

Kilowatter

The voice of the KW Amateur Radio Club

Since 1922

Kitchener-Waterloo Amateur Radio Club

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Waterloo, Ontario

N2J 3G9 (*please note new address -ed)

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MONDAY'S MEETING

Date: Monday June 7th 2004

Time: 7:30pm

Place: RCAF Wing 404 Club. End of Dutton Dr. Waterloo. Off Weber St. N

Topic: Our AGM (Annual general Meeting) and Election of Officers for next year

UPCOMING EVENTS

Central Ontario Fleamarket & Hamfest Guelph ARC & Kitchener-Waterloo ARC Starts on Saturday, June 12, 2004, Fergus ON	Kitchener-Waterloo Amateur Radio Club Annual Field Day Contest. Starts on Saturday, June 26, 2004,
ONTARIO HAMFEST .. 33rd Year Burlington Amateur Radio Club Starts on Saturday, July 10, 2004 Milton, Ontario ON	Central States VHF Conference The Ontario VHF Association ARC - VE3VHF Starts on Thursday, July 22, 2004, Mississauga ON
NPARC 2nd Annual Tailgate Hamfest & Auction Niagara Peninsula Amateur Radio Club July 17, 2004 Thorold ON	VHARA (Lindsay) Hamfest 2004 Victoria-Haliburton Amateur Radio Association August 28, 2004 Lindsay ON
Barrie Hamfest Barrie Amateur Radio Club Starts on Saturday, September 11, 2004, Barrie ON	London Amateur Radio Club Fleamarket London Amateur Radio Club Starts on Sunday, September 26, 2004, London ON

KWARC Directors 2003-2004

President	Ben Sasiela	VA3ST	748-0445
Vice President	Gord Hayward	VE3EOS	744-7205
Past President	Bill Graham	VE3ETK	576-3578
Treasurer	Dave Schwartz	VA3DGS	884-3594
Secretary	Larry Gorman	VE3LGN	884-6782
Director	Tedd Doda	VE3TJD	634-5949
Director	Hugh Baird	VE3IYG	684-7257

The Executive Committee Chairs

Program	Bill Riddell	VE3WFR	571-9875
Technical	Tedd Doda	VE3TJD	634-5949
Packet	Tedd Doda	VE3TJD	634-5949
Database Mgr	Dave Schwartz	VA3DGS	884-3594
Bulletin Editor	Dennis Tabbert	VA3DLT	463-9641
Edu. Co-Ord	Ron Gimbel	VE3DBD	699-4488
Chief Examiner	Vern Stroud	VE3RVS	743-9342
Auto Patch	Ben Sasiela	VA3ST	748-0445
ARES Manager	Larry Gorman	VE3LGN	884-6782
CANWARN Mgr.	Ron Gravelle	VA3TVS	569-8746
QSL Manager	Gord Gibson	VE3NQG	893-5148
Inventory	Ben Sasiela	VA3ST	748-0445
Field Day	Bob Pelling	VE3XNB	893-4712
Webmaster	Paul Cassel	VE3SY	634-5139
Bereavement	Marg Cassel	VE3RE	634-5139
Flea Market	Hugh Baird	VE3IYG	684-7257
QCWA Rep	Harold Braun	VE3DWH	884-2388

KWARC Owned Repeaters/Nodes

Mode	Call	Freq.	PL	patch	Location
Voice	VE3KSR	146.970	131.8	Yes	Baden Hill
Voice	VE3RCK	146.865	131.8	Yes	Manheim
Packet	VE3KSR-0	145.010			Baden Hill
Packet	VE3KWQ	145.090			Waterloo
Voice	VE3IXY	224.340	131.8		Manheim
IRLP	VE3RBM	444.875	131.8		Manheim
Echolink	VE3SED	53.370	131.8		Baden Hill
Voice	VE3SED	442.200	131.8		Baden Hill
Special Events		147.510			Kitchener

Other Area Repeaters/Nodes

Mode	Call	Freq.	PL	patch	Location
Voice	VE3EUC	444.700	N		Elmira
Voice	VE3KFM	442.000	Y	open	Kitchener
Voice	VE3RND	145.330	Y		Plattsville
Voice	VE3SWR	146.790	N		Cambridge
IRLP	VE3WFM	147.090	N		Waterloo
Voice	VE3WWW	146.835	N		U of W
Voice	VE3RSS	147.030	N	members	Acton
ULR Link	VE3BHR	447.075	Y		Baden
Voice	VE3RKL	443.850	N		Guelph
Voice	VE3ZMG	145.210	N	Open	Guelph
Packet	VE3VIQ	145.570			Guelph
TCP/IP	VE3MKY	145.570			Guelph
TCP/IP	VE3UOW	145.570			U of W B
Voice	VE3BAY	442.350	Y		Kitchener

Presidents Report for June 2004



Greeting to all Club Members
The June club meeting is our last gathering before a recess for the summer months, and I would like to

take this opportunity to express some gratitude to the many volunteers within our club that have contributed so much over the past year. Without this dedication, and sharing of responsibilities, well, it would be difficult if not impossible to carry on. To the executives that have volunteered to help manage the affairs of the club, and the many hours of extra meeting dedicated to the wellness of KWARC, it's been a great pleasure and experience to have such a enthusiastic team throughout the year. These are, Bill Graham, VE3ETK our past pres, and club examination, Gord Hayward VE3EOS, Vpres, Hugh Baird VE3IYG, greeter, flea market rep, 50/50 draw, and much more, Dave Schwartz VA3DGS, our bean counter, Tedd Doda VE3TJD, Tech chair, Larry Gorman VE3LGN, ARES/Can warn/secretary/Regional kwarc Rep, TCA author. To the many other volunteers, Ron and his staff VE3DBD, Ham courses, Bob VE3XNB, Field day co coordinator, Fred Lowe VE3OQB, always with fresh coffee, Gord VE3NOK, club qsl card manager, Bill VE3WFR for all the fine presentations, Harold VE3DWH, for QCWA, Dennis VA3DLT club editor, and

I'm sure that I have missed many more for which I am sorry, but we all appreciate your contributions over the past year.

