

**The Official Newsletter of the
Auckland VHF Group Inc.
Spectrum**



Erection of Antennas — 1978. Left to right: Roger ZL1TJP, Alan ZL1TSF, Quentin ZL1BPW, Simeon Copsey, Terry Crippen (in distance).

Quentin (now ZL1QF) and team contesting from Mt Ruapehu — 1978

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Auckland VHF Group Inc.

Branch 66 NZART

PO Box 10138, Dominion Rd, Auckland 1446

Clubrooms: 30 Hazel Ave, Mt Roskill

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Club News and Net:

The combined Auckland VHF Group and Auckland Regional Branch News and Net are held on 146.625 MHz and 439.875 MHz at 8.15 pm each Sunday or after the ZL6A National Broadcast on the last Sunday of the month.

Club meetings are held at the Clubrooms at Hazel Avenue, on the second Monday of each month at 7.30 pm. For other details, listen to the News and Net each Sunday evening.

SPECTRUM is the official journal of the Auckland VHF Group Inc. Opinions expressed are those of the authors and do not necessarily reflect club points of view. The closing date for SPECTRUM articles is by the 1st of each month. Articles to be submitted to the editor Peter ZL1UKG
spectrum@aucklandvhf.org

Auckland VHF Group (Inc) Branch 66

General Meeting Notice

Monday 10th August 2020 7.30pm

At the Hazel Avenue Club Rooms
(Located on the left at the end of Hazel Avenue)

The agenda for the meeting is:

1. **Special General Meeting** to receive and approve the accounts and Treasurer's report for the 2019 financial year. The Special General Meeting will also receive and approve the Minutes of the 2018 Annual General Meeting and the November 2018 General Meeting.
2. This will be followed by a short **General Meeting** which will consider and vote on the remit to the NZART AGM to be held on 5 September in Wellington. The remit was published in the March/April issue of Break-In on page 30.

The Evening's Topic:

The "Black Propaganda" campaign against the Germans

A video tracing the development and content which originated from the Woburn estate in Bedfordshire, 50 miles from London.

The video features Ingram Murray, son of Ralph Murray, one of the important Foreign Office officials that shaped the operations. Also featured on the video is Phil Luck, a young engineer who operated the RCA 7.5 kilowatt transmitters in the area, beaming the black propaganda broadcasts back to Europe. Come along and learn more about this, the Milton Bryan studios and the clever use the British made of an RCA 600 kilowatt medium wave transmitter, code named Aspidistra.

EVERYBODY WELCOME

We look forward to seeing you there

Coming Events:

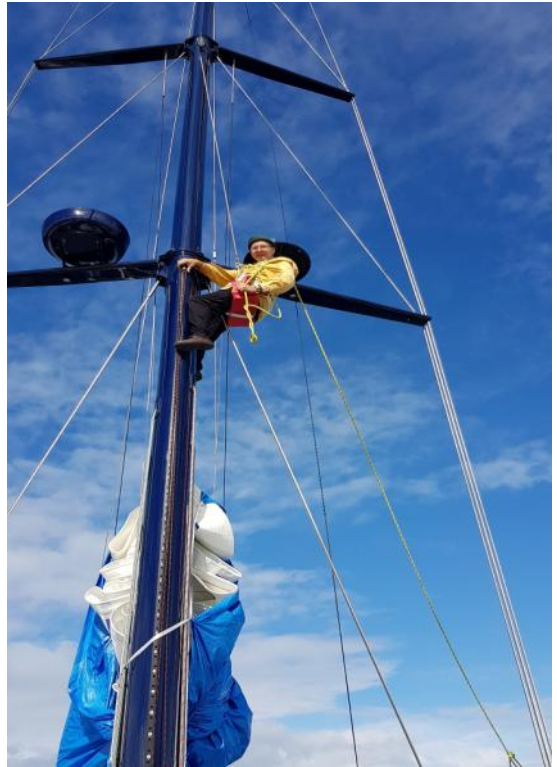
- 29 August Hamilton ARC Market day at Gordonton Hall, (SH 1B),
Venue opens at 8 am, Selling from 10 am
- September Whangarei ARC Market Day, date TBA
- 03/04 October Microwave Contest
- 07 November Western Suburbs Market Day

Auckland VHF Group Presidents Report

August 2020

Well it's good to be able to get back together again for meetings. I guess it was the first time for many people that their liberty has been restricted, and some had a struggle with it. My own school years were lock down institutionalised with sporadic violence, so it was a breeze for me sitting it out here on the boat.

