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WAVELENGTH

Official bulletin of
Scarborough Amateur Radio Club, Inc.
www.ve3we.org

PARTICIPATE – LEARN – ENJOY

65th Anniversary

November 2011

Volume 5 Issue 9

SARC Nets

| | | | |
|----------------------|-----------------------------|----------|----------------------|
| President: | Ralph Muecke VE3VXY | Sunday | 28.730 MHz |
| Vice-President: | Arpad Vadasz VA3VAD | | CW 10:00 AM |
| | | | SSB 10:30 AM |
| Secretary: | Ray Chow VE3ZXC | Tuesday | 147.060 MHz (VE3RPT) |
| Treasurer: | Lambert Philadelphia VE3LYP | | 7:30 PM |
| Membership: | Antonio Tiongson VE3FDU | | Alternate frequency |
| Communications: | Stewart Russell VA3PID | | 146.520 MHz simplex |
| Field Day: | Asif Ahmed VA3SIF | Thursday | 28.730 MHz |
| Education: | Nick Blacklock VE3EBC | | SSB 7:00 PM |
| Examiner: | Nick Blacklock VE3EBC | Saturday | 3.740 MHz |
| Assistant Secretary: | Rod Long VE3SOY | | SSB 7:30 PM |
| Archives: | Gord Hogarth VE3CNA | | |
| | Audrey Little VA3YD | | |
| Elmer: | Rod Long VE3SOY | | |
| | Nick Blacklock VE3EBC | | |

Everyone is invited to check in on CW before the nets start.

These are open nets. All licensed hams are welcome. Come and join us.

We also want to emphasize that 28.730 MHz is our calling frequency. Please monitor and/or call your friends. 7:00 PM is a good time.

Elections for 2012 Board of Directors

We will be holding the elections on December 12, 2011. You must be a paid member by that date in order to vote. If you pay your membership dues now, your membership will expire at the end of December 2012.

All positions are open. Nomination forms are available in the members-only section of the website, <http://ve3we.org/members-only>. Please think about how the club can operate better, and consider standing for election. If you are going to nominate someone, you must have their permission. Note that in accordance with our bylaws, a member must have served on the Board of Directors for at least one year before being eligible for election to the office of President.

Upcoming Meetings

All meetings start at 7:00 PM.

- December 12, 2011 – Elections
- December 19, 2011 – Christmas Party
- January 10, 2012 – Annual General Meeting

Coffee Nights

This get together is open to all Hams and all clubs.

NEW Location will be at Tim Hortons, Wendy's

4 Lebovic Ave. Scarborough Ontario.

Eglinton Ave East and Lebovic (between Pharmacy and Warden) across from the Canadian Tire on the south side

November 23 and December 14, 2011 – 7 PM to 9 PM

All are welcome!

News from RAC



Ontario South Director's Report – November 2011

Hello again to another Director's Report from your RAC Ontario South Director. A number of news items have popped up since my last report so without further adieu, here we go!

Distracted Driving

As discussed in my last report, the committee chaired by Bill VE3XT, North East Ontario Director, former RAC legal counsel Steve VE3STV and I met with the assistant to the Deputy Minister of Transportation and the Director of Safety on October 20 to present our reasoned arguments as to why Ontario amateur radio operators should be given a permanent exemption to the Distracted Driving Legislation. A full report was prepared by Bill and can be found in the RAC Bulletin published on October 28 and on the RAC website at <http://www.rac.ca/en/news/bulletins/2011/34-0/>. In short, we were well received by the Ministry's representatives and they have committed to meeting with us again in early 2012 to discuss the matter further.

Membership and Finances

At the last Board of Directors meeting, RAC's Treasurer Margaret VE3VXN updated the Board on RAC membership numbers and its financial position. For the first time in several years RAC is in

the black. Also, RAC membership appears to have stabilized. Both bode well for the future of RAC, your national amateur radio organization.

RAC at the York Region ARC Hamfest

RAC was in attendance at this year's Markham flea market. RAC First-VP Ian VE9IM, Assistant Director Stan VE3TW and I manned the RAC table, provided information and took new and renewal memberships for RAC: 19 in all according to Stan. Thanks to Ian and Stan for helping me out and I'm looking forward to the St. Catharines' hamfest in February 2012.