When I took on this job, as club Pres, my goal was to constantly improve what the club has to offer to its members, to represent the club in our community through education and involvement and to foster fellowship amongst the hams through the sharing of expertise.

I would also like to invite our members come out and either work, or visit operators at our annual Field Day at Doon Pioneer Crossroads, and show support to the clubs annual event. This is a club run affair, and the more operators and club members there, the better our representation and visibility in the community.

During the past year, we experienced a variety of presentation from our club members, so why not make it a project this summer to take pictures so you can tell us of your ham experiences and do a show at one of our future meetings.

I wish everyone a pleasant summer of ham radio, please be safe out there and take care of yourselves and your health.

Ben Sasiela
VE3ST

The 30th Annual Central Ontario Amateur Radio Fleamarket and Hamfest Saturday, June 12th, 2004

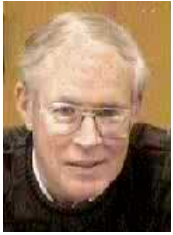
At the Fergus & District Community Centre

Open 8:00 am to 12:30pm - Venders from 6:00am

Admission \$5.00 - Indoor tables \$10.00 - Tailgate \$5.00

Admission includes ticket for hourly & grand prize draws

[KWARC Club Meeting Monday May 3, 2004 by Larry Gorman](#)



Meeting at Wing 404 opened at 7:40 PM with a welcome from President Ben VE3ST. 54 members attended, including Don VE3ICD.

First Item of Business

Past President Bill, responsible for the assembling the slate of candidates for the annual election of officers, announced that the current officers were willing to stand for a second term. Nominations from the floor were also solicited. None being forthcoming, nominations were closed. Bill reminded members that the "Amateur of the Year" award will be selected by secret ballot at the June -final meeting. Please attend this important club event..

Our key note speaker for the evening was Don VE3ESE. His presentation incorporated 10 years of Cuban holidays and Cuban DXpeditions. KWARC visiting operators included Greg VE3NXB and Gord VE3NOK, and Don VE3ESE

After the break the draw was held and the winner, Drew VE3AOR, our most senior member, was serenaded with a rousing "Happy Birthday". He then drew the winning ticket. Harold VE3DWH walked away with \$ 25.25, a good start for his trip to the Dayton Hamfest.

Hugh VE3IGY again requested the participation of our members at the annual June Flea Market, held at the Fergus arena. It provides one third of our operating expenses and deserves our support..

Tedd VE3TJD our Tech chairman reported on the portable 440 radio and kit which he has assembled for club use.

Larry VE3LGN Chairman for all Emergency Services reminded members to honour the need for breaks in rag chewing should a CANWARN weather net be called. The CANWARN weather monitoring will run from mid April to mid October.

Our net controllers Ron VA3TVS, Larry VE3LGN, Ben VE3ST, Chris VA3CEG, Bob VE3XNB, and James VA3TNG are rostered in pairs on 2 week schedules for continuous coverage

Harold VE3DWH reported on the success of the April QCWA -Fred Hammond Chapter QSL contest held at The Fred Hammond Museum of Radio. A very attractive QSL card was offered.

Ron VE3DBD reported that the annual Amateur Radio class was underway with 12 candidates. Instructors will include Ron, Vern VE3RVS, Bruce VE3NXB, and Roger VE3RKS. This year it is being held at the Stirling Street Mennonite church. Let's hope that they all succeed and that they join our club!

Bob VE3XNB reminded us of the annual June Field Day.

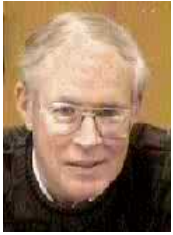
Gord VE3NOK gave an update on the clubs QSL activities.

Meeting adjourned at 9:30 on a motion for VE3XNB, seconded by VE3EUU

Club Secretary Larry

VE3LGN

KWARC EXECUTIVE MEETING 3 May 2004 by Larry Gorman



Meeting at Ratz-Bechtel Family Centre Tuesday 3 May. Members welcome.

Present: President Ben VE3ST, Tedd VE3TJD, Hugh VE3IYG, Larry VE3LGN, Bill

VE3WFR, Bob VE3XNB, Gord VE3NOK, Guest Peter Bon VA3PTB

Item: Gord VE3NOK re Field Day recognition pin. About 25 needed. Sample shown. To check for best price source.

Moved by Tedd, seconded by Bob. "That Gord check for best price for Field Day Survivor pins." Carried.

Item: Gord made a QSL bureau report on the Worked All Zones. Contest. Total of 335 countries required, 218 worked to date, 165 QSL replies. Funds need replenishing. Cost to club for entering contests discussed.. Motion from Tedd, seconded by Larry, "That club approve request for \$100 funding for the club QSL Bureau"

Item: Ben has been in touch with RAC Exec re proposal that club include space on our renewal form for promotion of RAC membership. This idea will be investigated further before any further action.

Item: Moved by Tedd, seconded by Hugh, "That VE3KSR remote be reconfigured as soon as possible to accommodate CANWARN condition Green-Yellow-Red announcements. Passed.

Ben will do the reconfiguring.

Item: Follow up on surplus repeaters. Due to previous arrangements, one of the repeaters (Kenwood model TKR 820) donated to KWARC has been reallocated to UOW Amateur Radio Club VE3WWW.

Item: Flea market door prizes. Moved by Tedd, seconded by Ben "That we again provide Gord and the Flea Market Committee with \$100 advance for door prizes." Carried.

Item: Moved by Ted, seconded by Hugh "That the new Portable VHF repeater be kept in Ben's Portable Tower trailer under the following conditions.

1. It be insured under all conditions
2. The enclosure be weather proof
3. .It be used only for KWARC sponsored activities." Carried

Information item: Field Day is already being advertised by Doon Heritage Crossroads.

Item: Bill VE3WFR Program chairman, announced that the June meeting will include a slide presentation on past club Field Days.

Returning Item: A proposal for KWARC to assist with Monsignor Doyle SS in establishing an in-school Amateur Radio Project in collaboration with Radio Amateurs Canada, as part of their Youth Education initiative.

