



# The Official Newsletter of the **PAPAKURA RADIO CLUB INC.**

*August 2021*



*At least the ground plane was excellent*



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### **This Month's Meetings:**

Wednesday 4 August will be our general meeting at the clubrooms, following general business there will be a brief conference report, and then Mike ZL4MDE will talk to us about using Arduino's for Ham applications

### **Meetings for August.**

Meetings will only occur at alert level 2 or lower. We cannot have social meetings at level 3. This means we will only open the clubrooms on Wednesdays when at we at alert levels 1 or 2 in accordance with current government guidelines.

Wed 4 August – General Meeting, Conference Report & Spitfire Flight ZL1RJS

Wed 11 August – Activity Night – TBC

Wed 18 August – Committee Meeting

Wed 25 August – Project Night

## CLUB ACTIVITY:

Work continues (as weather permits) on the Broadband antenna. Due to the weight, support cables will be required to be added to the centre pole, and we are hoping to make this a receive antenna, which would allow us to fit a remote receiver to the facilities at the clubrooms. Given the low noise at the clubrooms, this could be a real asset to club members.

## UPCOMING PROJECTS:

### PROJECT AND ACTIVITY NIGHTS

We will be starting the Arduino programming classes this month now that parts have arrived. Arduino boards are small but powerful boards with many applications in Ham Radio, and other electronic applications. The cost (if you buy the kit to programme and build is \$25.00 per person.



Each kit has the following in a zip lock bag:

- Arduino Nano
- USB cable to connect laptop to the Arduino
- Breadboard and connecting wires
- Dupont wires - M-F
- Multiple LEDs – some different colours
- Resistors - 220Ω, 2.2KΩ, 10KΩ (others are optional)
- 1KΩ potentiometer
- Button switches
- GL5539 and GL5516 photoresistors
- DHT11 – temperature and humidity sensor
- LCD1602 screen
- BMP280 – temperature and pressure sensor

People will need to bring:

- Laptop with an unused USB port
- Small screwdriver – to adjust potentiometer / LCD

They may find it really useful to have a magnifying glass.

This project is expected to run for the next 4 project nights (2 Months) – There are only 12 kits, so get in fast.

And we have a DC power distribution project, still in the pipeline. – So, a busy year if you chose to be part of it.

## UPCOMING ACTIVITIES:

(ALERT LEVELS PERMITTING)

WEDNESDAY 4 AUGUST – GENERAL MEETING

WEDNESDAY 11 AUGUST – ACTIVITY NIGHT

WEDNESDAY 18 AUGUST – COMMITTEE MEETING

WEDNESDAY 25 AUGUST – PROJECT NIGHT

PLEASE LISTEN FOR UPDATES ON THE SUNDAY MORNING CLUB NETS  
(SEE BACK PAGE FOR FREQUENCIES AND TIMES)



HOW DO YOU SPELL AWKWARD?

W-O-R-K-S-A-F-E

# DX Calendar August 2021

|                  |                 |    |    |    |    |               |    |    |    |              |                   |    |    |    |    |    |    |              |    |              |              |    |    |    |    |    |    |    |    |    |  |
|------------------|-----------------|----|----|----|----|---------------|----|----|----|--------------|-------------------|----|----|----|----|----|----|--------------|----|--------------|--------------|----|----|----|----|----|----|----|----|----|--|
| 01               | 02              | 03 | 04 | 05 | 06 | 07            | 08 | 09 | 10 | 11           | 12                | 13 | 14 | 15 | 16 | 17 | 18 | 19           | 20 | 21           | 22           | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |  |
| <u>FS/W8HC</u>   |                 |    |    |    |    |               |    |    |    | <u>VP9EE</u> |                   |    |    |    |    |    |    |              |    | <u>OJ0WS</u> |              |    |    |    |    |    |    |    |    |    |  |
| <u>OY/DF8AN</u>  |                 |    |    |    |    |               |    |    |    |              |                   |    |    |    |    |    |    |              |    |              | <u>D4SAL</u> |    |    |    |    |    |    |    |    |    |  |
|                  |                 |    |    |    |    | <u>E51AAO</u> |    |    |    |              |                   |    |    |    |    |    |    | <u>J68HZ</u> |    |              |              |    |    |    |    |    |    |    |    |    |  |
| <u>OX3LX</u>     |                 |    |    |    |    |               |    |    |    |              | <u>CT9/IZ2DPX</u> |    |    |    |    |    |    |              |    |              |              |    |    |    |    |    |    |    |    |    |  |
| <u>5H3UU</u>     |                 |    |    |    |    |               |    |    |    |              |                   |    |    |    |    |    |    |              |    |              |              |    |    |    |    |    |    |    |    |    |  |
|                  | <u>FO/F1SMB</u> |    |    |    |    |               |    |    |    |              |                   |    |    |    |    |    |    |              |    |              |              |    |    |    |    |    |    |    |    |    |  |
| <u>OA7/DD5ZZ</u> |                 |    |    |    |    |               |    |    |    |              |                   |    |    |    |    |    |    |              |    |              |              |    |    |    |    |    |    |    |    |    |  |
| <u>VP5MA</u>     |                 |    |    |    |    |               |    |    |    |              |                   |    |    |    |    |    |    |              |    |              |              |    |    |    |    |    |    |    |    |    |  |
| <u>5Z4/AK0SK</u> |                 |    |    |    |    |               |    |    |    |              |                   |    |    |    |    |    |    |              |    |              |              |    |    |    |    |    |    |    |    |    |  |
| <u>KC4USV</u>    |                 |    |    |    |    |               |    |    |    |              |                   |    |    |    |    |    |    |              |    |              |              |    |    |    |    |    |    |    |    |    |  |
| <u>A35JP</u>     |                 |    |    |    |    |               |    |    |    |              |                   |    |    |    |    |    |    |              |    |              |              |    |    |    |    |    |    |    |    |    |  |

Click on the link (CTRL + Click for some PDF readers) in the PDF versions for information on the Expeditions



Or check them out at [DX News.com](https://www.dxnews.com)

## Waitakere Sprints 2021

The Papakura Radio Club Inc. is pleased to provide the rules for the 2021 Waitakere Sprints. The Sprints will be the same as previously held, the Phone Sprint will be on the last Saturday in July and the CW Sprint will be on the first Saturday in August.

For more information on this upcoming event [click here](#)

