiet.

I was concerned, however, that because of the complexity of the console, that there was a possibility that it might have to be returned for factory repair during the warranty period. I kept the rather large shipping container for the entire warranty period and then some. One day I got tired of that big old box and disposed of ité big mistake. I had good reasoning for disposing of the big box, I thought. The Tascam Authorized Service Center is in Sacramento, only a 75 minute drive, so who needs a shipping container anyway?

You guessed it. The Tascam developed a problem. After some poking around inside I decided that it would have to go out for repair. This was the first time I have ever had to send a console out for any kind of service. I drove it up to the service center in Sacramento and left it there for repair. But it turns out that even the Tascam Authorized Service Center

could not fix it. They did update the firmware, put in a new battery and gave me a very nice bill for their ñservice.ò They told me it had to go back to Tascam for repair. I felt a little better about my inability to fix it, knowing that even the service center could not repair it.

So it was clear that I would have to ship it off to Tascam, and I sure wished I had the big box it came in! We checked with Tascam about sending us an empty box to ship it in, but that was ridiculously expensive. Eventually I made a trip to Southern California and I dropped the console off at KBRT. Todd Stickler was graciously enough to arrange delivery to the Tascam Factory Repair Center, only a short drive from the KBRT studios. Todd was smart enough to have saved the shipping container for his Tascam console, so after it was repaired it was shipped back to us.

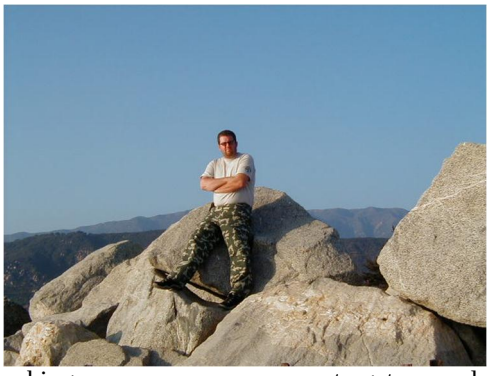
Now the console is back in operation at KCBC. This time the shipping box will be kept.

Catalina Tales

By
Bill Agresta
Chief Engineer, KBRT

Greetings from Santa Catalina Island!

The report of possible snow at the 800-foot level in last monthôs weather report never really came close. The Southern California mountains did get quite a bit, but it remained at about the two-thousand-foot and above level, so the KBRT Ranch transmitter site never got the great photo opportunity we were hoping for.



We did, however, get a visit from the *island factor* later in the month as we rode out the things peculiar to this special place. After almost getting through an entire month of things working as planned, we ended the month with one of our famous Edison power rollercoasters. We rode through several severe brownouts until one finally caused some issues for us, taking us off the air for over an hour.

I am still in search of why several of the electrical outlets in our transmitter plantôs studio behind our audio rack have gone dead despite the breaker being on. We first thought this to be failed UPS units as we have faced this several times in the past after such events, but upon further inspection I found several electrical outlets dead and was forced to run extension cords to other outlets.

As the *island factor* usually goes, this struck at the worst possible moment, and sure enough, I had just gotten off the boat in Long Beach after being called by the parking garage where I park my truck on the mainland. They were preparing for some events and needed all long term parking customers to move our vehicles above the fourth floor.

As I am always carful to do these days, I made sure I had someone to cover for me at the transmitter plant, so I called my trusty friend Glen right away, sending him up the hill. Glen runs the ISP in town on the cable television system, so he knows all about the *island factor*. He called me from the plant as he arrived and noticed half of our audio rack not functioning.

I did not have an electrical extension cord that was accessible to him and was long enough to reach into the other room, so back down the hill he ran to get a couple of cords. This was what kept us off the air for as long as we were, but Iôm convinced that even if weôd had some extension cords lying around, you can never have enough on hand to satisfy the *island factor.* I did have an extension cord and power strip hanging next to the rack, but wouldnôt you know it, all of the outlets it would reach were dead? Somehow I just know that if I had a longer cable on hand and ready to go, that would have just meant more outlets would have gone dead!

Anyway, we were able to return KBRT to the air without further issue and keep it on the air through the heavy storm that continued to pound us with hurricane-force winds and heavy rain.

We continue our move forward at our new Blackstar Canyon tower site and are already seeing progress regarding our security efforts. The vandals who have tried to take over the place are slowly losing steam as we continue to respond to each incident with quick action, repairing and posting

signage. I continue to look forward to our move to this beautiful site that we have been so blessed to acquire!

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

Will the Encroaching Towers Get Away With It?

Of course that headline is a little obtuse, but I believe that when youôve read this, you will likely realize Iôm not overstating the case regarding cell tower encroachment. The integrity of your AM antenna system is, in my experience, under attack. You who are either AM station owners, managers and CEs, read on.