Peter Bon VA3 PTB a teacher at the school distributed a very comprehensive proposal on plans to initiate this program in the school. He then gave a thorough presentation on how our club could assist to make this program work. Much positive discussion followed.

Motion by Tedd seconded by Larry: "That KWARC sponsor Monsignor Doyle SS to the best of our ability in the process of becoming a RAC sponsored youth education project." Carried.

Meeting adjourned at 9:20 PM

Secretary LARRY VE3LGN

Tech Report for June, 2004



Greetings:

We had a couple issues with some of the club equipment this past month.

First, KSR's output power dropped to almost nothing which was reported by Bill, VE3WFR. He mentioned that he could barely hear it from St Agatha. The tech committee found a bad fuse in the power amplifier (RF-PA) positive lead. The fuse "looked" good but was open. A new fuse brought the repeater back to life (thank goodness for spare fuses, hi!).

Second on the list, was a learning experience for the tech committee. While checking out the problem with KSR, we measure the voltage of the 12 volt battery bank which supplies power to most of the equipment at Baden. We have a cheap little digital multimeter which stays at the hill, and when we checked the batteries it showed 15.5 volts! The batteries should only be at about 13.8 to 14 volts. Well, we immediately suspected the charger (Stacion) and looked around for any problems. None were found. After checking each battery (6x 2 volt cells), each battery showed the proper 2.43 volts?? What's going on here?

The only thing that changed from measuring the entire battery bank, to measuring each cell was the range of the multimeter. Could it be that the meter was wrong? Sure enough, we checked my cars battery and it also showed about 15.5 volts! So if you ever get into a situation like this, remember that when the "low battery" indicator is on the meter, it's readings can't be trusted :)

To WNYSORC or not to WNYSORC.

The Western New York Southern Ontario Repeater Council (WNYSORC for short), is a group of Hams that monitor and issue frequencies for repeaters in our area. When someone (or a group) decides that they want to put up a repeater, these people are your best friend!

Having gone through the routine twice, I can

tell you it's a lot of work to get a repeater operational. The first part of the task is to get a "pair" of frequencies, which will be what I'll discuss today. You need a pair of frequencies because your repeater will be listening on one frequency and retransmit the audio on another. So, how do I get a "pair"?

Most people think that the WNYSORC takes your application for a repeater and after a few months, will issue you a "pair". Hate to tell you guys, but it doesn't work that way. Most VHF and UHF frequency pairs are in use, and you may be waiting a very long time before one becomes available. What about other bands? Sure, 220, 6 meter, 902 and 1.2Ghz are pretty well open, and getting a pair would be relatively painless. But most Hams want their repeater to be active, and getting on these bands is not quite as easy as VHF/UHF. Also remember that there are only a finite amount of frequency pairs available for each band!

Do your homework.

I found the BEST way to find a VHF or UHF frequency is to do a bit of work. First, start with a current list of repeaters available at the WNYSORC website (www.wnysorc.org).

Now, get a map of Southern Ontario and mark your proposed repeater location. Get your kids compass (you know, the thing with a sharp needle on one end, and a pencil on the other), and using the legend of your map, set it for the equivalent of 100 miles.

The WNYSORC has set two boundaries for repeaters. The first one (co-channel) states that no repeater may be installed on the same frequency as another, which is less than 100 miles (160 KM) away. It also states that your repeater must be at least 35 Miles (56 KM) away from any repeater which is one "channel" away (adjacent channel). There are also special considerations for repeaters near water, due to the fact that RF travels further over a body of water (great lakes).

Getting back to your map, draw a circle using the compass around your location previously set for 100 miles. Now, set the compass for 35 miles and draw this circle around your

location as well. Now comes the hard part! Start at one end of the repeater list and start marking the locations of each. If it falls within the 100 mile marker, that "pair" is not useable.....PERIOD. If it falls outside of the 100 mile marker, you may have just found a pair that will work! Now, for each of the frequencies you found over the 100 mile mark, you have to check the frequencies immediately above and below. For example, if you found that 443.500 is outside your 100 mile circle, you will have to check all the repeaters on 443.525 and 443.475 (one "channel" above and one below), to make sure they don't fall within the 35 mile circle. This is checking the adjacent channel specification. If no adjacent repeater pairs fall within the 35 mile circle, give yourself a pat on the back....you are almost done.

Go back to the WNYSORC website and download an application for repeater form. Here, you will have to put in the exact location, height above sea level, power of the repeater and antenna gain (along with some other information). It will also ask you what frequency (s) you want. This is where you would put the frequency pair you found above (443.500/448.500). Put this form and a cheque for \$10 into an envelope and mail it to the WNYSORC.

Hopefully, within a short period of time, someone at WNYSORC will inform you whether you got the pair or not, and if not why. The most common reason for not getting the pair is due to YOU not doing your homework properly. Don't blame WNYSORC for your mistakes.

Once a frequency pair is taken, is it mine for life? NOT! Each year, you will be asked to submit an update form. On this form, you will be asked for any changes or modifications to your repeater. Be honest. You can make certain changes to your system which will not affect your coordination.

WNYSORC needs your help. After downloading the list of repeater pairs, try and put your mobile or base on scan and listen for signals. If you come across a repeater

that isn't on your list, try and get the callsign and inform either me or WNYSORC directly. We will try and contact the owner and find out whether it's coordinated or not. If not, the owner will be contacted and made aware of the advantages of being coordinated. If he doesn't coordinate the repeater, it MAY fall back into the pot of available pairs. Both the Canadian and US governments frown upon non-coordinated repeaters.

Now the fun part, the hardware! Whether you are building it from scratch, or buying a complete repeater system, the hardware will make or break the performance of your "baby".....we'll leave that for another time :)

Friday night Ham Radio TECHNET:

Do you need to ask a technical question? Do you have valuable knowledge that you would like to share? Go no further than the Ham Radio Technet, held each Friday night from 8PM to ????? (usually about 10PM). Your host is Reg, VE3BQQ who is one of the brightest guys I know and has served the commercial radio industry for many, many years. Go to <http://www.hamtechnet.com> for more information on this great service provided by Reg!