# CONTESTS AUGUST 2021

| Date-Time | Date-Time | Bands           | Contest Name                | Mode      | Exchange                           | Sponsor's Website  |
|-----------|-----------|-----------------|-----------------------------|-----------|------------------------------------|--|
| 1 1400    | 1 1700    | 3.5-14          | SARL HF Phone               | Ph        | RS, serial                         | <a href="http://www.sarl.org.za">www.sarl.org.za</a>   |
| 2 0000    | 2 0100    | 1.8-14          | K1USN Slow Speed            | CW        | Max 20 WPM. Name, SPC              | <a href="http://k1usn.com/sst.html">k1usn.com/sst.html</a>   |
| 3 0100    | 3 0159    | 1.8-50          | Worldwide Sideband Activity | Ph        | RS, age group (OM, YL, or          | <a href="http://www.sac.com/rules.html">www.sac.com/rules.html</a>   |
| 3 0100    | 3 0300    | 3.5-28          | ARS Spartan                 | CW        | RST, SPC, power                    | <a href="http://arsqrp.blogspot.com">arsqrp.blogspot.com</a>   |
| 3 1700    | 3 1900    | 3.5-14          | RTTYops                     | Dig       | Other's call, your call, serial,   | <a href="http://rttyops.com">rttyops.com</a>   |
| 4 0230    | 4 0300    | 1.8-21          | Phone Weekly Test —         | Ph        | Name, SPC                          | <a href="http://perluma.com/Phone_Fray_Contest_Rules.pdf">perluma.com/Phone_Fray_Contest_Rules.pdf</a>   |
| 4 1300    | 4 1400    | 1.8-28          | CWops Mini-CWT              | CW        | Name, mbr or SPC                   | <a href="http://cwops.org/cwops-tests">cwops.org/cwops-tests</a>   |
| 4 1700    | 4 2000    | 144             | VHF-UHF FT8 Activity        | Dig       | 4-char grid                        | <a href="http://ft8activity.eu/index.php/en">ft8activity.eu/index.php/en</a>   |
| 4 1900    | 4 2000    | 1.8-28          | CWops Mini-CWT              | CW        | Name, mbr or SPC                   | <a href="http://cwops.org/cwops-tests">cwops.org/cwops-tests</a>   |
| 5 0300    | 5 0400    | 1.8-28          | CWops Mini-CWT              | CW        | Name, mbr or SPC                   | <a href="http://cwops.org/cwops-tests">cwops.org/cwops-tests</a>   |
| 5 1700    | 5 1900    | 3.5-14          | RTTYops                     | Dig       | Other's call, your call, serial,   | <a href="http://rttyops.com">rttyops.com</a>   |
| 5 1700    | 5 2100    | 28              | NRAU 10-Meter Activity      | CW Ph Dig | RS(T), 6-character grid            | <a href="http://nricontest.no/index.php">nricontest.no/index.php</a>   |
| 5 1900    | 5 2000    | 3.5, 7          | EACW                        | CW        | RST, name, mbr or EA province or   | <a href="http://www.eacwspain.es">www.eacwspain.es</a>   |
| 5 1900    | 5 2100    | 1.8-50          | SKCC Sprint                 | CW        | RST, SPC, name, mbr or             | <a href="http://www.skccgroup.com">www.skccgroup.com</a>   |
| 6 0100    | 6 0230    | 14              | QRP Fox                     | CW        | RST, SPC, name,                    | <a href="http://www.qrpfoxhunt.org">www.qrpfoxhunt.org</a>   |
| 6 0145    | 6 0215    | 1.8-21          | NCCC RTTY                   | Dig       | Serial, name,                      | <a href="http://www.ncccsprint.com">www.ncccsprint.com</a>   |
| 6 0230    | 6 0300    | 1.8-21          | NCCC                        | CW        | Serial, name,                      | <a href="http://www.ncccsprint.com">www.ncccsprint.com</a>   |
| 6 2000    | 6 2100    | 1.8-14          | K1USN Slow Speed            | CW        | Max 20 WPM. Name, SPC              | <a href="http://k1usn.com/sst.html">k1usn.com/sst.html</a>   |
| 7 0000    | 8 2359    | 3.5-28          | Batavia FT8                 | Dig       | 4-char grid                        | <a href="http://batavia-ft8.com">batavia-ft8.com</a>   |
| 7 0001    | 8 2359    | 28              | 10-10 International Summer  | Ph        | Name, mbr or "0,"                  | <a href="http://www.ten-ten.org">www.ten-ten.org</a>   |
| 7 1200    | 7 2359    | 1.8-28          | European HF                 | CW Ph     | RS(T), 2-digit year first          | <a href="http://lea.hamradio.si/~scc/euhf">lea.hamradio.si/~scc/euhf</a>   |
| 7 1200    | 8 2359    | 1.8-50          | SKCC Weekend                | CW        | RST, SPC, name, mbr or             | <a href="http://www.skccgroup.com">www.skccgroup.com</a>   |
| 7 1300    | 7 1330    | 144             | Two-Meter Classic           | CW Ph     | Serial, 4-char grid                | <a href="http://fwrc.info">fwrc.info</a>   |
| 7 1600    | 7 1800    | 3.5-28          | FISTS Saturday              | CW        | RST, SPC, name, mbr or             | <a href="http://fistsna.org">fistsna.org</a>   |
| 7 1800    | 8 0559    | 1.8-28          | North American QSO Party,   | CW        | Name,                              | <a href="http://www.ncjweb.com">www.ncjweb.com</a>   |
| 7 1800    | 8 1800    | 222 and up      | ARRL 222 MHz and Up         | CW Ph Dig | 6-char grid                        | <a href="http://arrrl.org/222-mhz-and-up-distance-contest">arrrl.org/222-mhz-and-up-distance-contest</a>   |
| 9 0000    | 9 0200    | 1.8-28          | 4 States QRP Group          | CW Ph     | RS(T), SPC, mbr or                 | <a href="http://www.4sqr.com">www.4sqr.com</a>   |
| 11 0030   | 11 0230   | 3.5-14          | NAQCC CW                    | CW        | RST, SPC, mbr or                   | <a href="http://naqcc.info">naqcc.info</a>   |
| 11 1500   | 13 1459   | 144             | MMMonVHF 144 MHz            | CW Ph Dig | Signal report                      | <a href="http://mmonvhf.de/ctestinfo.php">mmonvhf.de/ctestinfo.php</a>   |
| 11 1700   | 11 2000   | 432             | VHF-UHF FT8 Activity        | Dig       | 4-char grid                        | <a href="http://ft8activity.eu/index.php/en">ft8activity.eu/index.php/en</a>   |
| 14 0000   | 15 2359   | 3.5-28          | WAE DX Contest,             | CW        | RST, serial                        | <a href="http://darc.de/der-club/referate/referat-conteste/worked-all-europe-dx-qrp.html">darc.de/der-club/referate/referat-conteste/worked-all-europe-dx-qrp.html</a> |
| 14 0800   | 14 1100   | 1.8-28          | QRP ARCI European           | CW        | RST, SPC, mbr or                   | <a href="http://qrparci.org/contest">qrparci.org/contest</a>   |
| 14 1200   | 14 1300   | 7               | SARL Youth                  | Ph        | RS, age                            | <a href="http://www.sarl.org.za">www.sarl.org.za</a>   |
| 14 1400   | 14 2200   | 3.5-28          | Kentucky State Parks on the | CW Ph Dig | KY park abbreviation or            | <a href="http://k4msu.com/kypota">k4msu.com/kypota</a>   |
| 14 1400   | 15 0400   | 1.8-432         | Maryland-DC QSO             | CW Ph Dig | Entry class, county or             | <a href="http://w3vpr.org/mdcqso">w3vpr.org/mdcqso</a>   |
| 14 2300   | 15 0300   | 50              | 50 MHz Fall                 | CW Ph Dig | 4-char grid                        | <a href="http://svhfs.org">svhfs.org</a>   |
| 15 1400   | 15 1700   | 3.5-14          | SARL HF Digital             | Dig       | RST, serial                        | <a href="http://www.sarl.org.za">www.sarl.org.za</a>   |
| 15 1700   | 15 2100   | 3.5-28          | NJQRP Skeeter               | CW Ph     | RS(T), SPC, skeeter # or           | <a href="http://www.qsl.net/w2lj">www.qsl.net/w2lj</a>   |
| 15 2100   | 15 2300   | 3.5-28          | FISTS Sunday                | CW        | RST, SPC, name, mbr or             | <a href="http://fistsna.org">fistsna.org</a>   |
| 15 2300   | 16 0100   | 1.8-28          | Run for the Bacon QRP       | CW        | RST, SPC, mbr or                   | <a href="http://qrprcontest.com/pigrun">qrprcontest.com/pigrun</a>   |
| 21 0000   | 22 1600   | 3.5-28          | SARTG WW RTTY               | Dig       | RST, serial                        | <a href="http://www.sartg.com">www.sartg.com</a>   |
| 21 0600   | 22 2359   | 10 GHz to light | ARRL 10 GHz and Up          | CW Ph Dig | 6-char grid                        | <a href="http://www.arrrl.org/10-ghz-up">www.arrrl.org/10-ghz-up</a>   |
| 21 0800   | 22 0800   | 1.8-28          | Russian District Award      | CW Ph     | RS(T), RU district code or         | <a href="http://rdaward.org/rdac1.htm">rdaward.org/rdac1.htm</a>   |
| 21 1200   | 22 1200   | 1.8-50          | Keyman's Club of Japan      | CW        | RST, JA prefecture code or CQ      | <a href="http://kcj-cw.com/e_index.htm">kcj-cw.com/e_index.htm</a>   |
| 21 1600   | 21 1759   | 1.8-50          | Feld Hell                   | Dig       | RST, mbr, SPC, grid                | <a href="http://sites.google.com/site/feldhellclub">sites.google.com/site/feldhellclub</a>   |
| 21 1800   | 22 0559   | 1.8-28          | North American QSO Party,   | Ph        | Name,                              | <a href="http://www.ncjweb.com">www.ncjweb.com</a>   |
| 22 1800   | 22 2359   | 3.5-28          | ARRL Rookie Roundup,        | Dig       | Name, 2-digit year first licensed, | <a href="http://arrrl.org/rookie-roundup">arrrl.org/rookie-roundup</a>   |
| 25 0000   | 25 0200   | 1.8-50          | SKCC                        | CW        | RST, SPC, name, mbr or             | <a href="http://www.skccgroup.com">www.skccgroup.com</a>   |
| 28 0400   | 30 0400   | 1.8-28          | Hawaii QSO                  | CW Ph Dig | RS(T) HI district or               | <a href="http://hawaiiqso.org">hawaiiqso.org</a>   |
| 28 0600   | 29 0559   | 3.5-28          | ALARA                       | CW Ph     | RS(T), serial, mbr, name, YL or    | <a href="http://alara.org.au/contests">alara.org.au/contests</a>   |
| 28 1200   | 29 0300   | 1.8-50          | W/VE Islands QSO            | CW Ph Dig | RS(T), USI/CISA Island             | <a href="http://usislands.org/qso-party-rules">usislands.org/qso-party-rules</a>   |
| 28 1200   | 29 1200   | 1.8-28          | YO DX HF                    | CW Ph     | RS(T), YO county or                | <a href="http://www.yodx.ro/en">www.yodx.ro/en</a>   |
| 28 1200   | 29 1200   | 1.8-28          | World Wide Digi DX          | Dig       | 4-char grid                        | <a href="http://ww-digi.com">ww-digi.com</a>   |
| 28 1400   | 29 2000   | 3.5-50          | Kansas QSO                  | CW Ph Dig | RS(T), KS county or                | <a href="http://ksqso.org">ksqso.org</a>   |
| 28 1600   | 29 0400   | 1.8-28          | Ohio QSO                    | CW Ph     | RS(T), OH county or                | <a href="http://www.ohqp.org">www.ohqp.org</a>   |
| 29 1400   | 29 1700   | 3.5-14          | SARL HF CW                  | CW        | RST, serial                        | <a href="http://www.sarl.org.za">www.sarl.org.za</a>   |

All dates and Times are in UTC and are not adjusted for local time

Mbr = Membership number. Serial = Sequential number of the contact. SPC = State, Province, DXCC Entity. XE = Mexican state.

Listings in blue indicate contests sponsored by ARRL or NCJ. The latest time to make a valid contest QSO is the minute listed in the "Finish Time" column. Data for Contest Corral is maintained on the WA7BNM Contest Calendar at

[www.contestcalendar.com](http://www.contestcalendar.com)

Check for updates and a downloadable PDF version online at [www.arrrl.org/contests](http://www.arrrl.org/contests).



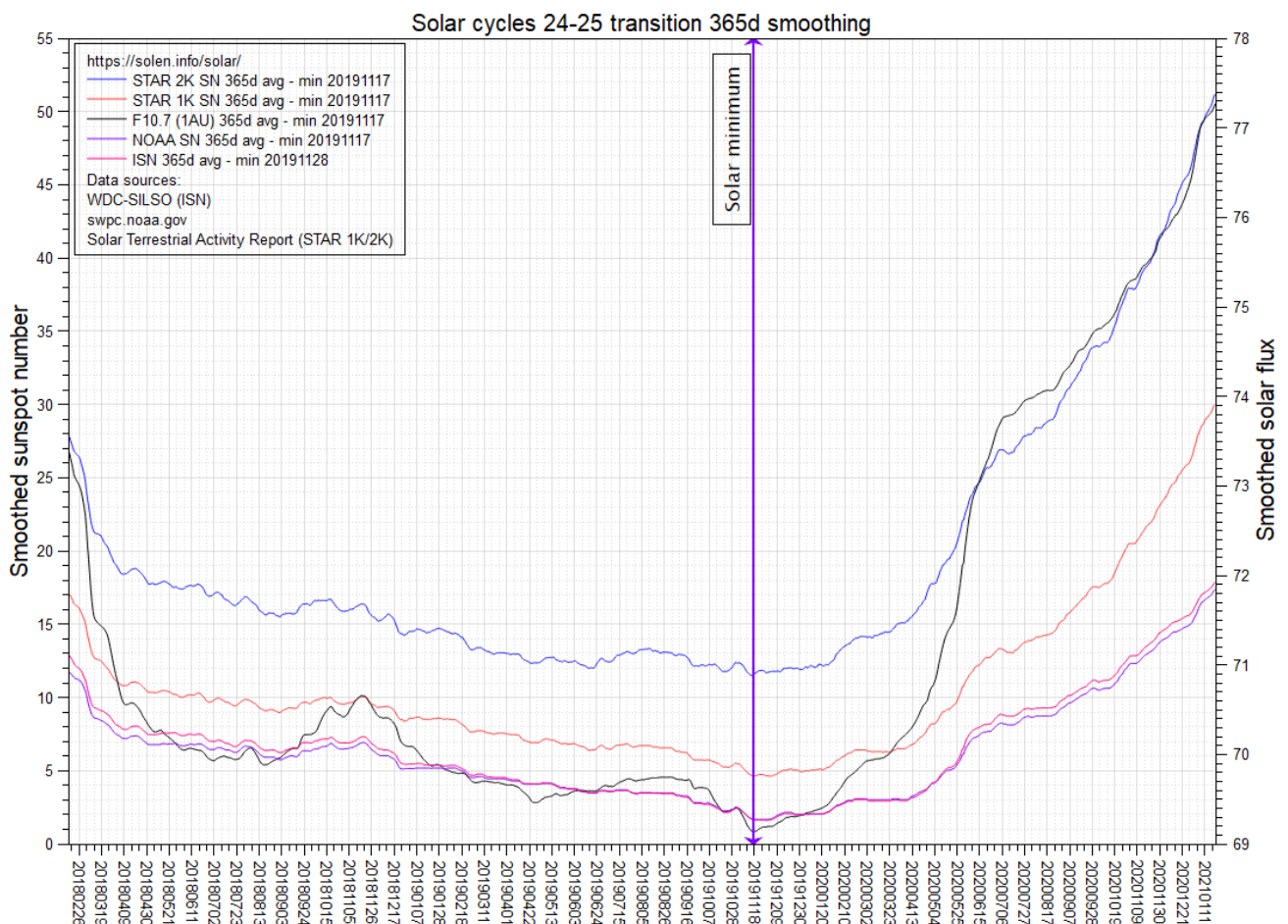
## SOLAR CYCLE 25 – SUNSPOT AND FLUX UPDATE.