It looks like an era is coming to an end. I recently measured my last antenna proof on a station in upper Michigan, and itôs not that my work assignments are ending, itôs the *why* which concerns me, and which should concern you as well.

If you own or run an AM station, and if you donôt know the FCC Rules regarding interference to your antenna system by nearby tower construction, go learn them. Hereôs a digest: The pertinent rules are contained in 47 CFR §22.371 (for non-broadcast, or PRMS tower owners) and 47 CFR §73.1692 (for broadcast towers constructing near AM broadcast antennas). Note that these two rules, though they are aimed at the same objective, are *not* alike, although in my opinion, they should be. More on that in a moment.

When any kind of tower is built in close proximity to your stationôs transmitter site (the FCC specifies this to be within a 3 km, or almost two mile radius of your site if youôre antenna is directional; 1 km or 0.61 miles of your site if your antenna is a non-DA), and the tower is over an eighth wavelength tall at your operating frequency (which could be as short as 77 feet, depending on *your* operating frequency), the operator of the encroaching tower, as a part of its own obligation as a licensee, is *required* to prove to the FCC and to your station that the tower being erected or modified will not interfere with your AM stationôs pattern. It is how the PMRS or cell tower company goes about determining this (on their own) which is whatôs becoming the problem..

When new tower construction is planned, the tower company must first send early notice to the affected AM station of the encroaching towerôs impending construction. Advice #1: Donôt *ever* ignore those notices. You must respond to the notice, proactively, not because itôs a legal requirement on you but because it is the only way in which you can handle your legal response as a licensee. This also applies when modifications are made on the encroaching tower.

If a tower is close enough to the AM site to potentially cause interference to the AM stationôs pattern, that tower is required to have a de-tuning skirt installed on it, which should be adjustable to make the tower electrically ñinvisibleò to the AM antenna system. This is key. It takes a consulting engineer (at their expense, not yours) to determine the need for the skirt. Furthermore, proper operation of the encroaching tower requires that the towerôs de-tuning skirt be checked for proper adjustment at regular intervals, which happens less often than it should, and be repaired when needed, the need for which happens more often than you know. Not every broadcast engineer knows this, but all should, as should every station manager/owner. That knowledge also implies a proactive response.

By far, the best way to determine the degree of disturbance to any AM array by any neighboring tower is with a partial DA proof, at least, as is required under FCC §73.1692. That means measuring a minimum of eight points on each of the radials in the stationôs latest DA proof which was using the stationôs FCC submission to determine the points. Such measurements are best done by a trained field engineer with a calibrated AM Field Intensity Meter, paid for through the tower company, to do the proof. This process also requires the consulting engineer to

analyze the field intensity data taken before and after the tower is built or modified. There are those who will argue with this process, and when method of moments is in effect on the AM station in question the process may be moot, but I still stick to my guns on that process, not for my pocketbook so much as for the integrity of the AM service. I and too many of my colleagues have seen what happens when this process doesn't happen.

The thing is, the process is *required* for broadcasters under §73.1692. It is *not* fully required under §22.371 of the rules, and that's a serious problem.

There are others who, like me, find this difference in the rules disturbing. One broadcast consulting engineer of my acquaintance has the same piece of advice I have for *all* AM station operators who receive notice of the encroachment of a cell or other tower to the near proximity to the AM site is simple: "A good idea is for all stations to respond to the notice of construction. In response to the cell company *and* the engineer, state that *you expect to have a partial proof showing your station in compliance*, or you will file a formal complaint with the FCC and perhaps also in civil court for damages. Also state that you will review the documentation and make spot checks to insure the accuracy of the data" [emphasis mine]. But others disagree, instead measuring only the monitor points, or points on the radial between the tower and the center of the AM array, as if that proves anything.

Think you can't fight back? Think that you'd be making an idle threat? Think again. You *have* that right because the FCC has laid on *you*, the licensee, the *responsibility* for the integrity of your AM station's directional pattern. If you *don't* respond aggressively, then the blood is on *your* hands and the fine money is out of *your* wallet. Legal costs if you challenge? Hey, if you're the injured party, which in such a case you are, then *they* have to pay all of that. And don't forget, you have the right to stop the construction of the encroaching tower, or to get the FCC or the courts to force the cell company to tear the thing down. It's has already happened, and here in Chicago, no less..

More than one engineering consultant has told me, "The only thing what will turn around the current movement is for one or more AM station to file both federal and civil suits. The only way it will 'pass' as a civil suit is to show [that] the cell tower damaged the AM station, and the restoration is an expensive process (detune, adjust pattern, proofs, etc.). If there are no advance measurements then there is no proof that the pattern was not in adjustment prior to the tower's erection."