A couple of weeks ago I dragged out the water blaster and cleaned the hydraulic tower. Next week Brian ZL1UXB is coming out to assess the work required to revive it, and we'll get the bits and pieces and then one warm spring day we'll call for working be volunteers to come out to Kumeu. We also need to take a trip to Klondyke to check the cable trays lashings are holding, assess work needed there, and to get a photo to go with funding applications. Faces in foreground and bodies up the tower to give the scale.



Our committee has discussed limiting general email circulation to financial members only. This would entail running a separate address for notices to people interested but not yet joined, which would be a pain to maintain and could result in new members getting two copies of everything. So we have opted for just the one email list.

Aliexpress says my VNA analyser flew out of China a week ago, but has yet to arrive anywhere. I was not aware that aircraft technology had advanced that far! I guess it won't be long before we are notified of the flight our gear is on, and can monitor its progress on Flight Radar.

Bought a new chimney pipe for the boat furnace yesterday, installed it and fired it up. It needs a little collar at the join, so I had to leave the companionway and the forehatch open so I didn't become a smoked fish, which kind of defeats the purpose of having a firebox. I have received a Tait radio which will be programmed up soon, so I will be able to put out a better signal. My signal last Sunday was the best yet, from Kumeu. It might be something to do with having a car battery on the floor and a dipole at 30 feet.

Designed a 2m collinear on 4NEC2 last week. Quarter wave stub feeding two half waves, with a coil on the end of each, feeding into another half wave. So four half waves all up. The maths is quite tricky, with cosine and sines for the coil construction, ten segments per turn ($a=36$). Varying the tapping points manually so they coincide with the coil segmented joints took some fiddling. Finally got it to 50 Ohms at 25dB gain, which is the most I've ever got from any design. Building it will likely be another challenge!

Cheers Matthew King
022 6493310

Minutes of the July General Meeting of the Auckland VHF Group Inc.

Held on Monday 13 July 2020 at the clubrooms, Hazel Avenue

Meeting started at: 07.06pm

Present: 14 members and visitors as per the attendance book.

In addition, Charles ZL1RKO, Terry ZL1BPA and Ian ZL1AOX joined via teams

Apologies: Basil ZL1TOW, Dave ZL1TIA

The Chairman made a brief run through the agenda. Details are not available. Secretary Vaughan ZL1VH arrived late and was unable to stay. Thanks to Brendon ZL1XXX for these brief notes. There was no other general business.

Guest speaker Simon Bridger ZL1THH gave us a presentation on New Zealand meeting its carbon neutral electricity generation deadline. The presentation was delivered using a single enormously long page of calculations in mathematical software. It started with NZ's stated deadline to be carbon neutral and worked backwards to calculate the size and how many wind turbines would be needed to be built per day and ended looking at a couple of different types of Nuclear reactor types of which a Salt Reactor seemed to be the favourite as it didn't have a need for water or its containment. Simon was assisted by his son who was a walking encyclopaedia of power generation facts and calculations – it was a very interesting presentation from someone who obviously had a lot of knowledge about his subject. The conclusion was that if we are to meet the “deadline” to be carbon neutral by 2050, we need to be building 1.7 large wind turbines per day – and all the available land (areas with favourable wind) will be covered with wind turbines.