Update for the Kitchener area:

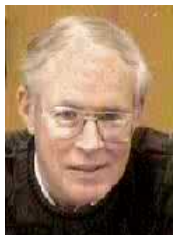
Although the Technet is available on IRLP and Echolink, the repeaters that host the Technet are a little far away for many people on HT's and most mobiles. Well, the tech committee of KWARC will be installing a UHF link which will feed VE3SED UHF and 6 meters with the Technet each Friday night! Look for this expansion by the time you read this.

Sorry for the long Tech Report this month, and I hope you've enjoyed it as much as I have preparing it.

Tedd, VE3TJD

Tech Chairman of the KWARC.

Columbia St. Fire Station – New ARES/CANWARN Facility



WEEKEND TO REMEMBER

The May Two-Four weekend this year harboured more than its normal share of fireworks and holiday excitement.

Exceptionally poor weather was the norm, capped off with 3 days of torrential downpours, high winds, thunderstorms, fog and an unheard of sequence of Tornado Alerts.

With most of our Net Controllers away, looking for fair weather, Larry VE3LGN was left to mind the CANWARN shop.

Rumors that a tornado may have touched down in South Perth near Gad's Hill, just outside of Stratford, activated the Toronto Severe Weather office. Pager alerts commenced at 6:35 pm, covering Oxford Brant, and Waterloo-Wellington. The Net was activated and alerts were sent out on both of the club's repeaters as well as VE3ZMG and VE3SWR. The severe thunderstorm watch escalated into a Tornado warning at 7:39pm. By 8:19 the storm had moved quickly beyond Guelph and the local Tornado warning was officially cancelled.

Thanks go out to VE3FOT of AYR, VE3BM of Hespeler, VE3YPN, and VE3AMZ of

Kitchener, and VA3JVC of Guelph, and VE3SY in Petersburg, all who came on frequency to report in on this CANWARN Net.

Sunday lunch was interrupted by another round of alerts as another band of Tornadic weather moved across the region. An inspection of the Exeter weather radar scan showed that the core would pass well to the north of K-W, so I only issued a brief information item on air.

Monday, and neither the holiday, nor the Alerts were yet over! At 11:42 AM Tornado was again issued by CANWARN central, with hail and winds to 90 Km. in the Region. Some areas experienced minor flooding in this violent downpour. The spell was finally broken by late afternoon. As far as tornado damage, Mitchel was the actual touchdown site on Saturday evening, with considerable damage sustained.

When severe weather is indicated please consider tuning your 2 metre rig to VE3KSR 146.970 Tone 131.8 to monitor and to contribute severe weather information.

Larry VE3LGN
ARES/CANWARN Coordinator



OLD TIMERS TAKE NOTE

For some years our own VE3ETK has been issuing a certificate for those radio operators who have been 'at it' for over 25 years. That time includes any time a radio

license of any kind was held, as long as the operator was permitted to operate transmitter in excess of 100 Watts – military, commercial service, amateur, broadcasting, whatever, and all counted up. Bill does this for the cost of supplies and mailing. The applicant receives an elegant 8 1/2" x 11" certificate suitable for framing (a tiny version is shown here). The

person is also listed in the Registry which appears on the web site. It's all explained on RSWO+25 website:

<http://www3.sympatico.ca/wrgraham/>

For KWARC members, Bill says that, if you qualify and come to a KWARC meeting there is no need for mailing, and he'll take \$1.50 off of the Canadian cost. No other registry takes into account service as a radio operator in any other capacity than as an amateur. So, check out the web site and see if you qualify. If you do not have access to the Internet, then see Bill at one of our KWARC meetings.



Greg VE3NXB

Having used simple wire dipoles and verticals for many years, I have found that too many of my great expectations were in reality, just duds. As I get wiser... well hopefully, I realize that some well worn antenna configurations are the easiest and loudest lash-ups tried so far. Strangely, few antenna gurus tell the whole story, but that has changed of late.

OK, so what's so great about this antenna? Well actually a family of antennas were you pick the configuration that suits your immediate need, like field day, or QRP at the campground.

How about:

- easy hang from one or two tree limbs or supports
- same DX performance as a dipole at twice the height
- little of the ground loss inherent in the popular low impedance fed vertical and no extensive ground radial system required
- gain similar to a two, maybe even a three element yagi
- very inexpensive to put together

OK, now what's the down side?

- you have to build a simple impedance transformer to drive it
- single band, unless you get creative
- unlike the yagi, very difficult to rotate

In a nutshell, each antenna is an end fed (high impedance) wire of at least one-half wavelength and configured as a vertical dipole, inverted ground plane, half square, or bobtail curtain. They all use the same parallel resonant impedance transformer to create about 4,000 ohms at the feed point.

The vertical dipole or inverted ground plane has an omni-direction pattern, low take off angle, and low loss.

The half square or bobtail, has bi-directional broadside gain with pattern nulls in the opposite directions.

The impedance transformer usually rests on the ground where it connects to the co-ax feed line and an end of the antenna wire (see figure). Ground the co-ax shield to a short ground stake at this point.

You can achieve the bang of a horizontal dipole at a one half wavelength height (required for low angle DX performance), at half the physical height when you configure your wire as a half square. But, if you have the space, add more wire (remember, same physical height) and make a bobtail. The pattern azimuth

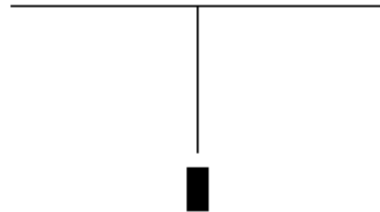
curves narrow, the nulls off the horizontal ends deepen, and the broadside gain jumps.

An impedance transformer set to resonance drives any of these antennas. I made mine from 10.5 feet (3.25m) of 12 AWG solid copper bare wire. Make the coil inside diameter about 1.5 inches (4cm). Evenly space windings the width of the wire. For low power operation, almost any air variable capacitor of at least 30 pf can be used to resonate on the 30 or 20 meter band. The 50 ohm co-ax tap will be found at approximately one quarter of the total number of turns as measured from the bottom. To keep mine dry, I mounted the circuit in an inverted plastic ice cream container with the snap-on lid screwed to a wooden plank for stability. The plank and the co-ax rest on or at ground level.