About that cell tower which was taken down in Chicago: "The [AM station's] pattern was so bad that the owner of the station liked his new coverage and did not want it [the problem] fixed. Cell One built the tower with no advance measurements and therefore there was no proof their tower did the damage. Cell One never again did a construction until we completed advance measurements... it was the cost!"

With all that in mind, here's the recent history.

The first indication of impending trouble came when the Director of Compliance for one of the biggest cellular tower maintenance and construction firms in the business was fired late last year. According to sources, he was canned for doing his job *too well*, which, in turn, cost the company money. Understand that in the grand scheme of things, given how much revenue any given cell tower makes in a *day*, the cost of keeping a cell tower legal with its neighbors is a very tiny drop in the bucket, while the costs of non-compliance with the FCC's rules can be massive indeed, on both the AM station *and* the cell tower maintenance company. But, here it is – the cell maintenance company had let go the only person who seems to have had the integrity to comply by the rules.

After that, the tower maintenance company started financially squeezing their AM pattern measuring subcontractors by forcing them to sign an agreement to charge 50% less for their services or be dropped as vendors. A contract addendum was sent out to all such vendors to enforce such an arrangement, with the proviso that if they didn't sign, they would be removed the active vendor list. The terms are such that it is now a financially losing proposition to make partial proof measurements.

Clearly, those inconvenient AM station owners who were trying to save their wallets from a huge FCC fine mean nothing to them anymore, if they ever did. The result is that field work of this sort is disappearing, and AM stations are left on their own to monitor and enforce compliance with the rules, and save the integrity of their antenna systems. And they'd better be doing it, too. According to the documentation I have, this whole problem is being driven by – you guessed it – the cellular companies themselves, who apparently prefer to maximize their profits at the expense of their neighboring AM station transmitter sites.

Here are more war stories from the field. A chief engineer of an AM in Iowa was given notice that a tower was to be built near his 5 kW, DA-night

facility. This meant a night pattern measurement of his array, which of course had to be done during the day. He waited for the word to come to make the switch, but it never came. Instead, some weeks later, he got the ópproofô result in the mail. When he tried to question the validity of the data, he was brushed off. Fraud in this case? Well, you be the judge. You canôt measure a night pattern with the station in day (non-DA) mode.

Another story? Sure. A contract engineer at an AM station in Austin, Texas, reports that the station ñé got notice of the construction of a cell tower. [I] called the person who was to ómeasureô the antenna. [I] asked him when he wants the night time power. The person responded, ôWe donôt measure anything. We just check the de-tuning of the tower and that is all.ôõ That station is not protected from pattern interference by any such halfway, ñhalf-fastò effort. Again, that station had better assert its rights, not just with the FCC, but also in the courts.

And the stakes are getting higher. In recent days, Iôve learned that Iôm not the only ñpersonò talking about this subject. None other than Mark Persons, writing in *Radio World*, mentioned the subject in relation to wind turbine generators. The difference is, the station in question saw this situation coming and was aggressive in dealing with it.

Thatôs the key: from now on, y*ou* as the licensee have to get involved. Here are some thoughts on how:

1. When a cell or other tower company proposes to build any tower within a two mile radius of your station, given the present ñscofflawò climate of these companies, you must be aggressive in response. Simply protest the proposal to the FCC and *force* the cell tower maintenance company to commission a *partial,* not a skeleton or monitor-point-only directional proof, before and after on your stationôs pattern, at their expense.
2. Draw a circle on a local map at a two-mile radius (minimum) around your transmitter site. Call a meeting of your station staff and tell them that, if possible, they are to keep an eye out in the area every single day, for any human activity on towers within the circle, or of any foundation work which looks like a tower is about to be built. Tower crews seem to like to work weekends. Let that be a tip. Offer a cash bounty for each such instance that the staff find. If your station has not been notified of that towerôs impending construction or modification, then you have evidence. Get aggressive, scream to the FCC, demand that the tower in question be dismantled or its construction halted until youôve been satisfied, by both pre- and post-construction measurements showing that your AM stationôs pattern has been properly protected, and youôve been given the results.
3. For stations running high-intensity DAs, or powers over 5 kW or both, you should do this: Donôt limit protection of your pattern to the cell towers inside the two mile limit. I had a wild experience some years back with the great WWKB in Buffalo, New York, a 50 kW blowtorch with a very hot three tower DA-1, each tower over a half wavelength tall at 1520 kHz. I discovered, in measuring their pattern, that the particular cell company involved had not the one or two towers which were directly involved, but more like *twelve* towers, in distances of up to eight miles from the transmitter site, all of which had been installed at the same time, and all of which were re-radiating like they had their own transmitters. Mind you, WWKBôs field intensity in those areas was well in excess of a *volt.* Of course these new cell towers were driving the stationôs pattern bonkers, but I could only tell the station CE what was going on. I donôt know what ever became of that situation. I can only hope that the station took the proper measures to protect themselves, while realizing that, outside of that two mile radius, the FCC wasnôt likely to back them up. Essentially, the station is on its own; liability for the pattern disturbance would have to be decided in the courts. But they had to do something to protect their pattern, and this is all they have.
4. Someone needs to petition the FCC to change 47 CFR §22.371 to be exactly like 47 CFR §73.1692. The more stringent requirements should be the norm, across the board. Without this one change, cell tower companies will feel no compunction about putting up towers without the benefit of proper protection, or documenting that protection, to AM arrays. I would go even further, if I had my way, in dumping the 3 km/1 km/0.8 km rule entirely, and base the protection distance entirely on the highest field strength at the peak of the AM stationôs main lobe or lobes, as ready from their latest partial proof. Only then can an AM station get real protection from cell (and other) tower interference.
5. If a field engineer calls and tells you he needs to set a day to run a set of partial proof measurements on your night directional array during the day, move heaven and earth with management to *cooperate with him or her.*

