

The Official Newsletter of the Auckland VHF Group Inc. Spectrum



The Clubrooms are 50 years old

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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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Vice President	Brendon Reid	ZL1XXX	021 970 785	vicepresident@aucklandvhf.org
Secretary	secretary@aucklandvhf.org			
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Committee	Greg Storz	ZL1GSG	09 849 2878	greg@aucklandvhf.org
	Darryl Grange	ZL1TCI	021 123 7733	darryl@aucklandvhf.org
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Deputy Group Leader	Currently Vacant			
ZL1BQ Trustee	Matthew King	ZL1YOT	022 649 3310	zl1bq@aucklandvhf.org
Head Repeater Trustee	Vaughan Henderson	ZL1VH	021 844 804	repeatertrustee@aucklandvhf.org
Klondyke Manager	Vaughan Henderson	ZL1VH	021 844 804	6625@aucklandvhf.org
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ZL1VHD Dstar gateway administrator:	Laurie ZL1ICU	634 5130	0274 817463	perma@xtra.co.nz
ZL1VHD Dstar gateway registration URL :	http://zl1vhd.dstar.org.nz			

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

Notice of Annual General Meeting

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

**The Auckland VHF Group Annual General Meeting will be held on
Monday 14 November
At the Clubrooms, 30 Hazel Avenue at 7:30 pm**

The business of the AGM meeting will be:

1. To ratify the Minutes of the 2021 AGM Meeting.
2. To receive the reports of the Officers.
3. To elect a President; Vice President; Secretary; Treasurer; and four Committee members for the ensuing year.
4. To appoint an account reviewer; an AREC Group Leader; Head Repeater Trustee; Editor for Spectrum Magazine.
5. General Business.

Please give serious consideration to offering your services to the Club.

****** Anyone wanting a copy of the Constitution by email, please advise the Secretary as soon as possible.

This will be followed by the General Meeting

The Klondyke Fund Raising Raffle will be drawn at the Meeting.

Last chance to buy a ticket!

Only \$10,00 for a chance to win a Mini—Spectrum Analyser and RF Signal Source.

At the May 2022 Committee Meeting it was determined that
“The wearing of Face Masks at our General Meetings is now optional”

Auckland VHF Group President's Column

VHF Group Presidents Report November 2022

Yesterday we had a jolly celebration for the 50th Anniversary of the clubrooms. Several of the members from that time appeared, and a good time was had by all. The Hon. Michael Wood, the MP for Mt Roskill, came and spoke encouraging words, appropriately accompanied by frequent lightning flashes and thunder crashes. This was followed by Dave ZL1TIA recounting the acquisition of the rooms and the engineering problems of the day, also accompa-



nied by lightning flashes and thunder crashes. George had the BBQ sorted, Brendon ZL1XXX arrived with a magical radio cake, and Darryl and Greg put up displays of AREC and microwave gear. I copied the faded Klondyke construction photos, revived their colours and contrasts, and photo-shopped them into a large image of the freshly completed tower. It was pleasing to look at.

After the cake cutting Michael Wood was collared by several of us in succession, who gave him our opinions on how he should be running the country. So things will have changed dramatically by the time you read this! My spiel promoted AREC and also the gloom felt by us dairy farmers at the prospect of another imposition of restrictions in the way of the impending Emissions Tax. Then several others had a chat to him.

I have enjoyed the role of president, although as I have previously stated I'm disappointed that in my time at the helm I have not managed to acquire all the funding for Klondyke, or attract a raft of young people to the hobby. I wish my successor good luck with those challenges.

I see other clubs switching their general meetings to weekend mornings, which suits us older fellows who like an early night. This may be the way to go for us, soon. Gentlemen's hours!

So thank you for supporting me in my tilt at the Presidency role. It will be a pleasure coming back to the club with no responsibilities! Meanwhile, I'll get back to cow farming!

Cheers, Matthew King 022 6493310

Coming Events:

- Sat 12 November The Whangarei Amateur Radio Club (Inc) Branch 28 came into being in 1947 and will be celebrating its 75th Anniversary with a function in their Clubrooms, Heritage Park, Maunu. All past and present members are cordially invited to attend. The Clubrooms will be open from 1pm to allow socialising and viewing of photos etc. At 2pm there will be a formal welcome, a few short speeches and cutting of an Anniversary cake. Refreshments will follow.

Celebrating the 50th Year of the Clubrooms

Hello All, A big thank you to everyone who made the Auckland VHF Group Clubrooms 50th Anniversary such a success on Saturday. Thanks to everyone who came along to make this day so special and also thanks to:

George, Darryl and Greg did a great job setting up George's massive tent so we could BBQ out of the rain. Greg and I stacked all the heavy coax cable under the clubrooms and restacked the container to make a bit more room to clear out the club.

Margaret did a last minute vacuum and helped lay out the food and drinks. Greg and I tidied up the radio room and even got some of the radios to work for a demo of the equipment in there. The youngest of many Wilsons helped with blowing up the balloons. Matt did a great job welcoming everyone to the event. Dave entertained us, recalling the early days including how the clubrooms were parked on the side of Dominion road waiting for the cops to give it a permit to move.

The Hon Michael Wood – MP for Mount Roskill congratulated everyone on the anniversary and was handy with a knife cutting the Cake which was in the shape of a Valliant HF receiver replete with BR66 Logo on the top.

Greg was on hand to demonstrate his microwave contesting equipment including a live demo in the carpark.

