Yellowknife Amateur Radio Society

After Action Report for Field Day 2022

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Abstract

On 25 and 26 June 2022 the Yellowknife Amateur Radio Society (YARS) fielded an emergency amateur radio station operating on HF frequencies for 24 hours. This exercise is the primary summer emergency preparedness exercise for the amateur radio community in North America, dressed-up as a competition. YARS faced a number of challenges including a shortage of personnel, problems with equipment and terrible band conditions. Some of these were out of our control. Some were to be expected as this was the first exercise in the aftermath of the COVID-19 Pandemic. Overall a decent score was achieved and 7 QSOs were made. There is a reason why the VE8 callsign prefix is the second rarest in North America - and it is not just the small population.

Introduction

Field Day is a joint competition run by the American Amateur Radio League (ARRL) and Radio Amateurs of Canada (RAC). It is run on the last weekend of June annually. While ostensibly dressed-up as a competition, it is in fact a continental-wide emergency preparedness exercise for the amateur radio service primarily in Canada and the United States. There are various rules and scoring is skewed in favour of operations that have a distinct emergency preparedness aspect (such as use of digital and cw modes, use of emergency power, sending of message traffic etc.). Rules are at: http://www.arrl.org/files/file/Field-Day/2022/2022%20Field%20Day%20Packet%20v3.pdf .

The primary aim of this exercise is to prepare for and set up an operational emergency communications station and run it for 24 hours, making as many contacts as possible and achieving as many points as possible. While there are no prizes, the scores are published in the ARRL periodical QST and the RAC periodical TCA. Valuable lessons may be learned about field operations and for many in the amateur radio service, this is the one time of year that they can go out and do amateur radio without facing the constraints of their own locations (for instance being an apartment dweller).

The Yellowknife Amateur Radio Society (YARS) engages in Field Day annually and uses it to test propagation, its skills, new equipment and its readiness. Field Day 2022 was not as successful as most but also not as poor as some. It was the first Field Day coming out of the COVID-19 Pandemic and the physical distancing restrictions that it engendered.

Operations

The stated object of Field Day 2022 is as follows:

> To work as many stations as possible on the 160, 80, 40, 20, 15 and 10 Meter HF bands, as well as all bands 50 MHz and above, and in doing so to learn to operate in abnormal situations in less than optimal conditions. A premium is placed on developing skills to meet the challenges of emergency preparedness as well as to acquaint the general public with the capabilities of Amateur Radio.

Field Day 2022 started on 25 June 2022 at 1800 UTC and ended on 26 June 2022 at 1800 UTC (i.e. 25 Jun 22 1800Z to 26 Jun 2022 1800Z). In reality it started much earlier with planning and other activities.

The following is a summary of events as the transpired:

- 19 Jun 22 - Warning Order and Operations Order prepared and issued. Press release prepared. Both posted on YARS website and on Facebook. This falls under s. 7.3.2 of the rules and earned YARS 100 points. A copy of the press release is at Schedule A. It also achieved an additional 100 points for Social Media under rule 7.3.16.
- 24 Jun 22 - VE8IR picked up some materials from VE8RT - batteries, CW straight key and a YARS mast. VE7NB arrived around midnight. VE8IR and VE7NB did a quick *reconnoitre* of the Yellowknife River Day Use Area and then the Madeline Lake Day Use Area. The Madeline Lake area was deemed to be superior due to the greater space and absence of high tension lines.

