The Newsletter of The Kings County Radio Club

"Nulla bona actio impunita dimittitur"

May 2015

Volume 2, Issue 5

Next Club Meeting:

Tuesday, June 9th, 2015 at 7:30PM

Next Club Activities:

Next VE Session is scheduled for May 31st, 2015 at 1 PM at New York Methodist Hospital

Finishing touches for our Annual Field Day Planning Marathon continues. Try to come to our upcoming meeting so that you can put your *two cents worth* across on the subject.

Further details will be posted on www.KC2RC.com and www.KingsCountyRadio.com as they develop.

Contents

- KCRC Sponsored Volunteer Exam Session
- FCC Proposes to Permit Amateur Access to 2200 and 630 Meters
- HR 1301—For people that didn't read it the first two times
- Our New Yaesu DR-1X Repeater Has Arrived
- "Last Man Standing" Gets Renewed
- HOSARC and LIMARC's Hamfests
- Dayton Hamfest News
- Antenna Basics For Fun—Part Six—What Is An SWR
- The X, Y, and Z's of Batteries
- Are You An FM Repeater Addict?
- Closing Comments

Our weekly Nets meet on Sunday at 11 AM on 28.380 (10 meters) and Tuesday on 146.730 PL 88.5 (2 Meters)

KCRC Sponsored Volunteer Exam Session

The Kings County Radio Club will be sponsoring another VE Exam Session! It will be held at the Executive Dining Room of The Methodist Hospital on May 31st, 2015 at 1PM. Although walk-in registrants are allowed, it would be best to contact the VE Coordinator John, WK2J, at johnsrealestate@yahoo.com to let him know that you are interested and to get any details. Remember to bring your photo ID, your $15 in exact change, your number 2 pencils and your wits!

FCC Proposes to Permit Amateur Access to 2200 and 630 Meters!!

Well, the FCC giveth and the FCC taketh away…

This time the FCC intends to actually give something to Amateur Radio — a piece of the LW and MW spectrum (135.7 to 137.8 kHz and 472 to 479 kHz respectively).

The details haven't been written in stone (or even in the Congressional Records), so this is not going to happen overnight, but one of these days you won't need an *experimental license* to operate on these lower bands that other countries have had access to for a number of years.

I doubt that many Hams have the equipment at hand to operate at these new frequencies right now. Your Editor has a magnetic loop antenna that should be good for reception, but a transmitting antenna will be a problem (but so will a transmitter for these frequencies).

It's always nice to have *more* frequency options...

The Kings County Radio Club is at www.KC2RC.com or www.KingsCountyRadioClub.com

KCRC is an ARRL affiliated club (see: www.ARRL.org)

Our New Yaesu DR-1X Repeater Has Arrived!

Our new Repeater has arrived and we will need your help in getting it installed along with our new antenna at our Repeater site. Contact Mitch N2RGA to volunteer to help in this worthy effort. This is, after all, your Repeater too!

H.R. 1301—"The Amateur Radio Parity Act Of 2015"

H.R. 1301 is still alive and well. Keep up to date at the ARRL's web page dedicated to this subject, http://www.arrl.org/hr-1301 . If you haven't written your letter to Congress, get out your word processor and follow the guidelines as suggested by the ARRL!

ABC Smash Hit Ham Radio Based Comedy Renewed For Another Year!

Who am I kidding? "Last Man Standing" is far from a smash hit. It's a tired retread of Tim Allen's "Home Improvement", which some might argue wasn't that good in the 1990's. What something like this is doing in the 21st Century is anyone's guess. It actually just limped to the finish line and was picked up for an additional year at the last moment. As far as it being "Ham-centric", in fact it has only featured TWO scenes where Ham Radio was involved in all of its four years! None this year, and yet all the usual Ham Radio media falls over themselves promoting this stuff! Family guy had a Ham-centric episode a few years ago and I never heard about it from these promoters of the hobby…

HOSARC Hamfest

Well, it's that time ago for the Hall Of Science Amateur Radio Club's Bi-annual Hamfest. The next one will be on May 31st, 2015 at the Hall Of Science's Parking Lot. A $5 donation is requested from each attender—$10 if you're a trio. For more information take a look at www.hosarc.org/hamfests.html .

