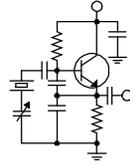


The Local Oscillator



The Newsletter of Crawford Broadcasting Company Corporate Engineering

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Mission Accomplished!

As I wrote the above header I couldn't help but think of the banner that our former president hung on the USS Abraham Lincoln in May 2003, signifying that major combat operations had concluded in Operation Iraqi Freedom. Of course it became glaringly apparent in the months that followed as the insurgency rose up that the mission was far from accomplished. My hope in these pages is that the mission really is accomplished and the KBRT WheatNet-IP project is complete!

Amanda and I made a trip back to the west coast the last week in October to wrap up the remaining project work that we could not finish up in September because of issues with the computer equipment we were upgrading for Nexgen and WheatNet. New computers, in this case Dell Precision T1700 workstations that we have come to prefer for this application, were ordered and delivered earlier in October. Todd Stickler had set the machines up with VNC, assigned IP addresses and connected them to the correct networks, and Amanda was able to remotely do much of the prep work on the machines, installing WheatNet drivers and otherwise getting the machines ready for installation.

While that was going on, at the end of the week before we made our second trip out, Todd demoed the old mixer and wiring in Prod C and cut the hole in the countertop into which the Wheatstone E-6 control surface would be installed. He also used

the RJ45-to-XLR cables we had made and taken to KBRT during the prior trip to connect all the local audio equipment in that room to CD, MD, Telos, etc. to the console blade, which we had installed and configured during the prior trip. When we arrived we had only to drop in and connect the control surface, set a few configuration parameters and the production room was up and running within a couple of hours.

We had to wait until after the last live program to do the work in the control room (Studio A). I made and took with me a set of RJ45-to-XLR

cables to connect the IP blade in that room to the existing AES wiring that was formerly connected to the breakout box for the ASI sound card in the Nexgen workstation, so the wiring part of the project was, quite literally, "plug and play." Todd wanted to put the new T1700 workstation, which we ordered in the small form factor, on a rack shelf in one of the equipment pods instead of putting it on the floor where the old mini-tower had been located. That



KBRT Prod C E-6 surface and screens.

required removing some old, unused equipment and its wiring and routing the Nexgen and WheatNet IP cables to the new location along with KVM cables, which had to be extended. All that took just a little over an hour, and the control room was up and running on WNIP with new computer hardware for Nexgen.

The following day we did some other housekeeping tasks, including configuring the spare Dragonwave microwave radio which we had recently received back repaired from the factory (of course

with all parameters set to factory defaults). That radio is now ready to install when we need it. It should come up and operate on the right frequency, etc. as soon as it's plugged in. We also spent some time training the operators on the new control surfaces and their many features.

All that pretty much wraps up the 2015 WheatNet-IP project. At press time, Birmingham still has a little ways to go but that should all be wrapped up in early November. So hopefully it really is "Mission Accomplished!"

AM Revitalization

On October 23 the FCC released a Report and Order, Further Notice of Proposed Rule Making, and Notice of Inquiry in the matter of Revitalization of the AM Radio Service. This long-awaited document contains some 74 pages of narrative, procedural data and appendices.

I must say that I was very, very surprised by what I read in the Order. I really expected very little

- FM translator window exclusively for AM licensees and permittees ó This was arguably the biggest item in the Order (it was certainly the most talked about). I think a lot of folks were surprised that this made it in because of widely publicized statements by certain commissioners expressing disfavor for the translator proposal. The translator window is actually multiple translator windows as follows:
 - In 2016, AM licensees and permittees can acquire and relocate one and only one existing, authorized non-reserved-band translator up to 250 miles and put it on any channel that fits as a minor modification application.
 - In 2017 the FCC will open a series of new FM translator auction windows for AM stations that did not file a modification application for a translator in 2016.
 - Class C and D stations will get first shot in both the 2016 and 2017 windows.

Overall, for AM, we believe this is a very good thing. It will provide AM stations who are perhaps struggling to survive in the face of FM competition a means of getting a 24-hour signal onto the FM band where they at least have a shot at competition.

For Crawford this will do very little because of the absence of available spectrum in and near metropolitan areas. Our option remains the same

in the way of anything that would be truly helpful. A lot of inertia would have to be overcome to get anything meaningful in motion, but I'm pleased to report that's exactly what happened!

The trades have been full of reports focusing on various parts of the Order, and they've generally done a good job with this, but allow me to provide a digest from a Crawford perspective. And by the way, Crawford had a significant part in this proceeding ó our comments were quoted or referenced no less than nine times in the Order. Indeed the FCC did listen to us.