Doing so will save your butt in the long run.

Can it become expensive to protect your DA from cell tower interference? Yes, it can. The cell tower companies are counting on that to force you to give up the fight. However, since in most cases the facts in such a court case are on the AM stationôs side rather than that of the cell phone companyôs or their tower maintenance vendorôs, Iôll bet that in most cases the fight can be won, those costs can be recovered, and the lesson will be expensive for *them*. It makes it worth a try, and if enough of these suits are decided in favor of the AM station licensees, it is more likely to make the cell companies think twice about their scofflaw policies. It should be the way to bet. Itôs definitely the way to pray.

Finally, a story which is indicative. I recently did a night DA partial proof on a station in Detroit. I had earlier notified station engineering of my impending arrival. When I called the CE to tell him that I was ready to start, asking him to please switch to night pattern, he responded with, ñOkay, Iôll wait to until you get to each point and then switch to night power for you so you can take the reading.ò I responded that I was not doing just the monitor points, but nine points each on all twelve of his night pattern radials. After a moment of apparently stunned silence, he said, ñOh... youôre going to do this right.ò ñWell, *yeah,*ò was my thought (but I didnôt express it). What other way is there to do it?

The price of freedom is eternal vigilance. So is the price of the integrity of your AM antenna directional array. The price is also worth it. Donôt be afraid to stand up for it. Pay now or pay even more later.

Until next month...

The Portland Report
By
John White, CBRE
Chief Engineer, CBC–Portland

As the EAS system undergoes changes and upgrades to the new EAS/CAP system, activity here in Oregon sheds some light on how the system is actually performing. The first observation goes back to December 14 when a high-potential tornado cell developed to the south of the metro area.

The first National Weather Service activation of EAS came almost simultaneously as a tornado touched down in the small communities of Aumsville, leaving a path of destruction just before noon. That caused extensive damage. A second alert was released as the storm cell tracked north and east of Oregon City through the Portland metro area.

The tornado warnings provided a practical observation of EAS effectiveness. My wife was at a restaurant when the two NWS activationôs came down. The restaurant had a radio on across the room and she clearly heard the quacks and tone. After talking with her I made with the following observations, some of which are alarming:

1. No one stopped and listened for either activation.

2. She was unable to hear the message due to the noise and activity in the restaurant (although those closer to the radio clearly could hear the message).

3. On the second activation, she did pick out ñtornadoò and not much else. As she has participated in weather spotting training, she was able to conclude that tornadic conditions were unlikely at her location.

4. She knew this was an activation, but does the public know the difference between a test and activation with the inclusion of an alert tone?

5. Does the public hear the tests often enough that they think an activation is just another test?

The local discussion here in Portland is focused on two issues:

1. The quality of the audio message. We need to strive not for the usual metrics, but need to concentrate on clarity and understandability. The audio needs to be clear, intelligible and not muffled. We do have a quality problem and not the usual

broadcast standards of wide audio bandwidth or using an RE-20 or 44-BX microphone, a difficult goal with the degradation of multiple record, processing, and playback cycles.

2. Are we creating a cry wolf situation with frequent RWT and RMT tests? Here in Oregon, we are moving in the direction of recommending that an RWT consist of the duck quacks with no announcement.

In this part of the country, we tend to be complacent. We don't get hurricanes, and tornadoes are usually small. But we do have a great potential for a great subduction zone earthquake. A little history perspective is in order.

We experience a great earthquake in the northwest about every 300 years. In generic terms, along the Oregon-Washington coast the ocean plate is pushing east against the land plate. As the ocean plate slides under the land plate, it lifts the beach. In one location, an area that had been forested fell below sea level. Counting tree rings, we have been able to date past quakes.