Meeting ended 9:25

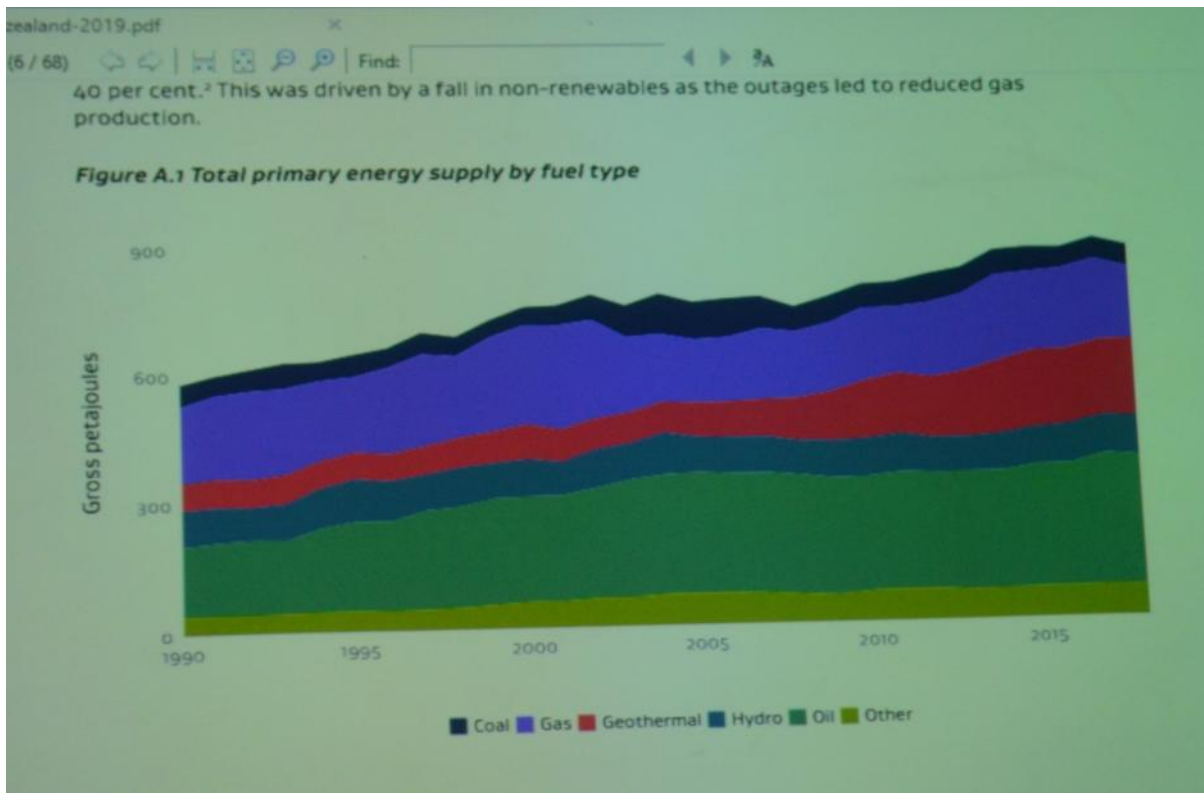
E70.E. ZL1VH:

Achieving Zero Carbon Emissions by 2050

Simon Bridger has been moved to find out whether this is possible and how it could be achieved. He supplied a link to calculations made in the USA of a new nuclear power station every day which looked formidable and then looked into what would be needed in New Zealand. Scientists have been looking into the effect on the atmosphere and were publishing their findings from the early 70s. The editor has a book published in 1971 when the major energy source was coal. With prediction of the increase of energy consumption a conservative prediction of 4°F (2.2°C) climate temperature was expected by 2050. While discussing options of which nuclear power was the most likely it also considered the effect of waste heat emitted at up to 105°F (58°C) by the cooling systems and its effect on water bodies with 3700 miles of river (USA) with 2000 MW generators at 10 mile intervals might only supply 70% of the projected demand up to year 2000. Cooling towers may also change the local climate by heating the air and/or evaporating the cooling water into the air.

Scientists have known this for 50 years now but politicians have only been making statements about it for the last 25 years and the concerned public can't trust them yet.

Simon examined the NZ energy sources of Wind, Geothermal, Hydro, Oil, Coal and Gas.



Most of the Hydro sites have been exploited already so the contribution is fixed. The growth areas have been Geothermal and Other, particularly Wind. Simon showed that the efficiency of an energy source depended of the temperature it reaches and the application it is required for. Geothermal is ideal for heating in production of products. Wind appeals to NZ for having no pollution or waste energy but calculations show that given the demand to replace carbon emitting generators required 15 wind turbines per day to be commissioned.

SMath Studio - [NZ_WindTurbine_Install_Rate.sm]

File Edit View Insert Calculation Tools Pages Help

Now calculate how fast we have to make wind turbines to get there by 2050

Lets look at NZ Windfarms (NWF) as it has been running for a decade, and has published all its ACTUAL outputs
Note that the turbines are ~0.5 MW <https://www.nzwindfarms.co.nz/investments/annual-reports/annual-report-30-june-2018/>
at_download/file

$NWF_Energy := \frac{120 \text{ GW hr}}{\text{yr}}$ This is an actual Windfarm output $NWF_NameplateRating := 46 \text{ MW}$

$NWF_Nturbines := 97 \cdot 98.5\% = 95.545$ And the turbines only run with some actual uptime

$NWF_TurbineNameplate := \frac{46}{97} \text{ MW} = 4.742 \cdot 10^{-5} \text{ W}$

$NWF_TurbineEnergy := \frac{NWF_Energy}{NWF_Nturbines} = 0.143 \text{ MW}$

$TurbinesNeeded := \frac{Electricity_{New}}{NWF_TurbineEnergy} = 1.668 \cdot 10^5$

$TurbineRate := \frac{TurbinesNeeded}{NYears \text{ yr}} = 15.221 \text{ day}^{-1}$ So we have to make this number of turbines every day until 2050!