There are three major parts to the Order. First is the R&O with six immediate rule changes (that will go into effect on the usual timetable following OMB analysis and publication in the *Federal Register*. Next is the FNPRM containing seven proposed rule changes. Finally there is the NOI seeking comment on two other items.

The six immediate items are as follows:

- as it has been since "AM on FM" was first authorized, namely purchasing existing translators already in the markets where we operate. The impediment to this option is price. Translators in large markets routinely sell for upwards of \$1 million, and these translators have no protection from interference and are subject to being bumped off the air by new and modifications to full-power stations. While we will continue to watch for opportunities in this regard, don't hold your breath.
- Modify daytime and nighttime community coverage standards ó This was actually dealt with in two separate sections of the Order, but they are closely related and I can deal with both at once in these pages. For many years the FCC has required that AM stations provide 5 mV/m coverage to 100% of the population or area of their communities of license, and provide either 5 mV/m or interference-free contour coverage to 80% or more of the population or area of their communities of license. With population growth, urban sprawl as well as NIMBY and BANANA restrictions, this level of coverage became increasingly difficult to achieve in the last 20 years. With this Order the FCC has changed the daytime coverage requirement to 50% and 0% for existing station day and night facilities, respectively. New stations must cover 80% both day and night.

Again, this is a good thing for AM stations. It

really opens up some options for site moves that may not have been possible before. While I cannot think of any immediate application for Crawford stations, my guess is that sooner or later we will have to move a site and this change will give us some breathing room.

- Eliminate the "ratchet rule" Back in 1991, the FCC undertook a sweeping overhaul of the AM rules that really tightened up interference standards. This was done in the C-Quam and "AMAX" days when wideband receivers were being pushed. One big problem for AM stations at night was increasing interference levels that were allowed by the 50% exclusion method for calculating RSS night limits, protections and night interference-free contours. The FCC instituted a rule that said if a station entered another station's 50% RSS night limit, any facility change would require a 10% reduction in interference to that other station, thus "ratcheting" the interference level down. The problem was that nobody (much) was willing to take that kind of hit, so affected stations avoided night facility changes like the plague. The ratchet clause made it impossible for many stations to improve their facilities to overcome their own interference problems, atmospheric noise and the like. And as you might imagine, this rule worked in opposition to the COL coverage requirement.

Getting rid of this rule is a very, very good thing for AM. Stations can now make facility changes while maintaining the same level of radiation toward stations they currently interfere with. As with the COL coverage rule change, I cannot think of any immediate benefit this will have for Crawford stations, but it does give us some new options, especially for our legacy stations that have been on the air forever and enter into a lot of other stations' 50% RSS night limits.

- Permit wider use of MDCL technologies This provision simply removes the requirement to request a rule waiver for the use of power-saving MDCL technology. The FCC routinely granted such waivers (I don't know of a single instance of a request being denied), so it's unlikely that this change will result in a flood of new stations employing MDCL, but it does make it a lot

easier and faster. Stations will only need to complete an online notification form in CDBS to begin using the technology.

This is another good thing for AM, really a "no-brainer" as rule changes go. This doesn't really offer Crawford anything other than possible future convenience, since all the stations that we would want to operate using MDCL are already authorized to do so with a waiver.

- Modify AM antenna efficiency standards The FCC has reduced the minimum AM antenna efficiency by 25% in this provision. I have wondered for years why the FCC would care about antenna efficiency. If a licensee wants to spend money on electricity, isn't that his business? And yet for many years the FCC has had minimum antenna efficiency standards in place. Normally those standards are easily met and not an issue, but in today's environmentally hyper-sensitive world it has become a problem. Tower heights are often capped by local ordinance or it is necessary to limit heights in order to appease neighborhood groups. Shorter towers are less efficient, and when you get below about 55 electrical degrees or so (which is more than 250 feet at the low end of the band), the FCC minimum efficiency cannot be met.

This new provision will give broadcasters much more flexibility in choosing a tower height that will work with local restrictions and keep the neighbors relatively happy, particularly for daytime operation. They will have to make up for the lost efficiency with more transmitter power (more power is better, right?) albeit at significantly higher electric utility costs (maybe more power isn't always better). At night, shorter towers make for more radiation above the horizon, where you don't want it, so there's yet another trade-off. I cannot see any immediate application for Crawford but you just never know when you might have to relocate a site and tower height may be an issue.

Next month I'll give you my take on the issues in the NFPRM and NOI and how they may impact our company.

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

Hello to all from Western New York! I am intrigued with broadcast history. Brian Kerkan's report in last month's Motown Update was very interesting. He reported on a very young engineer named Ed Wolfrum who saw a need to design a quality interface from a church's sound system into the broadcast facility. Evidently the interface worked wonderfully and grew to be used in numerous recording projects around the world.

