YARA

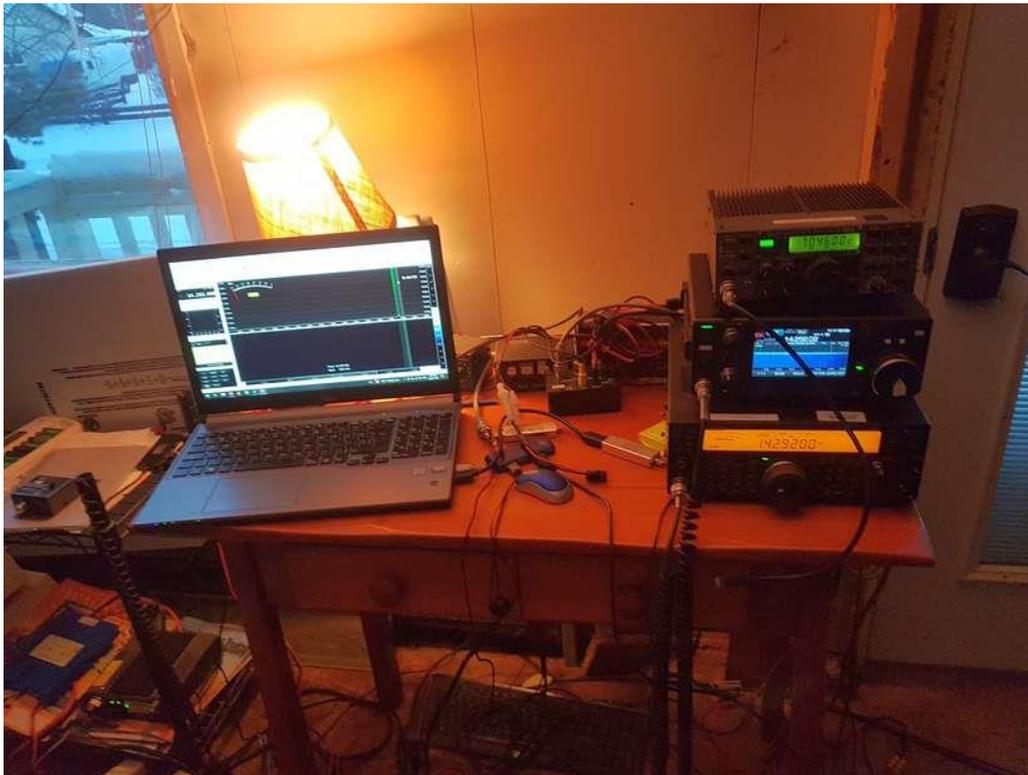# Laptop and Radios - Interim Report Nov 20, 2022

Executive Summary

YARA has two HF radios in the Communications Trailer and had several old laptops which were needed to be recycled in order to upgrade the radio communications system to be useful for emergency communications, field day events, and general use by YARA members.

In October a laptop was purchased from Computers for Schools, various digital programs and support documents were installed in the laptop and put on the YARA website, and in November testing was completed with one of the radios. More work is planned with the second radio in December.

Starting in the new year, one-on-one familiarization will take place with any YARA member who would like to use the HF radios in the trailer. In the meantime if members are interested, lots of text-based information and YouTube videos on use of the software and hardware is available on the Internet. A good video, for example, shows how to setup a panadapter with any radio. https://www.youtube.com/watch?v=Y1bZ9RUbAfo

YARA Radios Testing Station

Installed Software

Software	Function
OminRig	Interfaces between digital programs and radios
flrig	Interfaces between digital programs and radios
Winlink	Email and chat application for email over radio communications
SDR Console	SDR Receiver, used as panadapter/waterfall for radios
WSJT-X	A suite of weak signal communication applications, including FT8
JS8Call	A weak signal communication application that offers text based communications
fldigi	A suite of weak communication applications, including CW, RTTY, PSK
N1MM logging	For contests and everyday logging eg. Field Day
BKTimeSync, JTSync	To synchronize laptop time with standard reference times
Other	Miscellaneous apps, including Open Office

Radios – The Kenwood ST-590S has been tested. The Yaesu FT-890 will be tested later.

