

## **Our 2016 Field Day operation: *The 4 Ham Network group***

### ***The VA1GE back story***

Jeff Smith, VE1ZAC (and VA1GE) August, 2016      Revision 5:typos, Acronyms, captions,  
add graphs

In the early part of 2016 I was chatting with a couple of friends and speculating about doing a 1A field day operation this year. I have never actually organized a field day effort on my own, but like many hams, have participated in plenty of other operations run by clubs and groups. I have a chum, Ron Cunningham who always expresses some interest in these radio field outings and is a veteran of three mobile contest efforts for the Maritime QSO party (now defunct). I was talking to Ron about the ARRL annual field day contest and I expressed a reservation I have developed over the years (especially while approaching geezerdom) of engaging in back breaking work to set up and tear down a field day site with towers and yagis and less than optimum low band wire antennas to make a competitive field day entry. Further, the field day rules seem to favour those of us of the Morse Code persuasion by counting contacts as 2 points, instead of one.

I have speculated for many years that towers and yagis and all the attendant gear hauling , antenna erecting and plain hard work by many hands was just not necessary to be competitive in a field day operation. I have done all kinds of analysis of this idea and ran it by a variety of field day aficionados who all rejected the idea. Why ? Because "That's not the way we do it" was the most common response.. and "We don't want to try new things on Field Day" was another. I did not give up my desire to demonstrate that simple wires could easily match or better these tower and yagi operations, and with a much smaller crew, and no back breaking labour.

So, this year, was the pivotal year to give it a try. Having all the gear needed on hand, and a seeing a spark of interest in my friends, I recruited Tony Ratajczak, VE1ZA, Ron Cunningham and a new 'adventure' friend, Susan Dunn into a 1 A (one transmitter, emergency power) entry for this years field day. Tony is also a keen CW operator and stellar contesteer. Between us, we would work the 24 hour allowed contest period.

Beginning in the winter, we started to look into an operation we could do in our vicinity of Nova Scotia and be competitive in 1A class. I put to our group my ideas of antennas that would be easier to carry and setup and be all wire. They weren't completely sold on the idea but agreed to go along with the scheme. The thing is, all of us in the group are working folks, and time commitments are constrained.

I knew we could do very well with wire antennas, but I still made an intensive effort to focus on what we really needed.

### **The antenna selection**

We are in the NE of the continent, and nearly all of our contacts are S, SW and W of us. Fixed SW



Ron, Jeff, Tony and Susan

aiming antennas are perfect for our Nova Scotia based field day operations. The bulk of nearly every years contacts are 20M based, and the rest mostly 40 and 80M. If 15 M is open , there is plenty of possibilities there as well. I had built a 2 element 20M wire yagi some years back which has proven itself a performer on several outings. That would be a good bet for 20M. We still needed 40 and 80, however and maybe 15 M for good measure. A backup for 20M is also a good idea. Would it be possible to operate a full FD with just a pair of wire antennas ? My study of antennas with EZNEC and practical experience provides an emphatic yes.

For a wire antenna, one of my proven all band performers is the classic Windom OCF dipole, especially the Radio Works hybrid version known as a “Carolina Windom”. It is not a true Windom antenna, but is a classic OCF dipole with a strategic choke on the feed line down below the feed point transformer. This antenna act as as a dipole on 80M, and a collinear array on 40, 20 and 15 that has gain over a simple dipole in key directions. It looked like this was the perfect field candidate for a single wire. These antennas can have some higher feed line SWR issues, so an SGC 239 matching unit was put at the base of the feed line to insure the rig tuner ( A K3 transceiver in this case) would not have to wrestle with bad matches.

Both of these antennas worked very well for us. The 40M performance could have been better. ( Next years effort may solve this problem). The 20 M wire yagi was outstanding.

Now, the one issue left was antenna support. In an ideal world, it should be easy to pick out a field day site with suitable trees to engage our antennas. This is Nova Scotia after all, and trees are one thing the province is not in short supply.