This is but a small tidbit of the history behind Detroit's WEXL, and had Brian not stumbled across this information it might have been lost forever. Somehow, we need to archive and record events that affect our stations. Relying on memory alone doesn't safeguard the facts and circumstances of the event, as time seems to distort the facts.

We look to the future through the window of the past, meaning what we have accomplished will greatly affect who and what we are to be in the future. Search out some of the former employees of your stations and talk with them about what was going on while they were there. What kind of equipment did they use? Did any significant news happen during their tenure?

Radio stations are full of funny and interesting stories and people, and if they are not shared and recorded, those will fade and disappear as time marches on. Our history defines who we are. Keep it and safeguard it for generations to come.

There has been so much said recently about the decline of the radio medium, how little it is relied upon for news and information and how stagnant programming has become. I personally would agree on the stagnant portion of that statement, but I do not agree that radio, as a medium, has seen its better days.

With all of the avenues we have now to get our broadcasts heard all over the world via the

Internet, terrestrial transmissions have indeed suffered, but are still necessary as rain. It is amazing now that even the smallest 250-watt AM daytimer is on the same playing field as the most powerful stations in the country by utilizing the Internet to get their message across. It's content that people want, programming that is personable to their lifestyles and interests, not cookie cutter programming that is heard throughout every major market throughout the country, e.g. "X" format works for "WABC" radio in New York, so it must work also

for "KXYZ" in Los Angeles. Folks, these two stations are worlds apart! What works in NYC is not necessarily what is liked in L.A.

Programmers, you need to have the ability to program again, take a chance and be different from everyone else, and program your stations to the likes of the communities in which you serve. Make radio interesting again. Give listeners a reason to want to tune in again tomorrow, and the next day, and weeks after that.

Radio was designed to entertain and inform. Somewhere we lost those ideals and relied solely on the monetary benefits alone. Look at your station's history. It should tell you where you should be today.

There is not a lot to report on from the Western New York stations, as operations have been rather smooth as of late. Preparing for the upcoming winter season has kept me pretty busy, getting all our transmitter sites ready to face the long, cold winter months. The better you prepare, the better your chances of getting through the winter with very little in the way of problems and staying the night in your nice warm bed!

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



The Motown Update

By

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

It been a nice October here at CBC Detroit. I have been taking the opportunity to get ready for the cold weather, and the snow that will follow. I have been in the process of checking our buildings to make sure that there are no obvious places that critters can get into. I will never forget a situation I had at a transmitter site I was responsible for.

From time to time, I would get notification that our backup transmitter would just turn on by itself. I would go out and check on it, and everything would appear normal. I would check the operation of the remote control, and shut off the backup and everything seemed to be fine, until a few weeks later.

I started to wonder if someone was doing it intentionally. Then, after a few weeks, it happened again. This time the transmitter stayed on. I couldn't shut it off, and started pulling things apart to find the problem. I pulled the I/O connections off of the remote control, and was able to shut the backup off manually from the front panel.

I un-racked the remote control, and started disassembling it. I pulled all of the screws out of the top of the chassis, and removed the top cover. And there it was, and the problem was pretty obvious. The remote control had become a home for mice that setup their nest beside the warm power supply.

The remote control had slots for optional I/O boards that could be installed, and holes for the BNC connectors. I had worked with this type of remote control several times before, and many of them were just like this one.

There are no caps to cover the holes, and enough space for them to enter as evidenced by the mice that did so with much success. So as they were running around doing their business on the control board, they were triggering all kinds of things.

My point is, that out of that experience, I look a little closer at issues like that one. It doesn't take much of a space for them to get in to.

I have been looking into improving our backups, and testing a NAS server. The NAS will allow fast transfer of files, and offline backups to

store offsite.

One of the things that prompted this, was an article I read, in which the FBI claims that businesses should pay the ransom to recover their locked data if infected with ransomware. Here's the link: <http://www.businessinsider.com>

Very interesting! I was surprised at the position that was taken, but I guess once your files are encrypted you are at the malware developer or hackers mercy unless you have a backup.

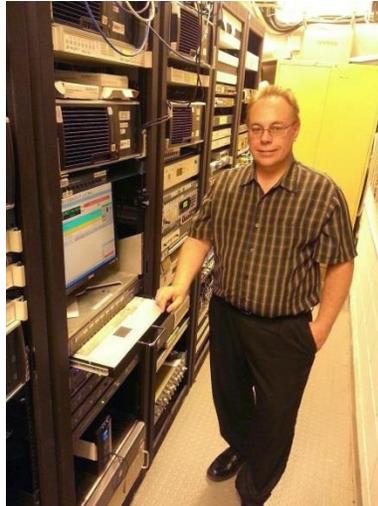
I guess there are a number of issues that need to be looked at when evaluating an IT environment for security. One of the biggest issues, are the habits of the employees. While looking up song lyrics, researching information and reviewing emails, often little attention

is given to what they are clicking on, or where they are being redirected.