While it's still early days into solar cycle 25, we are starting to see some patterns that indicate the cycle may not be as quiet as some predicted, but also maybe not the huge cycle we might have hoped for.

The peak of Solar cycle 24 occurred (by records) in Feb 2014, with a solar flux of 166.3 (Month averaged) and a smoothed sunspot count of 110.5. Using the same records the Solar minimum occurred November 2019 with a smooth solar flux of 69-70 and a spotless sun face.

Early 2020, and 2021 Data shows that the predicted solar activity versus measure, the number of sunspots is higher than predicted in every single month and in July it was almost 5 (4.7 average)) higher than predicted, this also has meant the average solar flux has also been higher, with the June average being 81.8 and July looking to continue the rise to just shy of 84.

This means cycle 25 is looking like a big improvement over cycle 24.



This has resulted in some promising 20 Metre contacts, but most band activity is still below 18 MHz, and 20 and 40 meters are still busy with plenty of amplifiers. However, the 100 watt crowd are still able to get good propagation and can compete with the high power signals, especially into the USA and Pacific Island towards China. Europe and Africa remain challenging. But if the cycle continues this pattern, the amplifier may not be required by this time next year.

Let's Hope

**THAT HAM I AM** *(with apologies to Theodor Seuss Geisel)*

I am Ham Ham I am

That Ham-I-am, That Ham-I-am!, I do not like That Ham-I-am!

Do you like to use Baofeng?

I do not like them, Ham-I-am. I do not like to use Baofeng!

Would you like them Here or there?

I would not like them Here or there.

I would not like them Anywhere.

I do not like to use Baofeng.

I do not like them, Ham-I-am!

Would you like them in your shack?

Would you put one in your pack?

I do not like them in my shack.

I would not put one in my pack.

I do not like them Here or there.

I do not like them Anywhere.

I do not like to use Baofeng. I do not like them, Ham-I-am!

Would you use them For SOTA? Would you use them For POTA?

Not for SOTA. Not for POTA. Not in my shack. Not in my pack..

I would not use them here or there. I would not use them anywhere.

I would not use Baofeng/I do not like them, Ham-I-am!

Would you? Could you? In your car? use them! use them! Here they are.

I would not, Could not, In my car!

You may like them. Please don't fret. You may like them For a net?





I would not, could not for a net. Not in my car! My Mind is Set!  
I do not like them for SOTA. I do not like them for POTA.  
I do not like them in my shack I do not like them in my pack  
I do not like them here or there. I do not like them anywhere.  
I do not like to use Baofeng. I do not like them, Ham-I-am!

A train! A train! A train! A train! Could you, would you On a train?

Not on a train! Not for a net! Not in a car! Ham! My Mind is Set!  
I would not, could not, for SOTA. I could not, would not, for POTA.  
I will not use them in my shack. I will not put them in my pack.  
I will not use them here or there. I will not use them anywhere.  
I do not like them, Ham-I-am.

Say! In the dark? Here in the dark!  
Would you, could you, in the dark?

I would not, could not, In the dark.

Would you, could you, In the rain?

I would not, could not, in the rain. Not in the dark. Not on a  
train,  
Not in a car, Not for a net. I think their junk & my mind is  
set!  
Not for SOTA. Not for POTA. Not in my shack. Not in my  
pack.  
I will not use them here or there. I do not like them anywhere!

You do not like to use Baofeng?

I do not Like them, Ham-I-am.

You do not like them. So you say.  
Try them! Try them! And you may.  
Try them and you may I say.



Ham! If you will let me be, I will try them. You will see.

Say!

I think like to use a Baofeng! I do! I like them, Ham-I-am!  
And I will use them in the rain. And in the dark. And on a train.  
So light, Dual Band, multi-frequency, they are so good so good you see!



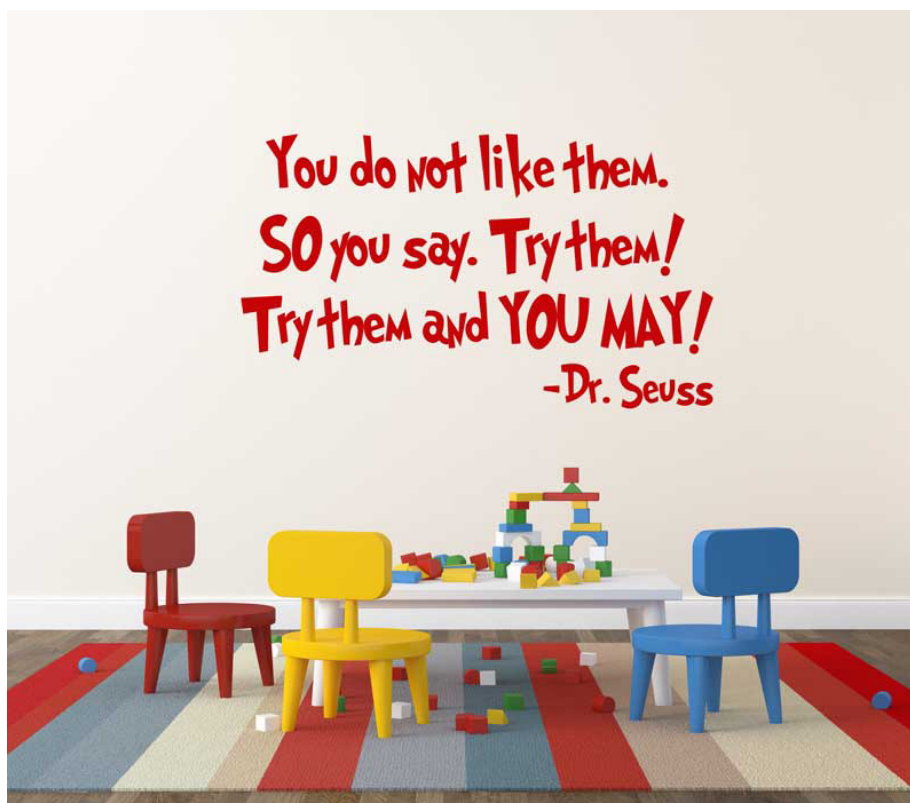
So I will use them for SOTA. And I will use them for POTA.  
And I will use them in my shack.. And I will put them in my pack.  
And I will use them here and there. Say! I will use them anywhere!

I do so like to use Baofeng!

Thank you!

Thank you,  
Ham-I-am.

*SPECIAL THANKS TO ZL1RKO  
(CHARLES) AND HIS DAUGHTER  
MILLIE (13) WHO DRAW THE  
IMAGE ABOVE FROM MEMORY*



## RAMBLINGS FROM THE EDITORS DESK

I recently listened to a discussion on the future of radio (as in broadcasting) in the age of the internet, and while the nature of the discussion had little bearing on amateur radio, one thing that we shared in common stood out to me in a very real way.

The following quotes are from one of the greatest scientists of his day and make for interesting reading in light of our discussion. Kelvin's work in temperatures and physics are best remembered in the temperature scale that still bears his name.

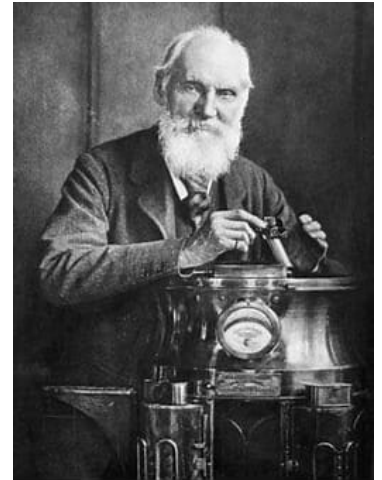
"No; I think it cannot be done. No balloon and no aeroplane will ever be practically successful."

"X-rays will prove to be a hoax."

"There is nothing new to be discovered in physics now, All that remains is more and more precise measurement."

"Radio Has No Future"

William Thompson AKA Lord Kelvin 1824-1907



Lord Kelvin never saw the benefits that radio was to bring to both a world at war and a world in peacetime, He never imagined television, which if we are to believe also killed the radio star.

I have often talked about the conflict (real or imagined) between the digital communications and analogue. Whether point to point simplex or repeater based systems, the future seems to be all digital, (maybe D-Star or DMR or Fusion) yet analogue FM can still be used with hotspots/all-star nodes or connected to a computer to link to echolink systems... the actual method of modulation or encoding seems to make less and less difference. On the other hand digital can also mean modes like Whisper RTTY or FT8.

These differences have many wondering what the future of the hobby is in the digital age. Can radio survive the age of the internet

Ironically the experience of broadcast radio may, in fact, be an indication of why amateur radio might have a much brighter future than many might think.