Vertical Half Wave Dipole



Inverted Ground Plane



Half Square



Bob-Tail Curtain



■ = impedance transformer

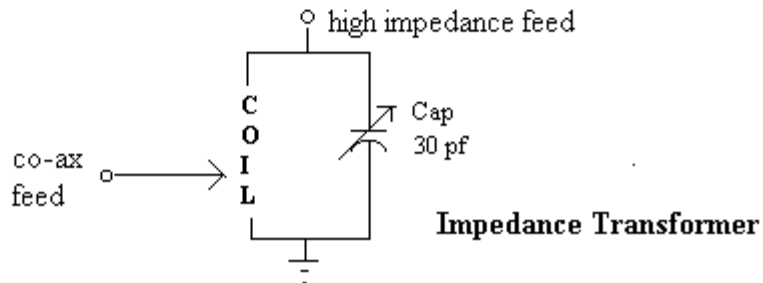


Fig 1 (C) Greg Hollinger VE3NXXB

To create a "no tune" installation at your site, pre-resonate the transformer on the bench. Temporarily place a 4 to 4.5 K ohm, one watt or greater carbon resistor between the top and bottom of the coil. This is a dummy load. Connect an antenna analyzer to the co-ax feed point. Set your frequency on the analyzer and adjust the capacitor for minimum SWR, then adjust the tap point for 1:1. When you finish your antenna installation, the transformer will still show a nicely matched impedance on the co-ax. If not, you

considerably if your hand, metal, or something like a tree branch comes close. Using moderate to high power creates very high RF voltage, so protect people and animals from contact.

To determine length for 12 AWG insulated wire, use the following formulas:

- Vertical dipole $468/\text{freq. in MHz}$
- Inverted ground plane $468/\text{freq.}$ for the horizontal wire, $253/\text{freq.}$ for the vertical wire
- Half square and bob tail $450/\text{freq.}$ horizontal, $260/\text{freq.}$ vertical

The formulas differ from the norm for the half square and bobtail to maintain a close match to the impedance transformer and be somewhat inductive. This positions the array for optimum gain as described by **L. B. Cebik, W4RNL** in his article, "*Power and Antenna Gain on 60 Meters*" that appears on page 36 of the February, 2004 issue of *QST* magazine. Although Cebik presents his antenna data using the new American 60 meter band, it is applicable to all. Here you will also find gain figures and comparisons for these antennas. His work illustrates the performance achievable.

Over the past ten years or so, I have used all of these easy to assemble wire antennas and made many transformer circuits. You will find that one transformer design may be adjusted for resonance on 2 adjacent amateur bands. I currently have a 30 meter vertical dipole in the back yard. When I find the best positioned tree branches, I will expand it into a half square with one of the 3.41 db gain lobes (referenced to the dipole) directed towards Europe. If I had the space, a bobtail would have 4.91 db gain, but make positioning more critical. As it stands, this vertical outperforms my ground mounted Butternut HF6V which has good 30 meter DX 'ability.

To sum-up

If you are using an inefficient antenna, like a ground mount vertical, but looking for better performance; a small half square mono-band wire array, may be the coolest BIG BANG - HF fireworks display.

Oh, almost forgot... I mentioned being creative earlier. Here is one way to make the wire do more.

A 20 meter half square will function as a low 40 meter horizontal dipole with the ends folded down. Using an impedance transformer resonant on 40 meters, the dipole will produce mostly omni-directional vertical radiation and work nicely for contacts out to 500 miles (800km) or so.

Special thanks to Don, VE3ESE for his input and helpful suggestions.

73 es DX, Greg VE3NXB
e-mail to [ve3nxb @ kwarc.org](mailto:ve3nxb@kwarc.org)



"Your home is probably the most important investment and the single largest piece of equity you own. That's why I know you would want to deal with a person who puts your interests above all else. In dealing with changes in your Real Estate ownership, Buying, or Selling, call VA3MRJ for professional Real Estate service."

David Johnson, Sales Representative
 Coldwell Banker Peter Benninger Realty
 508 Riverbend Drive, Kitchener
 742.5800 ext. 2169
 David-Johnson@coldwellbanker.ca



PETER BENNINGER
 REALTY

SOLD

[KWARC Membership Renewal](#)

Please cut out the following renewal form and enclose it with your payment as your renewal date comes due. When you enter the birthday information, just your month and day are needed.

PLEASE MAIL TO: Kitchener-Waterloo Amateur Radio Club 133 Weber Street North, Suite #3-138 Waterloo Ontario N2J 3G9	
First Name	Call:
Address1:	Last Name:
City:	Address2:
Postal Code:	Email Address:
Phone Number: () -	Birthday: <u> </u> Month <u> </u> Day
This is a [] RENEWAL or [] NEW APPLICATION	Kilowatter Preference [] MAIL [] From WEB
<input type="checkbox"/> Full Membership @ \$20.00 <input type="checkbox"/> Family membership adder @ \$5.00 <input type="checkbox"/> Seniors Membership @ \$10.00 <input type="checkbox"/> Student or Challenged individuals @ \$10.00	<input type="checkbox"/> Associate (non voting) @ \$10.00. I am a member of the _____ Club. <input type="checkbox"/> Printed Kilowatter Newsletter "Mailed" @ \$5.00
<input type="checkbox"/> Phone Patch use @ \$5.00 per family member	Speed Dial number request: _____
Comments:	
Total Amount Enclosed: \$	Your Cheque Number :



INFORMATION
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Kitchener-Waterloo Cambridge and Guelph

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Owner Operator : Don Sinclair VE3ICD