### The New Antenna Launcher

A zillion forums and you tube videos showed how a weighted tennis ball was just about the perfect antenna line launcher. After acquiring a “1/4 mile Tennis Ball Cannon” it remained to sort out fuel, a handling/aiming system, and a better igniter than the one provided.

The provided sparker is a manual twist flint spark system which works fine, but really made it hard to hang onto the gadget and aim it in the right direction with one hand, while twisting the sparker with the other. After some thinking and more research, it looked like a barbecue electronic push button igniter could work. The launch line recommended by most was 50# Spectra fish braid and some sort of reel is required to allow the line to spool freely from the end of the tube. I found an archery fishing line holder that looked ideal and was modified to slip on the end of the launch tube. The balls were modified by doubling their weight from 2 oz. to 4 oz. by adding some coins inside and attaching a loop to the balls. This scheme looked good to go.



The last item was the fuel. Most tennis ball cannons refer to hair spray fuel. I tried this and wound up with a sticky mess in the launcher. A little more research revealed that cold weather diesel starting fluid (ether !) worked well and burnt cleanly. This turned out to be the best choice. The tiniest spurt of this stuff launched tennis balls easily over 50 foot trees.



How well did this work ? Amazingly, on the first outing with the unit, 5 lines

were launched perfectly in 5 tries. It is hard to believe how well this worked !

## The site

Once the effort was a go, back in January/February, the search was on for suitable field day site. The requirements were straightforward:

- No more than 1.5 hour drive
- Clear antenna view to SW
- Suitable trees, as high as possible to accommodate antennas
- Elevation desirable, alternatively, close to Bay of Fundy salt water.
- Camp capabilities, as tents were being used.
- Generator friendly site (although we had a very quiet generator)



During the search, VO1NO got wind of our interest in a CW operation and invited us to join his 2 A operation as the CW team. We visited his site in Middleton and while it was a nice site, the trees weren't that high ( although acceptable) and VO1NO indicated they were firmly in the old school 'Towers and yagis' mode, and there wasn't really any easy way to accommodate our 'Wires only' demonstration mission. We decided to push on with our search.

Tony mentioned that he had been eyeing a site on the ridge above Canning at the Look-Off Campground. We went on a recon trip in the early spring and met with the owner Melanie Hubley and family. They had a perfect tent site for us, and even better, were keen on a group of radio operators invading

their campground on Field Day weekend ! Can't do better than that.

The Look Off Campground is about 600 feet in elevation and has a nice RF view to the South West over the Bay of Fundy (salt water). I don't think we could do much better than this in Nova Scotia.

The campground was a treat. Their web site: <http://lookoffcamping.com/>

During a recon trip in the early spring, the owner, Melanie was showing us around and when we came to the site with the perfect line of trees.. they offered to actually remove some of the trees ! We explained that was the most attractive part of the site to us. Much hilarity ensued. The trees on site easily allowed us to get our antennas to 40 feet.



*Winter recon*



*Tree line on Susan's right*



*Our 20M wire yagi at 35 feet*

## Operating

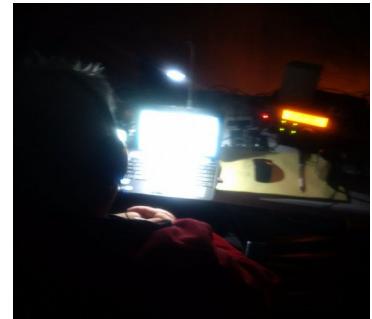
This was a 1A operation , which in Field Day parlance means 1 transmitter, emergency power only. We chose CW, because Tony and I are CW operators and CW contacts count double, giving us an automatic jump up the 1A standings. Next time, we will add some modes that can be worked in the off peak times which will put extra contacts in the log..contacts we missed this time. A K3 transceiver and a little low power netbook running N1MM+ logger worked great for us.