LIMARC Hamfest

LIMARC is having its Springtime outdoors Hamfest on June 7th, 2015 at Briarcliffe College. General admission is $6. For more information check it out at: www.limarc.org/fest.htm .

The Dayton Hamfest 2015

This year's Dayton Hamvention was held May 15th to the 17th. Depending on how well your Dayton Rose Colored Glasses™ are working, it was either an enormous success, or not quite so successful?

The folks at the ARRL (www.ARRL.org) and HamNation (twit.tv/show/ham-nation) were their usual optimistic upbeat promoting selves. Everything was great and nothing but fun was had by all attenders. Privately, some vendors, as well as more cranky attendees, had a different slant of the Ham World's version of a pilgrimage to the holy land.

Some people have opined that Dayton makes Detroit look like a successful, active and clean city. The HARA arena is a crumbling wreck by many reports. It always seems to rain during Hamvention, and this year was not an exception. Many people complain of the high mold spore count, perpetually backed up toilets at the HARA and many people report that they never feel terribly well while they are recovering from the Dayton Hamvention. The Flea Market in the parking lot was reported to be down by 25% by some attendees. More cranky attendees described it as " virtually everything for sale was garbage that you would not normally pull out from your own trash". But then, one man's garbage is another man's treasures!

Flex Radio Systems announced plans to offer a "control surface" complete with knobs, buttons and a bright touch sensitive screen to remotely operate their 6000 Series transceivers. There were also hints about a new Ethernet controlled linear amplifier and SO2 control box down the road.

Elecraft was showing their evolutionary product—the new K3S. The usual Japanese Suspects, Kenwood, Yaesu, and Icom weren't really showing any new products at Dayton.

Chinese hardware manufacturers continue to be flooding the market with extremely inexpensive yet very functional hardware (how the Japanese manufacturers will survive this in the long run is anyone's guess). Baofeng was showing an HT selling for $24.95. TYT was talking about their new MD-380 monoband DMR compatible 5 watt HT with a large multicolored screen and full sized pushbutton input keypad (that I've seen offered for as low as $140!).

Antenna Analyzers seem to be a booming market. SteppIr and MFJ showed new models!

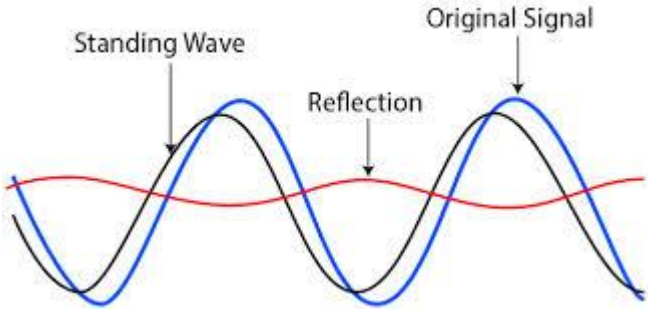
Italian vendors were busy this year. Begali was showing their diverse selection of beautiful keys of almost all varieties (although I don't think they do "bugs"). The ARRL is selling a special ARRL branded Begali key for $499 this year. Expert Amps was showing their much anticipated 1.3K-FA Linear Amp. The waiting list now goes into January of 2016!

Next year, in Dayton!

We regret to inform our readers that the Minutes to the May 2015 General Meeting were unavailable to be published.

Antenna Basics For Fun

Part Six
What Is An SWR, And How Important Is It?
What Is A Balun, And How Important Is That?