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CP2003	Pierce	Charles	270 Waterloo	New Hamburg	N3A 1T7	662-3226
gm2003	Mills	Greg	33-75 Old Chicopee Dr.	Kitchener	N2A 2G4	894-0955
LARBOSH	Boshart	Larry	2138 Witmer Rd. RR#2	Petersburg	N0B 2H0	696-3585
MF2002	Fontes	Mark	384 Greenbrier Rd	Cambridge	N1P 1C1	622-1284
RJSON	Huynh	Son	718 Westheights Dr	Kitchener	N2N2Z4	519 745 7220
VA3AHI	Engineer	Darayus	712-45 Southport St.	Toronto	M6S 3N5	(416) 604-3738
VA3AMR	Khan	Hamid	215 Victoria St S. Apt. 302	Kitchener	N2G 4Z7	
VA3BEX	Bexon	Kenneth	296 Wilson Ave.	Kitchener	N2C 1H4	893-3319
VA3BIQ	Stumpf	Hubert	101-401 Erb St. W.	Waterloo	N2L 1W7	884-1581
VA3BWZ	Hawes	Gerry	12 Byron Ave	Cambridge	N1S 1S4	621-4082
VA3CEG	Gautreau	Christopher	97 Weber St. S.	Waterloo	N2J2A2	576-2929
VA3CLS	Ross	Hampford	32 Providence Dr.	Cambridge	N3H 5P2	650-2452
VA3CTG	Hayward	Colin	48 Schweitzer St.	Kitchener	N2K 1B4	744-7205
VA3DAS	Schneider	David	38 Glendale Rd.	Kitchener	N2H 2Z8	576-1292
VA3DGS	Schwartz	Dave	215 Lincoln Rd.	Waterloo	N2J 2P2	884-3594
VA3DLT	Tabbert	Dennis	"108 Oxford St. W,	Drumbo	N0J1G0	463-9641
VA3EJD	Duimering	John	247 Maurice St.	New Hamburg	N3A 2H8	662-39833
VA3ERF	O'Robko	Fred	229 Cedar Dr.	Turkey Point	N0E 1T0	426-7946
VA3ERX	Riddell	Alex	368 Wellington St N.	Kitchener	N2H5L2	
VA3EZT	Lamb	David	RR #2	Tavistock	N0B 2R0	462-2303
VA3GGS	Steinacker	Glenn	13 James St.	Milverton	N0K 1M0	595-8086
VA3GUS	Robertson	Janet	26 Dumfries St.	Cambridge	N1S 1Y7	623-2390
VA3HFO	Robson	Kurt	RR #3	Port Rowan	N0E 1M0	586-2280
VA3HQ	Mansz	Wally	115 Westwood Dr #109	Kitchener	N2M 2K7	570-3250
VA3JCS	Smith	John	163 Thaler Ave #403	Kitchener	N2A 1R4	894-4092
VA3JDW	Woods	John	7 Walker St.	Elmira	N3B 1Y1	669-3522
VA3JMB	Blackwell	Jim	71 Wren Place	Kitchener	N2A 1L8	894-5432
VA3JSC	Carr	Jane	235 Hoffman St.	Kitchener	N2M 3N5	743-7385
VA3KMP	Pauli	Keith	803-135 Confederation Dr	Kitchener	N2B 1W1	744-1673
VA3LAW	Miller	Peter	R.R. #1	St. Agatha	N0B 2L0	634-5540
VA3LDA	ROBERTSON	LINDA	20 LOCUST STREET	KITCHENER	N2H 1W7	742-9039
VA3LLB	Beilstein	Louis	20 Blackfriars Pl.	Kitchener	N2A 1M5	893-5245
VA3LOU	Primeaux	Louis	11 Goundry Cres.	Kitchener	N2E 2X1	576-4466
VA3LVO	Orr	Victor	37 Orchard Mill Cr.	Kitchener	N2P 1T2	895-2088
VA3LWH	Hayward	Lynda	48 Schweitzer St.	Kitchener	N2K 1B4	744-7205
VA3MRJ	JOHNSON	DAVID	56 Onward Ave.	Kitchener	N2H 3J9	569-8782
VA3NGV	Staines	Jason	100 Underhill Cres.	Kitchener		
VA3PT	Tait	Paul	55 Wayne Dr.	Kitchener	N2A 1M4	894-5019
VA3PTB	Bon	Peter	123 Vintage Cres.	Kitchener	N2P 1L1	748-1430
VA3REI	Blasig	Reinhart	458 Driftwood Dr.	Kitchener	N2N 1S6	749-1231