As a matter of interest we can estimate the amount of concrete needed for foundations

The higher the temperature of the heat source the higher is the efficiency of conversion to electricity. Geothermal is not so suited for this. When coal, oil and gas are ruled out nuclear remains. Research into nuclear reactors started with water as the medium for moving heat. It has now turned to liquid salts at 600 - 750°C which do not have to contain the high pressures which prevent steam forming but have their own problems of safety.

Electricity has losses in transmission to the user. Building manufacturing factories beside the generation source reduces transmission losses in situations like the Tiwai Smelter. Transport of the product may cost less. What if electricity was used close to the source and transported in other ways. Hydrolysis of water to produce Hydrogen for (fuel cell and motor) engines that only produce water is still impeded by having to transport the gas under pressure to the user location.

So what happens if we use Hydrogen?

In terms of energy efficiency, ammonia is predicted to have the highest total energy efficiency (34-37%), followed by liquid hydrogen (30-33%) and MCH (about 25%).

Electrolysis := 70 %
 LiquidH2 := 30 %
 FuelCell := 60 %

LH_Efficiency := Electrolysis · LiquidH2 · FuelCell = 12.6 %

TransportEnergy := $238 \cdot 10^{15} \frac{\text{J}}{\text{yr}} = 7.542 \text{ GW}$

TransportEnergy · 33 % · LH_Efficiency⁻¹ = 19.753 GW

We finished the evening with intellectual stimulation but not knowing how it would be achieved in the end with politicians in charge of the Budget.

Peter Loveridge

Written from notes taken during the presentation

HAM RADIO Online

From: [DD1US](http://www.dd1us.de)

Last weekend the traditional Ham Radio Fair in Friedrichshafen/Germany had to be held as a virtual conference "HAM RADIO ONLINE". There were many interesting presentations which are now available in a nearly 12 hour long video. Most of the presentations are in German but some, where Powerpoint was used are in both German and English. This is the agenda:

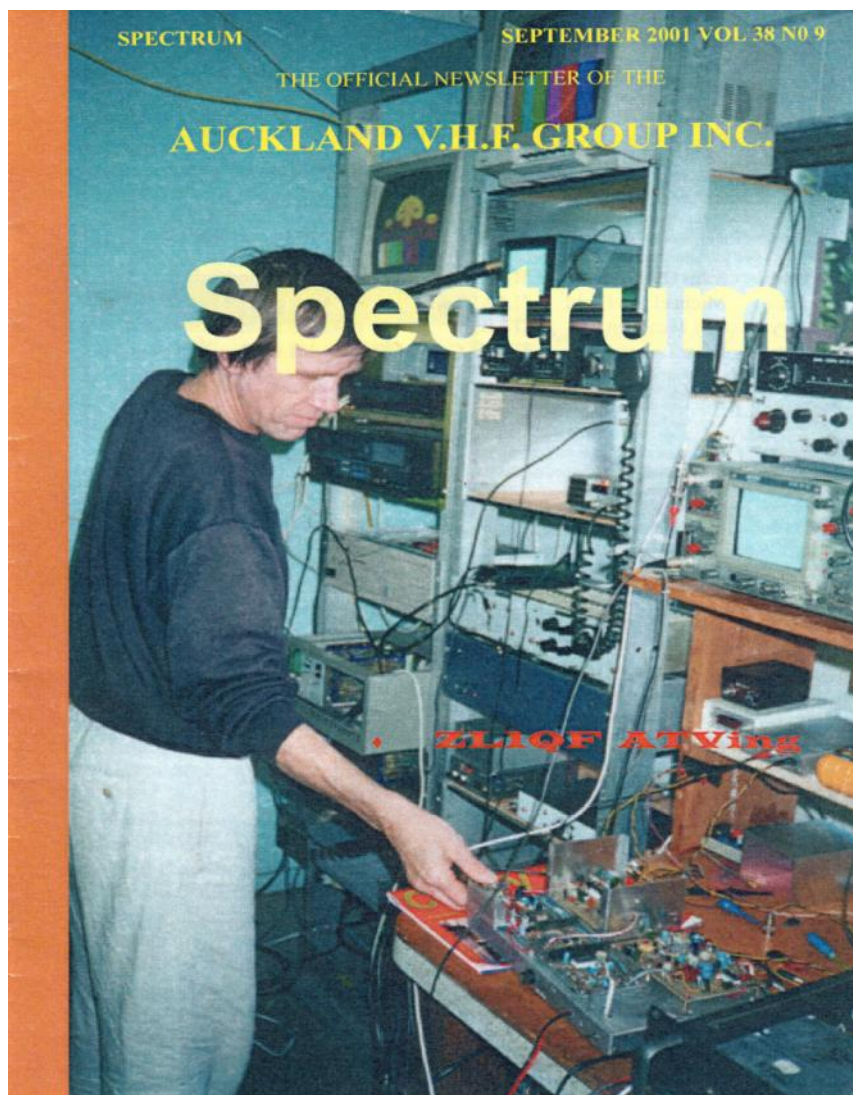
https://www.darc.de/fileadmin/filemounts/gs/oeffentlichkeitsarbeit/Veranstaltungen/HAMRADIOOnline/HAMOnline_Sendeplan_200627_03.pdf