In fact, we know quite precisely the date of the last great northwest quake. January 26, 1700. Since we don't have detailed written records, at least not here, how do we know the date so accurately? Here is where geologists hand off the task to historians. Historians studying Japanese records noted a large tsunami on that date, one that could only have been generated by a Pacific Northwest earthquake.

Here in Oregon, we just experienced the reverse event as a tsunami struck Oregon coastlines earlier this month, causing some damage. The tsunami that struck Oregon and other western U.S. coastlines on March 11 was the result of an enormous 9.0-magnitude earthquake that struck off northeastern Japan.

Overlooked in the national legacy media as not very significant, the tsunami was described in *The Oregonian:* ñThe surge of water that swept into the Port of Brookings Harbor on March 11 smashed boats like bathtub toys and destroyed nearly half the port.ò While most of the US coastline was undamaged some areas did experience extensive damage.

The good news is the tsunami alert was released quickly by the Alaska Tsunami Warning Center and distributed by the NWS and Oregon EAS network. Follow on coastal siren warnings and radio media coverage insured this alert was visible and widely distributed. Given the hours of warning time, evacuation of low-lying coastal areas went well. The challenge will be ñthe big oneò involving the northwest subduction zone. Warning time for a local quake would be less than 20 minutes.

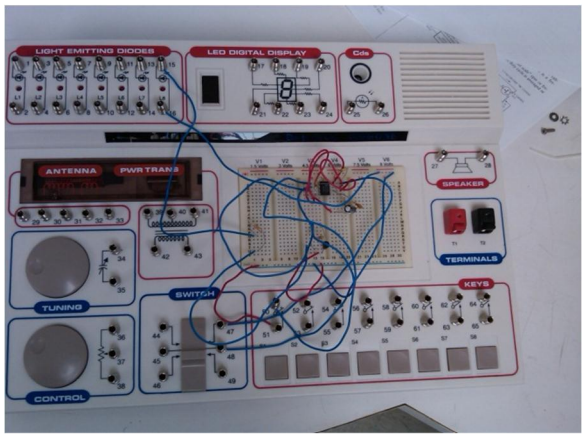
Rocky Mountain Ramblings
The Denver Report
by
Amanda Alexander, CBT
Chief Engineer, CBC - Denver

April is upon us. That means one thing: baseball. When February rolls around, we start hearing talk about trades and about pitchers and catchers reporting to spring training. When March comes, itôs here. Spring training begins, and although not the regular players the whole game, we get a glimpse of what we might expect when April comes.

April is also time for spring storms. The snows start to taper off and in its place comes the rain. The expectancy of these things gets me through March.

Recently, after receiving a Sunday night phone call from one of our operations managers, we found that KLTTôs operating parameters werenôt right. The night common point was low. Instead of it being the usual 5.5 amps, it was down to 3.44 amps. Thankfully, our ops manager pays attention. He checks on the site every night before he goes to bed and he knows what things should look likeé not necessarily where they should be exactly, but at least the ballpark they should be in. He knew the current was normally around 5 amps. He called me and I began looking into the problem.

Also around the same time he called, Security Central, our alarm company, called me to inform me there had been a 20-second power outage



The breadboarded power reduction circuit

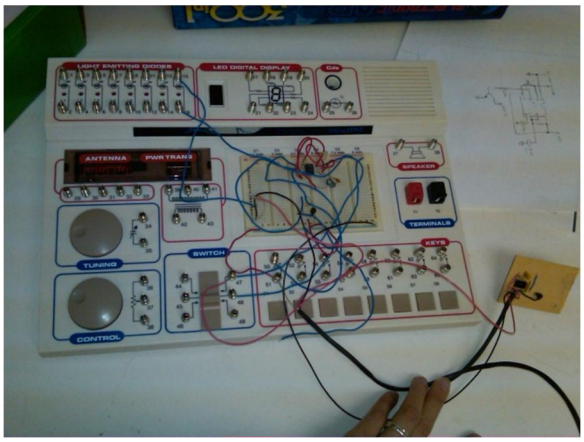
at KLTT. Since the directional parameters were all okay and the power was low following this reported power outage, the first thing my dad and I both thought was there might be a phase out. We were going to monitor it through the night and if it wasnôt back to full power by morning, we would deal with it then. Sure enough morning came and it was still at 3.44 amps. Since he leaves the house really early, my dad decided to go ahead and head out there and found the HD exciter wasnôt working. The transmitter had switched over to exciter B, and the output of that exciter was a little low on the night power setting. It didnôt take long to figure out that the exgine in the Nautel AM-IBOC HD generator had failed. A replacement exgine was ordered.