- 25 Jun 22 -
    - Set up did not start until 11 AM local time. VE8IR and VE7NB. The operating location was the Madeline Lake Day Use Area.
    - VE7NB set up the YARS mast with an asymmetric dipole. VE7NB did scan the frequency response and the antenna had a reasonable SWR on 40m, 18m and 6 m. He also set up his SOTA telescopic mast and put his 17 m dipole on it with a Z-100 Plus antenna tuner connected to a Yaesu FT-891 running with a Lithium Ion battery at 100W. VE8IR connected up his FT-817 and tried to make SSB contacts. VE7NB also tried to make SSB contacts. We were running a 2A NT exchange under VE8YK. VE8IR had planned to use other QRP radios but the connectors to the batteries were not correct and could not be used. He relied on the Lithium Ion battery in his FT-817. No contacts were made. It started to rain heavily. A decision was made to pack up and come back in the morning.
    - Before leaving, the public information table had been set up. A photo is at Schedule B. This achieved another 100 points under rule 7.3.4.
    - A first aid kit was also present as shown in Schedule B. VE8IR was the safety officer. No fire extinguisher was present as there was no generator. Adequate water was present for hydration. This is another 100 points under rule 7.3.17.
    - All power was 100% Emergency Power and this achieves a 200 point bonus under rule 7.3.1.
    - While we had a solar panel at the site, it was never connected to any battery that was used. We cannot claim the Alternate Power bonus points.
    - No bulletin was recorded.
    - A Educational Activity was carried out - namely VE7NB showed VE8IR how to use a network analyzer to sweep a dipole antenna.
    - There was no visitation by any elected government official or a representative of an agency.
    - There was no GOTA station and no youth participation. VE7DXD did come to visit.
- 26 Jun 22
    - VE7NB was the primary operator. Band conditions were terrible on 20 m. The weather started to deteriorate, so we relocated the SOTA mast and operated from inside the car. Stations from the south could be heard with a characteristic auroral flutter - a type of distortion caused by the aurora borealis. We later learned there was a K index of about 5 and that all band conditions were terrible across the continent. Nevertheless we did make 7 QSOs:
        - VA4PAR 1A MB (our first contact and theirs too)
        - K7LED 6A WWA
        - WL7CSJ 1E AK
        - KR7Q 1B MT
        - VE4BAE 1D MB
        - WZ7L 1E WWA
        - KZ6X 1D ID

VE8IR thinks that the nature of the locations of these stations demonstrates that there was a clear path to the east and a clear path to the Pacific Northwest. This might be an indicator of the auroral activity but also of the orientation of the antenna (the radiator was to the south and north and vertical). Most of these contacts were made in the last two hours of Field Day.

Parks on the Air

After Field Day operations closed down, VE7NB/VE8 operated for some hours in order to attempt to activate Madeline Lake as part of Parks on the Air (POTA). He managed to achieve about three QSOs. A very clear station could be heard coming in from Slovenia but no QSO was achieved. The Slovenia station confirms the northerly orientation of the antenna. Southern stations were weak.

Lessons

- YARS needs more participants on Field Day.
- Equipment should be verified as operational before deployment. The battery connector failure resulted in an inability to operate the FT-817 in digital modes and specifically an inability to tune the MFJ Magnetic Loop of VE8AEG and also an inability to recharge the computer battery.
- VE8IR's iambic paddle became N/S due to a wire coming off. Despite having a screw driver on hand, he was unable to reconnect the wire. Fortunately VE8RT had provided a straight key.
- Because of the battery issue, VE8IR was unable to use two QRP radios - which were to be tested using the straight key. They could not be powered.
- Because of the amount of effort to set up, VE8IR wonders if it might be advisable to reduce the amount of equipment out in the field.
- Further exploration into the nature of the LiIon batteries that VE7NB was using is needed. His battery was of a high quality and capacity and not a cheap import. VE8IR had some rechargeable standard batteries but prior to Field Day it was clear they were N/S.

Conclusion

Despite the challenges facing YARS in its Field Day 2022 operations, including equipment issues and terrible propagation, it was able to achieve a fairly high score and make several QSOs.

Schedule - Supporting Documentation

The following material is supporting material submitted to ARRL in support of the Field Day 2022 submission. All photos are available at: http://www.ykars.com/gallery/index.php/2022-Images/Field-Day-2022 .

100% Emergency Power

In the bottom right corner on the table is a high capacity Lithium Ion Battery. It ran for the whole weekend without a charge. Additional 12 V batteries (Lead Acid) are located in the battery box on the far side of the table (alligator clips visible). VE7NB and VE8IR visible.

Press Release

Field Day 2022 Press Release

Details

Published: 19 June 2022

Last Updated: 20 June 2022

Hits: 150

Field Day 2022 will be taking place from 25-26 June 2022 (12 noon local time to 12 noon local time (i.e. 1800 UTC to 1800 UTC)). The Yellowknife Amateur Radio Society (YARS) will be running Field Day 2022 at the Yellowknife River Day Use Area.

