The Newsletter of The Kings County Radio

November 2014 Volume 1, Issue 2

Next Club Meeting:

December 9th, 2014 at 7:30PM (nominations for the 2015 Club officers will be voted on)

Next Club Activities:

The December Holiday Party at December 9th — $15/person, $25/couple—keep up to date at www.KC2RC.com or www.KingsCountyRadio.com for the latest information.

VE Exam Session: November 23rd 2014 at 1PM — Tell your friends who are interested in finally getting that license they always wanted, and perhaps consider upgrading your license to one with greater band access!

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

Contents

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

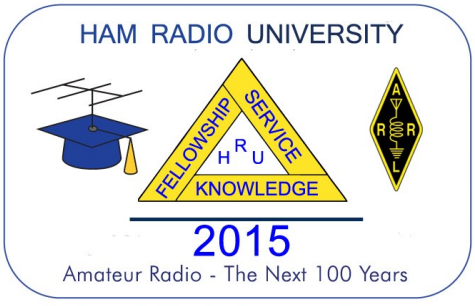
The Kings County Radio Club Annual Holiday Party

Well it's that time again for our annual Holiday Party! It's scheduled for December 9th, 2014 at the Executive Dining Room of The Methodist Hospital after the regularly scheduled Meeting. It will be $15 per person or $25 for couples. The club will be ordering three half trays of food: Egg Plant Parmesan, Chicken Marsala, and Baked Ziti. If you would like to bring a plate of food please do that, it would help greatly.

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 November 23rd, 2014 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 you are interested and to get any details. Remem-

Ham Radio University 2015



It's time again for Ham Radio University 2015, at Briarcliffe College on January 4, 2015.

Perhaps some KCRC club members might arrange a carpool to show our other local Amateur Radio Groups in the area, who are sponsoring this effort, that we support their efforts?

For more information see: http://hamradiouniversity.org/

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

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

Have You Heard about HR-4969?

HR-4969 is The Amateur Radio Parity Act of 2014. It is designed to bring some rational flexibility when it comes to Amateur Radio Antenna restrictions that are spreading though our country, and allow us the ability to erect reasonable structures as we help establish a secondary communication infrastructure in case of emergencies.

It is being spearheaded by our ARRL Hudson Division Director, Mike Lisenco, N2YYB and the ARRL staff. Although Brooklyn is not yet a victim to these radio-phobic aesthetic conformists, you never know when our paternalistic local government might decide that all those scary antennas must not be good for people!

Your (polite) support is urged!

To find out more about it, go to: http://www.arrl.org/hr-4969

An End To Your Paper Amateur Radio License?

Kiss your paper *hard copy* Ham License good-bye? An FCC Public Notice (in WT Docket 14-161) that proposed to cease the routine issuance of hard-copy license documents to all Wireless Service licensees, including radio amateurs was recently issued. This means that you might no longer have that precious bit of paper, the one hanging on your wall or perhaps the smaller version sitting in your wallet somewhere. The FCC would like your license to exist in the digital realm of their FCC website and only there! The ARRL has petitioned the FCC to offer Hams the option of receiving a real paper license. This may just be a matter of a default setting on their website. Presently the default setting is to send the Amateur a paper copy, what the FCC proposes is to set the default to “don’t send me a paper copy”. You may need to click one extra box on their website to get your piece of paper!

Minutes of the December 2014 KCRC Meeting,

December 11th, 2014

The monthly session was called to order by Vice President Mitch N2RGA. Also present at today’s meeting were Treasurer Richard KA2KDQ, Howard N2GOT, Robert AB2LO, Juan KC2QNK, Roy AC2GS, Tom KB2GTO, and Brett WA3YRE. We were joined by new visitors Etienne and Manny who plan to be taking their Technician License Exam s very soon.

Richard , speaking as Treasurer informed us that the Club account was up to $1,728.64. The setting up of a PayPal account to expedite member’s due renewals is still pending.