*Tony loves ESM mode !*



*The operating tent*



*Jeff works 80M at night*



*Operating friend #1*



*Day2, too much operating !*



*Operating friend #2*

## **Emergency Power**

This took some thinking, as we planned on running in a camp ground with a generator. This was an exceptionally eager campground but we still wanted to keep noise to a minimum. I have in my collection of outdoor equipment a nice little 2 stroke generator made by Honda, an EX350. This unit is no longer made, but was designed to be very quiet and provide up to 300 watts of continuous AC. Too make this work, it was essential to get the generator 100 feet away, in the “woods” in as noise shielded location as possible. This AC cord powered an analog 40 amp power supply which had a glass mat deep cycle battery on the output and the K3 transceiver. The analog power supply was adjusted so that normal transmission duty cycle favoured the analog power supply. The battery provided high duty cycle smoothing, and of course allowed continuous transmission while the generator was shut down and being fueled.



Consider this as a sort of hybrid UPS system. There was also a computer power supply plugged into the AC for the netbook windows computer running N1MM+. This computer has a very low power draw and a battery that also allowed uninterrupted operation during generator shutdowns. The whole system worked great. It would not be capable of powering anything more than a 1A field day site though. We set the K3 output at 90 watts. There was also one low power LED light for night time operating.



The system was very quiet. We made many audio spot checks around our site. There were no complaints.



## **Bonus Points**

Susan volunteered to tackle the bonus point list. Tweets, invitations to government officials and reaching out to friends and acquaintances became a steady project in the 2 months leading up to the FD weekend. Susan scored an MLA visit ( John Lohr), a county councillor ( Kim MacQuarrie who it seemed would have joined the crew if asked !), a fire department visit, brochures, handouts and a visitors log, and a steady supply of tweets on social media. These activities became a big part of the score.

## Some tweet samples:

**SusanDDunn** @SusanDDunn 57s  
I'm sure the snow will be gone by June! #ARRLFD 2016 #hamradio [pic.twitter.com/YGbG19TF09](http://pic.twitter.com/YGbG19TF09)

Timelines Notifications Messages Me

**SusanDDunn** @SusanDDunn 2m  
Every great 1A plan starts somewhere! #ARRLFD 2016 #hamradio [pic.twitter.com/ob4RpZgGsd](http://pic.twitter.com/ob4RpZgGsd)

Timelines Notifications Messages Me

**SusanDDunn** @SusanDDunn 6/25/16  
And the coffee drinking begins. #arrlfd #hamradio #whoneedssleep [pic.twitter.com/csLxJL1CBi](http://pic.twitter.com/csLxJL1CBi)

**SusanDDunn** @SusanDDunn 6/25/16  
Dusk falls over the antenna. #arrlfd #hamradio #whoneedssleep [pic.twitter.com/osAGJchT0b](http://pic.twitter.com/osAGJchT0b)

**SusanDDunn** @SusanDDunn 6/25/16  
Nice to connect with Alabama, Florida and South Carolina! #arrlfd #hamradio #whoneedssleep

**SusanDDunn** @SusanDDunn 6/25/16  
Thanks to John Lohr MLA, for dropping in to say hello! #arrlfd #hamradio #whoneedssleep

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**SusanDDunn** @SusanDDunn 6/25/16  
Thanks to Kings County's @MacQuarrie\_Kim for stopping by and saying hi! #arrlfd #hamradio [pic.twitter.com/OsvrkjPBzA](http://pic.twitter.com/OsvrkjPBzA)

**SusanDDunn** @SusanDDunn 6/25/16  
Get ready for the kaboom! #arrlfd #hamradio #whoneedssleep [pic.twitter.com/LWgwDOPdqQ](http://pic.twitter.com/LWgwDOPdqQ)

**SusanDDunn** @SusanDDunn 6/25/16  
And now the set up really begins. #arrlfd #hamradio #whoneedssleep [pic.twitter.com/cBQ3OvLpSs](http://pic.twitter.com/cBQ3OvLpSs)

< / : :