Thanks again everyone it was a great day!
Brendon Reid

A MOMENT IN OUR HISTORY

The time - 2 p.m. The day - Saturday, 21st October, 1972. The place - Hazel Avenue, Mt. Roskill, Auckland. The occasion - the opening of the clubroom of the Auckland VHF Group, alias Branch 66, N.Z.A.R.T. Those present - Mr A.J. Faulkner, M.P. for Mt. Roskill, Mr Ken Elliott, ZL1TQ, on behalf of the Post Office, Mr Derek Cleland, ZL1IY. President of N.Z.A.R.T., Mrs Marion Lister, ZLIBKL, President, Auckland VHF Group and some 60 assorted supporters of the VHF cult. The weather - perfect.

Bill Raffles, ZL1AYV, Master of Ceremonies for the occasion opened the proceedings by welcoming everyone and introducing the distinguished guests. Flowers were presented to Mrs Faulkner, Mrs Elliott and Mrs Cleland, after which Marion reviewed the history of the Group from its formation in 1956 to the culmination, in today's ceremony, of many years of fundraising effort. A particular welcome was extended to ZL1CW and ZL1AMN as life members. Marion concluded by restating and re-affirming the aims of the Group.

Derek congratulated the Group on its very fine clubroom and expressed the hope that it would lead to ever increased activity and foresaw the day when, through a nationwide chain of F.M. repeaters, the VHF enthusiasts would play a vital role in emergency communications. He then unveiled a name plate which suitably identifies the building.

Representing the Post Office, Ken Elliott, who it was noted, has a "T" call, spoke of the infiltration of that organisation by Hams ranging from ZL2AZ to ZL1TDR. He referred to the happy working arrangements between the Post Office and N.Z.A.R.T. and trusted that in this anti-establishment era there would be no reason to change this. In passing Ken mentioned that some 25 years ago he and Ron, ZL2GQ held the record for a QSO on 166 MHz-- it was under 2 miles. He saw in VHF-ers more of the old ham spirit of experiment and home-brewing than is apparent on the DC bands.

In introducing Mr Faulkner, Bill Raffles expressed the hope that, one day, it might be possible to infiltrate Parliament as well as the Post Office. Mr Faulkner apologised for the unavoidable absence of the Mayor and said he spoke for both in welcoming the Group to the Borough. He said that it was a thoroughly good thing that all interests should be catered for and particularly one that offered a service to the community in return. He noted the need for improved international communication and the part amateur radio could play in this. After wishing the Group well and confessing that his Morse was not what it was, Mr Faulkner pressed a key and successfully detonated a long balloon which, stretched across the doorway was barring entry.

Nearby the Mt. Roskill Scout Group were encamped for the J.O.T.A. weekend and the boys did a great job in serving afternoon tea. Mrs Cleland cut an appropriately decorated cake and the QRM swelled to S9 plus. Marion ZL1BKL hushed the gathering long enough to read a letter from Gemini Electronics which donated to the Group an FRDX400SD. From the reaction it would seem that SD means Super Duper. By this time it was 3.30 p.m. and away went the transmitter hunters leaving the Scouts to clear the debris and do the dishes.

Jumbo ZLIHV Reprinted from Spectrum V09 No 05 October-November
1972

Auckland VHF Group Inc
Minutes of the 2021 Annual General Meeting
Held via Teams on 8 November 2021

The meeting commenced at 19:38 pm.

Attendance: Matthew King ZL1YOT (Chairman), Brendon Reid ZL1XXX, Ian Ashley ZL1AOX, Mark Howie ZL1UMK, Terry Corrin ZL1BPA, Darryl Grange ZL1TCI, Greg Storz ZL1GSG, Martin Seay ZL3CK, George Raffles ZL1TUX, Stephen Pilcher ZL1SRP, Basil Orr ZL1TOW, Peter Loveridge ZL1UKG, Vaughan Henderson ZL1VH (Secretary).

Apologies: NIL

AGM Minutes 2020:

“That the minutes of the 2020 AGM as printed in November 2021 Spectrum be taken as read.”

Moved: ZL1YOT Seconded: ZL1XXX Carried.

Matters Arising: - NIL

President's Report:

Matthew ZL1YOT presented his report as printed on page 7 of November 2021 Spectrum.

Moved: ZL1YOT Seconded: ZL1XXX Carried.

Vice-President's Report:

There was no Vice President's Report.

Secretary's Report:

No Secretary's Report Presented.

Treasurer's Report:

ZL1 TUX presented his Treasurer's report as printed on pages 8 and 9 of November 2021 Spectrum.

Moved the report be received: ZL1TUX Seconded: ZL1VH Carried

Spectrum Editor's Report

ZL1UKG presented his report as printed on page 12 of November 2021 Spectrum.

Moved: ZL1UKG Seconded ZL1YOT Carried

AREC Report:

No AREC report was presented.

Repeater Report:

ZL1VH presented his report as printed on pages 10 and 11 of November 2021 Spectrum

Moved the report be received: ZL1VH Seconded ZL1XXX Carried

Trading Table Report:

ZL1VH presented his report as printed on page 12 of November 2021 Spectrum

Moved the report be received: ZL1VH Seconded ZL1YOT Carried

Election of Officers:

President

Nominee: ZL1YOT Moved By: ZL1BPA Seconded By ZL1UKG Carried

Vice President:

Nominee: ZL1XXX Moved By: ZL1 YOT Seconded B ZL1AOX Carried

Secretary:

Nominee: ZL1VH Moved By: ZL1YOT Seconded By: ZL1XXX Carried

Treasurer:

Nominee: ZL1TUX Moved By: ZL1YOT Seconded By: ZL1BPA Carried

Honorary Reviewer:

Nominee: ZL1TOW Moved By: ZL1UKG Seconded By: ZL1TUX Carried

Committee:

Nominee: ZL1GSG Moved By: ZL1AOX Seconded By: ZL1VH)

Nominee: ZL1UMK Moved By: ZL1YOT Seconded By: ZL1TUX)

Nominee: ZL1TCI Moved By: ZL1YOT Seconded By: ZL1TUX)

Head Repeater Trustee:

Nominee: ZL1VH Moved by: ZL1YOT Seconded by: ZL1XXX)

AREC Group Leader:

Nominee: ZL1YOT Moved by: ZL1BPA Seconded by: ZL1XXX

ZL1BQ Callsign Trustee

Nominee: ZL1YOT Moved by: ZL1VH Seconded by: ZL1BPA)

Spectrum Editor

Nominee: ZL1UKG Moved by: ZL1YOT Seconded by: ZL1BPA)

Klondyke Site Trustee

Nominee: ZL1V Moved by: ZL1YOT Seconded by: ZL1XXX)

Motion: "That all the Committee and Officer positions be approved"

Moved: ZL1YOT, Seconded: ZL1BPA CARRIED

General Business:

Amendment to the Club's constitution. "That this meeting approves the proposed changes to the Auckland VHF Group's Constitution as detailed on pages 5 to 7 of the September 2021 issue of Spectrum"

Moved: ZL1UKG, Seconded ZL1XXX CARRIED

ZL1AOX asked if there were any other changes. Answer no, we will be reviewing the Constitution again once the new Incorporated Societies Bill becomes law, probably early in 2022.

There being no further business, the meeting concluded at: 19:59.

The Officer's Reports

President See the President's page 4

Secretary Vaughan stepped down in July along with the Trading Table.

Treasurer's Report for 9 Months for 1st October 2021 to 30 June 2022, Auckland VHF Group Inc.

It has been a hard year (or thereabouts). The income and membership is steady, but the club needs help to create activity that will create an income for projects and support of the clubs activities and maintain the assets the club has.

2022 Subscriptions is similar to the 2021 year, notice of subscriptions being sent out to members is getting a good response and being paid on time. Thank you for your support and donation for Repeater Licences that have continued, and I thank the members adding the repeater/beacon licenses along with their membership. I wish to thank Terry Corin for a donation of \$1000 towards Licences that were not taken up, additionally. Franklin Branch for their donation of \$200. Any outstanding donations not used in the 2021-2022, will be used for 2022-2023 license payments.

Clubrooms and facilities

A quick breakdown of income and expenses for Klondyke and clubrooms. Over the last 5 years. Brynderwyn charges are only for power which was \$960 for 2022 year. (9 months). Over the last 5 years, the average is \$1026 per year. There is room for a tenant that could offset the power costs.

Clubrooms Income

Klondyke Income

	Avg for last 5 Years	Total for 5 Years			Avg for last 5 Years	Total for 5 Years
Club Subs	\$2,013	\$10,956		Klondyke Donations	\$1,956	\$9,779
Rental	\$210	\$1,050		Rental Income	\$5,542	\$27,708
Total Income	\$2,223	\$11,113		Total Income	\$7,497	\$37,487

Clubrooms Expenses

Klondyke Expenses

	Avg for last 5 Years	Total for 5 Years			Avg for last 5 Years	Total for last 5 Years
Power	\$1,026	\$5,132		Power	\$3,257	\$16,286
Maintenance		\$2,422		Maintenance	\$3,257	\$29,434
Communications	\$361	\$1,086		Rental (land)	\$2,600	\$13,000
Insurance	\$1,703	\$8,516				
Total Outgoing	\$3,575	\$17,876		Total Outgoing	\$11,744	\$58,720
Total In/Out	(\$1,546)	(\$6,763)		Total In/Out	(4,427)	(\$21,233)

Electricity Pricing: Electricity for all sites Brynderwyn, Clubrooms and Klondyke are comparable to last year, taking in 75% of last year's total, as this is only 9 months. Watercare has taken over the Transpower hut, which takes the power feed from the junction of out feed at the radio hut, therefore the club may need to charge Watercare usage using a check meter at the entry. Invoices have now been sent to users as this was waiting for updated contracts to be signed, there are still outstanding payments and progress on these are progressing. Another user is now installed at Klondyke.

Insurance: The clubrooms is the only place the club has insurance for, as this is compulsory for the lease. The Insurance has changed over the last year. The rate the club was getting was a competitive rate, but now is back to our broker. I expect that insurance will be close to \$2,500 this year.

The Klondyke Tower Refurbishment, is slowly progressing. Other issues have made the refurbishment to change attack and fix the issue at hand first.

The ladder and cable track replacement which was needed to be done during the refurbishment has been brought forward and should be completed soon. Painting will require approx. \$50,000 dollars using previous pricing, but this may increase as it has been a couple of years since the quote.

The 144MHz and 432 MHz antennas will also need to be refurbished, and the cost and process for these needs to be looked into. (No price has been asked for the maintenance of them).

Anyone with charity knowledge on getting funding for projects, and can assist the club get funding for the refurbishment, it would be appreciated to get in contact with one of the executives / committees of the club, to assist with the project.

Trading Table: Trading table sales are low, and but total looks larger than what was actually sold. This includes shipping costs, and these have increased substantially over the last couple of years. Shipping is charged at cost. Cost of \$30.00 postage for overseas orders still do not seem to put orders off.

I wish to thank Vaughan, ZL1VH for his work in regard to the trading Table operation.

Subscriptions for 2023-2024.

Unless the club gets more support, the club look like to have to raise the subscription prices. I am suggesting that the Ordinary subscription be raised \$5.00 to \$65.00.