If you look at just the numbers listening of AM or FM, then the radio audience is holding up pretty well, but if you include the numbers listening via the internet, Spotify, Pandora (yes, it's still there) total consumption of radio shows on a daily basis have actually increased. Maybe not to the level of pre-television day, but still increasing. The content has more options, more ways to reach more people. Some would therefore assume that the use of internet communication tools like Hamsphere or CB radio chat would be good things, but these replace radio, they do not connect with it, and I suggest, miss out on its greatest benefits. We might even say that all the different modes are great as we have more options... But do we?

Unless they are all connected, then each system becomes a microcosm of the larger group, and if the growing number of these means we are isolated, then we, like the inhabitants of Babel, become broken into groups, Not in this case by language, but by the method of modulation or encoding, or rather by who is able to connect to our system. And unless we own all the equipment for every system, then we become more and more isolated.

Does this, however, mean we are doomed to a personal version of “Cold Death” (a theory the universe will end with it expanding until there is not light or heat left) alone in an empty void where no-one can communicate with us? I personally doubt it, we have a unique position, and more importantly, we have an ability to adapt, we change with our surroundings, and we even change them.



Such diversity of choice has happened before VHS v Betamax wars of the 70's lead to DVD V Laserdisc, and LED V LCD V Plasma TV wars all came and went and somehow we all moved on, The internet age also has seen the advent of the Floppy disk, CD storage, Hard Drives, SSD Drives, the memory card, the SD Card, the USB thumbdrive, and cloud storage. Yet we still loose the data, and more then ever, the phrase, no back up, no sympathy, seems to be the battle cry of the internet age.

Even on-line communications have kept changing, Anyone remember AOL Instant messenger or Myspace, or the vanity website, How about Internet Relay Chat, or if you can, Bulletin Boards?

If we are to celebrate our differences, we need to have some, In addition we need to free to express these, in terms of our communications and our preferences of equipment, and in terms of how we use license.

As I write this the first week (Voice) of the Waitakere Sprint, is about to get underway, The 80 metre band will get a burst of activity, Later this month (the 21<sup>st</sup>, 22<sup>nd</sup> & 23<sup>rd</sup> of August) will see hams setting up at lighthouses, and trying to get contacts for the ILLW. HF bands are starting to return, and with that the paths across the oceans will be restored, even if our border remain closed, and we will be able to re-connect with old friends, and new ones too. But the HF antenna is hard to hide, and difficult to set up, many will not be able to have these as the inner city gets more crowded and RF noise makes HF a step too far, But 2 Metres and 70cm, National system and all the associated repeaters allow us a way to connect on the VHF and UHF spectrum, but even these are showing strain and age, and we are seeing some who feel that their use should be limited.

But simplex, when possible can still get a long way, and works really well, so FM is still maybe the easiest and cheapest to get up and running with. So yes I think it has a bright future.

Yes digital modes offer an alternative, and with internet linking, they can allow us to connect to the world, or at least with others who have the same interconnection with our world, and yes IRLP and Echolink all use digital internet connections, with an FM interface, Just like all-star.

But its not the technology that ensures our future.

There is something else.

In the age of computer generated playlists, digitally stored music, pre-recorded and pre-scripted morning DJ's and radio shows delivered by internet streaming, or on your phone, or in your car, there is a reason that broadcast radio still survives, and I think the reason that the Ham Community will also survive.



Its not the radio, or the contests. Its not the lakes awards, or SOTA or Parks. It's not the special stations, or the DX-peditions, its not even the nets, or the schedules. Its none of these, and its all of these.

## Its you and I

The reason that radio, including amateur radio, is still going strong (in spite of the long history of naysayers) is something far more basic. And its about three key things:

### 1. The Shared Experience:

The experience we share in building maintaining and working our stations, is only eclipsed by the experiences we share with those we talk to on a regular, or semi-regular basis, We humans need to feel that there is another who can relate to us, that we have some common link, and this hobby with its tinkering, and fiddling, and pushing the envelope, and being operators, Gives us that common experience, and even our diversity, our differences, are something we can share and grow as a result of that sharing. This experience speaks to us at a deep level. And no technology can replace that.

### 2. The Human Connection:

Maybe with FT8 its not quite so clear, but every contact is a person, and if we connect, even briefly, we have that moment of humanity, maybe giving a contact for an award, or a helping with a contest, is a fleeting connection, this small act, is human at its very base. Like a random act of kindness, the fleeting connection, contains a connection and a moment of humanity. The mode doesn't matter, the Band is irrelevant, the duration is not critical, but for that moment we belong to something bigger, we connected with someone, and both gained, Just a little.

### 3. Audio First:

This might seem weird, but humans are auditory creatures, Yes we have 5 senses that we use every day, but sound is a critical one, Its possible to watch a TV show with the sound off, but sound is integral to the show, smell and taste have a place in our lives, but sound is fundamentally part of our world. We live in a world surrounded by sound, We can't escape it, and if placed in a soundproof room most of start to feel uncomfortable. There is just something about hearing others that is comforting. I used to wonder why some hams seemed to have the radio on, and not join the conversation, but as time passed, and I got to know other amateurs, I realised that hearing them as they had their own conversations was in some strange way comforting, I reminded me that the world was moving on, lives were being lived, and the universe was carrying on. And that was somehow comforting.

So yes, I have to say radio has a future, amateur radio, that remembers its about people, connections, experiences and audio, has a fantastic future, no matter the band, no matter the mode, no matter the reason.

And its why we belong to clubs, attend meetings and read newsletters and listen to what others are doing, its our connection to this hobby.

Its why we are here. So reach out and make that connection, Share that experience, and make the most of your radio gear.

Catch you later in the logbook. 73

De ZL1NUX

## TECH- TIPS CORNER

Last month we looked at batteries and the problems with determining their charge, and why they are so difficult to look after.

In this session I plan to have a look at charging, and how to determine how a big a battery you really need.

In simple terms there are two types of battery charger. Constant Current (CC) or Constant Voltage (CV).

One of the most common chargers in a Ham shack is the Ni-Cad charger, which uses a constant current at a rate of approximately 1/10thC or 1 tenth of the capacity of the battery. So a 600mAh battery would have a charge current of 60mA. This type was known as a trickle charger, and would fully charge a battery in 14-16 Hours, for this reason they were also called overnight chargers. These are not suitable for NiMh (Nickel Metal Hydride) batteries as these batteries do not cope well with being overcharged. But irrespective of type, remove any battery once it is warm (this is a sign of overcharging)

Rapid chargers is the most common type for most consumer equipment and by increasing the current, they reduce the charge time to about 3 -6 hours. Unless there is a good temperature sensing in effect, there is high risk of overcharging, but with a temp sensor to shut off the charger, the battery can be disconnected once charged, The temperature sensor will also detect a faulty battery.

Fast chargers offer very fast charge times, with a current close to the battery capacity (1,000mAh – 1 amp) these will charge in battery in approx 1 hour, This demands tighter communication between the charger and battery. As the battery approaches full charge, some nickel-based chargers reduce the current to adjust to the lower charge acceptance. The fully charged battery switches the charger to trickle charge, also known as maintenance charge. Most of today's nickel-based chargers have a reduced trickle charge to also accommodate NiMH.

It should now be apparent that simply applying a voltage to a battery and letting it draw whatever current it wants is not ideal, and so lithium and Lead acid should employ a modified version called CCCV. Basically a power supply with a fixed voltage, and current limiting, the CCCV system starts in a constant current mode, but as the battery approaches charge, the voltage is fixed and the current falls. Once the battery terminals reach full charge voltage, all charge stops. .. In theory. Practice is slightly different.

Li-ion has minimal losses during charge. At a current of 1C, the battery charges to 70 percent state-of-charge (SoC) in less than an hour; the extra time is devoted to the saturation charge. Li-ion does not require the saturation charge as lead acid does; in fact it is better not to fully charge Li-ion — the batteries will last longer but the runtime will be a little less. Of all chargers, Li-ion is the simplest. No trickery applies that promises to improve battery performance as is often claimed by makers of chargers for lead- and nickel-based batteries. Only the rudimentary CCCV method works. The reason is that within the battery, each cell must be managed by an internal battery management system, without this the cells would not charge evenly. So external chargers can be simple.

Lead acid batteries cannot be fast charged and the term “fast-charge” is a misnomer. Most lead acid chargers charge the battery in 14–16 hours; anything slower is a compromise. Lead acid can be charged to 70 percent in about 8 hours; the all-important saturation charge takes up the remaining time. A partial charge is fine provided the lead acid battery occasionally receives a fully saturated charge to prevent sulphation (a chemical process where the lead and sulphuric acid create a Lead Sulphate by product) which can cause an internal shorting of the plates if not returned to its original chemical state. High speed charging will shorten the life of your battery. Patience is a virtue.



With the CCCV method, lead acid batteries are charged in three stages, which are [1] constant-current charge, [2] topping charge and [3] float charge. The constant-current charge applies the bulk of the charge and takes up roughly half of the required charge time; the topping charge continues at a lower charge current and provides saturation, and the float charge compensates for the loss caused by self-discharge.

During the constant-current charge, the battery charges to about 70 percent in 5–8 hours; the remaining 30 percent is filled with the slower topping charge that lasts another 7–10 hours. The topping charge is essential for the well-being of the battery and can be compared to a little rest after a good meal. If continually deprived, the battery will eventually lose the ability to accept a full charge and the performance will decrease due to sulfation. The float charge in the third stage maintains the battery at full charge.

## **Sizing a battery for a job. (Peukerts Law)**

When we first entered the arena of lead acid batteries and their neurotic tendencies, it was presented to you that the easiest way to rate and understand how long a lead-acid battery (be it flooded, AGM, or Gel) would last, would be to use the AH (Amp Hour) rating that is so often designated to them. You were told that if a battery was rated at 100AH, then that was more or less indicative that it would last either 100 hours under a 1 amp load, or 1 hour under a 100 amp load.

But in like manner to my old calculus teacher, who explained that all my previous notions of the logic of numbers were about to be shot to threads, it is now my duty to advise you that this notion of order in battery capacity is in fact false; everything you previously understood has been a lie, sort of.

### **The truth about capacity**

Any lead acid battery, or for that matter any other battery, has a value of what is called “capacity”, which describes how much total charge (which approximately represents “energy”) that it can store when fully charged. Capacity is always expressed as “amp hours”. The number of amps describes the rate at which the flow of electrons go in or out of the battery. The capacity is a measure of the total number of electrons that you can get out of the battery when starting from a fully charged battery until all the energy is discharged. (To be more precise, the total energy in the battery is the product of amps times volts times time of discharge—but the value of volts doesn’t vary too much during discharge.)