Thanks to Southgate Amateur Radio News for this item. By zooming in to the PDF you can read the entries and click on them to access the online presentations.

Quentin Foreman ZL1QF
Silent Key Tuesday 21 July 2020

Highlights from his involvement
with the Auckland VHF Group:

Quentin first noted in Spectrum during 1994 where he was elected to the committee. He became a repeater trustee in 1985 and 1986, assisting the late Colin McKenzie ZL1ARC. 1988 and Quentin's interest in AREC saw him elected deputy section leader. In 1989 he was back on the committee. Through this period, he continued to help with the ATV repeater and Beacons. 1996 and he got volunteered to be Spectrum Editor and continued in this position until the end of 2000. In 2001 he took on the Group's new web site as editor and was elected Secretary in 2002, a position he held for two years. After his time as secretary, Quentin continued his interests with ATV and the 2m and 70cm beacons. This continued up until his departure for Australia in 2010.



My thanks to Michael ZL1ABS for his recollections of the work Quentin did for the Group: The work on beacons and aerals at Nihotupu and Whitford. Participation in contests with mainly home brew equipment. He and Roger ZL1ASV undertook many tramping expeditions to activate hilltops during the summer contests. He assisted with the VHF Group kitsets, especially the frequency synthesizer. He was active on 6m from his QTH in Milford and enjoyed DX on 6m to the west coast USA during a solar maximum. Along with Tim (now VK3TIM) he was involved with the 6m repeater at Klondyke. He was a keen antenna builder and had lots of homebrew aerals. APRS tracking was another interest and he had one of the first installations in his car.

Throughout his time with the VHF Group, he had a passion for amateur television and was able to put his considerable RF skills to good use working on the Channel 39 ATV repeater at Nihotupu. He made many contributions to the amateur television scene including attending and on occasion, hosting the regular ATV group meetings. His software skills were also put to use, and he was always happy to programme pattern generator EPROMs for anyone who wanted one.

This short summary does not really do justice to the many hours of work Quentin put into VHF Group activities, especially where amateur television and the propagation beacons were concerned.

Quentin attended the University of Auckland, graduating in 1993 with a Masters in Engineering from the School of Electronic and Computer Engineering. After various jobs in the RF design field in Auckland, in November 2010 he moved to Queensland, Australia. Here he worked for a number of companies doing RF

design, switchmode power supply design and his last job was in the R&D lab of Lumascope who make a wide range of LED lighting products. In January 2020, Quentin moved back to Auckland with his wife Nancy and son.

The VHF Group extends its sincere sympathies to Quentin's wife and son.



Scammers attack the VHF Group

There have been some Scam emails sent to members of the VHF Group purporting to come from Matthew King. When viewed on a PC by an Email Application the cursor can be hovered over the "From" address which will reveal the actual origin of the email. (Example 1)

Subject: Quick Response
Date: Thu, 16 Jul 2020 01:09:49 +0100
From: Matthew King <kklyrvskey@gmail.com>
To: spectrum@aucklandvhf.org

Good morning,

Would you be available a handle some purchases for me today ?

Regards,
Matthew King
Sent from my iPad

When you see the email on your smartphone it may not reveal the real address. Example 2 viewed on my smartphone looked innocent so I replied. You can see that there are methods to get your money that should be avoided.

----- Original message -----

Subject: REQUEST

Hi Peter,

Could you please spare a minute to assist me in completing a task discreetly.

P.S: Would be glad to receive your response through email because i'm presently in a meeting. Thanks

Kind Regards

Matthew King

On Tue, Aug 4, 2020 at 1:35 AM peterlov < wrote:

Hello Matthew, I was outside painting and am now going to Tai Chi and PaknSav.