The Christmas Party was discussed. A platter will be ordered and additional Pizzas will be used to supplement the platter. The price of $15/person or $25/couple was set, which is payable at the door.

Our new Newsletter was discussed and pleas for articles or photo submissions were made by The Editor.

The people involved in our most recent Club Logo design requested that we retire it and use another design. Mitch showed our new Logo to the members present. It will be introduced onto the website and any Club notice and publication as time goes on (The Editor might choose to “test drive” some Logo alternatives to see how difficult such an act of creation might be.)

(continued from page 2)

The Club Repeater was discussed. Stu, WA2JNF has been too busy lately to discuss our options. The idea that we order a new ID ROM chip and install it ourselves was discussed. Howard discussed the re-application form for renaming our Club Repeater by MetroCor so that it can be correctly listed on national Repeater Lists. The form requirements require some clarification before it can be completed. A visit to the Repeater site, hopefully the weekend of November 15th was planned for a site survey with plans to return at a later time, before winter arrives, to remount the antenna at a higher non-obstructed position. It was suggested that after we deal with the Repeater's antenna we help Richard replace his 30 year old damaged VHF/UHF antenna to improve his signal as Net Control Operator for the weekly 2 meter Net.

The 10 Meter Net was discussed. Juan advised the membership that the previous Sunday's meeting had great propagation and many DX stations were heard.

Club nominations were made:

President—Howard

Vice President—Mitch

Secretary—Juan

Treasurer—Richard

Executive Board Members at Large—Tom, KB2GTO & Steve W2GOP

Any further nominations, followed by elections will be held on our next meeting in December.

The need to invite local Amateur Radio Operators, to visit the Club and possibly join was discussed.

The recent New York City Marathon was discussed—many Club members were acting as part of the communications backbone for the event.

Field Day was discussed—The need for an enclosed area was urged. The possibility of using an enclosed tent or finding enclosed alternative areas to have Field Day were discussed.

The upcoming VE Exam Session was discussed and Club members with Extra licenses were urged to obtain qualification for Volunteer Examiner with the ARRL. Getting the message out to VE Examiners to ask for their attendance was urged, rather than depend on just three VE Examiners as originally planned.

By the end of the meeting we had a new Club member, Etienne!

The session was closed, the box of doughnuts were opened and general "*Bravo Sierra*" was discussed by members of the club amongst themselves until the Hospital cleaning ladies shooed us away and into the streets and back home to our loved ones.

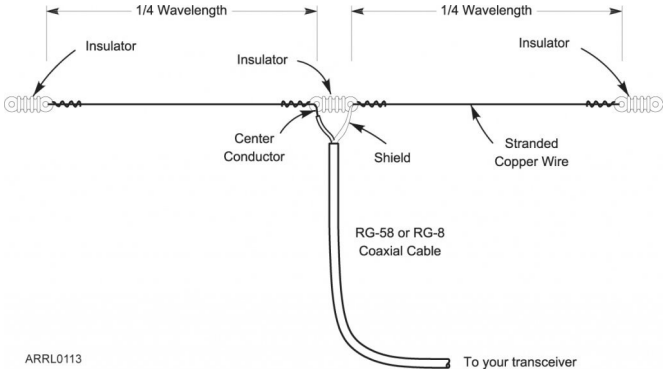
Antenna Basics for Fun (and no profit at all)

(Part two—In The Beginning...)

How many different types of antennas are there? The cowards on Wikipedia quote the number as “a plethora of kinds”. I have heard a very experienced antenna designer as saying that there are over 5,000 *DIFFERENT* antenna designs presently known! Where to begin, where to begin…

Let’s begin with what was probably the first *transmitting* antenna ever used, the center fed dipole. Heinrich Hertz (the guy that the *Hertz*, ”cycles per second”, is named after) developed a wireless communication system by forcing a spark to occur in the gap of a dipole antenna back in 1886 (his receiving antenna was a loop antenna).