Standing Wave Ratio (SWR) can be described in many different ways. One of the simplest ways to look at it, is that in order for energy to be transferred from one place to another, a matched circuit impedance allows the most efficient transfer of energy and that applies to RF energy too! Since we have all agreed to standardize on coax feedline and final amplifier stages with a nominal impedance of 50 ohms, it would simply be best if the antenna that you were feeding with this system be 50 ohms impedance too. Such a perfectly matched antenna system would give you a 50 ohms coax, feeding 50 ohms at your antenna, or 50:50 (or 50/50) and can simply be written as 1:1! But, who said life was simple? Unfortunately a lot of things change antenna impedance, even while remaining resonant on your selected transmitter frequency. Moving the feed point off center from a center feed point will change it, lowering it closer to earth ground can alter it, changing the angle of the antenna's elements can alter its impedance. Operating off an antenna's resonant frequency can alter its impedance! SWR can also be considered as the ratio between the maximum voltage (or current) found at any point along the line to the minimum value found at any other point along the line. That is why SWR is sometimes called VSWR (Voltage Standing Wave Ratio). That means that if you hook up your final power amplifier stage (PA) to an antenna with a 10:1 SWR, the PA's 100 volt output might get reflected back until it *sees* 1,000 volts! Vacuum tubes will usually tolerate such abuse, but try that with even the latest and greatest silicon versions and you have a roasted/toasted MOSFET (Metal Oxide Surface Field Effect Transistor) that will need to be replaced. These days almost every solid state PA designed has something called a *fold over* circuit that can detect an SWR past 2:1 and place the PA into a much lower power setting. The good news is that your MOSFET is saved, the bad news is that you are, at best, transmitting with 1/10th the power you intended to.

Most Hams who *sweat the details* seem to *live or die* by their SWR to the exclusion of all else. If you ask them if their dummy load is a great antenna because it produces a 1:1 SWR they look at you, reply "don't ask me a stupid question", and walk away. If a dummy load presents a perfect 1:1 SWR why *ISN'T IT* a good antenna? Surely there's something else that's not being taken into account! The problem is that your antenna doesn't need to be resonant or even capable of radiating RF energy to have a perfect 50

ohm impedance with a perfect 1:1 SWR – sometimes a 1:1 SWR alone can be far from perfect!

What is impedance anyway? Well the short answer is that it is the complex sum of a circuit's resistance and reactance. If you want more details pick up a copy of an earlier part of this ongoing series (Part One).

As a very smart Electrical Engineer/Antenna Designer often says: "first resonate, THEN impedance match". You want an antenna that is capable of radiating RF into the *Aether* in the first place, then you need to worry about getting the most efficient transfer of RF energy to the antenna with a properly matched impedance. That's why a dummy load makes a lousy antenna – it may have a great impedance (50 ohms of pure resistance), but it is just a resistor attached to some form of a heat sink. It transfers all your RF wonderfully, but it all gets turned into heat – little to no RF escapes into the world!

So, let's say you have the ultimate resonant antenna up there high up on your 200 foot tower (a Ham can dream, can't he?). Maybe we should take a more likely antenna – a folded half wave dipole, which has a nominal impedance of 300 ohms at resonance. That's a 300:50 SWR or simply 6:1! That's 33% reflected power! Theoretically, if you don't burn out your final amplifier with all that power it *should* get reflected back to the antenna, but since most of us use coax cable each trip across a length of coax cable causes an additional power loss going up in heat! This is one purpose for a Balun (or an Unun) – to match impedances. In a perfect world you might take a 6:1 matching balun and your *good to go*! Antenna tuners perform the same impedance matching function and often are used in combination with a balun. Placing all the impedance matching hardware as close to the antenna's feedpoint as possible decreases the cable loss of an antenna with an impedance different other than 50 ohms. A less adjustable method is to place an impedance matching circuit at the feedline of the antenna – either as a simple or a complicated series of LC circuits, or as an open or shorted extra piece of coaxial cable operating as a stub match, or any of the less obvious mechanical antenna match designs that go by such obscure names as "gamma match" or "delta match" (to name just a few). Perhaps later in this series, we shall "dive" more deeply into the subject of how all these types of impedance matching devices actually work!