I have been trying to educate our users on looking out for clues, such as domain names that don't look right, links in emails that are not solicited, and to be very careful where they get their information from. The article mentions several things that should be looked at. The big concern is that in many cases the Program Director, Traffic Manager, or Office Manager have access to the automation as well as the business network. These users need to be very careful with their machines since they have access to mission critical data on the servers. It is also very important to check that backups are actually running successfully.

It is also a good idea to try a restore test, just to make sure that what you are backing up is good and reliable data. User desktops are not backed up at our location. So it's important for any user to back up their important information to a thumb drive, or burn it on to a CD.

I have been keeping up on the AM revitalization action that the FCC has been considering, which includes opportunities for AM broadcasters that have been waiting for this opportunity. It's about time that a decision was made that could help broadcasters that have been trying to



survive, while LPFM, and HD programmed translators were approved offering more confusion to the mix.

I can only hope that AM broadcasters are given priority over LPFM hobby broadcasters. The latest push by LPFM lobbying groups to increase power, and to relax separation rules should be ignored, in my opinion. It was clear, when these

LPFM applications and grants were given, that this was a nonprofit and limited reach service.

I guess you can't blame them for trying. If approved, they would be a commercial broadcast service. Have a nice November! I will be replacing tower fences at WRDT Monroe, hopefully before the snow!

News From The South

By

**Stephen Poole, CBRE, AMD
Chief Engineer, CBC-Alabama**

Sandy and I were able to take a short vacation in October, flying back to NC to see our family. This time we tried Delta, having used US Airways (now American, of course) in the past. I have to say that I enjoyed flying with Delta, and the Atlanta airport is better than Charlotte's. Atlanta at least has a "Plane Train" to ferry you between concourses. In Charlotte, you can only hope that one of the airport go-carts will pass by when you need a ride. Otherwise, you're going to be running.

Neither airport is as nice as Denver's, Dallas's or Nashville's, though those three are all much better at moving people around. Since I always manage to book a trip that requires that I run from, say, Gate A2 to Gate C33 to catch my next flight, this makes a difference to me.

Most of our trip was on the (DC-9 type) MD-88s or 717s. I enjoyed those. But alas, the return from Fayetteville, NC to Atlanta on Sunday required that Sandy and I wear a little CRJ200. I've heard that these horrible planes are slowly being phased out. It can't come soon enough.

The Great Blade Project

We've made a great deal of progress on this

one, after months of being sidetracked by other issues. All of our production rooms and all of our audio servers (AServers) have been done, and I have to say that I like it.

Figure 1 shows one of our production rooms. We still need to pop some neat holes for the mouse and keyboard cables, and cover up a few things, but that room is already in business, making money. You'll note that we lifted the rear of the control surface to give it more tilt toward the user. The staff loves it. I've used the built-in Vorsi processing for some quick-and-dirty gain riding on the mikes, and it sounds great.



The older TDM Generation 6 stuff was plenty good enough; the blades are an order of magnitude better. Using both together, though, required a good bit of patience and planning. The input would go into a blade; from the blade, into the bridge router, and then back to another blade. (Or vice-versa.) This wasn't difficult, but I did have to make up some cheat sheets and take my time. (We only managed to put the wrong signal on the wrong transmitter briefly a time or two!)

We did change a few minor things from Cris's instructions. Using our old ACU1s, we had a standard layout: first channel was always the audio



Figure 1 - Production 3 with the E6 Control Surface.

server mix, the second channel was the control room, and so on. Everyone was used to that and we wanted to keep it.

We also already had a bunch of macros that used Satellite mode. In our macros, we define a Default Source (the satellite feed) and a Default Commercial Source (the Aserver mix). When a spot block plays, NexGen automatically kills the satellite feed and brings up the Aserver mix. When the spot block finishes, NexGen kills the Aserver mix and brings the satellite feed back up. We've used this for over a decade and it works like a champ.

Since Wheatstone thoughtfully gives you two utility mixers (each with two separate outputs!) in each IP Blade, we chose the second (the 5Yö mixer) for our Audio Server mix. That's all it does and it never switches anything. We then assigned that mix to the first channel of the 5Xö mixer and told NexGen that this was its source switcher. Since everything was still laid out the same way as our old ACU1s, we mostly just had to change to Wheatstone UIO to make it work. Neat and sweet (see Figure 2).