Associate and Family members to stay at their values \$55.00 and \$25.00 respectively.
Last year the family rates went up the full amount of what the Associate and Ordinary Subs went up.

Therefore, the subs recommendation is:

Ordinary Member: \$65
Associate Member: \$55
Family Member: \$25
Junior Member: \$25 (Under 18 at payment)

Accounts Reviewer: I wish to thank Basil Orr, our reviewer, for assisting and getting the accounts reviewed for the AGM.

73, George Raffles, ZL1TUX, Treasurer

Repeaters Refer to Vaughan ZL1VH's reports all year, esp. the July issue of Spectrum

Spectrum Editor Peter Loveridge is stepping down after 7 years of preparing Spectrum after being President for 3 years. Previously he was Treasurer for several years. Spectrum relies on contributors to keep the members up to date. He also wrote technical articles for other members that might interest the members and found photos to illustrate club activities. There can be sudden rushes to get Spectrum for distribution on time. The next Editor will be Mark Howie ZL1UMK. I will be spending some time with him to guide him how to lay it out. Please send articles to make his job easier to meet the deadline and distribution to be on time.

The Minutes of the October Meeting

Minutes of the October General Meeting of the Auckland VHF Group Inc.
Held on Monday 10 October 2022 at the Clubrooms, Hazel Avenue, Mt. Roskill

Meeting started at: 1943

Present: 10 members as per the Attendance Book.

Visitors: NIL

Apologies: ZL1XXX, ZL1TOW

Minutes of September General Meeting – as published on page 5 of the October 2022 issue of Spectrum. Moved the minutes were a true and correct record: ZL1TCI Seconded: ZL1TUX

Result: Carried

Matters arising: NIL

Reports:

Klondyke Repeater Site – ZL1VH reported that the rigging company were still to complete fitting the replacement cable tray. ZL1TIA asked who the rigging company was. ZL1VH advised that he did not know the name, only the manager.

Correspondence: Sep/Oct Break-In.

General Business:

Coming up on Thursday 13th was the first of the meetings to form a committee to run the 2026 NZART 100th Anniversary Conference. ZL1TIA and ZL1AYV tendered their apologies.

AREC – ZL1TIA asked what was happening. ZL1YOT advised that the Group would attend the North Shore Radio Club's AREC meetings until further notice. ZL1TIA felt he needed a catch-up session to get up to date.

There was no further general business. President Matthew ZL1YOT invited the evening's guest speaker, Carl Laufer to take the floor.

Guest Speaker:

**RTL-SDR and KrakenSDR: Coherent Radio
Direction Finding, Passive Radar and more!**

What is RTL-SDR?

RTL-SDR is a very cheap ~\$30 USB dongle that can be used as a computer based radio scanner for receiving live radio signals in your area (no internet required). Depending on the particular model it could receive frequencies from 500 kHz up to 1.75 GHz. Most software for the RTL-SDR is also community developed, and provided free of charge. Note that RTL-SDRs cannot transmit. The RTL-SDR dongle is basically a tuner and analogue – digital converter (ADC). All receive signal decoding is done in software.

The origins of RTL-SDR stem from mass produced DVB-T TV tuner dongles that were based on the RTL2832U chipset. With the combined efforts of Antti Palosaari, Eric Fry and Osmocom (in particular Steve Markgraf) it was found that the raw I/Q data on the RTL2832U chipset could be accessed directly, which allowed the DVB-T TV tuner to be converted into a wideband software defined radio via a custom software driver developed by Steve Markgraf.

Over the years since its discovery RTL-SDR has become extremely popular and has democratized access to the radio spectrum. Now anyone including hobbyists on a budget can access the radio spectrum. It's worth noting that this sort of SDR capability would have cost hundreds or even thousands of dollars just a few years ago. The RTL-SDR is also sometimes referred to as RTL2832U, DVB-T SDR, DVB-T dongle, RTL dongle, or the "cheap software defined radio.

Carl started the RTL-SDR.com blog back in 2013 when another RTL-SDR blog stopped posting. From there, his hobby developed into a business over time. The original RTL-SDR dongles had a type MCX connector. This early model also suffered from oscillator instability, had many spurs in the output data stream, no shielding and had problems receiving L-band signals.

A lot of effort has gone into the product and his current redesigned dongle now has an SMA connector, aluminium enclosure and has a stable and accurate 1PPM TXCO oscillator (2PPM initial offset, 1PPM temperature drift). Other improvements include a thermal pad between the pcb and aluminium case, and a re-designed pcb with additional noise filtering. Other improvements were adding a bias-tee and HF reception in direct sampling mode. The Version 3 dongle available on TradeMe is frequency accurate and does not have significant frequency drift with temperature changes.

You can buy just the RTL-SDR dongle on TradeMe for \$40.00 or for a little more, a package including a multipurpose dipole antenna, two mounting solutions and 3m of RG174 extension cable. Plug it into your laptop or PC, follow the on-line instructions, and you have a very low-cost wide-band radio scanner which can receive from 24 MHz up to 1.766 GHz. You can also use the dongle in its direct sampling mode and can receive frequencies between 500 kHz and 24 MHz. For advance users, the V3 model also has an optional bias-tee that can be activated using software from the rtl-sdr.com website.

What can you listen to?

In New Zealand there are plenty of things to listen to:

DMR, TETRA and Trunked Radio, analogue police radio, ADS-B / AIS, ACARS / VDL2 / Air Traffic, RS-41 MetService Weather Balloons, NOAA APT / Meteor M2 LRPT Weather Satellites, GOES-17 / Kompsat-2A geosynchronous weather satellite, Inmarsat and Iridium.