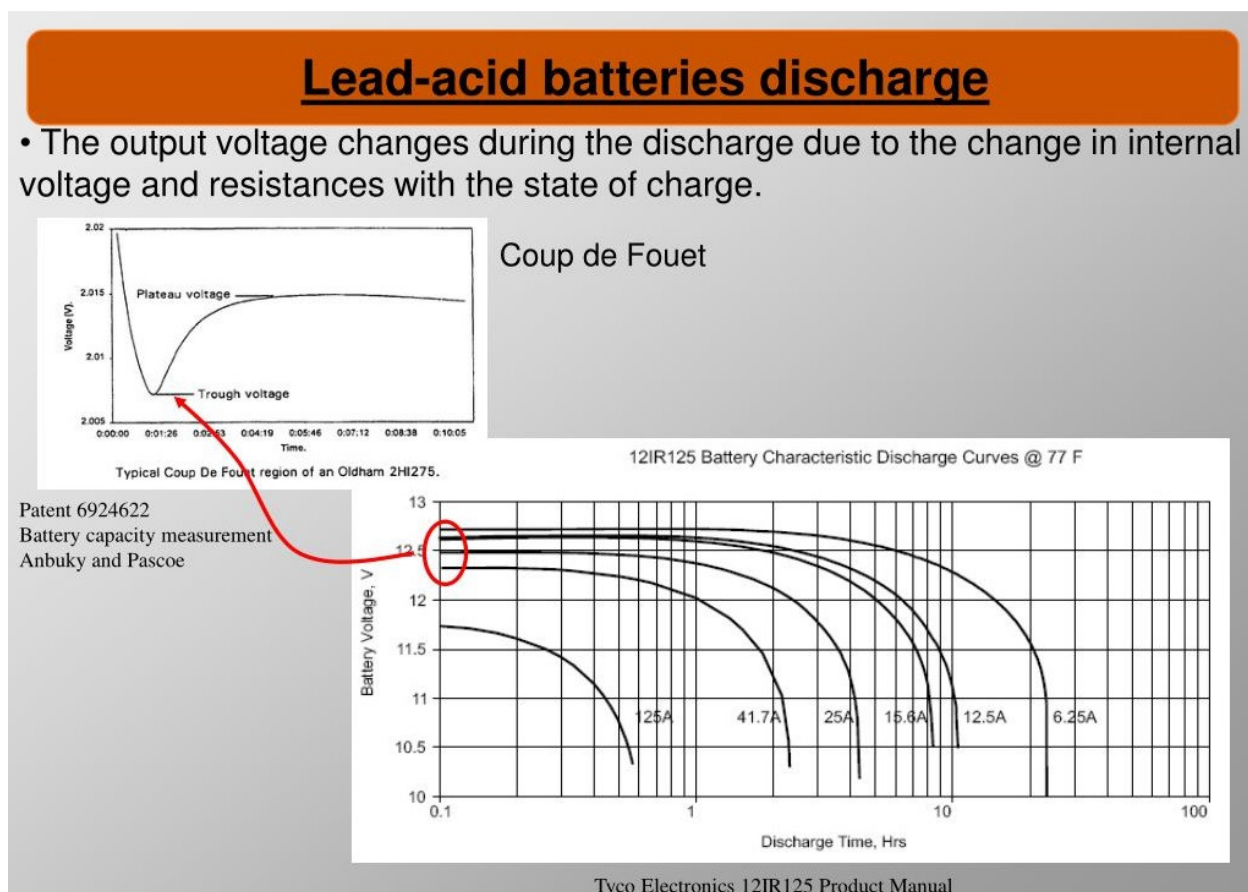
Here’s how the “capacity” of a “12V” lead acid battery is measured: The battery is first charged until it is completely full, at a temperature of 25 degrees C. (77° F) Then a voltmeter is put on the battery to measure the volts of the battery, which for a (six cell) lead acid battery starts at about 12.6 volts. Then a load is connected to discharge the battery that has a certain number of fixed amps—and at the same time the voltage is observed, and a stopwatch is started to see how long it will keep going. During discharge the voltage gradually drops as the battery loses energy.

When it gets down to 10.5 volts the time T (in hours) that it has taken is multiplied by the amps value, A of the load. The product =  $T \times A$  is the “capacity” in “amp-hours”.

However it turns out that the exact capacity depends on the size of the load: a larger load (number of amps) will result in a lower capacity. Of course it is obvious that a larger load will discharge a battery faster—but even the product of amps times hours will be less. For example, if a load of 10 amps requires 20 hours to discharge down to 10.5 volts, you might think that a load of twice that amount, at 20 amps, would run for half the time, or 10 hours, since that would require the same number of electrons coming out of the battery. That’s almost correct, but it turns out that it will go for a little less than 10 hours. That is why, when “Capacity” of a battery is specified, it is usually specified for a specific discharge rate, in amps.

For example, it might have 100 amp hours at a 20 hour rate, (meaning an “amps” discharge rate of  $100 \div 20$ , or 5 amps) but 80 amp-hour at a 5 hour rate (16 amps). This effect becomes less important, however at the lower discharge rates.

Simply put, the reason you get less amp hours out when the amps are higher is that the higher amps drag down the volts more than a lower amp load, so the 10.5 volts endpoint is reached sooner (the internal resistance of the battery, lowers the terminal voltage). It is not because some of the electrons in the battery get lost or wasted when you draw current out faster. So if just before getting down to 10.5 volts you were to reduce the load, the volts would recover somewhat to a higher value, and you would get somewhat more current out before you reached 10.5 volts



This is the internal resistance of the battery is also, however, having an effect of dissipating heat as current is drawn, The higher the current the more heat energy lost from the battery. So in fact some small amounts of energy are also lost, but mostly it's just the lower voltage effect.

There is a rather complex formula to figure out exactly how long a lead acid battery will last, under any load. It is called Peukert's Law. Peukert's law expresses mathematically that as the rate of discharge increases, the available capacity of that battery decreases.

The formula that states the Law in a usable format is as follows:

- $H$  is the rated discharge time, in (hours).
- $C$  is the rated capacity at that discharge rate, in (Ampere-hours).
- $I$  is the actual discharge current, in (Amps).
- $k$  is the Peukert constant, (dimensionless).
- $t$  is the actual time to discharge the battery, in (hours).

$$t = H \left( \frac{C}{IH} \right)^k$$

The formula, as we use it, is then rewritten to:

$$It = C \left( \frac{C}{IH} \right)^{k-1}$$

" $It$ " is the discharge rate at the time to discharge e.g. the new Ah rating.

You may see that in our supposed situation we have the  $h=20$  hours, we have the  $C=100Ah$ , and we have the current = 15 amps (being the new discharge current), but we do not have the  $k$ . At this stage it gets fairly complicated as we do not have  $k$  (the Peukert constant). Unlike the name suggests, it is not constant- at least not across the board. Each battery will have a different Peukert constant. The value of  $k$  is normally between 1.1 and 1.3. It can range from 1.05 - 1.15 for AGM batteries, 1.1-1.25 for Gel, and 1.2-1.6 for Flooded Batteries. *This number must be sought from a manufacturer, or we have to perform a test on a battery to work it out, something that is completely unrealistic to consider when planning what we need to purchase.*

The closer the exponent is to 1.0, the more perfect the battery. For deep cycle lead acid batteries, the exponent 'n' is 'typically around 1.1' and, as the batteries are used, that number eventually creeps up to 1.3 or so ... We generally use a value between 1.1 and 1.15 for calculation purposes for SLA (our most commonly used batteries)

Getting back to our example here, we have figured out that this particular battery has a Peukert constant of 1.3, so if we plug that in to the equation we end up with an effective capacity of 71.9AH at an amperage drain of 15 amps, for 4.79 hours. So, if you apply a 15 amp load to this battery which is rated at 100AH at a 20 hour rate, you end up with a 71.9AH battery at a 4.79 hour rate. The advantage of being able to do this, other than massive bragging rights, - (*come on, who isn't impressed that you can still do advanced math?*), - is that you will not be surprised when your battery lasts almost 2 hours less than a person would have figured by using the 100AH rating as their guide. The greater the load on the battery, the less real capacity you will have.

As stated before, using Peukert's law, you will not be figuring for temperature or age of the batteries. When I do calculations for extreme temperature or age greater than 6 months, I add between .05 and .1 to Peukert's constant. There is actually no proven method, that I know of, to figure out the difference in the *projected* Peukert's constant from the *actual*, other than re-testing the batteries in the manner that they were tested when they had the original AH rating stamped on them. Since that would be a massive pain, I just add .1 to Peukert's constant the original manufacturer gave us.

But before you lose your rag over the math. **Chill !!!**. Because now I'm about to show you why you will not need to do that math.

## Sizing the Battery - The easy way

Now that we have shown how engineers perform calculus, - Let's look at the app version.

Online calculators have transformed the way we approach these, and in this exercise we will use one of these to look at a load requirement, and a time requirement for a battery backup system, and then determine how many amp hours we would need to meet this requirement, Taking Peukert's equation into consideration.

I'll assume a good SLA battery and a rating of 1.1 for this example.

Let's assume that we have a 6 amp load on a system, and the battery must be able to support the system for 8 hours. How do we calculate the required battery capacity?