We also have one station, WXJC-FM (92.5) that spends most of its life simulcasting other signals. In the past, we had a Broadcast Tools AES switcher on WYDE(AM) (1260), controlled by serial strings in NexGen. It was a simple matter to add additional strings to assign a second output just for 92.5. Since we had a second blade for that station anyway, we just added its sources to 1260's audio server. Rewriting the macros was a breeze, too. In Figure 3, the second row of sources is actually the output to 92.5's STL.

Again: because we didn't have to change much in the way that our system was set up, it fell right into place and worked like a champ. Beautiful!

Rant: Better Documentation

However, this gives me an opportunity to rant about something, provided that you understand

that Wheatstone is by no means the only (or even the worst) offender. Technology continues to outrun the available documentation whether it's software, smartphones or Audio-over-IP systems.

Being a lover of free and open source software, I'm kind of used to this; the available docs will almost always be a couple of versions out of date. But sometimes it gets a bit tiresome. The fact is, things change and improvements are so rapid nowadays, it's hard to keep the docs fresh. I know that.

But it does matter. One thing that everyone who is anyone who produces anything for the public should do is this: hand your stuff to some average customers. Then *watch them*. Don't interfere. Don't make suggestions. Just watch. See if they can figure out how to make it work on their own, with what you've provided.



Figure 2 - We use Mixer Y to make the audio server mix, then assign all sources as they were on our old ACU1s.

If they can, then you've documented it properly and well. But if they sit there with a blank look on their face, you need to do some more explaining and documenting. Use real-world examples and avoid geek terminology. Make it readable and enjoyable. Walk them through several typical real world examples and setups.

Again: Wheatstone generally has good documentation, so I'm not picking on them. But honestly, I'm glad that Cris and Amanda had already figured out how to do most of this, because it's not intuitive. One example: rather than simply brag and boast about how flexible and wonderful the logic IOs are with the blades, *walk your users through some real-life examples, from start to finish*. Let's say you have a mic booth and want to switch a lamp out front when the mike is on ...

Server Moves

As I write this, we're building a new webserver. I posted this on Facebook a few days ago,

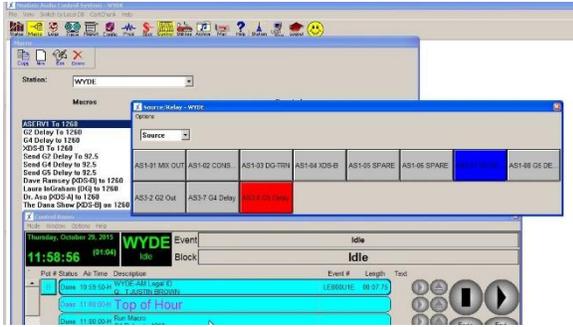


Figure 3 - Don't forget, an audio server can control more than one mixer even in different blades.

and it's the truth: if anyone had told me that I would one day need to understand Structure Query Language (SQL) as part of my job in radio engineering, I wouldn't have believed it. But folks, SQL databases are everywhere now. Any Wordpress or Joomla website is going to store everything in a database, then build the requested page(s) on the fly, pulling elements from data storage.

This makes websites easy to maintain, and it makes supporting different views (mobile vs. desktop) a snap, but maintaining something like this ain't intuitive, either. Wordpress, for example, uses hard links on a lot of stuff. If you just do a wget or ftp of the entire site, it's going to miss some things. There are plugins and walkthroughs online for this, so it's not an impossible task. But when you first start working under the hood, if you will, Wordpress contains a number of surprises and 'gotchas.' The good news, though, is that a content management system (CMS) like Wordpress makes it very easy to make a good-looking site, and one that will look good whether your listeners are viewing it from a small smartphone or a giant-screen display. It takes care of permissions issues, too (once you get them straightened out during installation, anyway! Ahem ...). With a CMS, you're not as likely to get, 'Hey, Bill uploaded some junk to the server and I can't delete it!' As long as you have the appropriate login for your CMS, you can do whatever you like to the content.

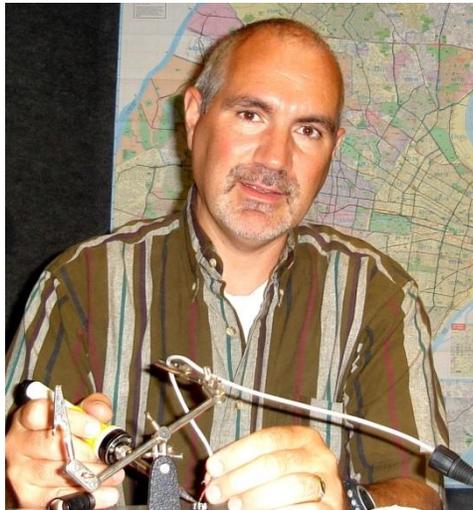
The Chicago Chronicles

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

"Ask and you shall receive."