How is your percentage of reflected power related to its SWR? The equation is:

$$\text{Reflected Power (\%)} = 100 \text{ x } \frac{SWR-1}{SWR+1}$$

Just in case you don't care for mathematical equations, here's a little "cheat sheet" table that gives the important values in "black and white". No need to memorize anything, this is primarily here to give you an idea of what different SWR values mean in terms of reflected power, etc.

Standing Wave Ratio	Power Reflected (%)	Power Transmitted (%)	Return Loss (dB)
1	0.000	100.00	**-∞**
1.1	0.227	99.773	-26.44
1.2	0.826	99.174	-20.83
1.3	1.7	98.3	-17.69
1.4	2.78	97.22	-15.56
1.5	4.00	96.00	-13.98
1.6	5.33	94.67	-12.74
1.7	6.72	93.28	-11.73
1.8	8.16	91.84	-10.88
1.9	9.6	90.4	-10.16
2	11.1	88.9	-9.54
2.2	14.1	85.9	8.52
2.4	17.0	83.0	7.71
2.6	19.8	80.2	7.04
2.8	22.4	77.6	-6.49
3	25	75	-6.02
4	36.0	64.0	-4.44
5	44.4	55.6	-3.52
6	51.0	49.0	-2.92
7	56.3	43.7	-2.50
8	60.5	39.5	-2.18
9	64.0	26.0	-1.94
10	66.9	33.1	-1.74
20	81.9	18.1	-0.87
30	87.5	12.5	-0.58
40	90.5	9.5	-0.43

Let me offer a reminder, that just because a percentage of your transmitted power is being reflected, it may not necessarily be “lost”. As long as the increased power your final power amplifier stage sees doesn’t burn it out, this reflected power will get reflected back out to your antenna! Part of it will be lost to your coax cable’s power loss at that frequency and part of it will again get reflected back down your transmission line due to its high SWR.

Balun stands for *balanced-to-unbalanced*, Unun stands for *unbalanced-to-unbalanced*. In addition to being used for impedance matching or impedance transforming, it is meant to match a balanced antenna (like a dipole, or a Yagi) to an unbalanced transmission line (like a coax cable), or an unbalanced antenna (like a vertical) to a balanced transmission line (like open wire). One very useful type of balun is a so-called current balun (as opposed to the voltage balun described earlier to transform impedance), otherwise known as a current choke or more simply as an RF choke. We all want all of our transmitted power to go up the transmission line and out the antenna. The transmitted power is located in the center wire and the inner surface of the outer shielding (this is because high frequency alternating current travels on the surface of conductors, not throughout their cross sectional volume. What often happens is that some of the

transmitted power is reflected back down the outer surface of the coax, so-called *common mode* (as opposed as the *differential mode* that we all want).

You can go *cheap* with an RF choke that's as simple as six to eight loops of coax coiled together on a cylindrical form, or a series of six ferrite chokes attaches end-to-end and then covered with some shrink tubing, all the way up to some very nice heavy duty toroid based current balun designs. The closer you place this to the antenna's initial feed point usually the better.

So, do YOU need a balun? What kind? Well, it depends what you need it for – to connect a balances circuit to an unbalanced circuit? Do you need to transform a particular antenna's impedance to your transmission line's impedance (does this call for a 4:1 or 9:1 balun)? Or, maybe it's just that you need to stop some RF from reflecting down the transmission line and getting into your shack. Your needs will define what kind of balun is best for you!

Is your SWR the only thing to be worried about? Nope, *first resonate THEN impedance match*! Smarter people than me live by this principle.