Send me an email about what you want. Peter

Sent from my Samsung Galaxy smartphone.

The response below was viewed on my PC

From: Matthew King <president78939@gmail.com>

Date: 4/08/20 10:43 AM (GMT+12:00)

To: spectrum@aucklandvhf.org

Hi Peter,

I am so tied up right now, Can you purchase iTunes voucher 5 pieces - \$100 each at any near by store?

I would reimburse you when am through later today. I would have preferred to call you but can't receive or call at the moment with my line, Let me know if you can purchase them now. Thanks

Kind Regards

Matthew King

Unfortunately I will now have to treat emails from Matthew King with suspicion.



Amateur Radio Emergency Communication.
Volunteers in radio communications.
Using our resources to help the community.

INFORMATION

The Auckland VHF Group has an AREC Group that works closely with Auckland Council Emergency Management. They provide advice, resources and manpower to assist in times of need.

The AREC section is headed by Group Leader David Dingley ZL1TIA.

From time to time the VHF Group has training sessions and exercises. Members also assist with sports events, parades and other community activities. For further information about AREC please see the NZART web site: <http://www.nzart.org.nz/arec/>

JOIN BRANCH 66 AREC

All members of the Auckland VHF Group are encouraged to join the AREC section. Your contribution, large or small is appreciated by all involved. For further information about joining Branch 66 AREC contact the Group Leader:

David Dingley ZL1TIA

828 9394 mardayak@gmail.com

AREC News:



AUCKLAND VHF GROUP (INC)

SUPPORT THE EFFORTS OF THE VHF GROUP THROUGH YOUR
SUBSCRIPTION

SUBSCRIPTIONS FOR 2020

THE SUBS GO TOWARDS;

- Maintenance and on-going improvements to beacons, repeaters and linking systems for the national system, including the Klondyke repeater site.
- Providing on-time and free access to spectrum magazine as soon as it is available.
- Providing facilities for good speakers and lecturers at our general meetings.
- Discounted access to our trading table goodies.
- Access to test equipment and technical help when needed.

FULL MEMBERSHIP **\$50.00**

ASSOCIATE MEMBERSHIP **\$44.00**

FAMILY MEMBERSHIP ADDITIONAL **\$10:00**

SEE ATTACHED MEMBERSHIP RENEWAL FORM (next page)

**REMEMBER TO KEEP US INFORMED OF YOUR EMAIL
ADDRESS!**

OTHERWISE WE CANNOT SEND YOU SPECTRUM!



Thought for the month:

"The most difficult thing is the decision to act. The rest is merely tenacity."

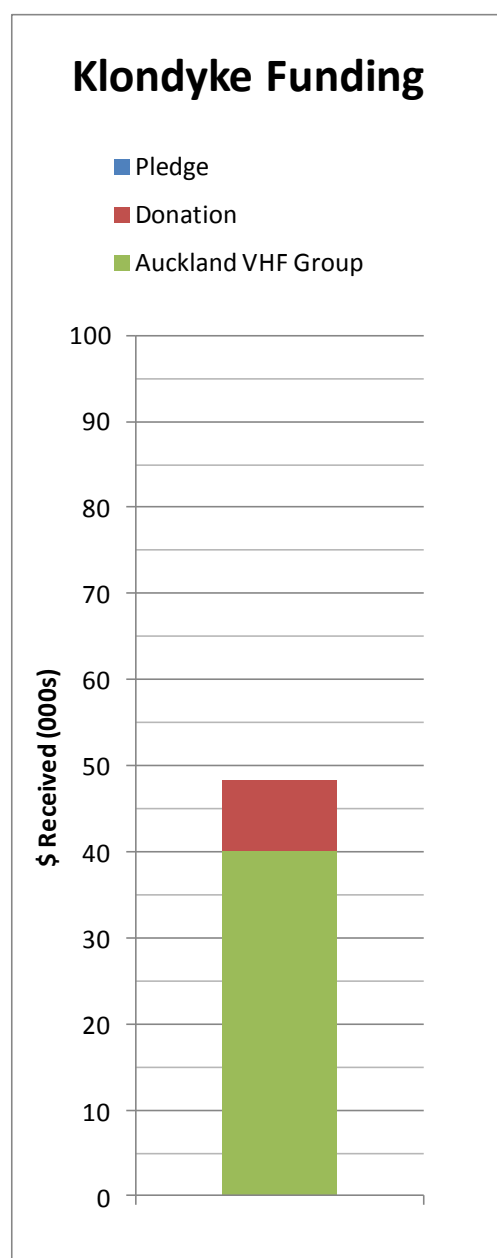
NAME	Mr/Mrs/Miss/Ms	Christian or given	Surname
Address			
		Phone: (home)	
		Phone: (work)	
		Phone (Cell)	
		Email	
Occupation:		Callsign	
NZART Member		Branch assigned	
AREC Member		Branch assigned	
Category			To pay
Membership	Full	\$50:00	\$
New/Renewal/Change	Associate	\$44:00	\$
Receipt #	Family Add	\$10:00	\$
Donations	Auckland/Klondyke		\$
	Brynderwyn		\$
	Data/D-Star		\$
	IRLP		\$
	Other		
	Beacon / Repeater / Links / Licence donations		\$
		Total	\$
Payment			
Circle one -->	Cash	Cheque	Internet deposit
Invoice/Statement required	Please Advise Treasurer		
Internet	<p>To account ASB 12-3011-0830580-00. Account name is: Auckland VHF Group Inc. Include your Name/Callsign and Sub or RepeatDon etc in particulars field, for us to track. To sponsor a specific repeater, nominate the repeater and a backup repeater for the donation, in case the initial choice has been taken. The sponsorship is a minimum of \$50.00 which covers the licence for a year. Note: Please return the Form to the email or postal address given below to allow us to update our records.</p> <p>(Please Note the Account Number and email may have changed from last year)</p> <p>Email to: treasurer@aucklandvhfgroup.org.nz</p>		
Post	The Treasurer, Auckland VHF Group Inc., PO Box 10138, Dominion Road, Auckland 1446.		
In Person	Bring this form and payment to the next club meeting, 2 nd Monday of the month or to the Committee meeting last Monday of the month.		