In last month's column I had proposed the idea that we needed an app for our smartphones that will let us know how well our encoding is making it through various listening environments. In my mind the PPM decoders attached directly to the output of an expensive monitor doesn't tell the real story. Don't get me wrong; it has its uses. It definitely will let you know if you have no PPM encoding on your audio so you can take steps to fix that. But it presents a best case scenario that just isn't happening in the real world.

The idea that we can field test the encoding ourselves in various environments would allow us to know what's really happening. Since my article went on to be published in *Radio World* as well as *The Local*



Oscillator, I received some responses on the topic. One came from a fellow broadcast engineer who has been developing software for Windows that does exactly what I was recommending. I was sent a beta copy for me to evaluate.

The software will take recordings, assumedly with PPM encoding present, and yield a report of how many times it was able to decode the station's encoding during that recording. It also shows a percentage which I assume was some sort of measurement of the actual levels of encoding present on the recording. The software also has a way to evaluate audio that is running live on your Windows computer. I haven't tried to do too much with that but I would think it might be useful to evaluate encoding on streams.

Now it's not an app on a smartphone, but it

can still work in mobile situations that would simulate certain listening environments. All that was needed was to record the audio and then put that recording into the software for evaluation.

I chose to use a recording app on my Android Phone to record the audio through the microphone of the phone. This was in my mind the best approximation to a PPM meter. I then transferred the recordings to my Windows desktop to evaluate them in the software.

I decided to put the software to the test not only in different environments but with differences in encoding levels. My first tests were in an ideal situation. I had the phone set near my desktop HD Radio. This should be a fairly ideal listening environment having a clear signal with no interference. There was a little of bit of office noise in the background but not very much. I also recorded with my phone in my car, on the interstate with the windows open in the middle of a lot of traffic. One of the worst environments that you could have but still be a normal routine for PPM metering.

To add another variable to the tests I recorded in both listening environments from a station known to have watermark enhancement versus a station that did not have the enhancement. Both were playing similar music. Each recording was approximately three minutes. So I would not only be testing the software and encoding penetration but enhancement versus non-enhancement in two

different environments.

The results that I obtained with my phone in my office next to my HD Radio were as follows. For the non-enhanced recording the software showed that it was able to decode the station's encoding four times during the approximately three minute recording with 27 errors. Now for the other recording in the same environment with the watermark enhancement, the software showed that it was able to decode the encoding 35 times with five errors.

After that I decided to do the mobile test with the following results. For the enhanced watermark recording the software was able to decode the station encoding 12 times during the three-minute recording with 29 errors. For the recording without the enhanced watermark, the software was not able to decode the encoding at all with 25 errors.

I want to add this disclaimer on these results. I would say my tests at this point were not very scientific in the fact that I was using beta software with such a small sampling of recordings. To really make this a more scientific approach you would need more recordings using different recording devices in even more environments. That would be more than I have time to do.

Having said that, with even the small sample size that I conducted it does appear that our encoding is very challenged in less than ideal environments and that there is definitely something to be said for watermark enhancement.

Valley Notes
By
Steve Minshall
Chief Engineer, KCBC

Last month marks 25 years that I have been with KCBC. Back in 1990, I was a happy camper at a standalone 50 kW AM station, but one day that changed. I was called into the manager's office and told that they wished to reduce my pay considerably and that I was free to go find another job to make up the difference.

There was a brand new 50 kW AM station nearby, and I headed right over to see if there was any opportunity. After a couple of hours of chatting with the owner, I drove away with a new part-time gig.

The station was KPLA. The format was what I would call "mercenary." Pretty much anything went on the air in long form show format. They played anything and everything from Christian to Communism. Later, the station went head to head against a big news talk station. The effort was gallant and well done, but it was too late and too expensive to save the station from financial difficulties.

Crawford Broadcasting picked up the station in early 1993, changed the call to KCBC, changed the format, and we were off and



running. Cris made an inspection and announced that we would be installing a new Nautel transmitter to replace the aged RCA Ampliphase. For me this was culture shock. Never before had I been in a situation where a new transmitter was purchased.

A lot has changed in 25 years. For one thing, I got older. I was 33 years old when I started working for KPLA, now I am 58. That is a big portion of my adult life. Technology certainly has changed at an incredible rate since then. In 1990, we used a lot of reel-to-reel machines, cart machines, cassette machines and even turntables. Looking back to 25 years prior to 1990, which would be 1965, the equipment would have been pretty much the same except for the cassette decks.