**SusanDDunn** @SusanDDunn 6/25/16  
Thanks to Kings County's @MacQuarrie\_Kim for stopping by and saying hi! #arrlfd #hamradio [pic.twitter.com/OsvrkjPBzA](http://pic.twitter.com/OsvrkjPBzA)

**SusanDDunn** @SusanDDunn 6/25/16  
Get ready for the kaboom! #arrlfd #hamradio #whoneedssleep [pic.twitter.com/LWgwDOPdqQ](http://pic.twitter.com/LWgwDOPdqQ)

**SusanDDunn** @SusanDDunn 6/25/16  
And now the set up really begins. #arrlfd #hamradio #whoneedssleep [pic.twitter.com/cBQ3OvLpSs](http://pic.twitter.com/cBQ3OvLpSs)

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**SusanDDunn** @SusanDDunn 6/25/16  
We're VA1GE in Nova Scotia, Canada. Have a great #arrlfd everyone! #hamradio #whoneedssleep [pic.twitter.com/sjvG2n7xrH](http://pic.twitter.com/sjvG2n7xrH)

**SusanDDunn** @SusanDDunn 6/25/16  
And we're off! Let's search and pounce. #arrlfd #hamradio #whoneedssleep [pic.twitter.com/G3CTCUDbcd](http://pic.twitter.com/G3CTCUDbcd)

**SusanDDunn** @SusanDDunn 6/25/16  
Testing, 1, 2, 3....#arrlfd #hamradio #whoneedssleep [pic.twitter.com/BZ6bI5AKbz](http://pic.twitter.com/BZ6bI5AKbz)

**SusanDDunn** @SusanDDunn 6/25/16

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## Victualing and Comestibles

Our operation was designed with minimal effort, minimal crew and maximum enjoyment. The foody part of it was right over the top. Like most well planned radio operations, we brought too much food and drink, but Susan really outdid the effort with a terrific spread of spicy dips, pitas and other tasty items. The coolers were full of liquids and crew and visitors had everything they could want. A few minor inconveniences.. forgot to bring a spatula so had to make do with some Salvador Dali-esque plastic forks, and a site produced “toaster stick”.



*Kitchen shelter*



*Plastic bacon utensil*



*One of our crew was introduced to this operating stimulant..and liked it !*

## **Weather**

We lucked out and had two days of beautiful weather. This is Nova Scotia, and one has to expect almost anything for Field Day weekend. And, sometimes we get it !

### **Spring in Canada**



## **Projected score and a look forward**

- 101 contacts on 80 M
- 48 contacts on 40 M
- 327 contacts on 20 M
- 11 contacts on 15 M

487 QSO's, 2X for CW, and 2X for <150 watts yields 1948 as claimed score

Note: credit goes to Tony for working probably 60% of these contacts ! He is a super CW op.

Bonus points claimed: 750

- Emergency power
- Media Publicity
- Public Information table
- Elected official visit
- Agency visit
- Web submission
- Social media
- Safety officer

Projected total score: 2698 (not verified.. this may change when ARRL announces results)

Tony and I were surprised that 40 M did not produce more contacts. Next time, we will put a focus on 40M with gain to the South West. That should help the score. Also, there were a few periods when we

had literally duped everything we could hear on a band. We did not take advantage of spending a little time picking up easy contacts on the other modes ( SSB and PSK), even though we had all the equipment there to do that. Paying attention to those two items and maybe trying for one or two more bonus categories should allow us to reach a score of 3000.

I declare the mission to demonstrate you can do a competitive Field Day with wire antennas and a small crew a success !