Meeting with Orillia and Barrie Hams

Very recently I had the honour of giving a short presentation to members of the Orillia and Barrie amateur radio clubs. It was good meeting the members and being able to address their questions and concerns about RAC. A special thanks goes out to Bob VE3ODR and my Assistant Director Doug VA3DC for the arranging the meeting.

RAC Bulletins

For any RAC member who has not yet signed up to receive timely updates from RAC, i.e. the "RAC Bulletin", you can do so very easily. Go to the RAC website main page and click on "Subscribe to RAC Bulletins". Follow the instructions and you're good to go. The RAC Bulletin is one of several ways RAC keeps its members up-to-date with news and issues that affect radio amateurs throughout Canada.

If you have any questions or concerns please send me a message at va3wxm@rac.ca.

73,

Jeff VA3WXM

Ontario South Director

Radio Amateurs of Canada

Field Day Results

VE3WE – 7A

Score 1588

QSO's 299

No GOTA

Buy and Sell

WANTED:

Any old telegraph keys you wish to sell. Straight keys, Speed keys, "Bugs" or what have you.

Gord, VE3CNA

416-266-6734

See also the Buy and Sell section of our Forum, <http://ve3we.org/forum/buy-and-sell/>

Long-Delayed Echoes

Hello All SARC Members and Alumni:

This month's scan from long ago is of a "Club Directory" as part of XTAL Magazine for February, 1947 and you can see the listing for our club and the name is shown as "Scarboro" A.R.C. and not "Scarborough" A.R.C. And you can see the address for the club as 160 Scarboro Cres, Scarboro Bluffs.

One can see the significance of Clubs within the greater activity of Amateur Radio over a long period of time. It is worth noting that Amateur Radio is well organized locally, nationally and internationally. It is through becoming a "ham" and joining something, (i.e. Clubs, Provincial / National organizations) that many things get done. And it is all by voluntary activity and committee work that we have such things as Hamfests, Incoming and Outgoing QSL Bureaus, Field Day and on and on.

Next month, SARC will have it's annual elections of members who wish to step forward and make things happen in our club. All are encouraged to seek one of the offices available and to do some committee work, let your voice be heard and get some things done. All members are welcome to #Occupy ! HI.

On a personal note it was very nice to see so many SARC members and old friends at the York Region Hamfest on Saturday, November 5. I didn't buy anything but shook a lot of hands and renewed many old acquaintances.

Also, just in case you didn't know, the HF bands are open now and to all parts of the world. This is just what happened to me during Solar Cycle 19 ca 1958 that drew me in to Ham Radio. I encourage all to get on HF. Antennas for 20, 17, 15, 12 and 10 meters are short and whips on a balcony might product a lot of fun. If you do start to work DX on HF, be sure to have envelopes or labels at the RAC Incoming QSL Bureau. See any TCA Magazine for more information.

73 to all,

Gord, VE3CNA

CLUB DIRECTORY

A.F.H.Q., Amateur Radio Club,
Ottawa, Ont.

Les Amateurs Canadiens Francais du Canada

Georges Forest, 2EU,
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Berwick, N.S.

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Ted Barkor, 3ALU,
7 Baron St.,
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Totem A.R.C.,

John Sibson,
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U. of B.C.A.R.O.A.,

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Vancouver A.R.C.,

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Victoria S.W.C.,

David Scholes, 7DY,
1614 Pinewood Ave.,
Victoria, B.C.

West End A.R.C.,

Vancouver, B.C.

West Side Radio Club,

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Winnipeg A.R.C.,

Fred Baker, 4TX,
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Winnipeg, Man.

Wireless Ass'n. of Ont.,

Art Potts, 3MT,
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Toronto, Ont.

Yukon A.R.C.,

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Whitehorse, Y.T.

You Can Enjoy Contests Even If You're Not a Contester

By Dan Romanchik, KB6NU

I often talk to guys who say that they're not contesters. Some even go so far as to say that they hate contests. I'm really not a contester, either, but I do enjoy operating them from time to time. There are several ways to enjoy amateur radio contests even if you're not a "contester."

This weekend, for example, the CQ World-Wide (CQWW) SSB DX contest was being held. As usual for a Saturday morning, I was down at WA2HOM (www.wa2hom.org), our club station at the Ann Arbor Hands-On Museum (www.aahom.org). Now, the museum is only open from 10am - 5pm on Saturdays, so there's no way I'm going to score very highly in the contest, but I still decided to participate.