Other applications open to experimentation include direction finding, radio astronomy (hydrogen line/meteor scatter and pulsars), reverse engineering digital signals, TEMPEST and HF/Shortwave reception.

Direction Finding

Carl had recently devoted a lot of effort developing the RTL-SDR concept to a stage where it can usefully be used for direction finding. He discussed the various DF techniques in common use like directional antennas, TDoA, Watson-Watt crossed loops, pseudo doppler and heat mapping. A technique he found showed promise and lent itself to using the RTL-SDR's was correlative interferometry.

This in turn led to the development of a multi-channel coherent radio system with multiple antenna inputs and multiple receivers. To be coherent, the signals from each receiver need to be synchronised in samples and phase and all receivers need to be synchronised to the same local oscillator. A challenge was that the RTL-SDR dongle has random USB delay and tuner phase at startup. There also needed to be a mechanism for sample and phase synchronisation.

Carl reviewed a number of RTL-SDR projects but found that they either did not work very well or were developed with closed source software, limiting experimentation. This led to the development of the KRAKENS DR. See Page 16

The KrakenSDR consists of five RTL-SDR modules running on a single oscillator clock giving the standard 24 MHz to 1.8 GHz tuning range. A built-in noise source and calibration switches (with auto antenna switch out and noise switch in during calibration). Built in USB hub hardware and housed in a rugged metal case with good cooling.

Originally offered to the market at \$US299, the price has recently had to increase to \$US 399 due to inflation and component cost increases.

Carl described the challenges of developing the KrakenSDR:

Software and hardware design done working from home (but unable to work during lockdown periods due to children at home); factory lockdowns; Shanghai's long lockdown (China's zero covid

policy) – the product is produced in Shenzhen but some suppliers are in Shanghai; movement restrictions – slow parts shipping – supply chain delays with some parts on order with a 6 month lead time; need to swap out for alternative parts needing retesting of prototypes.

Achieving coherency when using five RTL-SDR boards was another design challenge:

The RTL-SDR's are not designed to be coherent. Problem 1 - the USB interface introduces a sample delay between each of the four SDRs on board and Problem 2 – the tuners are not phase locked to each other. Using a noise source plus software correlation solved these problems: solution 1 – once correlated, simply create software buffer delays for each of the same streams so they are aligned; or use the fractional resampler in the RTL-SDR to slowly slow down or speed up one stream, and keep checking until they are aligned. Another solution is to do the sample synchronisation in hardware – slower but less computational complexity. Solution 2 – once sampling is aligned, align the subsample phase.

The main use of the KrakenSDR is for direction finding. Carl showed several videos of the unit being used to DF signals at UHF, also an experimental passive radar application tracking light aircraft around Ardmore airfield.

Typical KRAKENSDR Setup:

The five magnetic mount antennas used with the KrakenSDR also had some procurement challenges. Very poor quality manufacture in China with poorly terminated coax cables – some had floating ground connections. Outcome was finding a better manufacturer and a lot of time spent testing the received product. Another challenge was getting the lengths of the coax cable from the five antennas to the KrakenSDR manufactured so as to be closely matched.

See page 17 to see the product and results.

Android Direction finding Software

The android phone used and almost everybody has one or they can be purchased cheaply. Has GPS, compass, WiFi, 3/4G, colour screen and access to mapping programs all on board.

The KerberosSDR Android software combines GPS data with bearing data from the KrakenSDR and builds up an estimated TX location over time. Software can direct you to the TX using turn by turn navigation for safety.

Links for more information:

SDR setup instructions at rtl-sdr.com/QSG rtl-sdr.com/V3 rtl-sdr.com/DIPOLE

More information about RTL-SDR at rtl-sdr.com/about-rtl-sdr/

As well as a radio scanner, the RTL-SDR can be used for various other projects. Example videos:

ADSB Aircraft Radar Tracking: [y2u.be/Kd6Z9_P8ibU](https://www.youtube.com/watch?v=y2u.be/Kd6Z9_P8ibU)

Tracking and Receiving Telemetry from Weather Balloons: [y2u.be/Mz2id1cBmjs](https://www.youtube.com/watch?v=y2u.be/Mz2id1cBmjs)

Receiving NOAA Weather Satellite Images: [y2u.be/fopnIkYnFPI](https://www.youtube.com/watch?v=y2u.be/fopnIkYnFPI)

More Projects and Articles: rtl-sdr.com/category/article

Sigidwiki.com

Meeting closed at 2035, followed by a cup of tea/coffee and informal chat.

Thanks George ZL1TUX and Margaret ZL1AYV for organising the supper.