Capisce? Perhaps next time we'll get back to another antenna variety? Anyone out there have any kinds of antennas that are of any particular interest? For that matter, is there anybody out there at all?

-The Editor- (I can be contacted at TheEditor@KCRC.com)

Catch A Wave!

The X, Y, and Z's of Batteries

Batteries. Everyone uses them, but most people know very little about them. What type is better than others? What are the good traits of a given type of battery. What are the worst traits of that type of battery. All batteries have the same basic design – two different electrodes (an anode and a cathode) separated by an electrolyte. All will be revealed…

Let's start with batteries that are NOT designed to be recharged and that can explode if you decide that you know better about this! One of the earliest designs is called the Zinc-Carbon battery. One of its electrodes is powdered carbon and Manganese Dioxide and the other is Zinc. The acidic electrolyte originally was zinc chloride, but a new and better formulation uses Ammonium Chloride as the electrolyte (these are often called *Heavy Duty*). These are the cheapest variety of batteries available. If you have some of this kind of battery you have either bought a real cheap gadget where the manufacturer has skimped on the cost of a damn battery, or you have discovered time travel and have just returned from the 1950's with these awful batteries – if so, I would suggest you bring them back to 1950 and get a refund - they are quite awful. It's tough to decide which of their many poor traits makes them so awful. They have the worse energy density of any design. This means they get used up faster than any other type of battery. Their internal resistance characteristics limits their ability to discharge electricity at a good rate, so they are usually recommended, if ever, for low drain or intermittent operation. You can't even rely on a steady voltage during their operation – its voltage falls during use. It has a terrible shelf life and discharges while it sits in your drawer, before you can get a chance to use it. And it often leaks! There is nothing good about this design beyond its cheap cost to manufacture. My advice is not to use them if at all possible!

Alkaline batteries, first introduced in the late 1960's, are probably the most common variety people are aware of. They are not too expensive and have very good, all around, battery characteristics. This type of battery has a Zinc anode and a Manganese Dioxide cathode, and its electrolyte is made of an alkaline paste of Potassium Hydroxide. It has a higher energy density (lasting three to five times longer than Zinc-Carbon) and longer shelf-life than Zinc-Carbon batteries. This type of battery also has a voltage that falls during normal use. This type of battery design also suffers from self discharge and a mediocre shelf life as well as a

tendency to leak caustic alkaline material. Don't get this stuff on your hands, but if you do, wash it off with soap and water quickly! This kind of battery can tolerate intermittent heavy loads. This is the most popular variety of batteries, and makes up approximately 80% of the batteries manufactured in the U.S.

Silver Oxide batteries use Silver as the cathode and Zinc as the anode, with and alkaline paste of Sodium Hydroxide or Potassium Hydroxide. They have a much greater energy density and shelf life than the previously mentioned battery types, but they are significantly more expensive!

Lithium batteries come in *rechargeable* and *non-rechargeable* design. Right now, let's discuss the non-rechargeable variety. Lithium batteries, refer to a family of batteries with various cathode-anode materials. The most common kind of Lithium battery uses Lithium metal as the anode and Manganese Dioxide as the cathode with a salt of Lithium acting as the electrolyte, dissolved in an organic solvent. This class of batteries possesses the highest energy density of any commercially available non-rechargeable battery. Energizer Lithium cells use a Lithium metal anode and an Iron Sulfide cathode. These batteries excel at high load conditions – they often last 2 ½ times longer than Alkaline Batteries during high load conditions. They have an excellent shelf life of 10-20 years. They are more expensive than Alkaline Batteries but probably worth it in high load situations. Under low to medium load conditions you would be wasting your money on this type of battery unless you need that extended shelf life!

Those are the *Usual Suspects,* when it comes to available non-rechargeable batteries. Now, onto those rechargeable kinds.