While out there he noticed when the site switched to the day pattern, the transmitter always came up in Low 2. Low 2 is set for 10 kW. This is known as ñlightning powerò for those of us in Denver. Ed Dulaney and I created a circuit several years ago to help avoid a catastrophe at KLTT. While I was still a board op, we had some lightning strikes at KLTT that did a lot of damage to one of the transmission lines. Ed designed the circuit and had me put it together on a piece of perf-board. The circuit is triggered by the SWR cutback on the transmitter. As soon as it senses that first SWR cutback, it kicks it to Low 2. This then reduces the RF voltage in the system and makes it much less likely to arc over inside a transmission line in the event of a direct lightning strike to a tower.

After working great for several years, now when putting the transmitter into day mode, something was triggering the circuit and putting the transmitter power to Low 2 instead of High when the switch to day pattern would take place. We did some digging around and found different culprits. Maybe it is getting a pulse from somewhere to trigger the Low 2 command. Maybe there is a short on the perf-board. Perhaps there is something wrong with the +15 V the board gets its power from. The trouble was, there was no documentation on the circuit; we didnôt know how it was supposed to work, so it was impossible to do any real troubleshooting.

As a means of ñreverse-engineeringò the circuit, we decided to bring in my 300-in-1 electronics set Iôve had since I went through the CIE engineering course. After tracing out the circuit and drawing a schematic (since there was no documentation of it anywhere), we used the breadboard to build the circuit.

We first verified how the circuit was supposed to work, then connected the circuit from the transmitter on the breadboard to verify that it was working properly. It did appear to work right, providing a one-second pulse output with any length of input pulse. Unlike the circuit when it was in the transmitter, it did not pulse the output when power was applied. Evidently, something was going on in the transmitter that was not occurring on the breadboard.



The circuit from the transmitter tied into the breadboard for testing

So we put the circuit back in the transmitter and not surprisingly, found that it would still switch the transmitter to Low 2 whenever the interlock would open and close during pattern change. To add insult to injury, we discovered that when we switched the transmitter from Local back to Remote, it also went to Low 2. We have no idea what the issue with that is. We put the transmitter in Remote and were able to remotely switch it back to high power.

We found a constant +24 V supply available on the remote interface in the transmitter and figured that perhaps if we could power the circuit from that, the problem would go away. It appeared that it was

the power-up of the +15 volt supply that was producing the unwanted triggers. However, +24 V is too much voltage for a 555 timer IC. We needed a regulator to drop that +24 volt supply down to +5 volts for the circuit. We found a 78L05 regulator at the studio and went back out to KLTT to install it on the board. We put it all back together andé when we switched the transmitter from night to dayé LOW 2!!!

At this point, weôre thinking that perhaps the 555 is damaged internally and is very susceptible to transients. Just touching the input trigger with a probe will trigger the circuit. Before we give up, weôre going to rebuild the circuit with new components and see what happens. Itôs impractical to replace the IC in the old circuit since itôs built with point-to-point solder-type construction and the IC was not socketed. Weôll build the new one with wire-wrap construction. In the meantime, I have written a line in the AutoPilot day mode switch script to switch to high power once it is switched to day mode. That is working fine and will hold us until we get this issue figured out.

On the 25th of March, we went out to KLTT to deal with this problem a little more and also do the sample line measurements for moment method modeling the array. We already have the FCC STA for this, and KLTT is the only one of our Denver stations we had not gotten the chance to do. Everything was going along great until I got out of my car to run into the building to grab a key to change a combo lock.

While driving back to the building from two of the towers, I heard a noise that sounded like I was dragging a tumbleweed. When I got out of my car, I still heard the noise. The back driverôs side tire was nearly flat. My dad and I emptied the back of my car to get to the jack and began changing that tire to the spare.

As I was running into the building to find a number for Discount Tire Company, I noticed the front tire was also nearly flat. Oh boy. This meant an eventful afternoon. The Discount Tire store not far from the KLTT tower site has had a sign up for some time saying, ñComing Soon.ò It had been a while since I had been that direction, so I was hoping it was open for business. If it were, we could put the spare on, air up the other tire with the transmitter site air compressor and probably make it. If not, I have a 12-volt compressor of my own in my car. Unfortunately it wasnôt open, not even built yet.

I called Keith Peterson and he was able to come to our rescue.

While waiting on Keith, I went ahead and walked to the other two towers across the canal to so we could get those measurements finished. It didnôt take very long, and before we knew it, Keith and ñJust Keithò as Keithôs youngest is called, were there. We loaded the two tires and ourselves into Keithôs van and went to drop them off at a Discount Tire near KLZ and then grabbed some lunch while the tires were replaced.