We will go to an online calculator - I recommend: [Peukert Number Battery Life Calculator \(csgnetwork.com\)](http://csgnetwork.com) *(This should be a clickable link)*

Since we do not want to over discharge the battery, we use a rule of thumb that the battery at the end of a required period, (hours) will be at a safe capacity of about 50% discharge

Trying 48 Amp hours,  $(8 \times 6) =$  we see that the battery life with a Peukert value of 1.1 at 6 amps, will be fully discharged in 6.68 hours, so clearly it is too small - in fact we see the actual capacity (at 6 amps- Not 20) is only 40.126 Ah

| Unit   | Number                             |
|--|------------------------------------|
| Rated Battery Capacity   | <input type="text" value="48"/> Ah |
| Discharge Rate   | <input type="text" value="6"/> A   |
| Peukert's Number   | <input type="text" value="1.1"/>   |
| <input type="button" value="Calculate"/> <input type="button" value="Clear Values"/> |                                    |

|                                   |  |
|-----------------------------------|--|
| Calculated Battery Capacity       | <input type="text" value="40.126"/> Ah   |
| Full Discharge Time               | <input type="text" value="6.688"/> Hours |
| Manufacturer's 80% Discharge Time | <input type="text" value="5.350"/> Hours |
| 75% Discharge Time                | <input type="text" value="5.016"/> Hours |
| 50% Discharge Time                | <input type="text" value="3.344"/> Hours |
| 25% Discharge Time                | <input type="text" value="1.672"/> Hours |

Clearly we need something much bigger

Let's try 100 Amp-hour, it will be close. But again, based on the formulae, at 6 amps its only 83.6 Amp-hours calculated.

| Unit   | Number                              |
|--|-------------------------------------|
| Rated Battery Capacity   | <input type="text" value="100"/> Ah |
| Discharge Rate   | <input type="text" value="6"/> A    |
| Peukert's Number   | <input type="text" value="1.1"/>    |
| <input type="button" value="Calculate"/> <input type="button" value="Clear Values"/> |                                     |

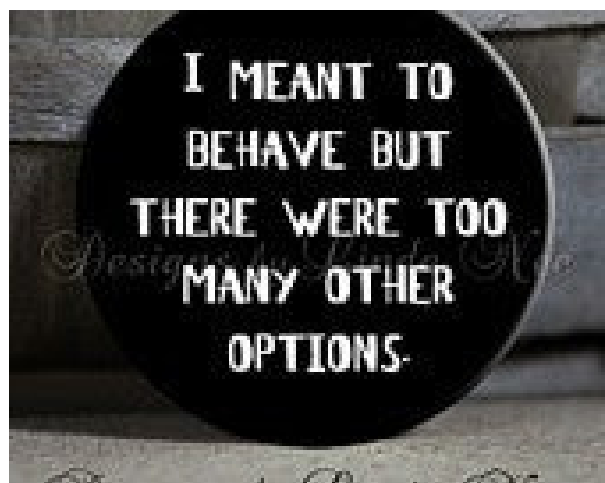
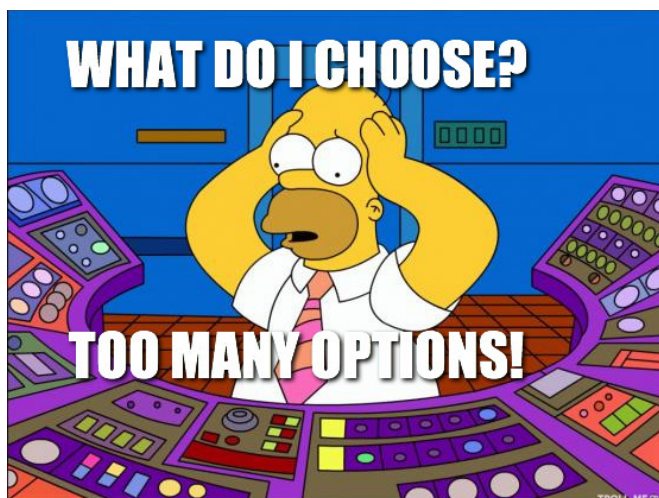
| Calculated Results                |   |
|-----------------------------------|---|
| Calcuated Battery Capacity        | <input type="text" value="83.596"/> Ah    |
| Full Discharge Time               | <input type="text" value="13.933"/> Hours |
| Manufacturer's 80% Discharge Time | <input type="text" value="11.146"/> Hours |
| 75% Discharge Time                | <input type="text" value="10.449"/> Hours |
| 50% Discharge Time                | <input type="text" value="6.966"/> Hours  |
| 25% Discharge Time                | <input type="text" value="3.483"/> Hours  |

Its better, but we are up to 7 hours at 50%, but still not quite the magic 8.0 Hours In fact we need to go all the way to 115 to break 8.0 hours.

Since this is a very weird value, we need to look for some common batteries.

Looking at the Yuasu - VRLA (cyclic use batteries) - we get options for 12 volt systems

These are not the only options, but a convenient set of values



# Yuasa VRLA range (SLA Cyclic)

| Amp-hours | Option 1 | Option 2 |
|-----------|----------|----------|
| 10        | 11 = 110 | 12 = 120 |
| 14        | 8 = 112  | 9 = 126  |
| 22        | 5 = 110  | 6 = 132  |
| 26        | 4 = 104  | 4 = 144  |
| 36        | 3 = 108  | 4 = 144  |
| 50        | 2 = 100  | 3 = 150  |
| 80        | 1 = 80   | 2 = 160  |

The best choice is probably 3 x 36 amp hours, or 5 x 22. - This not quite the required value, but close enough that we won't over discharge the battery in 8 hours, but we will also not have too many batteries. The more batteries in parallel, the more likely we will have charger issues with different batteries charging and discharging at different rates.

2 x 80 is also a good option, but these are much larger, heavier and costly. They will work, but may stress the budget. So it's not an exact science, and we have to work with what is available.

But this is how we size batteries, without needing advanced calculus, and explains why batteries don't always seem to exactly match the Ah rating we might expect, if we didn't know this stuff.

So it's now your choice:

3x36, 5x22 or 2x80 - all are close enough - Now we have to look at the available space and our budget

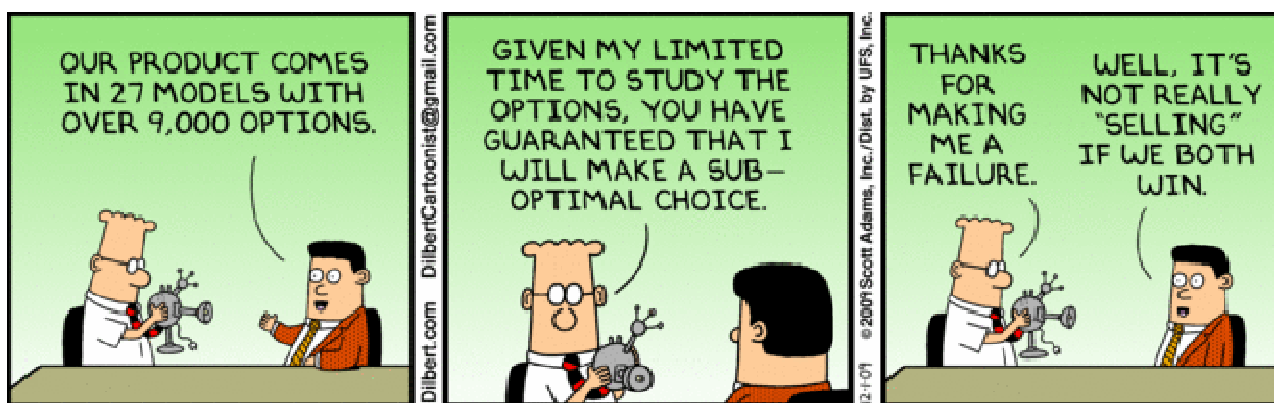
If we used the Yuasa NPC VRLA Cyclic Use 12 volt, we would have have a different set of options

24, 38, 65 and 100 amp hours, so we could have 3x38 at 114, and get an almost perfect match. Again we work with what we have, and get as close as we can (this is why we target 50% as it gives us wiggle room), and every supply situation will be different.

No one battery choice is correct or wrong, but knowing how to get close, without going overboard, certainly helps to get it right So next time you wonder why a system seems to need so many batteries to supply such low current. Well Now you know.

So yes, the SOTA guys may get away with a jump start battery for an hour, but it's not an option for a field day, or a campervan. Which might be why so many are under-rated, and end up over-discharged?

Next month, we might have a look at solar charging option for our battery bank.

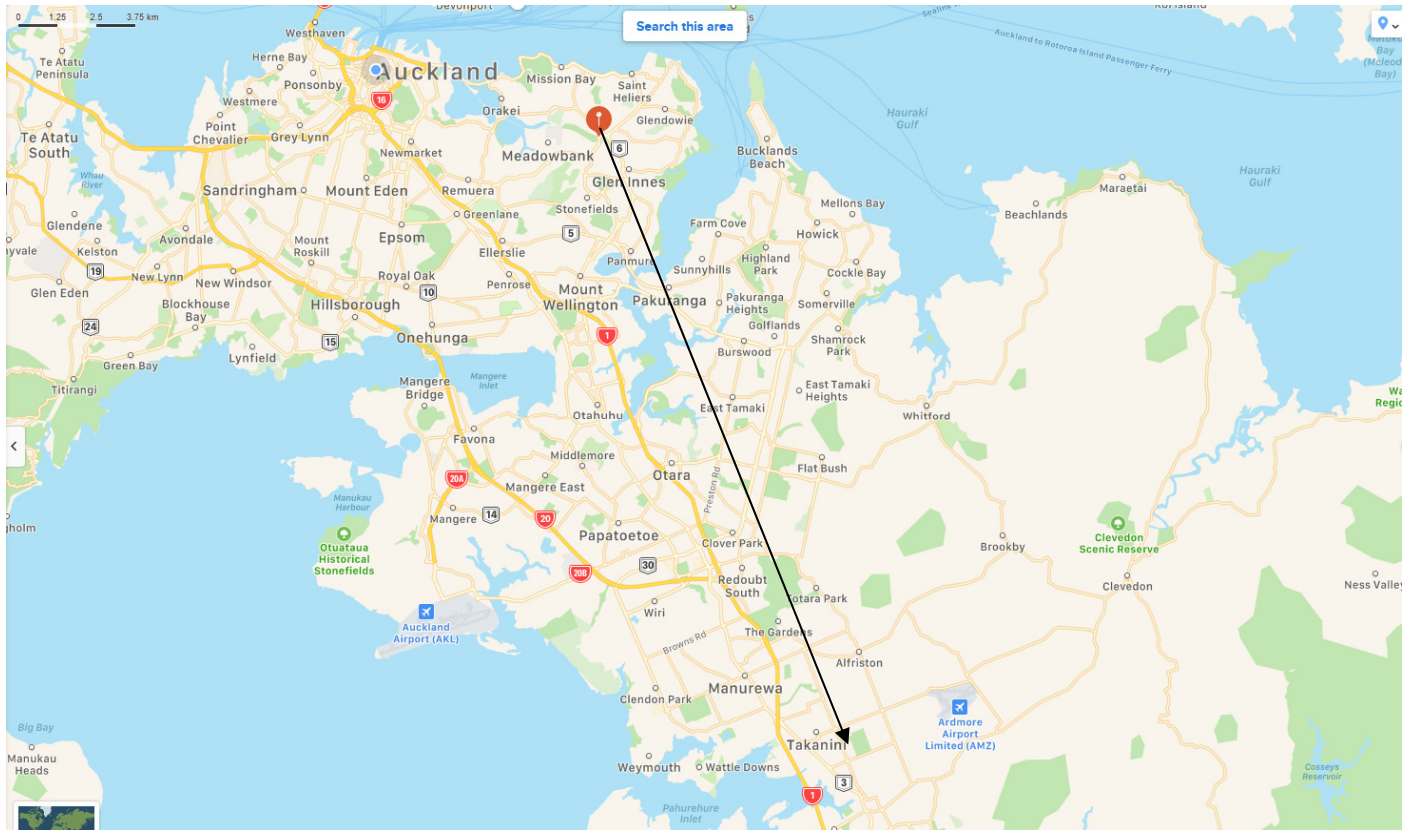




## SEEN OR HEARD AROUND THE SCENES

### MANUREWA REPEATER ON BACK AIR, BUT NOT SO EASY TO ACCESS.

Auckland Branch 02 have now relocated the 438.575 MHz repeater from Redoubt road, Manurewa to their clubrooms at 400 St Johns Road, Meadowbank.