The last 25 years has seen the demise of the reel-to-reel machines, cart machines, turntables, and cassette decks. In 1990 we had satellite gear, but it was all analog, single channel per carrier, at KCBC. There were a few computers, but they were DOS based and had CRTs with green letters on black screens (sometimes I miss them). I remember getting a pair of new 17 inch CRTs at KCBC, we were in

hog heaven.

Looking back, I remember the equipment we once had. Every single piece of audio equipment has been replaced, many several times over. The only real constant is the old RCA transmitter (decommissioned), the phasor, ATUs, and the towers. The towers have been painted several times and the lights replaced with LEDs.

I am now well into the life of our third main transmitter, a Nautel NX50. The NX50 is amazing in size and efficiency. It is easily 10 percent of the size of the old RCA, probably even a little better than that. In standby is the ND-50, so far my favorite transmitter of all time.

At one point, we installed a Dalet automation system and used that for a number of years, later replaced by the current NexGen system. I think I almost got PTSD from some of those Dalet crashes. Other milestones were; AM Stereo, HD Radio, and the addition of a higher power night pattern.

What will the next 25 years bring? When I write about my 50 years at KCBC I will be 83 years old. I may call it quits then, we will see.

The Portland Report

By

John White, CBRE

Chief Engineer, CBC-Portland

Broadcasting as an emergency resource is the topic this month here in Oregon.

A while back, I noted a problem with the EAS system, a problem with the public perception and not with the system itself. At the time, my wife was having lunch at a local deli which had a radio music station on in the background. While waiting in line to pickup up her lunch she heard the EAS duck quack followed by the tone. She listened and heard a tornado and high wind warning. No one at the deli reacted or even appeared to have noticed

This was a warning that ought to have attracted notice. Looking around the deli, she observed that no one had noticed or reacted to the emergency warning. Obviously this is not a situation that is desirable for a system that is intended to attract attention during an emergency.

At the time I wondered if we might not be suffering from a "Cry Wolf syndrome." Lately, I have observed that phrase needs some explanation, as few these days seem familiar with Aesop's Fable for children called "Peter and the Wolf."

In this tale, Peter is a shepherd boy who was told to yell, "Wolf!" when he saw that danger. One day Peter became afraid and cried, "Wolf! Wolf! Woof! Woohoo!" in order to test the system. The villagers came running armed with axes, hoes and pitch forks only to find a false alarm.

Several days later, Peter once again had shepherd duty. Late that night, Peter saw a shadow and immediately cried, "Wolf! Wolf!" Again the villagers came running only to find a false alarm.

Then several nights later, Peter saw the wolf attack a lamb. He immediately cried, "Wolf! Wolf! Woof! Woohoo!" to summon the villagers, but no



one came. The moral of this fable and the application in the EAS world is that because of frequent tests and false alarms, people will eventually stop believing and when there really is an emergency no one will respond.

Thinking back to my school days, our principal periodically tested the fire alarm late at night and held drills once or twice a year. During each drill, we students marched outside to count noses. While teachers had warning of the drill and were prepared for the students to follow through with an orderly evacuation, each drill surprised students. The drills were infrequent and included some action by the students.

Another perspective involved a boil water event in the Portland metro area. The warning required notification of more than a half million people across the metro area in several municipalities. Reverse 911 was pressed into use as a public notification system. With the large number of telephones involved, that process took more than 12 hours. The EAS system which would have actually accomplished the purpose was not used. Ideally, we would want listeners to also hear alerts involving a real emergency, a real storm, or other event.

The new HD EAS emergency alerting system calls attention to the cry wolf perspective and plays a factor here. This system turns on a portable radio when an EAS alert is broadcast. While

this is a good addition, I have found the radio on several days a week in the last few weeks. Although the display does indicate the alert, it's dark and hard to read at best. I suspect that most listeners will quickly disable the EAS feature with frequent false alarms, and weekly tests may be a false alarm from a listener's perspective. Potentially, a listener that switches between stations may hear two or more weekly tests in a week.

It's not clear what causes the alert to trigger with the Spark radio. The display back lighting can not be activated to read the text. In one case, the radio triggered to an FM station (the radio had been set to 1330 AM). In this case, the local FM had retransmitted a distant Amber alert. At the moment, it's not clear if the radio simultaneously monitors both AM and FM or if it displays the first or most recent event.

I think at some point we need to consider the EAS testing process and requirements for the kinds of test a listener radio responds to. We need to avoid the cry wolf syndrome and particularly bad tests

On another emergency front, Oregon's First Informer program is moving to discussions with Oregon Emergency Management. As has been the case with other states, the Oregon Association of Broadcasters has had a severe loss of revenue. From a practical standpoint, funding has delayed the process as we have looked to support from the SBE to bring the program to reality.