So, what is a half wave center fed dipole? It’s two, quarter wavelength’s lengths of wires, mirroring each other, usually positioned horizontally with a feed line attached at their center “ends”



When you cut the wire lengths for the longest length you can mount, it is usually called a non-resonant *Doublet* or simply a *Doublet*. When it is measured and cut to be at a specific electrical resonance length for a favorite frequency, it is usually called a *Dipole*. How do you find “the right length”? Well, there’s a story about that…

Half wave dipoles are called half wave because they should be cut to be one half the wavelength (λ/2) of the radio wave that you are most interested in transmitting on. If you wanted to calculate half the wavelength for a given frequency in *free space*, the vacuum of outer space, it would be:

λ/2 Length (feet) = 495/frequency (MHz)

The problem is that your antenna is not going to be launched into outer space. Chances are that it will be close (but not too close) to your property’s ground. A lot of things affect the *electrical wavelength* in a wire relatively close to the Earth ground. To begin with radio waves don’t travel as quickly in metal wires as they do in a vacuum (that’s called its *velocity factor)*. Capacitive coupling at the ends of the wires has an effect and the distance of the wire from Earth ground has an effect. As a rule of thumb you should try to keep your dipole no closer than a 1/2 wavelength’s distance from the ground, Any closer and it will *couple* with the ground, producing a great deal of energy loss and the diminished radiated signal will be going in the wrong direction for your purposes. Most people want an elevation angle that points towards the horizon and gives radio waves a chance to be reflected and refracted by the ionosphere for long distance communications. By placing a dipole too close to the ground the elevation angle becomes almost 90 degrees—straight up! Instead of a great DX (distance) antenna you have a *Cloud Burner*, or a Near Vertical Incidence Skywave (NVIS) antenna that’s great for local communication but much more difficult to use for DX communications.

Back in 1929 the ARRL published the following equation in that year’s Handbook for the very first time. It was based on practical experiments by Hams over the previous few years:

λ/2 Length (feet) = 468/frequency (MHz)

Many people have read about the *magic number*, 468, but few know where it came from—now you are one of the Hams that know that trivia! It isn't carved in stone—most books suggest that you use that equation to give you a rough approximation and probably add three or four more feet at either side just to be safe (you can always tie wire back on itself and effectively make it act as though it were shorter—it's much harder to make an antenna that's too short function like a longer antenna)! When a dipole is at resonance its impedance is purely resistive—its capacitive reactance and inductive reactive is balanced out and is zero!

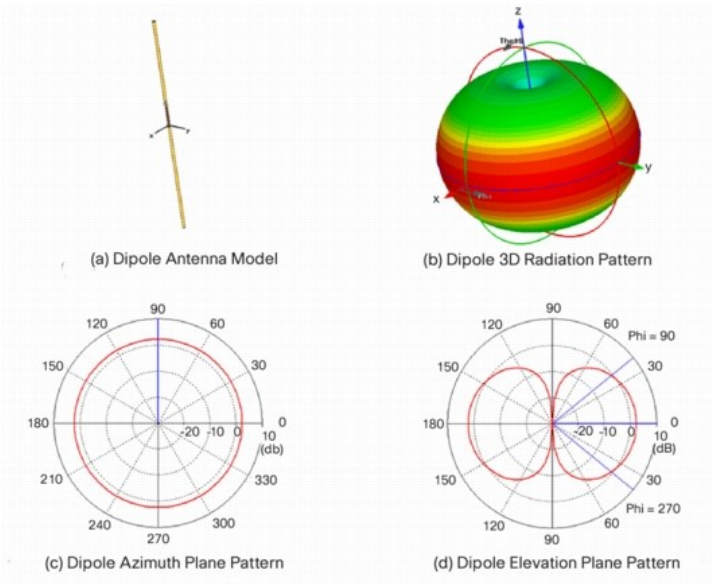
So… measure everything out right, cut it to the correct length, mount it at least 1/2 wavelength above ground and you have an antenna with a perfect 50 ohm nominal impedance (surely you remember when we wrote all about impedance in "Part One"?)…