What I did was take advantage of the contest activity to add countries to our DXCC list. Over two hours of operation, I managed to make 63 contacts, including at least five new countries. The new countries that I added to our log included Iceland, Northern Ireland, Scotland, the Cayman Islands, and Madeira Island.

None of these is rare DX, but for whatever reason, we hadn't worked them before. Now, we have. In addition, some of the big contesters will travel to exotic locales and operate from places that normally have no or few ham radio operators. Contests are good opportunities to get those countries in your log.

Operating in a contest is also a good test of your radio and antennas. It's true that contest signal reports are basically meaningless, but if DX stations regularly hear you on your first or second call, then chances are your antennas are working well. If they're continually asking for repeats or never hear you at all, it's a good bet that you need to do some antenna work.

Working a contest can also improve your operating skills. In a CW contest, for example, the good ops are generally operating at 25+ words per minute. That's OK, though, because it forces you to copy that fast, and because you know what the exchange format is, you pretty much know what characters to expect. Try it sometime. You'll be surprised at how fast you can copy during a contest and how much your CW speed improves.

If none of the above reasons convince you, and you're still a bit apprehensive about jumping into one of the bigger contests, let me suggest that you try one of the smaller contests. State QSO parties, for example, are a lot more laid back than say the ARRL Sweepstakes. The CW speeds are a lot lower and the phone contacts are a lot less intense. You may even learn something about a particular state's geography. You will for sure learn a lot of county names.

It's all about having fun. And you can have fun in a contest, even if you don't have the time or the equipment to be competitive.

When not worrying about the proper county code for Goochland County, Virginia, Dan blogs about ham radio at www.kb6nu.com, teaches ham classes, and ragchews on 30m and 40m CW. You can e-mail him with comments or questions at cwgeek@kb6nu.com.

Carving Out Time for Ham Radio

By Dan Romanchik, KB6NU

On a recent episode of This Week in Tech (www.twit.tv), Leo Laporte, W6TWT, mentions ham radio, and a guest asks him how much time he is spending on the air. Leo, who just recently got his Tech license says “Zero!” and laughs.

This is not uncommon. Lots of people seem to get a ham radio license and then do very little with it. I think one reason for this is that they don’t take into account how much time the hobby really can eat up.

They get their ticket because it seems like a cool thing to do, but then they have to carve out some time to actually be a ham radio operator. Even if you don’t make any of your own gear, setting up a station takes time, and then there is the operating time, of course. Carving time out of busy schedules—and I would guess that Laporte has a pretty busy schedule being the owner of TWiT—is a challenge.

I see things like this all the time. At one ham radio club meeting that I attended, the club vice president asked, “OK, here’s the question of the month. How many of you actually got on the air in the past month.” Less than half of those in attendance raised their hands. Geez, I thought to myself, why do they even bother to come to meetings if they don’t get on the air?

Making time for ham radio

So, if you’re a busy person, how do you make time for ham radio? Well, being the Internet geek that I am, I Googled, “making time for things you love.” I got a lot of links to sites that talked about work-life balance and some new-age blogs, but none of them offered much in the way of concrete advice.

Then, I Googled “make time for hobbies” and right off the bat, I found two good articles—7 Creative Ways to Make Time For Your Creative Hobby!

(<http://www.exploringwomanhood.com/homelife/hobbies/maketime.htm>) and 5 Ways to Make Time for Your Hobby (<http://o5.com/5-ways-to-make-time-for-your-hobby/>). Both articles offered very similar advice. Here are four points that both made:

1. Schedule it. Set aside a specific time during which you’re going to do ham radio. Don’t let that time get pre-empted.
2. Designate a place in your home for ham radio. Having to set up your radios or dig out your tools every time you want to operate or build something is not much fun and wastes a lot of time. Having a “shack” and a workspace designated for your projects will let you spend more time on the fun stuff.
3. Partner up. Arranging to work with another ham will make it harder to blow off ham radio for some other activity. Besides, it’s a lot of fun to do things with other hams. If you’re a newly licensed ham, find an Elmer. There really are plenty around who would be willing to help you.
4. Create a project plan. Setting up an amateur radio station is no small feat. Breaking it down into smaller chunks will make it seem more doable, and you’ll get a feeling of accomplishment when you meet your in-between goals.