Tests Completed

Software	Tests
OmniRig	Confirmed that installed programs control the radio
flring	Confirmed that installed programs control the radio
Winlink	Sent emails via Whitehorse, Fairbanks, and Soldotna gateways
FT8	Made QSO's on 40,30, 20, 17,15, 12, 10 m
JS8Call	Made QSO's on 10m
fldigi	A couple modes were tested but nothing was heard nor transmitted
SDR Console	Used as panadapter/waterfall and synchronized control of radio
60m	Tested with internal ATU with an EFHW. SWR ~1.1
N1MM logging	Connected to WSJT-X, but later setup to operate independently
BKTimeSync	Synchronized time on laptop with universal reference
JTSync	Synchronized time on laptop with universal reference

Equipment Purchased, Borrowed and Needs to be Purchased

Equipment	Status	Costs
Fijitsu Laptop	Purchased from Computer from Schools	$160
Kenwood TS-590S	In inventory	$0
Yaesu FT-890	In inventory	$0
RTL-SDR dongle and cables	Borrowed. To be purchased US $39.95	$53.53
RCA audio cable	Borrowed. To be purchased	$9.50
TS-590S USB cable	In inventory	$0
FT-890 USB CAT cable	To be purchased for future testing	$48.66

FT-890 audio interface cable	To be constructed for future testing	$10.00
2 short lengths (4-6'of RG8 coax	To connect radios to wall connectors. To check in storage trailer or purchased	$36.00
MFJ 1708 SDR switch	Borrowed, to be purchased US $139.95	$187.53
MFJ power cable	Borrowed, to be purchased US $17.95	$24.05
2 short pieces (12") of coax jumper cable	Borrowed, to be purchased	$24.00
USB hub	Borrowed, to be purchased	$14.99
Short USB cable	Borrowed, to be purchased	$8.98
Total project costs	(Estimated)	$600.00

Observations

1. Testing has been going well.
2. Testing with two radios, one laptop, one panadapter setup will be completed by January 2023.
3. Only one panadapter is required in the Communications Trailer and can be shared between two radios as required.
4. An inexpensive RLT-SDR receiver dongle works adequately. Other more expensive SDR receivers are available and can be purchased later if members want a higher quality receiver. See references
5. Testing was done on 60m with an 80-10m EFHW. The TS-590S will work on 60m with its internal ATU. The FT-890 requires an external tuner. There is a manual tuner in the Communications Trailer. There are no recommendations for any particular antenna in this report.
6. The N1MM logging software can be configured as required by the operator who uses the program
7. Laptop time was synchronized using the Internet. This can be done in the communications trailer using the APRS system.
8. If additional duplicate laptops are required for the Communications Trailer or other locations, this can be done in a couple of days for each. Similar costs would be incurred.
9. Up to now no testing has been done with a key or paddle, nor has YARA equipment for this been checked.
10. Up to now no testing has been done on the VHF/UHF radios, nor has software been installed for these radios.

Recommendations

1. Reimburse VY1GP for purchase of laptop $160
2. Buy the following:
    a. MFJ 1708 SDR switch – US $139.95

b. MFJ Assessory Power Cable – US $17.95
c. RTL-SDR dongle kit – US $39.95
d. RCA audio cable – Cdn $9.50
e. 2 x 6' coax cable – Cdn $36.00
f. 2 x 2' coax cable – Cdn $24.00
g. USB CAT cable for FT-890 - $48.66
h. USB hub - $14.99
i. Short USB connector for dongle - $8.98

References

MFJ 1708SDR Switch - https://mfjenterprises.com/products/mfj-1708b-sdr

MFJ Assessorty Power cable - https://mfjenterprises.com/products/mfj-5513m

RTD-SDR dongle - https://www.rtl-sdr.com/buy-rtl-sdr-dvb-t-dongles/

- https://www.ebay.com/itm/283144 $139.95 516411?mkcid=1&mkrid=711-53200-19255-0&siteid=0&campid=5338814417&customid=&toolid=20012&mkevt=1