Sorry, the theoretical nominal impedance of a half wave dipole at resonance in free space is 73 ohms, not 50 ohms! That's 73 ohms of pure Resistance and 0 ohms of Reactance. What the ******?! What about 50 ohms? How did we come up with 50 ohms impedance for all our transmitter final stages if a resonant dipole is supposed to be 73 ohms???? Time for another short diversion…

I guess most Hams think there is something magical about 50 ohms of impedance. It's the impedance of everyone's final stage transmitting amplifier, and all the coax that we buy, and it's a 50 ohm impedance that you dream for, so that your Standing Wave Ratio is 1:1. Where did it come from?

It came from a compromise, like our founding fathers choosing to erect a new city, Washington D.C., as our capitol, smack in the middle of the original 13 states. You see, there ARE two important considerations in choosing a standard impedance—power loss and power handling ability. For a dielectric filled coaxial cable the lowest power loss occurs when the cable's impedance is somewhere in the 75-77 ohm range—this is why the cable TV industry that is only concerned with power loss runs nothing but 75 ohm coax cable! The best power handling capability, for all you guys with your super-duper linear amplifiers, is from a coax cable with an impedance of 30 ohms! Best compromise between power handling capacity and lowest power loss is… 50 ohms! (Well that's what everyone settled on as the explanation and they are sticking to that story!) I could show you the derivation of how these two optimum impedances were calculated, but someone's nose would start to bleed when they saw the differential equations involved.

I'm sure most of you have seen the graphic representation of the radiating pattern of a dipole:



Most people call it *doughnut shaped*, I prefer *bagel shaped*. The maximum current is near the center feed and that's where most of the signal is radiating from (that's why an inverted "V" has better elevation than a simple "V" shaped dipole. The outer edges have the maximum voltage, so stay away from them when your transmitter is on. RF burns can be painful!

The bottom line is that dipoles have a bit more gain at right angles to their axis and a little bit of loss in the directions that the dipoles are pointing at. As an example a dipole oriented north to south would be a bit easier to work east or westward stations.

The gain of a dipole is usually given as 2.15 dBi. What's a *dBi*? It's a comparison to a radiation pattern similar to an incandescent light bulb, where the Radio Waves radiate equally in ALL DIRECTIONS. The details of the ubiquitous decibels will be covered in the next part of this continuing series. Anyone want to guess what a dipole's gain is in dBd's?

So you just plug it in and talk away? Well, not quite yet. Dipoles are a balanced antenna and coax is an unbalanced transmission line. When you connect the two of these together very often you create a common mode current on the outer surface of your coax's shielding—in effect your transmission line is no longer a relatively loss-less RF shielded means of getting your transmitter's RF to your antenna. Your coax becomes an antenna and your shack becomes full of RF that usually causes all kinds of problems. That's where a balun comes in (*BAL*anced to *UN*balanced transformer). The theory behind these very useful gizmos is presently beyond the scope of this article, but we may circle back to baluns in later parts. The simplest type of balun, a voltage balun or so-called *common mode chokes*, can just be six to eight loops of coax bound together or a series of ferrite chokes arranged near the coax feed line connector. Common mode current is "choked" and most of the RF is radiated far away from your shack, eventually to your dream DX station on the other side of the world!