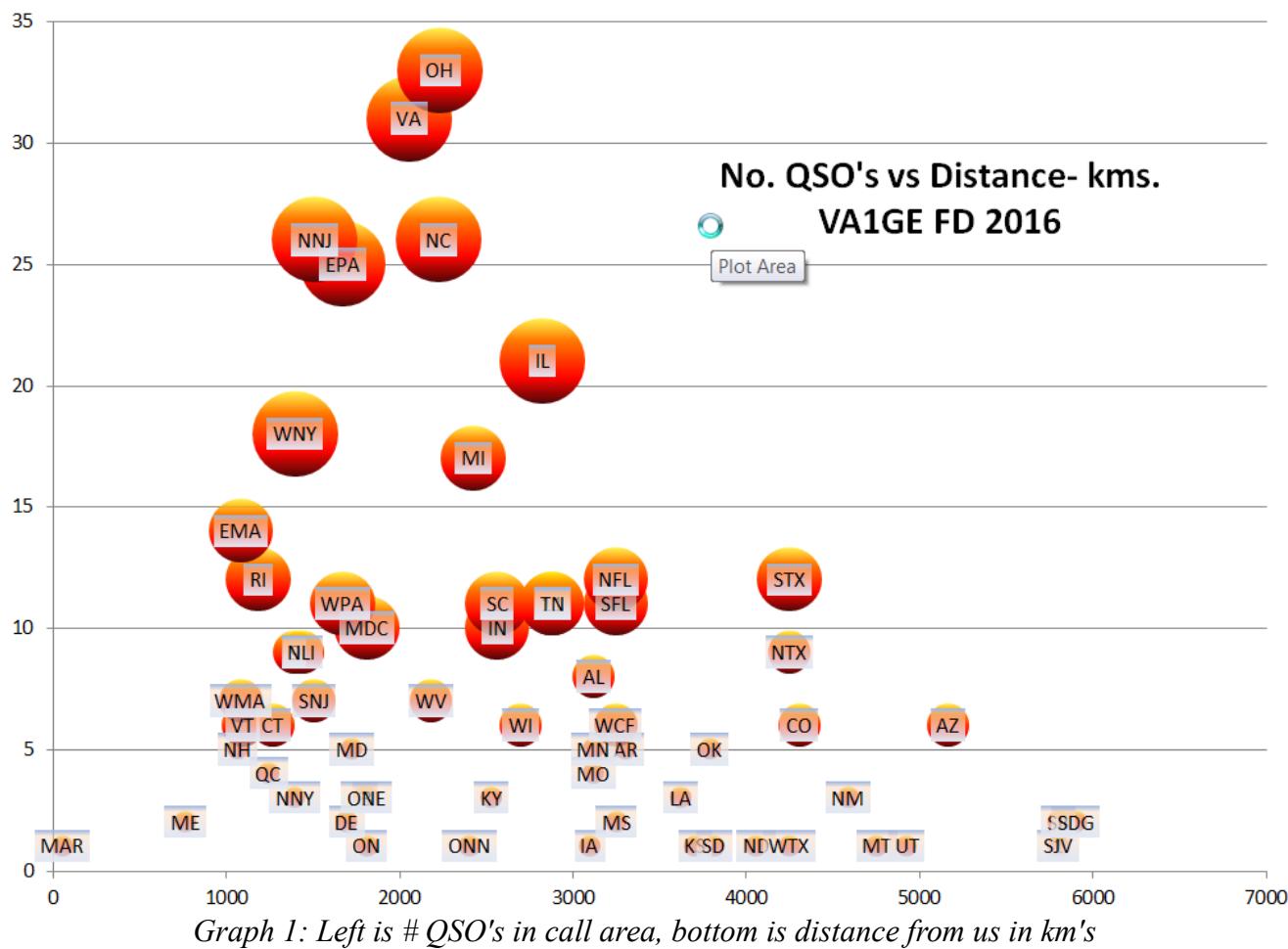
VA1GE will be back for 2017

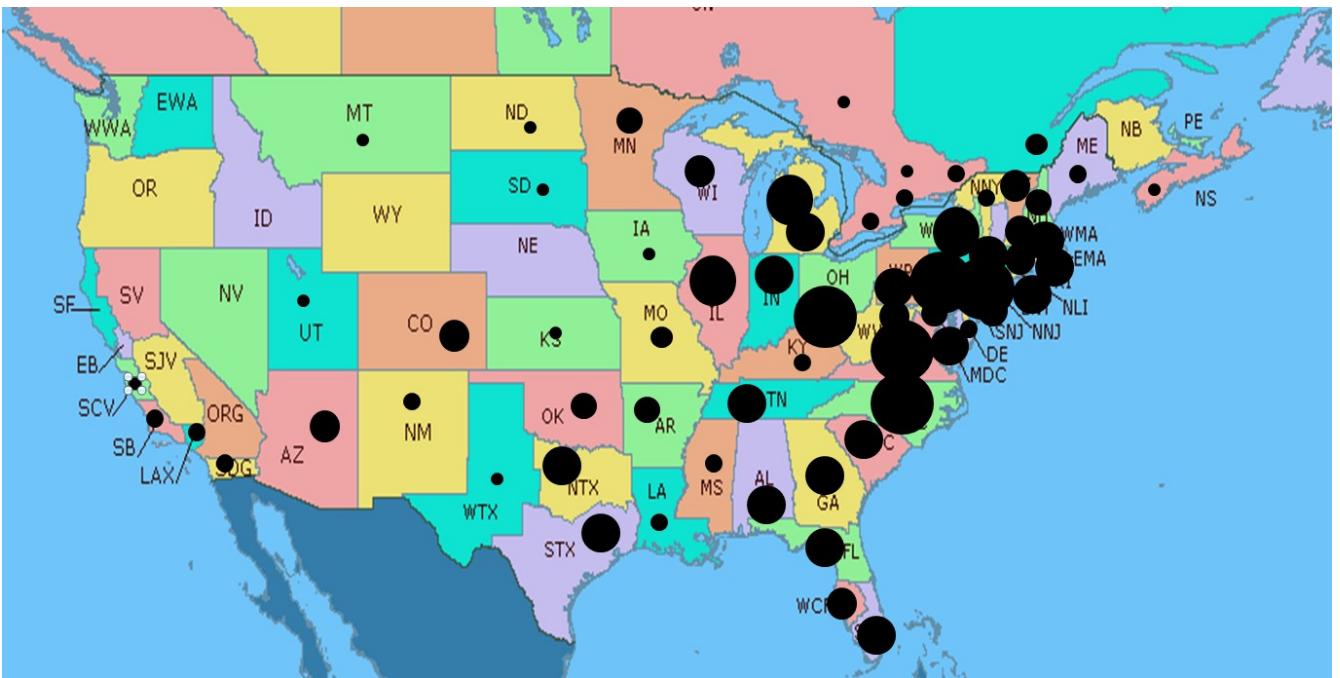
Jeff Smith (VA1GE, and VE1ZAC)

for Tony Ratajczak, (VE1ZA), Susan Dunn and Ron Cunningham

### ***The 4 Hams Network group***

**Graphs:** The following two graphs give an idea of the contact areas and density:





*Graph 2: Map of QSO's in call areas. Dot size proportional to # QSO's*

## **ACRONYMS:**

ARRL	Amateur Radio Relay League	<a href="http://www.arrl.org">www.arrl.org</a>
15 M	15 meters, around 21 mHz	
20 M	20 meters, around 14 mHz	
40 M	40 meters, around 7 mHz	
80 M	80 meters, around 3.5 mHz	
AC	Alternating Current, 60 Hz	
CW	Continuous Wave, Morse Code	
DC	Direct Current, battery voltage	
Dipole	Basic wire antenna, 1/2 wavelength	
ESM	Enter send mode, an N1MM feature	
EZNEC	Antenna modelling program (for tech geeks !)	
FD	Field Day	
Field Day	Annual emergency radio contest	
geezer	folks approaching, or at, the "golden"years	
K3	Elecraft K3 transceiver radio	
MLA	Member Legislative Assembly	
N1MM+	A competition logging program	
OCF	Off center fed dipole	
PSK	Phase Shift Keying, keyboard mode	
QSO	2 way contact	
SGC 239	Auto antenna matching device	