VA3RTN	Newkirk	Ross	40 Combermere Cres.	Waterloo	N2L 5B1	884-0985
VA3SKN	Schatz	Ken	25 Bleams Rd. East	New Hamburg	N3A 1G6	662-1478
VA3SU	Kibbe	Kevin	348 Wintergreen Dr.	Waterloo	N2V 1L9	
VA3TET	Macdonald	Al	1433 Jigs Hollow Rd	W. Montrose	N0B 2V0	664-2374
VA3TNG	Tisdale	James	616 Glen Forrest Blvd.	Waterloo	N2L 4J8	519 885 1285
VA3TVS	Gravelle	Ron	66 Wildlark Cr.	Kitchener	N2N 3E9	569-8746
VA3VCI	Walrath	Paul	191 Glengrove Place	Waterloo	N2L 4W1	884-6561
VA3WCM	Mabee	Walter	277 Hamilton Rd.	New Hamburg	N3A 2H7	662-2102
VE2DC	Martin	Mel	897 Haute Riviere	Ste. Martine	J0S 1V0	(450) 427-2256
VE2PK	Kaiman	Marvin	1138 Garden Road	Mississauga	L5H 3J6	(905) 891-1130
VE3ABG	Caberlin	Joe	2889 Lakeshore Rd	Lowbanks	N0A 1K0	905 899 2798
VE3AIM	Enns	John	461 Glasgow St.	Kitchener	N2M 2N3	744-6687
VE3AOR	Riddell	Drew	38 Kingsley Cres.	Waterloo	N2L 1P7	886-5920
VE3APG	Grougopoulos	Paul	124 Montcalm Drive	Kitchener	N2B 2R5	893-3548
VE3ARB	Elsby	Randy	118 Overlea Drive	Kitchener	N2M 1T1	742-5236
VE3ARQ	Baehr	Fred	9 Lodge St. #105	Waterloo	N2J 4S5	885-3669
VE3ASQ	Spike	Jonathan	239 Corrie Cr.	Waterloo	N2L 5W3	
VE3AWN	Sovereign	Herman	R.R. #2	Drumbo	N0J 1G0	463-5326
VE3AYZ	PIETREK	ARWED	209 OTTAWA ST. N.	KITCHENER	N2H 3K9	579-5888
VE3BAH	Harris	Bingham	110 Northside Dr.	St. Jacobs	N0B 2N0	664-1317
VE3BBB	Waechter	Paul	1631 Maryhill Road	Breslau	N0B 1M0	648-2431
VE3BDL	Blasig	Walter	59 McDougall Rd.	Waterloo	N2L 2W4	
VE3BDP	Doran	Wayne	41 Trailview Drive	Kitchener	N2N 1P7	741-5306
VE3BMI	Cormier	Paul	35 Gibson Court	Kitchener	N2B 2P1	896-6838
VE3BZC	Mills	Ross	470 St. George Street E.	Fergus	N1M 1K8	787-1919
VE3CBQ	Gimbel	Jean	1-89 Westmeadow Dr.	Kitchener	N2N 3N1	584-2009
VE3CBX	Doll	Jonathan	98 Stonecainr Dr.	Cambridge	N1T 1W5	624-7020
VE3CD	BODMAN	TED	3 CHELFORD PL	WATERLOO	N2J 3T8	885-6223
VE3CHJ	Cosby	Charles	614 Mortimer Dr.	Cambridge	N3H 5R7	650-1209
VE3CMV	VEENHOF	FRED	50 SHEPHARD PLACE	NEW HAMBURG	N0B 2G0	662-6021
VE3DBD	Gimbel	Ron	1-89 Westmeadow Dr.	Kitchener	N2N 3N1	584-2009
VE3DCC	Clausi	Rich	1 Finch Place	Elmira	N3B 3B3	669-8633
VE3DEQ	Perrault	Norm	553 Teakwood Dr	Waterloo	N2L 4L5	884-0447
VE3DKM	Mallett	Kyle	96 Arthur St.	Harriston	N0G 1Z0	338-2275
VE3DOS	Schreiter	John	7 Susan Cr.	Kitchener	N2A 4A8	748-4871
VE3DPR	Ritzman	David	101 Randerson Ave.	Kitchener	N2H 3L8	745-3204
VE3DUA	Allen	Dave	53 Glen Avon Cres	Kitchener	N2N 1C2	570-4607
VE3DWH	Braun	Harold	309 Albert St.	Waterloo	N2L 3T9	884-2388
VE3DYY	O'Robko	Gerry	37 Forest Glen Crt	Kitchener	N2N 1E1	576-5611
VE3ECF	Fetter	Ed	"52 Pepperwood Cres.,"	Kitchener	N2A 2R3	748-4622
VE3EIX	Eix	Harry	1935 Floradale Road	Elmira	N3B 2Z1	669-2028