Are there any variations on the basic dipole? Sure! You don't have to orient it horizontally; you can orient it vertically, or at any angle. Many Hams with humongous towers will attach a dipole to the top of their tower at one end and "slope" them to end near the ground some distance away from the tower's base. That's why they call them *Slopers*! There's no rule that both legs of the dipole have to be strictly parallel, you can make them "V" shaped or inverted "V" shaped, but the angle shouldn't be smaller than 90 degrees or each leg will start to couple with the other and losses and distorted radiation patterns will occur. You can bunch dipoles for different bands together with a common feed point—those are called fan dipoles! Trap dipoles are another design to get multiple bands using the same antenna. You can fold your dipole, or use wire mesh instead of simple wire and build a *Cage Dipole*. As you make your antenna electrically appear to have a larger diameter wire, as occurs with cage dipoles, the available bandwidth of the antenna widens, giving you more frequency options for good transmission on your Amateur bands. Some different types of antennas us a dipole design as a part of their own design—as the design's *driven* element. These more complex designs will be discussed in a later part of this series.

If you want to try to "have your cake and eat it too" you can use a random but long non-resonant dipole with a very low loss balanced open wire transmission line plugged into a very good antenna tuner and let your antenna tuner deal with the impedance mismatch. Surprisingly there is an even split among the tech wizards regarding antenna tuners. Some think they are the greatest thing since sliced bread and should be used as often as needed. Others think that they are toys, a magic trick to help fool yourself with a fake, better SWR and to fool your transmitter's final power amplifier stage, that you really have a resonant antenna connected to it, when you really don't! In the good olde days most tube driven transmitters had a final power output tuning stage that was just another name for an antenna tuner, so if it was good enough for those old timers it should be good enough for us! Some people swear by their non-resonant Doublets, some swear at them…

Well, I guess that covers Dipoles! Go build one or two and try them out! All you need is some wire. Surely, you must have some wire sitting around the house? Have fun, experiment! Perhaps next time we'll discuss what happens when you move the center feed of a dipole off to one side, or how 1/4 λ verticals can fool the Universe into believing they have a mirror twin sitting right next to themselves or perhaps we'll try to explain the concept of decibels as simply as possible...

Feel free to comment, question or even dispute! Apathy is the one thing that will not be permitted. If there is interest in this planned series, there will probably be more in the series. If I only get more silence from this article I shall have no choice but to review the concept of decibels – dB! (there are more than a few questions about dB on the Ham exams.), or spend the time I would have spent on these articles doing something else like reading a good book, or making a QSO...

Until the next time...

73,

The Editor (I can be contacted at TheEditor@KC2RC.com)

The Joys of Jargon or “Negatory On That!”

(All call signs mentioned in this article have been disguised to protect the tedious.)

Jargon, every hobby, every field has it and we Hams have a load of it!

Jargon evolves hopefully to clarify a message, to remove any ambiguity, to increase the signal to noise ratio of ANY exchange of ideas. Occasionally jargon devolves into a way to mask your meaning from the general public or sound more important than someone who just spoke common words.

Amateur Radio is all about communication, about inclusion, not exclusion and yet we have all this jargon.

Its origin made a great deal of sense. Amateur Radio communication first took place using Morse code, the “texting” of its time and just as “texters” use agreed upon abbreviations and codes, CW operators used their version. This is where the “Q” codes really shined. Originally intended for commercial radiotelegraphy, Hams adopted it and made it their own! Then there are those other codes that are inseparable from an Amateur Radio Operator’s vocabulary. Some have become self-fulfilling prophecies like OM (old man – a general description of any man after adolescence), some have become reasons to have your wife place a pillow over your face while you sleep, like XYL (EX-young lady, for your wife). Thankfully “88” (love and kisses) is a rarity, at least on the bands that I can hear!