SDRPlay - https://www.radioworld.ca/search?controls%5B1%5D=SDRPlay

RCA audio cable - https://www.amazon.ca/FosPower-Connectors-Premium-Digital-Coaxial/dp/B0184PIVFI/ref=sr_1_18?crid=2VP017NYBBWUG&keywords=RCA+Audio+Cable+3ft+mono&qid=1668880272&qu=eyJxc2MiOiIxLjQ3IiwicXNhIjoiMC4wMCIsInFzcCI6IjAuMDAifQ%3D%3D&sprefix=rca+audio+cable+3ft+mono%2Caps%2C398&sr=8-18
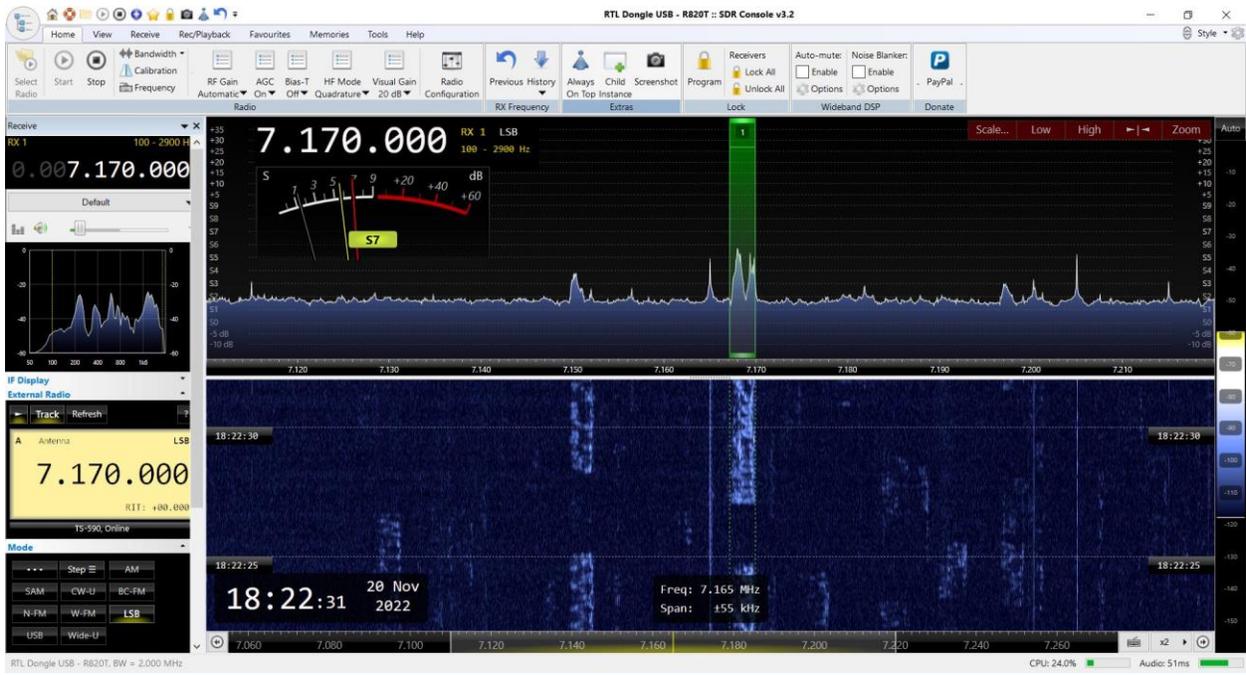
6' Coax Cable - https://www.amazon.ca/XRDS-RF-Connector-Coaxial-Antenna-Analyzer/dp/B08XQJRX3R/ref=sr_1_25?crid=2ZR1W9L95GU7T&keywords=6%E2%80%99+coax+cable&qid=1668880464&qu=eyJxc2MiOiIxLjM4IiwicXNhIjoiMC4wMCIsInFzcCI6IjAuMDAifQ%3D%3D&sprefix=6+coax+cable+%2Caps%2C608&sr=8-25

2' Coax Cable - https://www.amazon.ca/Superbat-PL-259-Digital-Antenna-Analyzer/dp/B07H56XRFP/ref=sr_1_26?crid=GYSGWMEPIA3G&keywords=2%E2%80%99+coax+cable&qid=1668880863&qu=eyJxc2MiOiIwLjAwIiwicXNhIjoiMC4wMCIsInFzcCI6IjAuMDAifQ%3D%3D&sprefix=2+coax+cable%2Caps%2C210&sr=8-26

USB CAT cable for FT-890 - http://xggcomms.com/Yaesu-Interface-Shop(2066629).html

USB Hub - https://www.amazon.ca/atolla-Aluminum-Splitter-Ports-Windows/dp/B09NHQXCSP/ref=sr_1_135?crid=5ZOS1VU0PUR2&keywords=USB+HUB+to+USB+Adaptor+3+Port&qid=1668882077&qu=eyJxc2MiOiIxLjc5IiwicXNhIjoiMC4wMCIsInFzcCI6IjAuMDAifQ%3D%3D&sprefix=usb+hub+to+usb+adaptor+3+port%2Caps%2C272&sr=8-135

1' USB cable - https://www.amazon.ca/Nanxudyj-Extension-Extender-Transfer-Playstation/dp/B08M69XFHJ/ref=sr_1_5?crid=DUHZOR6ZZXB2&keywords=usb+cable+extension+1ft&qid=1668882476&qu=eyJxc2MiOiIyLjQ4IiwicXNhIjoiMC4wMCIsInFzcCI6IjAuMDAifQ%3D%3D&sprefix=usb+cable+extension+1ft%2Caps%2C188&sr=8-5

View of SDR Console connected to the TS-590S