The great granddaddy of them all is the Lead-Acid battery. Invented in 1859 by French Physicist Gaston Planté, it is, by far, the oldest rechargeable battery. Its design has been tweaked a little bit through the years and a few variations on the theme have been engineered, but the basic principles have remained the same. Although it has a very low energy density, it is capable of supplying high surge currents which have kept it as the "*go to"* battery for automobiles. They are relatively inexpensive and much more low maintenance than they were in the old days when you would have to top off the water level in them. In addition to being used in automobiles and other vehicles they are used in Uninterruptable Power Supplies that are part of most well designed computer server racks. Lead-Acid batteries come in two major categories – *Starting Batteries* and *Deep Cycle Batteries*. The former are designed to supply massive amounts of short duration surge power, while the latter is optimized to survive more episodes of almost full discharge of the battery without degrading its lifespan too much. They can also be divided into three types – *Wet Cells,* where the electrolyte is dissolved in water, *Gel Cell Batteries* and *Absorbed Glass Mat (AGM) Batteries,* which do not contain water and can be placed in any position without concern that the electrolyte would not work correctly. AGM and Gel Cell batteries often cost twice as much as Wet Cell and may require different charging devices, they store better and do not tend to degrade as easily as Wet Cells. AGM Batteries hold their charge better than the other varieties, and usually provide a longer life span.

When lead-acid batteries are allowed to be undercharged small sulfate crystals form. As this condition persists these reversible small lead sulfate crystals develop into large irreversible crystals that impede the battery's ability to charge, both by decreased total charge possible and charging at a slower and

slower rate. There are commercial gadgets that promise to “de-sulfate” batteries and reverse the irreversible. How much of this is true or erroneous is not obvious to many at this time. Lead-Cell Acid batteries can be summed up as “cheap”, “heavy”, “high capacity”, and “short life span”.

Then there is Nickel Cadmium Batteries (NiCd, or NiCad which is a registered trademark) – the “Zinc-Carbon” batteries of the rechargeable battery world. They are a technology that has been eclipsed by much better designs, and is usually only seen in older gadgets at the bottom of your old gadget drawer. Low energy density, limited number of recharge cycles, poor shelf life requiring regular recharges while it is sitting on your shelf unused, and the worst characteristic – its memory effect. If you don’t fully discharge them, their charge capacity shrivels over time. Ni-Cads are a dead-end technology these days.

Nickel Metal Hydride (NiMH) can have two to three times the energy density of their NiCd equivalent. Each cell produces 1.25 Volts, lower than most other battery cell technologies, but today’s modern electronics often have no problem with this lower voltages. One of their major disadvantages is their high rate of self-discharge – they don’t remain charged when sitting on the shelf, or inside your device with the power off.

Lithium based rechargeable batteries exist in numerous forms. As a group they possess the best energy density of all the batteries mentioned here. They are also some of the most expensive batteries and since they use Lithium, some designs can be dangerously explosive (we have all seen videos of laptops “self destructing” due to the runaway failure of their lithium battery). One of the things you should keep in mind about most rechargeable Lithium based batteries is that heat can destroy them, and “top off” charging alt the way to 100% produces excessive heat in the cells (often leading to a swollen battery, or just plain failure). The manufacturers of Lithium Batteries advise that batteries be stored in the 40-60% charge level and only fully charge the battery just before you need to use them. This requires a degree of “fortune telling” on the part of the user – knowing when you will need a full charge, and when you won’t. Lithium Iron Phosphate (LiFePO4) Batteries are starting to be released for Hams. They are relatively light, with a relatively long lifespan and an excellent number of lifetime discharge cycles. The problem, as I see it, is the extremely high premium over a routine Lead-Acid Cell battery system. Prices may drop, or another technology might appear in our future. Time will tell…

In closing, I just want to add something. Many people get their battery types confused. NiCd’s memory effect traumatized so many people, that they have taken that idea to other battery types that do not suffer from a memory effect. Cycling Lead-Acid or Lithium batteries does not improve them, but prematurely ages them.