Then you have the Ham equivalent of the “Supreme Grammarians” that rate you on the use of language and correct you at any opportunity. The Ham version can spend hours over fights about whether “73’s” is an egregious error (“best regardses”), or just a harmless bit of emphasis. Most people that have strong opinions of Ham etiquette usually suggest that abbreviations and codes are for CW and phone should be in plain English. Most people tend to agree that on FM with full quieting and no problems with “readability” codes are a bit of folksy nostalgia at best or “look how cool I am” at worse. Does it take that much more time or is more confusing to say “I’m speaking from Brooklyn” than to say “the QTH is Brooklyn, here!” or to say “Yeah” instead of “QSL!” or “going clear” vs “QRT”. Often people will discuss jammers while they are listening in by calling them “QRM” – what is this, code so the “children” won’t hear. I think by now even jammers know that when Hams talk about “QRM” they are getting noticed. The other day someone “keyed up” a Repeater but did not identify himself – rather than respond “Please identify yourself, this is KE2BOB” the guy said “QRZ? This is KE2BOB” – what was the point? What about the guys that explode with “HI HI” when a normal chuckle will suffice? It seems like the (not so) secret Ham handshake is using “73” (best regards) at the end of every conversation (like it’s somewhere in the FCC’s Part 97 requirements).

The real guys that grate the ears, are the ones that seem to be making believe they’re members of a Navy Seal Team on a crucial assault. Perhaps they’ve been reading their EmComm manuals too much, but I regularly hear:

“KE2TIM, this is KE2JOE…” <long pause> “NEGATIVE response, QSY!”

Now, this isn’t even half decent English. When you call a call sign and no one responds (and why can’t you just say “no response heard”) it is not a “negative response” in my book, at best it is a null response. The closest thing to a negative response would be if KE2TIM responded by saying “this is KE2TIM, I am NOT on the air, QSL?”, but then the only Hams that might respond that way are safely installed in the nearest insane asylum. I know that it is considered a “military thing” (or a military cliché thing). Personally, I think someone saw it in a movie with some ersatz Navy Seals and thought it sounded real “cool”. Most of us aren’t Navy Seals, or in active military positions. We aren’t members of SWAT teams, and we are not any kind of so-

called “first responders”. We are Amateur Radio Operators that enthusiastically volunteer to help when professional communications systems fail. Why some of us feel an uncontrollable urge to be a Professional Amateur (or is that an Amateur Professional – see I’ve got a uniform and badges with insignias all over the place and all that cool stuff- can I “play too”, can I, can I?). The same guys will often replace single syllable words like “yes” or even “yeah” with the unnecessary longer 4 syllable version, “affirmative” (again this all occurs on Repeaters with full quieting “59” FM quality signals). It could be worse – they could use “Associated Police Communications Officers (APCO) 10 Codes” – they have a great term for the word “no”, well actually it’s for that word “negative” again, 10-74, doesn’t it fall trippingly off the tongue?

And what’s with the guys that use “*The Royal We*”? “We have been a Ham since 1958”, I recently heard. Are “*they*” Conjoined Twins? Some guys get REAL carried away… “From all of us, we wish you …” It would make some sense if during the QSO he mentioned anyone else anywhere near his shack, but it seems for this guy he’s just a group of one very plural guy!

But the “Pièce de résistance” are the guys that make up their own codes, neologisms like “Negatory”. There’s a special circle in Hell for those creative guys…

73’s, 88’s, 10-42 and (what the hell) a bunch of Negatories to y’all,

The (Cranky) Editor

Closing statements (from the Editor):

Well, I hope you found this entertaining or informative (or both), as much as the previous issue. I asked for some kind of input from the general membership in the first issue of this Newsletter. I had hoped for members offering ideas, opinions and perhaps even volunteering to help with this effort. So far I have received a single reply, politely requesting that I “cease and desist” using a certain graphic in this newsletter (which I have agreed to banish from any further issues). Other than this member, this Newsletter project has been responded to by a cacophony of silence and apparent indifference by our members. Whiskey Tango Foxtrot! If no one else cares why should your Editor? We are all Hams, with interesting yet diverse interests and experiences. Doesn’t anyone want to tell the rest of us about something that the rest of us aren’t yet aware of? This Newsletter has become perceived as the “Albatross around the neck” of past Presidents because “no one else will do it”.

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

Good luck to us all…

- The Editor -