Celebrating the 50th Year of the Clubrooms



Dave Dingley
talks about
the History
of the
Clubrooms

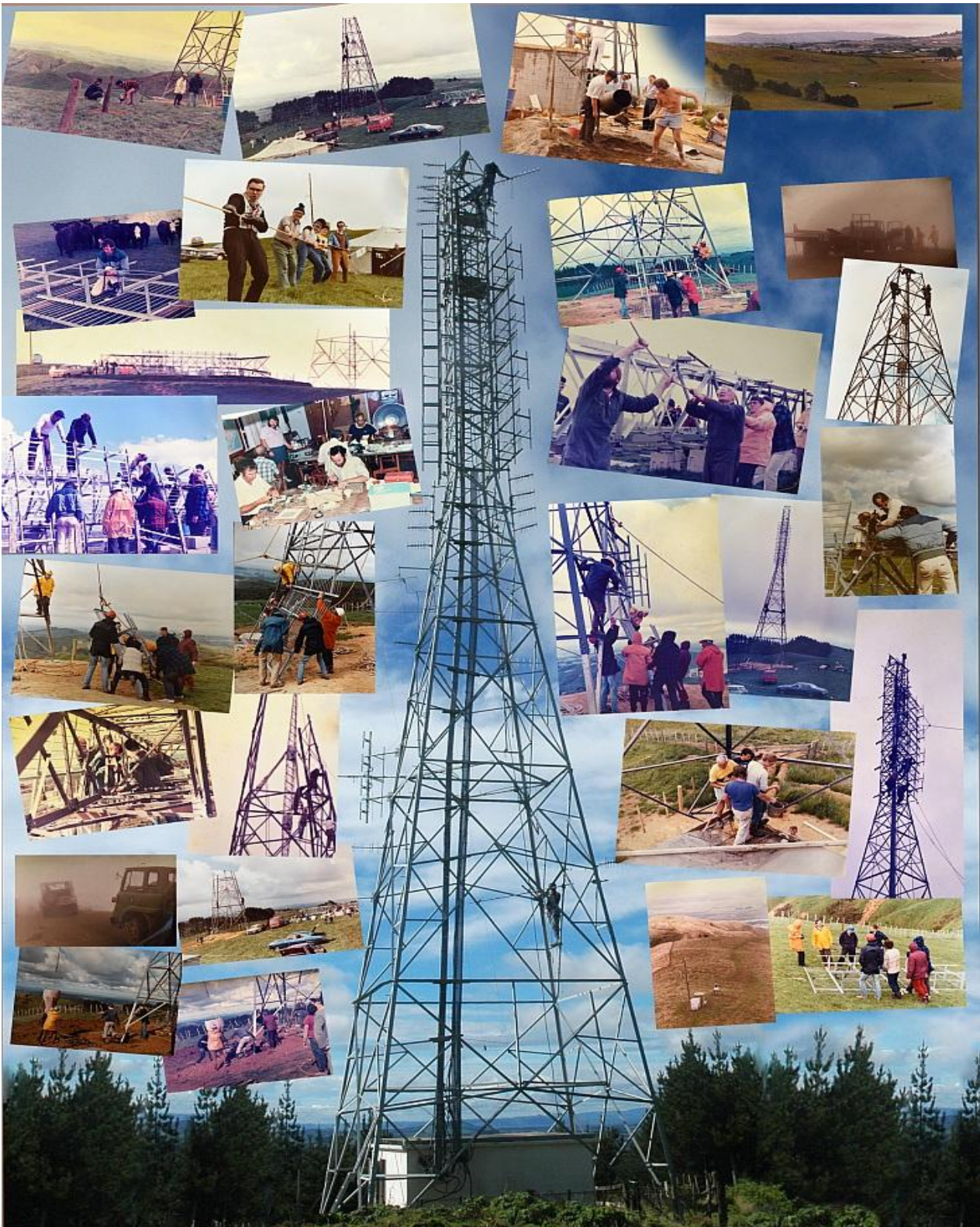


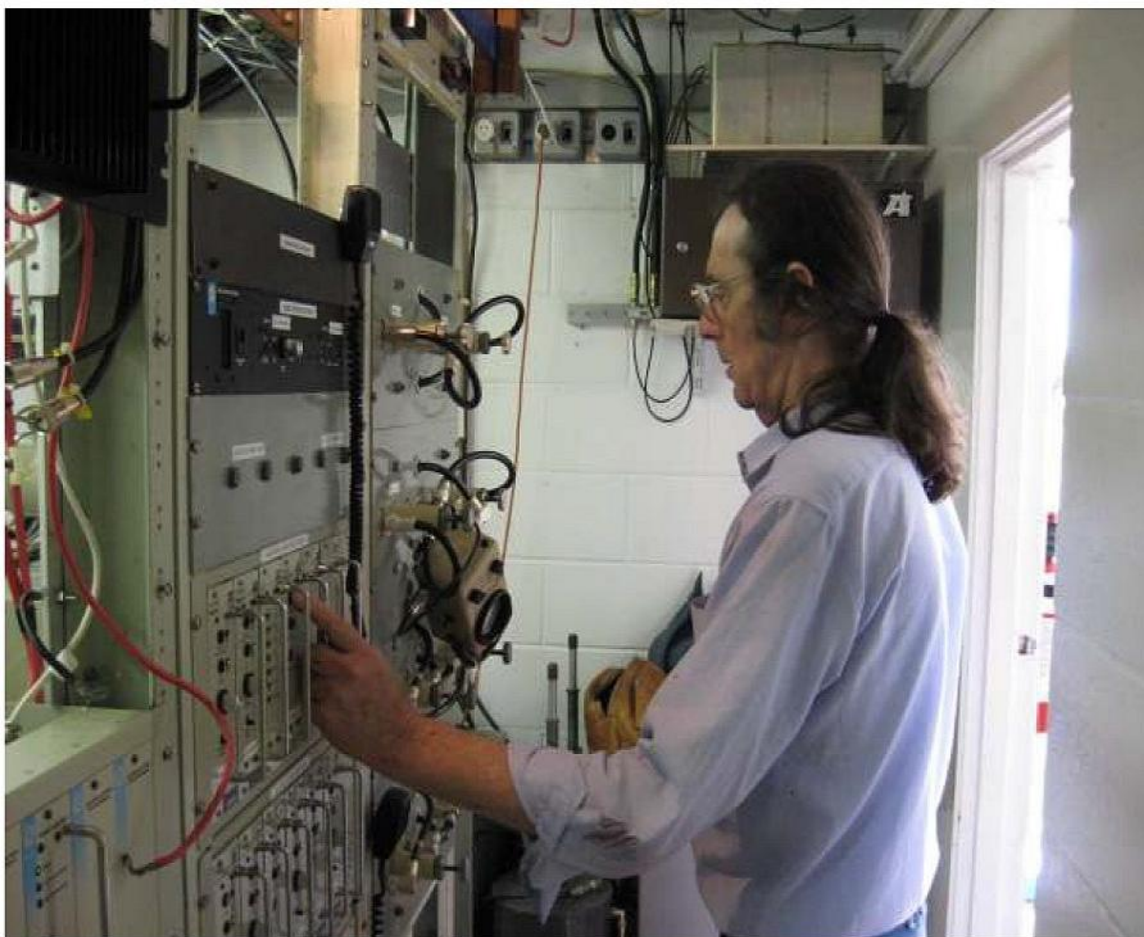
The local MP
cuts the cake
to Celebrate



Radio Room
With
Brendon,
Matthew and
Someone

The History of Building the Kondyke Tower — 1984
It required Riggers to build the frame and mount the antennas
It needed many enthusiastic Amateurs to help as well





Colin ZL1ACM checking power levels at Klondyke, March 15th 2008



The KrakenSDR Product



The directions from sources which cross at a point to provide the position of the course the tracked over time.



The finished display on the screen

VHF Group Subscriptions are now due for 2022-2023 year.

Subscriptions are now being accepted for the 2022-2023 year, 1 July 2022 to 30 June 2023.

This coincides with the change of the financial year to ending 30 June 2022. The change is intended to give sufficient time to get the accounts sorted and reviewed before the AGM in November 2022. Invoices will be sent out in May to all members who have not renewed by that time.

Note on Subscriptions

- a. There is an increase for the 2022-2023 subscription year.
- b. All yearly subscriptions terminate on 30th June each year. To keep your membership active, we need to receive your subscription renewal by that date.

Subscription Type	Subscription Price
Ordinary Members (Full)	\$65.00
Associate Members	\$55.00
Family Members	\$25.00

For Family Members, one person needs to be an Ordinary Member, and then each additional family person then becomes a family member.

50th Anniversary of opening of clubrooms

Location: Hazel Ave Clubrooms

When: Saturday, 29 October 2022 2:00 pm – 4:00 pm

Description: Join us for finger food and refreshments to celebrate the 50th Anniversary of the opening of the Hazel Ave Clubrooms

View a demonstration of the National System Radio Repeater Network.

See the latest SDR Radio in Operation Watch a Microwave Contest Station in action.

Meet some of the characters who have made the Auckland VHF Club what it is today.



**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 Matthew King ZL1YOT.

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:

Matthew King ZL1YOT 022-6493310 mattking@gmail.com
The Deputy Leader position is currently vacant

AREC News:



AUCKLAND VHF GROUP (INC)

SUPPORT THE EFFORTS OF THE VHF GROUP THROUGH YOUR
SUBSCRIPTION

SUBSCRIPTIONS FOR 2022

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 **\$60.00**

ASSOCIATE MEMBERSHIP **\$55.00**

FAMILY MEMBERSHIP ADDITIONAL **\$25:00**

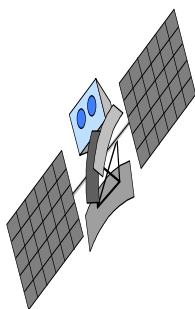
SEE ATTACHED MEMBERSHIP RENEWAL FORM (next page)

**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."



AUCKLAND VHF GROUP INC.

P O Box 10138, Dominion Rd, Auckland 1446,
30 Hazel Avenue, Mount Roskill, Auckland,
Email: treasurer@aucklandvhf.org
Web: <http://www.aucklandvhf.org>
NEW ZEALAND



				Date Form Completed	
Mr/Mrs/Miss/Ms	Forename			Surname	
	Address1			Phone: (home)	
	Address2		NZ Post Code	Phone: (work)	
	Town/City			Phone (Mobile)	
	Email			Phone (Cell)	
Occupation:				Callsign:	
NZART Member	Yes / No	Branch assigned			
AREC Member	Yes / No	Branch assigned			
Family Member 1	(Name)	(Call)	(Email)	(Mobile #)	
Family Member 2	(Name)	(Call)	(Email)	(Mobile #)	
Family Member 3	(Name)	(Call)	(Email)	(Mobile #)	
New/Renewal/Change	Membership Category			To pay	
	Ordinary (Full)			\$60.00	\$
	Associate			\$55.00	\$
	Family (per member after 1 full member registered at same address)			\$25.00	\$
Donations	Klondyke Refurbishment				\$
	Repeater Maintenance				\$
	Data/D-Star				\$
	Beacon/Repeater/Links Licences				\$
	General Club Donation / Other				\$
				Total	\$
Payment (Mark One →) If require Invoice / Receipt Please Advise Treasurer				Cash <input type="checkbox"/>	Internet deposit <input type="checkbox"/>
				Other: <input type="checkbox"/>	
Internet	Account ASB 12-3011-0830580-00 . Account Name: Auckland VHF Group Inc. Include your Name/Callsign for track. Note: this form needs to be sent to us to update our records. Email to: treasurer@aucklandvhf.org . (Especially if Contact information has changed)				
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 the 4 th Monday of the month.				
Privacy	Unsubscribe from Email Notifications <input type="checkbox"/>			Do Not disclose contact Information <input type="checkbox"/>	
	Unsubscribe from Google Groups <input type="checkbox"/>				