There’s so much to learn and do in amateur radio that it can seem quite overwhelming. I think that’s one reason why so many Techs never really get into the hobby and why some experienced hams drift away. I think if you follow the advice above, though, you’ll not only find the time to pursue amateur radio, but get a lot more out of it.

 When he's not down in his shack, working with a friend on yet another amateur radio project, Dan writes amateur radio study guides. You can find them on his website at www.kb6nu.com/tech-manual
 Make some time to e-mail him at cwgeek@kb6nu.com.

HAM TECH

Originally published in the South Jersey Radio Association newsletter Harmonics. Thanks to SJRA editor Ted W2TAG. Visit <http://www.k2aa.org/> for more information about SJRA.

Vol 2 No 6

By: JOHN - WY2J wy2j@arrl.net

HF Antennas: Horizontal or Vertical Polarization?

Part 2 of 2

Is there any truth to the old saying that vertical antennas have better low angle performance and therefore yield better DX than horizontal antennas? Last month we looked at three cases of simple 1/2 wave dipoles, one horizontal and two vertical to try and determine the answer. I used the free copy of Roy Lewallen's EZNEC antenna analysis software that is packaged with every recent copy of the ARRL Antenna handbook to do the calculations. In all cases the characteristics of the ground surrounding the antenna out to several miles was what is considered "good soil", typically of what is found in the central part of the US, and is considerably better than what is found in South Jersey. At 5 degrees elevation angle, typical of long range DX launch angles, the low vertical was only 0.23 dB better than the horizontal and the high vertical was 1.17 dB better. Not much improvement considering that the ground characteristics was much better than most of the US experiences.

Let's look at what happens when we vary the ground electrical characteristics. Table 1 lists six different ground conditions and was taken from the ARRL Antenna book.

| Ground Desc. | Cond. S/M | D.C. | Typical of | | |
|--------------|-----------|------|-------------|--|--|
| Sea W. | 5.00 | 81 | Oceans | | |
| Fresh W. | 0.001 | 80 | Lakes | | |
| Good | 0.030 | 20 | Central USA | | |
| Avg. | 0.005 | 13 | SNJ & EPA | | |
| Poor | 0.002 | 12 | Mountains | | |
| Cities | 0.001 | 5 | Cities | | |

Table 1: Conductivity & Dielectric Constants

A quick inspection of this table shows a very large increase in the conductivity of sea water over all other cases. This is due to the salt content which turns the water into an excellent electrical conductor, almost like a huge sheet of copper. The dielectric constant is a measure of how large a capacitor would be formed between two

conductors. Water's dielectric constant is 4 to 16 times greater than the soil values.

So let's plug the values from Table 1 into the EZNEC model used for the horizontal dipole and see what happens. This is the model which supplied Fig.1 in last month's HAM TECH. Table 2 summarized the antenna and ground system total loss, peak gain in dBi, peak gain elevation angle in degrees, gain at 10 degrees and at 5 degrees for the 6 different grounds.

| Ground Desc. | Loss dB | Pk.G. dBi | Pk. Angle | G@10 dBi | G@5 dBi |
|--------------|---------|-----------|-----------|----------|---------|
| Sea W. | 0.11 | 8.24 | 30 | 2.5 | -3.2 |
| Fresh W. | 0.68 | 7.79 | 30 | 2.3 | -3.3 |
| Good | 0.80 | 7.86 | 30 | 2.6 | -2.9 |
| Avg. | 1.31 | 7.27 | 30 | 2.3 | -3.1 |
| Poor | 1.40 | 7.10 | 30 | 2.2 | -3.3 |
| Cities | 1.88 | 6.48 | 25 | 2.1 | -3.3 |

Table 2: Horizontal Dipole 1/2 Wave High

The loss column represents how efficient the antenna is in radiating the energy from your transmitter into free space. It is almost perfect for the sea water ground and not bad, -1.3 dB or 74%, for average ground typical of South Jersey. The peak gain for average soil is only down by about 1 dB and 13/4 dB for the worst soil in cities. Note the stability of the peak gain elevation angle and the gains at 10 and 5 degrees elevations. It looks like the changes in performance as a function of ground from the best to almost the worst are in the neighborhood of 1 dB or less. Or said another way, with horizontal polarization the ground is not an important factor. This is a major advantage of horizontal antennas since measuring ground electrical characteristics is a difficult problem.