Amateur Radio or Ham radio operators from YARS will be participating in a national amateur radio exercise from 12 noon on Saturday until 12 noon on Sunday, June 25 – 26. The event is Radio Amateurs of Canada/American Radio Relay League Field Day (www.arrl.org/FieldDay), an annual amateur radio activity organized since 1933 by ARRL, The National Association for Amateur Radio in the United States.

Hams from across North America ordinarily participate in Field Day by establishing temporary ham radio stations in public locations to demonstrate their skill and service. Their use of radio signals, which reach beyond borders, bring people together while providing essential communication in the service of communities. Field Day highlights ham radio's ability to work reliably under any conditions from almost any location and create an independent, wireless communications network.

Some hams from the Northwest Territories will also use the radio stations set up in their homes or taken to their backyards and other locations to operate individually or with their families. Many hams

have portable radio communication capability that includes alternative energy sources such as generators, solar panels, and batteries to power their equipment.

This year's event is also noteworthy given that a particularly active hurricane season is predicted. "Hams have a long history of serving our communities when storms or other disasters damage critical communication infrastructure, including cell towers," said Chris Cameron, (call sign VE8WD). "Ham radio functions completely independently of the internet and phone systems and a station can be set up almost anywhere in minutes. Hams can quickly raise a wire antenna in a tree or on a mast, connect it to a radio and power source, and communicate effectively with others," Mr. Cameron added.

During Field Day 2021, more than 26,000 hams participated from thousands of locations across North America. According to ARRL, there are more than 750,000 amateur radio licensees in the US, and an estimated 3 million worldwide. In Canada, there are an estimated 70,000 amateur radio operators.

Among the tenets of the Amateur Radio Service is developing and practising skills in radio technology and radio communications, and even contributing to international goodwill. Hams range in age from as young as 9 to older than 100. The Yellowknife Amateur Radio Society has information on licensing on its website at: http://www.ykars.com/index.php/amateur-radio/becoming-an-amateur .

Above is the Press Release issued on 19 June 2022. It was published on the club website and was also made available through social media (Facebook). Apparently it was looked at 150 times. VE7DXD visited the site. We also had a text query from a visiting HAM: W2MV.

Set-up in Public Place

This is the sign for the Madeline Lake location from which Field Day 2022 was carried out. It is at DP22hn, according to GPS. It is a public location along the Ingraham Trail along the route to at least two camp grounds.

Information Booth

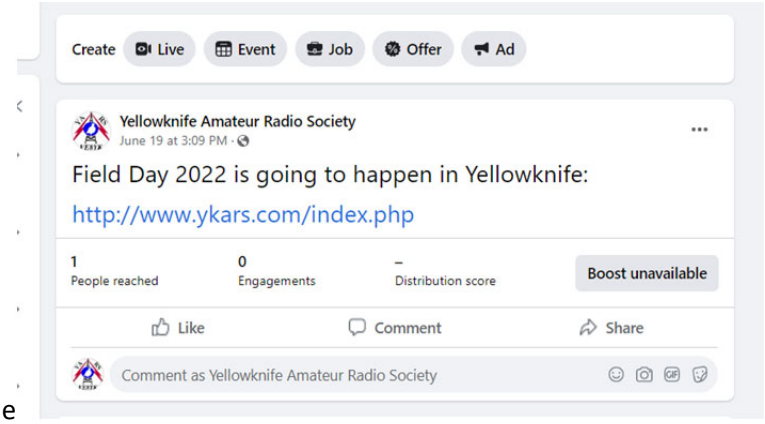
Our information booth was modest but we had a number of books out and also the club banner. The first image shows rain droplets. It rained. It hailed. There were mosquitoes. It was unpleasant.

Educational Activity

In these images, the box containing VE7NB's network analyzer is visible, just above the first aid kit. The mast shown in the second picture is braced on a tree and from that was the asymmetric dipole. It swept with a reasonable VSWR for 40 m, 10 m and 6 m. No contacts were made with the dipole although VE8IR did attempt CW contacts with a CW key. VE7NB showed VE8IR how the analyzer worked and the VSWR graph over the various bands.

VE8IR attempting CW contacts.

Social Media



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The use of social media for the Press Release. First image is from the VE8YK Facebook page and the second was a share by Kate Cannell, VE8KC who was unable to come out.