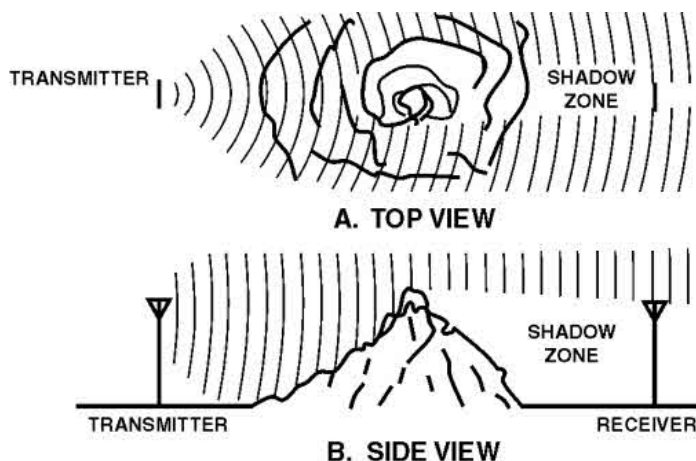


Topo 50BA32 643.35 179.94. (ARE035-ELG).

A few hills between us – But if your high enough. Maybe

Or add some gain to the mobile antenna,

Or move house.



Millage may vary

# INTERNATIONAL LIGHTHOUSE LIGHTSHIP WEEKEND - ILLW

Normally held on the 3rd full weekend in August

Next ILLW: 00.01 UTC 21st August to 24.00 UTC 22nd August 2021 (48 hours)

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For some reason or other August seems to have become the international weekend for lighthouses. Countries all over the world have become involved in one form or another of lighthouse activity.

The ILLW usually takes place on the 3rd full weekend in August each year and attracts over 500 lighthouse entries located in over 40 countries. It is one of the most popular international amateur radio events in existence probably because there are very few rules and it is not the usual contest type event. It is also free and there are no prizes for contacting large numbers of other stations. There is little doubt that the month of August has become "Lighthouse Month" due largely to the popularity and growth of the ILLW.

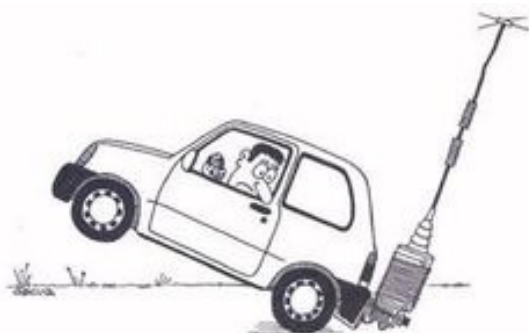
If you thinking of activating a lighthouse, you better get moving, But if not, Remember to listen out there will be some stations, and club members out there, and they would appreciate your entry in the logbook.

## GORDONTON MARKET DAY – SATURDAY 21 AUGUST

Held at the Gordonton Hall, Same a last year, and about 40 minutes south of Auckland.

It's a popular sale, with plenty of sellers and buyers, Plenty of gardens and cafes in the area, as well as some food on-site.

A great social occasion, if you don't have plans to buy anything ... But there's possibly that one item .... You know, that you didn't know you needed.







ARI Cadore and ARI Brunico will activate the special callsign II3TDD celebrating a century from the opening of the most famous ALPS railway "Trenino delle DOLOMITI - DOLOMITES Mountains Train."

They will be on air from mid June to September 30th 2021 on all bands and modes.

[For more information, click on this pamphlet](#)

Random Ham Thoughts:

### YOU MIGHT BE A HAM IF.....

1. YOUR WIFE SAID, "LETS GO SEE AUNT ANNA", AND YOU THOUGHT SHE SAID, "LETS GO SEE AN ANTENNA".
2. YOUR WIFE SAID, "COULD YOU CUT THE GRASS?", AND YOU THOUGHT SHE SAID POUND THE BRASS!
3. YOUR WIFE SAID, "WE'VE BEEN INVITED TO BREAKFAST", AND YOU THOUGHT SHE SAID "HAM FEST"!
4. YOUR WIFE SAID, "SOMETHING IS WRONG WITH THE CHECK BOOK", AND YOU THOUGHT SHE SAID, "LOG BOOK"!
5. YOUR WIFE SAID, "IS MY SEAM STRAIGHT?", AND YOU THOUGHT SHE SAID, "IS MY BEAM STRAIGHT?"
6. YOUR WIFE SAID, "TURN ON THE FAN", AND YOU SHOUGHT SHE SAID, "CHANGE THE BANDS". **kc9rxc**

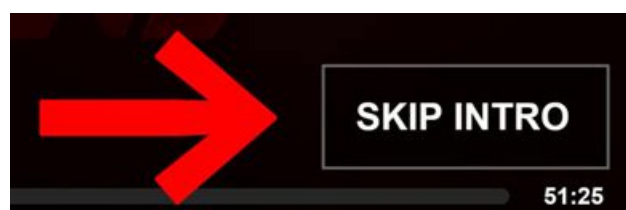
Or you might be hard of hearing

### You know you're a ham if:

You ID every ten minutes during a regular conversation. **kc9rxc**

### Is it OK to operate AM....after NOON?

Apparently It is "Not OK" to press the forehead of someone talking to you to try to skip the intro ...  
Who Knew?



## **SPACE STATION STABLE AFTER UNPLANNED MLM THRUSTER BURN, BUT BOEING STARLINER DEMO 2 FLIGHT DELAYED.**

Following the docking of the Multipurpose Laboratory Module (MLM), named Nauka (the Russian word for “science”) to the International Space Station at 9:29 am EDT, Russian cosmonauts aboard the space station conducted leak checks between Nauka and the service module. At 12:45 pm, the flight control team noticed the unplanned firing of MLM thrusters that caused the station to move out of orientation. Ground teams have regained attitude control and the motion of the space station is stable.

While the matter has now been resolved, and there is no risk to the crew or the station operations, NASA and Boeing decided to stand down from Friday’s (Saturday NZ Time) launch attempt of the agency’s Orbital Flight Test-2 mission. NASA, Boeing and United Launch Alliance now are targeting 1:20 p.m. EDT Tuesday, Aug. 3, (Wed August 4, 5:20am NZ Local Time) for launch of the Orbital Flight Test-2 (OFT-2) with the International Space Station ready for the arrival of the Starliner spacecraft. NASA’s live launch coverage begins at 12:30 p.m. Docking is targeted for 1:37 p.m. Wednesday, Aug. 4 (Thurs 5 Aug at 5:37am Local).



The U.S. Space Force 45th Weather Squadron predicts a 60% chance of favourable conditions for the Aug. 3 launch opportunity with the cumulous cloud rule, surface electric fields rule, and the lighting rule as the primary weather concerns.

The OFT-2 mission will test the end-to-end capabilities of Starliner from launch to docking to a return to Earth in the desert of the western United States.

OFT-1 launched in 2019, but due to timing error, and loss of ground communications, burnt too much fuel during a correction, and did not dock with the ISS returning successfully to earth after a number of orbits. If the planned OFT-2 cargo delivery is successful, then the next stage is testing will be to proceed to manned flights. Boeing and SpaceX are contracted to provide both cargo and crew transfer services from US soil to the ISS, under the commercial crew programme. The two capsules use very different designs, so that if one was to be grounded, the other would still be able to fly. So far SpaceX has outperformed Boeing, but if successful OFT-2 may level up the playing field. If you would like to try to hear the ISS communications as they approach the ISS, the following frequencies may be of interest

## Known Radio emissions from the ISS

### FM VOICE for ITU Region 1: *Europe-Middle East-Africa-North Asia*

- Downlink 145.800
- Uplink 145.200

### FM VOICE for ITU Region 2&3: *North and South America-Caribbean-Greenland-Australia-South Asia*

- Downlink 145.800
- Uplink 144.490

### FM V/u with PL VOICE Repeater, *Worldwide*

- Downlink 437.800MHz FM; Doppler +/-10KHz
- Uplink 145.990MHz FM with 67.0 Hz PL

### FM SSTV downlink, *Worldwide* - Downlink 145.800, generally Pd 120 mode

### UHF Simplex (rarely used) - Downlink 437.550 - Uplink 437.550

### Other Frequencies (Not Amateur – Listen only)

**121.125 FM** RS EVA from Orlan suit [Credit N5VHO]

**121.75 FM** Downlink from Soyuz-TM (voice). RS EVA from Orlan suit. Soyuz VHF-2. Progress Telemetry. [Credit N5VHO]

**130.167 AM** VHF-2 Downlink from Zarya (Service Module). RS EVA to Orlan suits [Credit N5VHO]

**143.625 FM** VHF-1 downlink. Main Russian communications channel. Often active over Moscow. You can hear air to ground conversations in Russian. Sometimes English when US crews talk to their NASA representative in Star City. [Credit IZ6BYY]

**166.000 AM** Soyuz-TM and Progress M-1 telemetry

**632.000 634.000 AM** Zarya telemetry

**628.000 630.000 AM** Zvezda telemetry

**922.76 CW** Soyuz-TM and Progress M1 beacon

**2265.0 Digital** Telemetry Downlink

**15003.4 Digital** Data downlink



### US On-Orbit Segment (USOS)

Space-to-Space Communications System (UHF 1.4 MHz bandwidth)

414.200 Extravehicular Mobility Unit-to Extravehicular Mobility Unit (EMU-EMU),

EMU-to-Space Shuttle Orbiter (SSO), EMU-to-International Space Station (ISS),

SSO-to-EMU, SSO-to-ISS, ISS-to-EMU, ISS-to-SSO.