So let's look at the low vertical case, Fig. 2 in last month's column. The results are summarized in Table 3 in the same way as for the horizontal model.

| Ground Desc. | Loss dB | Pk.G. dBi | Pk. Angle | G@10 dBi | G@5 dBi |
|--------------|---------|-----------|-----------|----------|---------|
| Sea W. | 0.85 | 5.72 | 8 | 5.6 | 5.6 |
| Fresh W. | 3.56 | 2.69 | 16 | 2.1 | -0.4 |
| Good | 5.44 | 1.01 | 16 | 0.2 | 0.1 |
| Avg. | 6.14 | 0.07 | 19 | -1.5 | -5.1 |
| Poor | 5.83 | 0.31 | 20 | -1.4 | -5.1 |
| Cities | 6.31 | -0.37 | 22 | -2.7 | -6.9 |

Table.3: Vertical Dipole Center 1/4 Wave High

The numbers look great for the sea water ground case but deteriorate rapidly for all other cases including the typical South Jersey soil where 3/4 of your power is burned up in the soil and the low angle DX 5 degree elevation angle gain has dropped by over 10 dB. It should be clear that the vertical is a poor DX antenna except in the rare case where you are located on the ocean beach and have salt water under your favorite azimuth directions.

Let's compare the common 1/4 wave vertical with a radial ground system to a horizontal dipole to see if this vertical has merit over the horizontal. There are two ways to build the radial ground system; one with elevated radials and the second with the radials on or buried below the ground. We will look at both. The horizontal will

be exactly the same as used last month to generate the Fig. 1 data except that the ground conditions are changed to the average values typical of SNJ and EPA. The data are part of Table 4 for easy comparisons. The verticals will use the average soil ground to keep the comparisons with the horizontals valid.

The elevation pattern with gain at the peak and at 5 degrees for the quarter wave vertical with 4 radials elevated by 10 feet is shown in Fig. 1. Note that the elevation peak is 19 degrees 3 degrees above that of the low half wave vertical shown as Fig. 2 last month.

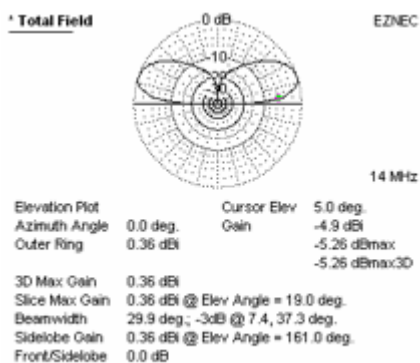


Fig. 1 Elevated Radial Quarter Wave Vertical

When we drop the quarter wave vertical down on the ground several things happen. First the antenna must be retuned to resonance. Second the elevation lobe broadens and its peak rises from 19 to 28 degrees. Third the peak gain drops by 1 dB and the 5 degree gain is reduced by 2.4 dB. Table 4 compares both of the quarter wave verticals to the horizontal at 0.5, 1.0 and 1.5 wavelengths, 34.7, 69.4 and 104.1 ft. heights with the ground characteristics modified to that typical of SNJ and EPA.

| Antenna | Height Feet | Pk.G. dBi | Pk. Angle | G@5 dBi | Loss dB |
|------------|-------------|-----------|-----------|---------|---------|
| Horz. | 34.7 | 7.30 | 28 | -3.12 | -1.31 |
| Elev. Vert | 10.0 | 0.36 | 19 | -4.90 | -5.80 |
| Grnd. Vert | 0.10 | -0.64 | 27 | -7.28 | -5.76 |
| Horz. | 69.4 | 7.60 | 14 | 2.28 | -0.75 |
| Horz. | 104.1 | 7.71 | 9 | 5.28 | -0.73 |

Table 4 Comparison of Antennas

Both verticals are significantly inferior to the 0.5 wavelength, 34.7 foot, high horizontal at most elevation angles. In addition the horizontals gain at low angles can be increased by 5 to 8+ dB just by increasing the height to 1.0 or 1.5 wavelengths, 69 to 104 feet. Verticals are not the solution to good low angle radiation and good DX. Horizontals at the right height can get the job done without all the ground losses of vertical polarization.