If any of you have a Discount Tire outlet in your neck in the woods, or a similar place that offers a lifetime warranty at a decent price, get it! Two new tires would have cost me nearly $300. I got two brand new tires for $40, which was the price of the warranty for both tires plus the disposal fees. What a deal! This isnôt the first time Discount Tire has saved me in a work-related incident. Many years ago, Ed dropped the blade for the tractor right behind my car in a location where I could not see it. I backed right onto it and popped a tire. Again, the cost of replacement was far less than a tire would have otherwise have cost me. Discount has always been super friendly towards me and has never tried to get me to buy something Iôm not interested in, as is the case normally when a woman is involved. We finally got the tires back on my car and the day quickly came to an end. Many thanks to Keith and ñJust Keithò for taking time out of their day to help us.

I am still unsure of the Sage Digital ENDEC units. While I like the looks of them and how they are supposed to work, I am still dealing with some issues. First off, some of our units will not receive a test from the LP-2, an FM station. Some weeks it works fine, and other weeks it does not. Itôs very unpredictable.

After talking to a gentleman from Sage, we decided it was most likely level related. We matched the levels of the LP-2 FM station to that of the LP-1 AM station which we were getting tests from every week with no issue. The next week, we received the weekly test on the unit that previously missed it. The next week, though, the problem happened again. I have finally turned the levels down as far as they can go and so far so good.

The other issue I am having is with the emailing of notifications. For two weeks, once we installed the units, I was getting the emails from all four stations when they sent out a test. Then all of a sudden, the KLTT and KLDC email notifications quit working. Again, after working with Sage, I changed a few settings and they began working again. Then, yet again, they quit working again. I have no idea as to what to change now. I am supposed to be sending the mailerr.txt file to Sage; however, it seems there is no such file, which indicates nothing is wrong. I

would love to hear from anyone else experiencing this problem with the Digital ENDEC email notifications.

The tractor is back!! It was a great day seeing that monster pull into our drive at KLZ. I drove it some, mainly to air up a tire at the building and then to put it back in the barn. It starts up with no problem and it even brakes with no problems. Instead of having to worry about rolling and rolling while pushing the brakes, I can move inches at a time to fine tune the location when putting the brush hog or other accessory on the tractor. I do believe if anything more happens to the tractor, we will take it over to the canal and just let it roll into it and sit there and rust.

As I mentioned above, I look forward to baseball in April. First pitch is at 2:10 PM MST time for the Colorado Rockies on April 1. For the first time, both my parents will be in attendance as well as myself. Hopefully April 1 will be a look at things to come for the Rockies. Weôre hoping for a World Series run this year.

Work wonôt let up, either, as it is spring and I plan on doing some major cleaning at the sites. I need to get them looking great again so I can take our new station personnel out to see their tower sites. April will also be a busy month for the family. As occurs every April, the NAB convention is coming up and both my parents will be going. It is also the start of me being on my own. If all goes well, I will close on my first condo April 15th. It isnôt far from my parentsô house, which will be nice, and it is in a good part of town, not far from Buckley Air Force Base. It is already an adjustment knowing I canôt buy the things I want at the spur of the moment. Instead, Iôll have to be patient and make sure I have the money to purchase the item before doing so. I covet your prayers in this time of transition for both my parents and myself.

That about wraps it up for this month, so until next timeé thatôs all folks!!!

Digital Diary
by
Larry Foltran
Corporate Website & Information Technology Coordinator

Vampire Power

Thereôs a good chance youôve never heard of vampire power, but it is in fact a reality. No, Iôm not talking about those recent teen romance movies, and Bela Lugosi has nothing to do with it ï put the garlic away. Vampire power is simply the constant stream, albeit in small amounts, of electrical power to electronic items while in standby mode. Hereôs a quick example for you. Take a look at your printer. Do you unplug it when itôs not in use? If not, itôs a source of vampire power. In my opinion, computer equipment is the biggest source of vampire power because the majority of items are constantly left on just waiting to be used. Whether itôs the indicator light on a set of external speakers or a computer monitor that has gone into standby mode, electricity is still being drawn into those components. In some extreme situations, such as scanners as an example, the device may remain idle for weeks if not months. Quite honestly, Iôm as guilty of this as anyone else. My printers stay on 24/7 along with a variety of other items. Their indicator lights continue to glow like creepy little eyes when the lights are off.

I recently came across a device called the Smart Strip that serves as the proverbial wooden stake in the fight against vampire power. This device is essentially a power strip with some intelligence built in and utilizes a computer plugged into its master socket as the control source for the peripherals plugged into the other sockets. When you power down your computer, power to your printer, speakers, monitor and any other peripheral plugged into the smart strip is cut off. When the computer powers up, the other devices come back up as well. Depending on how many devices you have that can benefit from this setup, $40

is a small investment on how much you could end up saving in the long run. If nothing else, you can boast that your computer setup is ñgreenò and can give yourself a pat on the back.

Browser War – Version 2.0

A few months back, I covered the growing battle for your computer between Microsoft, Google, and Mozilla and their respective internet browsers. That battle has been ratcheted up a notch recently with the release of major updates to each groupôs browser application. I should come as no surprise that I just had to take all three out for a test drive.