So, don’t cycle all your batteries, just for the sake of cycling them – just the ancient NiCd’s that you should think about retiring anyway.

-The Editor- (I can be contacted at TheEditor@KCRC.com)

Are You An FM Repeater Addict?

1. How often do you have a QSO on an FM Repeaters?
Never (score 0)
Once a week (score 1)
Most days of the week (score 2)
Almost every day of the week (score 3)
Every day of the week (8 days a week if that were possible) (score 4)

2. How many QSO's do you have on a typical day when you are on an FM Repeater?
1 or 2 (0)
3 or 4 (1)
5 or 6 (2)
7-9 (3)
10 or more (4)

3. How long does your average QSO last on an FM Repeater?
Five minutes (0)
30 minutes (1)
Over an hour (2)
Many hours (3)
It starts on one day and ends on the next day (4)

4. How often during the past year have you found that you talked on an FM Repeater more or for a longer time than you intended?
Never (0)
Less than monthly (1)
Monthly (2)
Weekly (3)
Daily or almost daily (4)

5. How often during the past year have you failed to do what was normally expected of you because of your FM Repeater QSO's?
Never (0)
Less than monthly (1)
Monthly (2)
Weekly (3)
Daily or almost daily (4)

6. How often during the past year have you needed an FM Repeater QSO in the morning to get yourself going after a heavy QSO session from the previous night?
Never (0)
Less than monthly (1)
Monthly (2)
Weekly (3)
Daily or almost daily (4)

7. How often during the past year have you felt guilty or remorseful after being QRT?
Never (0)
Less than monthly (1)
Monthly (2)
Weekly (3)
Daily or almost daily (4)

8. How often during the past year have you been unable to remember “who said what” during the previous night’s FM Repeater QSO?
Never (0)
Less than monthly (1)
Monthly (2)
Weekly (3)
Daily or almost daily (4)

9. Have you or anyone else been injured or felt poorly the day after a pronged episode of talking on an FM Repeater?
No (0)
Yes, but not in the past year (2)
Yes, during the past year (4)

10. Has a relative, friend, doctor, or health care worker been concerned about your obsessive FM Repeater use, or suggested that you cut down?
No (0)
Yes, but not in the past year (2)
Yes, during the past year (4)

Your score:
If you scored 8-10 or more, you are probably addicted to talking on Repeaters.

It may seem like the AUDIT questionnaire is an easy test to fail. If you applied this test to other aspects of your life you will almost certainly come up as being addicted to something. For example, most people watch too much television, drink too much alcohol, inject too much “smack”, or eat too much of their favorite food. But those are so-called "soft addictions", and the AUDIT questionnaire was not designed to assess them. It is extremely reliable when it comes to assessing Repeater use addiction.

Some other danger signs are that you have moved your radio into the bathroom, or you’ve installed a small fridge in the shack, along with a big empty bucket to deal with the inevitable times when you just can’t let go of that microphone.

Reference: www.AddictionsAndRecovery.org

-The [Cranky] Editor-

Closing statements (from the Editor):

Well, it’s another month and still not a *peep* from this readership!? I’m considering posting the next issue “*on display in the bottom of a locked filing cabinet stuck in a disused lavatory with a sign on the door saying 'Beware of the Leopard'*”. At this point the general disinterest couldn’t get any worse…

IS THERE ANYBODY OUT THERE??

For your ideas, your thoughts, your dreams, your kind words or even your epithets, I can be contacted at TheEditor@KC2RC.com .

- The Editor -

The opinions expressed here are those of the author(s) and do not necessarily reflect the positions of The Executive Board of The Kings County Radio Club.

All original graphics and articles © 2015TheEditor, Ltd (all “unoriginal graphics” should be considered a “homage” to more artistic people than myself, or people with more free time). If you wish, I would be more than happy to share the enormous bankroll I am given each month to produce these little masterpieces with those I’ve *borrowed* from…