



## Nortown Amateur Radio Club

Minutes of the April 9<sup>th</sup>, 2010 Meeting

### Present:

John VA3MDJ  
John VA3AAD  
Doug VE3EES  
Frans VE3VNC

Jim VE3GRT  
Bert VE3ENA  
Vipi VE3PID  
Adrien VE3IAC (guest)

Ian VE3IJS  
Tom VE3BKA  
David VE3VNE

### Recent member-attendees who were absent:

Claus VE3PMD  
Sam VA3SEP  
Andrew VA3CRA  
Jost VE3SWI  
Paul VE3PGF  
Tony VE3VME

Bill VE3WHW  
Rej VA3REJ  
Ron VA3CCR  
Jal VE3SOC  
Elliot VA3EJF  
Bernie VE3OTR

Tony VE3XC  
Tom VE3TEG  
Jana VE3BFU  
Geoff VA3GEG  
Cyril VA3CJE

John, VA3MDJ chaired the meeting.

John, VA3AAD introduced Adrien Comeau, VE3IAC, who had just driven in from Ottawa to purchase John's Icom transceiver. John complimented Adrien on his excellent web site and blog, which can be seen at:

<http://acomeau.blogspot.com/2010/02/silent-lake-yurt-dx-expedition-field.html>

(if the link won't work, try "ctrl + click")

### Old Business

#### Repeater

No progress has been made in setting up the IRLP connection. John, VA3AAD will contact Elliot, VA3EJF to try to get this project completed,

#### Martin Costa, VE3MHC, SK - Equipment

John, VA3AAD reported that he has received three more boxes of equipment from the estate, most of it small parts and jumper cables suitable for raffles. He has turned these over to Jim, VE3GRT. Among them were the missing screwdriver antenna controller, a pair of headphones and a charger for hand-helds, which he has given to Frans, VE3VNC

for sale at hamfests. John believes that there are probably a few more bits equipment yet to come.

### **Club Elections**

There being no further nominations, the following members were elected unanimously to next fiscal-year's executive:

President	Ian Shaw, VE3IJS
Vice-President	John Carlisle, VA3MDJ
Treasurer	Bert Oitzl, VE3ENA
Recording Secretary	John Shepherd, VA3AAD
Corresponding Secretary	Elliot Fraser, VA3EJF

### ***New Business***

#### **Field Day**

John, VA3MDJ urged members to respond to Tony, VE3VME's request to commit to participation at Field Day, on the weekend of June 26, 27. Please mark your calendars.

#### **Future Presentations**

Future presentations will be:

- April 23<sup>rd</sup> Elliot, VA3EJF, (subject to be determined)
- May 7<sup>th</sup> John, VA3MDJ (subject to be determined)
- May 21<sup>st</sup> tentatively IRLP demo
- June 4<sup>th</sup> Doug, VE3EES (on Field Day technique)
- June 18<sup>th</sup>, preparation for Field Day (June 26<sup>th</sup> and 27<sup>th</sup>)

#### **Financial**

The meeting coffee collection yielded \$9.50 and the raffle yielded \$11.50.

#### **Presentation**

With much trepidation, because he couldn't get it to work at the March 5<sup>th</sup> meeting, John, VA3AAD demonstrated some of the functionality of the the DG8SAQ Vector Network Analyzer (VNA). The device is described at:

[http://www.sdr-kits.net/VNWA/VNWA\\_Description.html](http://www.sdr-kits.net/VNWA/VNWA_Description.html)

The analyzer has two ports, TX and RX. A device under test (DUT) is connected to one or both of the two ports. The analyzer takes its power from a laptop USB connection. It performs a frequency sweep at the TX port. The signal passes through the DUT and into the RX port. At the same time it measures the voltage and phase of the signal (a) called "S11", that is reflected back into the TX port, and (b) called "S21", that passes through the DUT into the RX port (if both ports are used)..

Over the range of swept frequencies, lap-top software calculates and graphs about twenty different parameters, including dB loss or gain, a Smith Chart, VSWR, impedance (real and imaginary), reactance, admittance, susceptance, phase, capacitance, inductance and four scattering (S) parameters.

John tested three of the Club's Field Day band-pass filters and two low-pass filters. A graph of a 1 to 30 MHz sweep of the 20m filter is attached to these minutes. It shows that 40m signals are suppressed by >60 dB, 15M signals by >29dB and 10M signals by > 85 dB. John has offered to produce similar charts for members' filters.

Next, a 1 to 100 MHz sweep was performed on an open-ended length of coax 3.0 meters long, with the result plotted in Smith chart format. The display showed a smooth clockwise spiral moving slightly inward due to resistance in the coax. A copy of this chart is attached to these minutes.

At 1 MHz, the spiral started on the outer perimeter of the chart, just below the "open" or infinite resistance point on the right. At 14.9 Mhz it had moved to cross the horizontal (pure resistance) axis on the left, close to the zero resistance point. At 29.5 MHz it had moved clockwise and crossed the horizontal axis on the right. At 44.6 MHz it crossed the horizontal axis on the left. At 59.5 Mhz. it was back on the right, at 74.8 MHz it again crossed the axis on the left and at 89.3 MHz it was back on the right.

About every 14.9 MHz, the spiral rotated 180 degrees. At odd multiples of 14.9 MHz, it crossed the horizontal axis on the left. On the Smith chart, 180 degrees is equivalent to one-quarter of a wavelength. The coax has a velocity factor of about 0.67, so within the coax, 14.9 MHz. the physical wavelength is about 12 meters. The coax is therefore one quarter of a wavelength long at 14.9 MHz.

The demonstration showed that the coax acted as an open ended stub. At frequencies where its 3m length equaled an *odd* number of quarter-wavelengths, the input voltage and impedance was a minimum (and the current a maximum). At frequencies where the length equaled an *even* number of quarter-wavelengths, the input voltage and impedance was a maximum (and the current a minimum). In all cases, for such open-ended stubs, the voltage and impedance at the far end was a maximum and the current zero.

## Next Meeting

The next meeting will be held at 8:00 PM on April 16<sup>th</sup>, at the Bayview Community Centre. Elliot, VA3EJF is scheduled to do the presentation, subject to be announced.

John Shepherd, VA3AAD  
John Carlisle, VA3MDJ