### SPACE X DRAGON FREQUENCIES

**2216 MHz**

**2205.5 MHz**

**2231.5 MHz**

**400.5 MHz**

Sorry No Being ones listed yet ☹️

**OR JUST WATCH LIVE ON NASA TV**







# 41<sup>ST</sup> ALARA CONTEST 2021

**ELIGIBILITY:** All licensed operators throughout the world are invited to participate.  
Scout and Girl Guide groups are encouraged to participate using their Club's equipment and callsign.

**OBJECT:** Participation: YLs work everyone, OM's work YLs only.

**CONTEST:** Combined phone and CW runs over 24 hours:

**STARTS:** Saturday 28th August 2021 at 0600 hours UTC  
**ENDS:** Sunday 29th August 2021 at 0559 hours UTC

**SUGGESTED FREQUENCIES:** All HF Bands except 160 m & WARC Bands. **Contacts made on Echolink will also be accepted.**

## OPERATION:

- YL's operating with their own callsigns
- YL's from Scout and Girl Guides groups using their Club's equipment/callsign with a licensed Amateur present.
- Second operators. If YL is operating as a 2<sup>nd</sup> operator, her husband/partner **CANNOT** participate in the contest.
- Every individual phone or CW contact may be counted.
- There must be an interval of greater than **1 hour** between contacts with any one station on any one band and in the same mode.
- All contacts must be made in accordance with operator and station licence regulations.

**PROCEDURE:** Phone: call "CQ ALARA CONTEST"  
CW: YLs call "CQ TEST ALARA"  
OMs call "CQ YL"

**EXCHANGES:** **ALARA member:** RS or RST, serial no. starting at 001, ALARA member, name.  
**YL non-member, OM:** RS or RST, serial no. starting at 001, name and whether YL or OM.  
**OMs work YLs only.**

**SCORING:** **Phone:** 5 points for ALARA member logged  
4 points for YL non-member logged or Scout and Guide groups (YL's)  
3 points for OM logged including from Scout groups (OM's)  
**CW:** **All contacts made on CW count for double points**  
**OM or Scout group (OM's):**  
5 points for ALARA member logged  
4 points for YL non-member logged or Scout and Guide groups (YL's)

## LOGS:

- Single log entry. Logs must show date, UTC time, band, mode, call sign worked, report and serial number sent, report and serial number received, first name of operator of station worked and points claimed.
- Scout and Girl Guide participants should also include their patrol name.
- Please note in mode if contact is on Echolink.**
- Paper logs or electronic logs are both welcome.
- LOGS MUST** show full name, call sign and address of operator, and show final score (points claimed).
- ELECTRONIC LOGS MUST BE IN A FORMAT WHICH CAN BE PRINTED BY MICROSOFT WORD OR MICROSOFT EXCEL.**
- Logs must be legible. No logs will be returned. Decision of the Contest Manager will be final, and no correspondence will be entered into.

Logs must be received by the Contest Manager by: 30TH SEPTEMBER, 2021.

**CONTEST MANAGER:** **Mrs Sue Southcott VK5AYL**  
**PO Box 708**  
**Goolwa SA 5214**  
**AUSTRALIA** **OR: alaracontest@wia.org.au**

**Certificates** will be awarded for the following:

|   |   |
|---|---|
| Top score YL overall                          | Top score Australian YL CW                            |
| Top score YL phone only                       | Top score DX YL CW                                    |
| Top score YL Echolink                         | Top score DX YL                                       |
| Top score OM in each continent & VK call area | Top score ALARA member in each country & VK call area |
|   | TOP SCORE vk yl Foundation Licence Holder             |



## SOME NETS – FOR WHEN YOU ARE LOOKING FOR COMPANY

| Day            | Time (Local)  | Freq (MHz) | Group                   |
|----------------|---------------|------------|-------------------------|
| Sunday         | 08:00         | 3.750      | Southern Net            |
|                | 09:00         | 3.700      | Bch 10. Franklin.       |
|                | 09:00         | 3.755      | Bch 65. Papakura.       |
|                | 16:00         | 7.125      | SPAM Net (AM Mode)      |
|                | 19:00         | 146.625    | YL Net                  |
|                | 20:00         | 3.710      | Bch 42. Titahi Bay      |
|                | 21:30         | 3.595      | Duran WIA Net.          |
| Monday         | 19:30         | 3.757      | Bch 12. Hamilton        |
|                | 20:00         | 3.540      | CW Practice Net         |
|                | updated 20:00 | 3.605      | Br 80. Hibiscus Coast   |
|                | updated 20:00 | Nat System | W.A.R.O                 |
|                | 20:30         | 3.870      | O.T.C (Old Timers Club) |
| Tuesday        | 09:00         | 7.096      | Ex Post Office Techs    |
|                | 21:00         | 1.850      | 160m Net _ Ron ZL4JMF   |
|                | 19:30         | 3.690      | QRP ZL2BH               |
|                | 20:00         | 3.581      | CW improvers Net        |
| Wednesday      | 20:00         | 3.660      | Geek Net                |
|                | 20:00         | 3.645      | Bch 02. Auckland        |
|                | 20:00         | 3.745      | Bch 84. Bay of Islands  |
|                | 20:30         | 146.525    | W.R.S.C                 |
| Thursday       | 09:00         | 7.096      | Ex Post Office Techs    |
|                | 19:30         | 3.690      | QRP ZL2BH               |
|                | 20:00         | 3.540      | CW Practice Net         |
|                | 20:00         | 3.615      | Bch 89. REG Net         |
|                | 20:30         | 3.696      | ZL10A                   |
|                | 20:30         | 3.666      | LF Net ZL2CA            |
|                | 20:00         | 3.690      | ZL QRP SSB Net          |
| Friday         | 20:00         | 3.850      | SPAM (AM Mode)          |
|                | 20:30         | 3.650      | W.S.R.C.                |
|                | 20:30         | 3.560      | Digital Modes Net       |
| Saturday       | 10:30         | 28.530     | 10-10 Down Under        |
|                | 19:30         | 3.650      | Christian Fellowship    |
|                | 20:00         | 3.760      | ???                     |
|                | 20:30         | 3.600      | Ch 62. Reefton/Buller   |
| Daily or Other | 07:30         | 3.696      | ZL20A                   |
|                | 08:30         | 3.730      | ZL3RP                   |
|                | 15:00         | 14.300     | Pacific Seafarers       |
|                | 17:30         | 3.760      | Home Brew               |
|                | 05:00 Zulu    | 14.183     | ANZA DX Net             |
|                | 18:00         | 7.115      | VK7OB                   |
|                | 19:30         | 3.720      | ZL1MO                   |
|                | 18:30         | 3.766      | ZL3LE                   |
|                | 08:30/20:00   | 3.730      | ZL3RP                   |
|                | 20:30         | 3.725      | ZL2HN / ZL4RF           |
|                | 21:00         | 3.677      | Counties Net ZL2MA      |
|                | 21:00         | 3.535      | New Zealand Net (CW)    |

This is designed to be a living list, Please update whenever you are able:

Also: Calling Frequencies:  
Courtesy of Murray ZL1BPU

|       |                |          |                       |
|-------|----------------|----------|-----------------------|
| Daily | Sunset-Sunrise | 3580 USB | NZ FSQCall            |
| Daily | Sunrise-Sunset | 7105 USB | NZ FSQCall            |
| Daily | 24/7           | 7104 USB | International FSQCall |

I'm told the last of these sees some amazing DX, especially around sunset.

**Papakura Radio Club Inc.**  
**Branch 65 NZART Club Directory 2017**  
 Wellington Park, 1 Great South Road.  
 PO BOX 72-397 Papakura 2244  
 PHONE 09 296 5244  
**Westpac 03-0399-0019896-00**  
**Club website:** <http://www.qsl.net/zl1vk>  
**Club email:** [zl1vk.club@gmail.com](mailto:zl1vk.club@gmail.com)

**Elected Officers**

|                            |   |                |               |
|----------------------------|---|----------------|---------------|
| <b>President</b>           | ZL1NUX  | Gavin Denby    | 021 459 192   |
| <b>Vice President</b>      | ZL1BNQ  | Richard Gamble | 021 729 270   |
| <b>Secretary</b>           | ZL1AOX  | Ian Ashley     | 021 198 1810  |
| <b>Treasurer</b>           | ZL1MR   | David Wilkins  | 021 185 7903  |
| <b>Committee</b>           | ZL1RJS  | Rob Stokes     | 021 307 005   |
|                            | ZL1IRC  | Ian Clifford   | 021 082 48400 |
|                            | ZL1ASN  | Rolly Adams    | 021 042 7760  |
|                            | ZL1DK   | David Karrasch | 021 560 180   |
|                            | ZL1RIC  | Ricky Hodge    | 027 533 8155  |
| <b>AREC Section Leader</b> | ZL1BNQ  | Richard Gamble | 021 729 270   |
| <b>CD Liaison</b>          | ZL1AOX  | Ian Ashley     | 021 198 1810  |
| <b>Newsletter Editor</b>   | ZL1NUX  | Gavin Denby    | 021 459 192   |
| <b>Hall Custodian</b>      | ZL1AOX  | Ian Ashley     | 021 198 1810  |
| <b>Newsletter.</b>         | Contact: <a href="mailto:zl1nux@outlook.com">zl1nux@outlook.com</a> |                |               |

Our newsletter is published monthly and normally distributed just prior to the club meeting. Please forward articles etc to editor Wednesday 1 week prior to the general meeting. Do notify any change of address. Including E-Mail Address.

**Meetings**

General Meetings are held at the Club rooms on the 1st Wednesday of each month, starting at 7.30pm. Look at your calendar and mark these nights. The speaker follows the General Meeting.

Project Evenings are on the 4th Wednesday of each month.

Committee Meetings are held on 3rd Wednesday of each month at 7.30pm, unless advised.

Activity Nights are held on the 2nd Wednesday starting at 7.30pm.

AREC Meetings are on the 5th Wednesday night, also starting at 7.30pm

**AGM:** Held in November

**Subscription:** Full membership and newsletter \$25.00

Family Membership and newsletter \$40.00

**Bank Account number: 03-0399-0019896-00**

**Working Bees** As required.

**Branch 65 21 Award:** For contacts with ZL1VK (5 Points) and 8 Papakura Radio Club Members (2 Points each) after January 2011. Total 21 Points. Cost \$5-00. Certified list and \$5-00 to Secretary, Papakura Radio Club. Address above.

**ZL1VK Club Nets**

146.900 MHz Sunday at 8.30am. Controller ZL1NUX, Gavin Denby. If the repeater is not available, listen 146.475 simplex.

3.755 MHz Sunday at 9.00am. Controller ZL1BNQ Richard Gamble. (Linked to 146.675 & 438.775)