gratefully acknowledges the sponsorship of Branch 66 Beacons, Repeaters and Fixed Links license fees and the Group's repeater operations by the following radio amateurs and NZART Branches for 2020

The Auckland VHF Group, Branch 66, would like to thank all those who came forward to sponsor the licence fee for our Beacons, Repeaters or Fixed Links for the year 2020 or donated towards the Group's repeater Operations.

Target 100,000

Name	Donation	Pledge				
Donations 2018-2019	6550.00		Tower	63,245.00	Other	27,268.25
			GST	9,486.75		
Charles Graves	15.00					
Ian Ashley ZL1AOX	500.00		Total	72,731.75	Total	27,268.25
Keith Dix ZL1BQE	50.00					
Margaret Dingley ZL1AYV	100.00		Auckland VHF Group	40,000.00		40.00
David Dingley ZL1TIA	100.00					
Jenny Dingley ZL1TDB	100.00					
Russell King ZL1WITT	20.00					
Basil Orr	500.00					
Raffle — Meter	399.00					



Total	8274.00	-
Percent	8.274	0.00

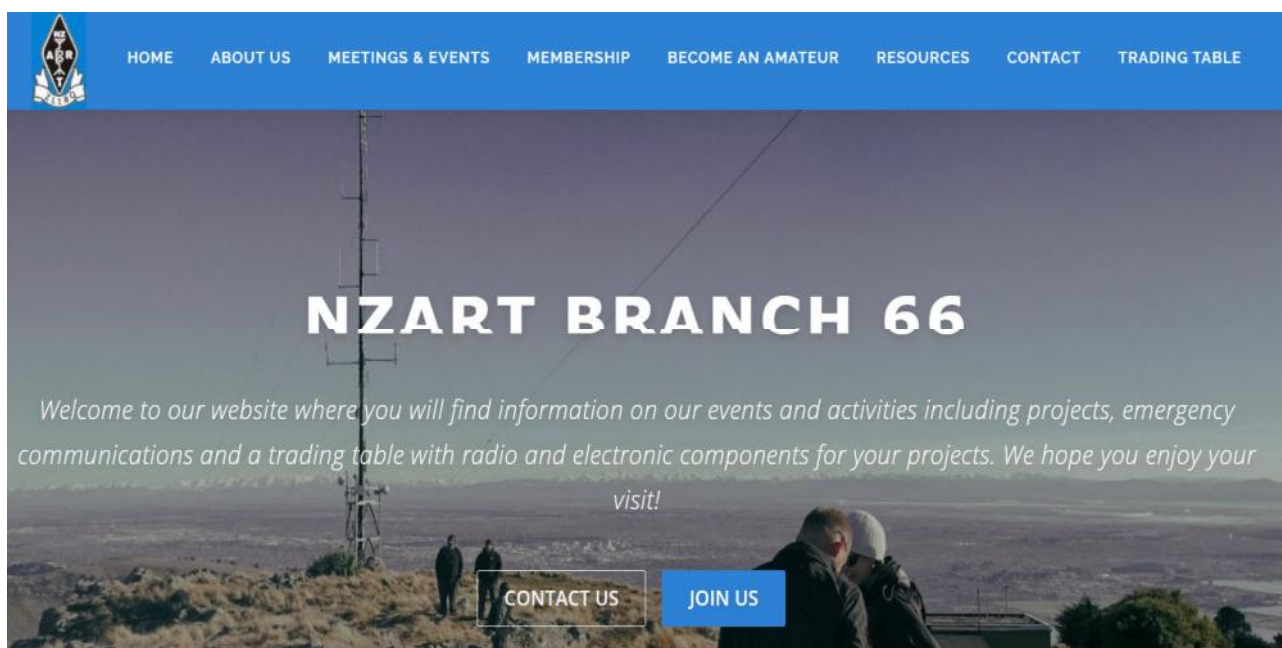
TRADING TABLE

Currently our Trading Table is only open on meeting nights but wait, there's more!

Trading Table is now on line. Navigate your way to our new look web site at <https://aucklandvhf.org/> and click on TRADING TABLE (the most right hand tab).

Wait a few seconds and the on-line version of the Trading Table will pop up. From here you can browse the various sections, dig deeper to look at what's available and even place your order online.

If you prefer to just look at the Trading Table List, just hover your mouse pointer over the TRADING TABLE and a pull down list will appear. From this you can access the full trading Table list and download it in .PDF form.



Recent Additions to our Trading Table Stock

Electrolytic Capacitors SMD (Packed in bags of 10 for 50c):
 10uF 16V electrolytic 47uF 16V electrolytic 100uF 16V electrolytic

Resistors:
 50 Ohm 0.4W +/-1% tolerance. 10 for 50c
 0.25 Ohm 5W wire wound
 0.27 Ohm 3W Wire wound vertical pcb mount

Siemens Gas Surge Voltage Protection Tubes:
 SVP Tube type B13-A230. 230V D.C. minimum strike voltage. \$1.00 for 10
 2-electrode type with wire leads, pre-bent for 10mm hole spacing.

ETAL P1200 600:600 Ohm line matching transformer \$3.00 each

Quartz Crystal: 6.000 MHz HC49SMD package marked CQ6.0000 \$1.00 each

BNC plugs 50 ohm R/Angle for RG58 coax (solder/clamp type) \$2.50 each

Relays:
 12V coil, DPDT 1A non-latching (EB2-12NU) SMD package \$2.00 each
 12V coil, DPDT 1A 2-coil latching (EB2-12TNU) SMD package \$2.00 each

LED Holder panel mount 5mm Kingbright nylon in bags of 50 \$3.00 per bag

Lacing Twine black plastic, in 10m rolls. \$1.00 each

Ceramic feed-thru insulators, 500V rating, solder in. 50c bag of 10

Semiconductors:

RURP30120	1200V 30A ultrafast switching diode	\$1.00 each
1SS55	Silicon switching diode. 70V 100mA DO-35	10/\$1.00
2N5777	NPN Light detector, Photo-darlington 45V TO-92	\$0.50 each
2N6027	Programmable Unijunction Transistor 40V 300mW	\$0.10 each
2N6122	NPN TO220 60V 4A 40W GP amplifier	\$0.50 each
2N6292	NPN TO220 70V 40W GP amplifier	\$0.50 each
2N6609	PNP TO3 140V 16A 150W audio/driver	\$1.00 each
BUK457-500B	Power MOSFET 500V 9A 150W TO-220	\$2.00 each
SGP15N60	NPN IGBT 15A 600V fast switch TO-220	\$1.00 each
SGP20N60	NPN IGBT 20A 600V fast switch TO-220	\$1.00 each
UDN2965W-2	Dual high power stepper motor driver. 20 to 50V out at 4A SIP package.	\$1.00 each
LM3909N	LED driver/flasher. 8-pin plastic DIL package.	\$0.5each
LM3911N	Temperature Controller IC. 8-pin plastic DIL package.	\$10 .00 each
LM3914N	LED Bar-graph driver. 18-pin DIP plastic package.	\$5.00 each
PIC16C54B	8-Bit CMOS Microcontroller. 18 pin SOIC SMD package Limited quantity	\$2.00 each