Iôve actually been running the beta version of Microsoftôs Internet Explorer 9 for a couple of months now and just recently upgraded to the release version. Quite honestly, Iôve noticed very few changes between the two versions. According to Microsoft, this new version boasts some increased security features along with a cleaner look and added functionality. Some of the stability issues I encountered in the beta were solved in the release version. Further, Iôve encountered almost none of the issues I experienced in version 8. The Microsoft development team definitely deserves a thumbs-up for their work on IE9.

Although I am still getting accustomed to the new layout, which at first impression reminded me of Google Chrome, Iôm pleased overall with this new version. The tabs have been moved to the space adjacent to the address bar, reducing the height of the menu area and in turn making the layout size minimal. Pages also seem to load slightly quicker which is obviously a plus. One surprising technical aspect that has apparently been pushed to the corner is IE 9ôs inability to run on Windows XP. Thatôs righté only Vista and W7 are supported in this release. Perhaps this is Microsoftôs attempt to get move the hold out XP users over to Windows 7. *Go ahead, don't be scared. Just let go of XP and quietly move past the Vista bogeyman. Everything will be ok.*

My least favorite browser since its initial launch has been Google Chrome. That opinion hasnôt changed at all with the release of Chrome 10. I know some people love the general layout, but itôs something that hasnôt grown on me. My kudos to Google reside in their installation process. Rather than downloading the installation file to your desktop and then launching it, installation of Chrome 10 is seamless and quick, and is done completely without leaving your browser window.

On the technical end, it has been reported that Chrome 10 enjoys faster display speeds, improved security features, and a significant increase in speed when running JavaScript. I can definitely appreciate the technical advances in this application. But unless Iôm doing cross-browser compatibility testing, you wonôt see it open on my desktop.

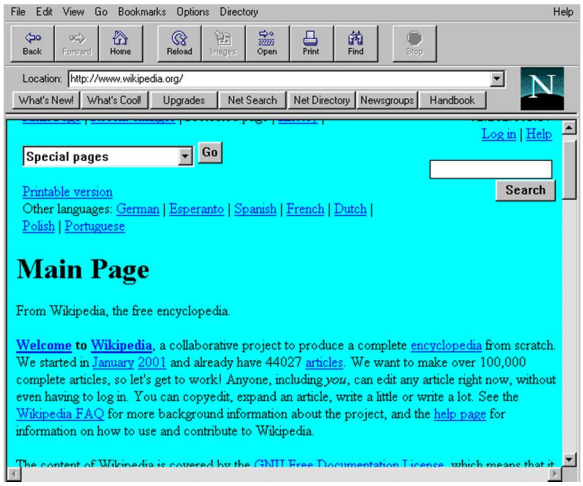
Mozillaôs entry in this contest is Firefox 4. According to reports, this version took eight months of development and the resolution of over 8000 related bugs. In my opinion, Firefox 4 looks similar to Internet Explorer 8, but with some minor differences such as tab location. Under the hood, Mozilla claims that performance has been improved along with JavaScript speed and Flash compatibility.

Iôm an avid tab user and often end up with numerous tabs along the top of my browser. That being said, my favorite feature in Firefox 4 is Tab Grouping referred to as Panorama in Mozillaôs help document. You can essentially group tabs into any organizational scheme that works for you and name these groups. Once grouped, only member tabs of that group will appear in the menu bar. When you switch to another group, only the tabs included in that group will display. Within the tab group selection screen, thumbnail images of each tabbed site is displayed which makes the organization process quite easy. Because other groups are not displayed unless you open the tab group selection screen, I sometimes find myself forgetting that I have a specific site already open in another group. Even with this minor downside, it definitely beats scrolling through a dozen or so tabs in search of a specific site I want to view.

All in all, Iôm quite impressed with Firefox 4. Whether it will be enough for me to switch to it as my primary internet browser is still yet to be determined. I suppose some old habits are tough to

break.

Itôs certainly clear that all three developers will continue to put a significant amount of effort to increase their stake in the browser market. I also suspect we will see more frequent updates and releases in the coming months and years. I foresee shifts in popularity, although I think Internet Explorerôs dominance will continue. In my opinion, the more security focused users will gravitate towards Internet Explorer 9 and Firefox 4 because of their new privacy features meant to shutdown information tracking related to targeted ads. Regardless, selecting a browser application revolves around personal preference. All three browsers represent a positive improvement from their respective predecessors in one way or another. Weôve definitely come a long way since Netscape Navigator 1!



é until next month!

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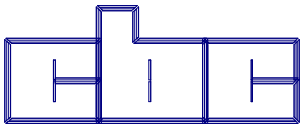

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