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

Is it safe to say the holiday season is upon us? As soon as I blink, Thanksgiving will be here, then Christmas and New Year's. Cooler weather is finally here, and that will allow us to get some other work done without having to worry about the heat. It is also a time of relaxation at the office. We won't take on any major projects the rest of the year. All that is left is upgrading our phone system, and that won't be too big a deal.

Web Server

We are in the process of getting a new web

server set up. It seems that this next year will include replacing nearly all of our file servers. The first one,



though, will be the Crawford Broadcasting web server. This is where we will host many of the CBC station websites. We received the new server in mid-October and jumped right on getting it configured and running. It started with me installing CentOS on the server. Thankfully there isn't much for me to do but run the installation program. Stephen Poole will do the majority of the work while I

sit back and stare at a computer sitting on the

workbench.

Wheatstone

We have issues with our Wheatstone G6 surfaces acting up every couple months or so it seems. What will typically happen is we won't be able to select a source or mix minus on the console. This is typically fixed with a reboot of the surface. So one morning, after having this issue, I decided to do the reboot on the KLVZ surface and when things came up, I had a failure light on one of the logic cards.

After trying fruitlessly to get things back up and running, I called Wheatstone tech support. I first spoke with Jerry. He had me try several things which did not work. When he couldn't think of anything else to try, he put me on the phone with Dick Webb. I began troubleshooting with Dick and nothing worked. Even putting in a new card did not work. The next option was to have them overnight a spare. We were both defeated.

Dick decided to have me try one last thing. In X-Point program there is a "Reset Switch" menu selection. I had thought about doing that earlier, but

due to the symptoms I was seeing, decided not to. I wish I would have listened to my first instinct. It would have saved a lot of time. Within seconds, things came back, no more failure light. The surface was working and we were on the air.

I think the next time I have the issue of not being able to select a source on a surface, I will try that Reset Switch option and see what that does. Maybe I have found a new fix? Many thanks to Jerry and Dick and their hard work at helping me get the station back on the air.

This Month

I am hoping we will finally get to get our new Avaya IP Office phone system up and running. We have been waiting months for CenturyLink to get things rolling. We are almost there. We also need to do one last mowing at the KLTT transmitter site. The south side of the property still has tall thistle and we need to do something about it. With the cooler weather, I cannot think of a better time to mow.

That about covers it for this month so until next time! That's all folks!!!

The Local Oscillator
November 2015

KBRT • Costa Mesa - Los Angeles, CA
740 kHz, 50 kW-D/0.2 kW-N, DA-1
KNSN • San Diego, CA
1240 kHz, 550W-U
KCBC • Manteca - San Francisco, CA
770 kHz, 50 kW-D/4.3 kW-N, DA-2
KKPZ • Portland, OR
1330 kHz, 5 kW-U, DA-1
KLZ • Denver, CO
560 kHz, 5 kW-U, DA-1
KLDC • Brighton - Denver, CO
1220 kHz, 660 W-D/11 W-N, ND
KLTT • Commerce City - Denver, CO
670 kHz, 50 kW-D/1.4 kW-N, DA-2
KLVZ • Denver, CO
810 kHz, 2.2 kW-D/430 W-N, DA-2
WDCX • Rochester, NY
990 kHz, 5 kW-D/2.5 kW-N, DA-2
WDCX-FM • Buffalo, NY
99.5 MHz, 110 kW/195m AAT
WDCZ • Buffalo, NY
950 kHz, 5 kW-U, DA-1
WDJC-FM • Birmingham, AL
93.7 MHz, 100 kW/307m AAT

WEXL • Royal Oak - Detroit, MI
1340 kHz, 1 kW-U, DA-D
WRDT • Monroe - Detroit, MI
560 kHz, 500 W-D/14 W-N, DA-D
WMUZ • Detroit, MI
103.5 MHz, 50 kW/150m AAT
WPWX • Hammond - Chicago, IL
92.3 MHz, 50 kW/150m AAT
WSRB • Lansing - Chicago, IL
106.3 MHz, 4.1 kW/120m AAT
WYRB • Genoa - Rockford, IL
106.3 MHz, 3.8 kW/126m AAT
WYCA • Crete - Chicago, IL
102.3 MHz, 1.05 kW/150m AAT
WYDE • Birmingham, AL
1260 kHz, 5 kW-D/41W-N, ND
WYDE-FM • Cullman - Birmingham, AL
101.1 MHz, 100 kW/410m AAT
WXJC • Birmingham, AL
850 kHz, 50 kW-D/1 kW-N, DA-2
WXJC-FM • Cordova-Birmingham, AL
92.5 MHz, 2.2 kW/167m AAT



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