VE3EOS	Hayward	Gord	48 Schweitzer St.	Kitchener	N2K 1B4	744-7205
VE3ESE	Fisher	Donovan	48 Lucerne Drive	Kitchener	N2E 1B3	578-7328
VE3ETK	Graham	Bill	91 Hillsborough Cr.	Kitchener	N2E 1J5	576-3578
VE3EUC	Brubacher	Ralph	62 Centre St.	Elmira	N3B 2V8	669-2873
VE3EUU	Doidge	John	232 Dearborn Blv	Waterloo	N2J 4Y4	885-5414
VE3FOT	Sweet	Jim	92 Hall St.	Ayr	N0B 1E0	632-7008
VE3FQT	HARRISON	MURRAY	4 Graham St. R.R. # 1	ELORA	N0B 1S0	
VE3FVF	Barton	Robert	26 Forler St.	Baden	N3A 2L3	634-5382
VE3GFR	Robertson	Garry	26 Dumfries St.	Cambridge	N1S 1Y7	623-2390
VE3GGM	Morris	Gord	6 Hubert St.	Cambridge	N3C 3M6	
VE3GIM	Hayward	Gwilym	48 Schweitzer St.	Kitchener	N2K 1B4	744-7205
VE3GIO	Schroeder	Larry	147 Waterloo St.	Woodstock	N4S 2T3	539-8497
VE3GLU	Marquardt	Paul	43 Queensdale Cr.	Guelph	N1H 6W5	836-3835
VE3GWE	Euler	Gordon	1704 - 6 Willow Street	Waterloo	N2J 4S3	519-746-6144
VE3HAT	Hatton	Chris	112-5 Father David Bauer Dr	Waterloo	N2L 6M2	885-4856
VE3HC	HAMMOND MUS.		394 Edinburgh Road North	GUELPH	N1H 1E5	
VE3HDV	Anderson	Christopher	10 Grant Street	Cambridge	N1S 1B7	746-7900
VE3HEB	Hebert	Marc	148 Oneida Place	Kitchener	N2A 3G4	893-3122
VE3HFO	Gonstaw	Casey	General Delivery	Clear Creek	N0E 1C0	(519) 586-8193
VE3HKJ	Holmes	Jack	26 Country Creek Dr	Baden	N3A 2V2	634 8943
VE3HQS	Nikelski	Irwin	86 William N.	Wellesley	N0B 2T0	656-2317
VE3IAP	Makin	Bill	1006-58 Bridgeport Rd. E.	Waterloo	N2J 4H5	746-6927
VE3ICD	Sinclair	Don	240 Dawson St.	Waterloo	N2L 1S5	884-7200
VE3IYG	BAIRD	HUGH	R.R. #1	BRIGHT	N0J 1B0	684-7257
VE3JGK	Kornstein	Gary	11 Lyle Place	Kitchener	N2B 2J7	896-2396
VE3JVO	O'Robko	Jeff	37 Forest Glen Crt	Kitchener	N2N 1E1	576-5611
VE3KLS	Blom	John A.	54 Wellington Rd. 7	Elora	N0B 1S0	519-846-0861
VE3KMR	Ritzman	Katherine	101 Randerson Ave.	Kitchener	N2H 3L8	745-3204
VE3KVJ	McKay	Thomas	121 Devon St.	Stratford	N5A 2Z8	
VE3KVZ	Solinger	Steven	115 Bluerock Cres	Cambridge	N1R 7B7	658-1869
VE3LCR	Caughell	Wallace	332 Longfellow Drive	Waterloo	N2L 2S3	519-885-5767
VE3LGN	Gorman	Larry	549 Fallingbrook Drive	Waterloo	N2L 4N2	884-6782
VE3LLF	Wilker	Craig	18 Cricket Hollow	Kitchener	N2N 1L6	519 579-6735
VE3LLK	Dahlgren	Jack	170 Erb St. W #615	Waterloo	N2L 1V4	886-8358
VE3LMA	O'Robko	Linda	37 Forest Glen Crt	Kitchener	N2N 1E1	576-5611
VE3MFR	Doll	Terry	60 Linda Dr	Cambridge	N3C 3W4	658-0283
VE3MTC	Matic	John	87 Georgian Cres.	Kitchener	N2B 3N8	743-5235
VE3MTO	McLellan	Ian	77 Bradley Dr.	Kitchener	N2A 1K3	
VE3MTS	Hicks	Fred	52 Wilkins Dr.	Kitchener	N2E 1L2	579-2367
VE3MWE	Riddell	Mary	38 Kingsley Cres.	Waterloo	N2L 1P7	886-5920
VE3NEF	Tustain	Reginald	100 Queen ST. N. APT 1508	Kitchener	N2H 2H6	576-5023
VE3NQK	Gibson	Gord	102 Grand River Blvd	Kitchener	N2A 2T1	893-5148
VE3NQM	Fuhr	Walter	P O Box 244	Tavistock	N0B 2R0	655-2164
VE3NSV	Green	Terry	78 UXBRIDGE CRESCENT	Kitchener	N2E 2P8	572-8061
VE3OQB	Louwe	Fred	10 Pinnacle Dr.	Kitchener	N2P 1B7	896-6178
VE3OU	Crump	Ernie	790 Regent St	Cambridge	N3H 2V3	653-9743
VE3PAY	Brand	Christopher	51 Shrewsbury Street	Stratford	N5A 2V4	273-4505
VE3PBX	Bilek	Philipp	R.R. #1	Moorefield	N0G 2K0	638-3138
VE3PQA	Schal	Harald	"377 Hillside St.,"	Waterloo	N2K 2P1	747-1128
VE3RAQ	Smith	William	64-30 Green Valley Dr.	Kitchener	N2P 1G8	895-1308
VE3RBA	Sullivan	David	235 Hoffman Street	Kitchener	N2M 3N5	743-7385
VE3RDF	Fischer	Roy	224 Ingleside Pl.	Kitchener	N2M 2H2	578-2098
VE3RE	Cassel	Margaret	P.O. BOX 29	PETERSBURG	N0B 2H0	634-5139
VE3RKS	Sanderson	Roger	651 Fern Road	Waterloo	N2V 1G4	885-2122
VE3RUT	Maa	Ray	8 Manchester St.	Cambridge	N1R 1R4	740-2530
VE3RVH	Horney	Reginald	45 Larkspur Cres.	Kitchener	N2M 4W8	745-7619
VE3RVS	Stroud	Vern	111 Ruskview Rd	Kitchener	N2M 4S1	743-9342
VE3SJV	Lindsay	John	98 Brewsky St.	Baden	N3A 2S7	634-8480
VE3SNQ	GERRISH	ARNOLD	139 DAVID BAUER DR. # 332	WATERLOO	N2L 6L1	883-0540
VE3ST	Sasiela	Ben	567 Mill Park Drive	Kitchener	N2P 1V4	748-0445
VE3SY	Cassel	Paul	P.O. Box 29	Petersburg	N0B 2H0	634-5139
VE3SYJ	Reitzel	Paul	111 Sunpoint Cr..	Waterloo	N2V 1T5	746-8291
VE3TCK	Spike	Edward	239 Corrie Cr	Waterloo	N2L 5W3	884-2129
VE3TLG	Robertson	Ean	20 Locust St.	Kitchener	N2H 1W7	742-9039
VE3TRW	MAWSON	RANDY	7 South Street East	Aylmer West	N5H 1P5	
VE3TTG	Burley	Tracey	78 Uxbridge Cr.	Kitchener	N2E 2P8	589-5201
VE3UTJ	Gardiner	Norman	P24 - 170 Erb Street W.	Waterloo	N2L 1V4	885-0832
VE3UTO	Ward	Alan	76 Dudhope Ave.	Cambridge	N1R 4T7	621-5743
VE3VCL	Clausi	Lorraine	1 Finch Place	Elmira	N3B 3B3	669-8633
VE3WBX	Reinhart	Bruce	42 Troy St.	Kitchener	N2H 1L8	744-5749
VE3WFR	Riddell	Bill	368 Wellington St. N.	Kitchener	N2H 5L2	571-9785
VE3WMH	Harrington	Bernard	243 The Lions Gate	Waterloo	N2L 6M5	880-1676
VE3XM	Abell	Bob	14 Parkview Dr. R.R #1	Wellesley	N0B2T0	656-9940
VE3XNB	Pelling	Bob	301-235 Morgan Ave	Kitchener	N2A 2M7	893-4712
VE3XOO	Hammer	Robert	3820 Nafziger Road RR2	Wellesley	N0B 2T0	656-2159
VE3YAJ	Schaus	Al	164 Front	New Dundee	N0B 2E0	519 696-2995
VE3YBM	Montgomery	Bruce	78 Charles Street	Stratford	N5A 5X7	271-7049
VE3ZOA	McCauley	Robert	118 Forest Hill Dr.	Kitchener	N2M 4G3	576-1056
wd2003	Dawes	Wayne	563 Grandridge Dr.	Cambridge	N1S 5A4	621-8457