Club use only: <input type="checkbox"/>	Approved: <input type="checkbox"/>	Not Approved: <input type="checkbox"/>
Sponsored by*		Sponsor's Callsign*
*New members only.		Date:

The information requested is for membership records required to be maintained under the Incorporated Societies Act and having due regard to the provisions of the Privacy Act

The Auckland VHF Group Inc Branch 66 NZART
*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 2022*

2021-2022, Donations for Repeater Licences and Klondyke Refurbishment

Frequency + Operation	Location	Donation	Donor Name
53.725 Repeater	Klondyke Road	\$50.00	Gwynne Rowe
144.253 Beacon	Nihotupu	\$50.00	
144.575 Digipeater	Whitford		
145.625 Data Rptr	Klondyke Road		
145.650 D-Star Rptr	Klondyke Road	\$50.00	
146.625 Repeater	Klondyke Road	\$50.00	David Wilkins
146.700 Repeater	Ruaotuwheua	\$50.00	
146.900 Repeater	Mt Puketutu	\$50.00	David Wilkins
432.253 Beacon	Nihotupu	\$50.00	
438.175 D-Star Rptr	Klondyke Road	\$50.00	
438.450 Repeater	Klondyke Road		
438.500 Repeater	North Head	\$50.00	
439.850 Kaimai Link	Klondyke Road	\$50.00	
439.875 Nat System Rptr	Klondyke Road	\$50.00	Soren Low
439.900 Egmont Link	Klondyke Road	\$50.00	
439.950 Brynderwyn Link	Klondyke Road	\$50.00	
1291.900 Repeater	217 Glenfield Rd	\$50.00	
DMR Rptr (Waitakere)	Quinns Rd	\$50.00	NZART AREC
		\$250.00	

2021-2022, Donations for Refurbishment

Rob Heyer VK2XIC	\$4.41
	\$0.00
	\$0.00
	\$0.00
	\$0.00
	\$4.41

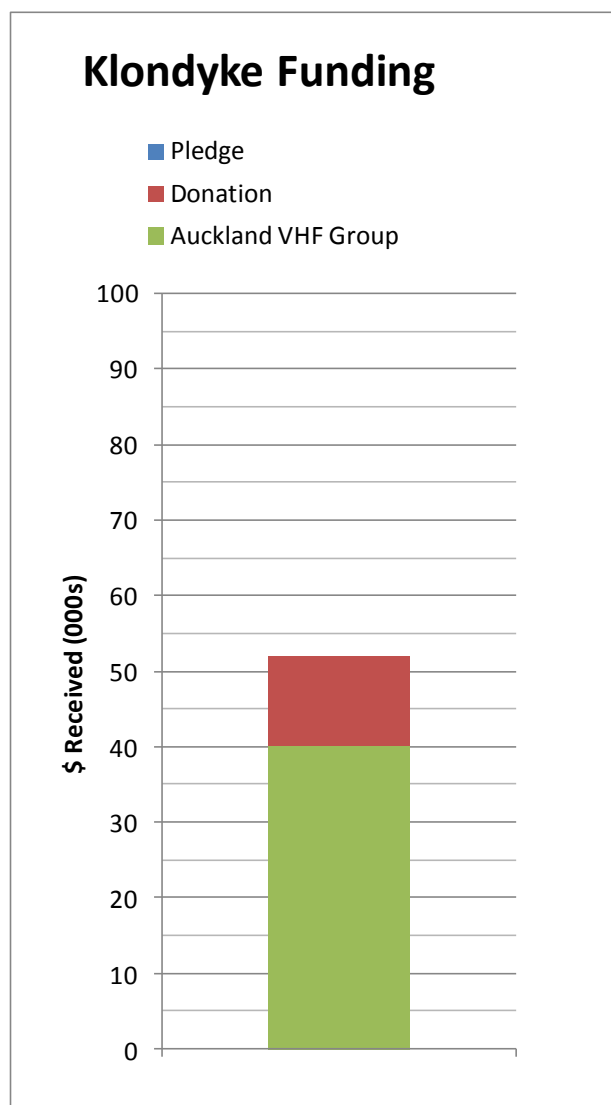
Total **\$254.41**

Klondyke Tower Donations towards Maintenance

Target 100,000

Name	Donation	Pledge				
Donations 2018 - 2021	9479.00		Tower	63,245.00	Other	27268.25
George Marr ZL1TUJ	100.00		GST	9,486.75		
Dave Dingley ZL1TIA	205.00					
Estate Ian Sexton ZL1PZ	950.00		Total	72,731.75	Total	27,268.25
Estate Tony Babish ZL1ATE	500.00					
John Sexton ZL1AQS	750.00		Auckland VHF Group	40,000.00		40.00

Total 11949.00 -
Percent 11.98



TRADING TABLE

Currently our Trading Table is only open on meeting nights.

NEW – Printed Circuit Board. Thanks to a generous donation from N.Z.'s last circuit board production company (now closed down), we have a large quantity of single sided fibreglass printed circuit board material in sizes ranging from 1200 x 600 down to smaller pieces. There's some double sided board as well. Come along to our May meeting if you want some – prices can be negotiated!

NEW – RG58C/U 50 Ohm Coaxial Cable. Thanks to a bulk purchase we are able to offer this good quality coax at a competitive price. The cable has tinned centre conductor and screen braid making it resistant to long term corrosion. The price is \$2.00 per metre with a discount for purchases of 20m or more. See Vaughan ZL1VH on meeting nights to get this quality coax cable.

The 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.

We also have heaps of parts from dismantled commercial analog TV gear – transmitters, filters, circulators, patch panels, power supplies. Too much to list individually, so come along to the clubrooms and have a look.

