SPECTRUM September 2019 Vol. 56 No. 8

The Official Newsletter of the

Auckland VHF Group Inc.

Spectrum

SDR workshop 14 August

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Auckland VHF Group Inc.
Branch 66 NZART

PO Box 10138, Dominion Rd, Auckland 1446
Clubrooms: 30 Hazel Ave, Mt Roskill

Office	Name	Call sign	Work / Mobile	E-mail
President	Matthew King	ZL1YOT	022 649 3310	president@aucklandvhf.org
Vice President	Not filled			
Secretary	Brendon Reid	ZL1XXX	021 970 785	secretary@aucklandvhf.org
Treasurer	George Raffles	ZL1TUX	021 735 361	treasurer@aucklandvhf.org
Committee	Warren Harris	ZL2AJ	021 649 284	warren@zl2aj.com
	Dave Dingley	ZL1TIA	09 828 9394	mardayak@gmail.com
	Darryl Grange	ZL1TCI	021 123 7733	dgrange@ecohousing.co.nz
AREC Group Leader	Laurie Mathews	ZL1ICU	0274 817 463	perma@xtra.co.nz
Deputy Group Ldr.	Not filled			
ZL1BQ Trustee	Matthew King	ZL1YOT	022 649 3310	zl1bq@aucklandvhf.org
Head Repeater Trustee	Warren Harris	ZL2AJ	021 649 284	repeatertrustee@aucklandvhf.org
Klondyke Manager	Vaughan Henderson	ZL1VH	021 844 804	6625@aucklandvhf.org
670 Manager	Vaughan Henderson	ZL1VH	021 844 804	670@aucklandvhf.org
690 Manager	Dennis Seymour	ZL1UET	09 278 0381	690@aucklandvhf.org
850 Manager	Vaughan Henderson	ZL1VH	021 844 804	850@aucklandvhf.org
Spectrum Editor	Peter Loveridge	ZL1UKG		spectrum@aucklandvhf.org
Trading Table	Vaughan Henderson	ZL1VH	021 844 804	tradingtable@aucklandvhf.org
Account Reviewer	Basil Orr	ZL1TOW	021 867 367	
Webmaster	Terry Corin	ZL1BPA	027 697 4686	webmaster@aucklandvhf.org

Club Web Page: http://www.qsl.net/zl1bq

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

General Meeting Notice

Monday 09th September 2019 7.30pm,

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

The Evenings Topic:

Coast Guard Critical Communications Network

Coastguard Northern Region IT and Infrastructure Manager Phillip Kavermann will be speaking on the recent VHF Communications project undertaken by Coastguard Northern Region. The talk will cover the background and history of the project as well and the process, challenges faced, what was achieved and directions for the future of this critical communications network. Philip has been with the Coastguard Northern Region for 6 years and looks after the VHF Network, IT requirements, The Auckland Marine Rescue Centre Ops Room and also contributes in areas that impact the National Coastguard Organisation. Come along on Monday the 9th of September for an inside look at this fascinating radio communications network.

EVERYBODY WELCOME

We look forward to seeing you there

Supper will be served at the conclusion of the meeting.

Coming Events:

- SDR Workshop at VHF Group Clubrooms, Wednesday 11 September
- Jumbo Challenge Indoor Bowls Oct 2nd, Albany Village Hall
- Microwave Contest Sat 05-Sun 06 October. All bands 23cm and up.
- Western Suburbs ARC Market Day 02 November 2019, Rosebank School Hall, 217 Rosebank Road, from 9 am
- Field Day Contest Sat 07-Sun 08 December. All bands 6m and up.

Auckland VHF Group Presidents Report
September 2019

Well the year is drawing to a close, and elections are on the horizon. Brendon ZL1XXX will be standing down as Secretary, as he approaches fatherhood. He is, however, offering comprehensive training for his replacement. So we are looking for a fresh face in that job. Also Laurie ZL1ICU advised the Committee Meeting on Monday 26th that he is standing down from his AREC role, so we are looking for someone for that position.

Nominations for executives and committee will need to be with the Secretary by the Committee Meeting on the 28th October. If you are interested in helping the club along, please put your hand up.

And even if you don't have energy or time to attend regularly and take on any of the jobs we do, we would like to have some “casual” committee members who can be called in to achieve a quorum and make decisions when regular members are unavailable with work, illness or travel. If you are keen but live too far away to attend meetings, we could connect by phone or internet.

Several of us went up to the Whangarei Equipment sale a few weeks ago and had a thoroughly good time meeting the lads there and buying a few bits and pieces. I took some photos which I need to send up to them. Then that afternoon I went to a Scottish Country Dance before heading down to Whangarei Heads to join a gathering of “Brothers of the Coast”. One thing led to another and next week I am crewing on a trip to Noumea in a 50ft steel yacht. A thousand miles should take about a week at six knots.

An interesting development in the “location” sphere is a system called “What3Words”. It divides the world's surface (including sea areas) into 3m x 3m squares. 57 trillion of them. Then it allocates three randomly selected words to each square. So if you want to meet up with someone in the middle of nowhere, you use the app to get the three words and tell them to the other person. They put those words into their app, and then they know where you are. There are mostly good reviews, and also some critical reviews in that the algorithms are closed source and they charge large enterprises for using it, and translating into other languages is not quite working, but one of the major car companies is running it in their latest model. Interesting. We often have confusion at Coastguard with people using Lat and Long, which this development might remedy.

Sorry I won’t be at the September meeting but going sailing takes a lot of beating!.

73 Matthew ZL1YOT

Auckland VHF Group Inc.

Minutes of the General Meeting held on 12 August 2019 at the Clubrooms, Hazel Avenue, Mt Roskill

Meeting Start 7:42

Present: Attendance as per attendance book

Apologies – Dennis ZL1TAY & Basil ZL1TOW.

Moved that Minutes of the July General Meeting as published in Spectrum be accepted:

Moved: ZL1XXX, Seconded ZL1DRB, Motion Carried

Matters Arising from the Minutes

No Matters arising

Correspondence In

QUA FARC, BreakIn, 29ER, ASB Bank Statement

Correspondence Out

Payment to TBS Farnsworth for balance of work done on tower.

Agenda Items:

Email from ZL1TAY regarding the 2 Meter and 70cm Beacons. Carried forward to Committee Meeting

690 Site Access. Carried forward to Committee Meeting

Club Facebook / Instagram Page

Brendon ZL1XXX asked if anyone had either of these accounts, seeking someone to with experience to investigate these media for new members, couple of members had accounts. Initial comment from Dave ZL1TIA opposing a club Facebook or Instagram page, discussion that this is where our new young members will come from, Vaughan ZL1VH commented that the NZART Facebook page is where a lot of his new ham leads at BR29 come from.

Finance Report – George ZL1TUX

Klondyke Tower Donations to date: $6350

Club Funds committed to the Klondyke Tower refurbishment: $46350

Klondyke Tower Paid to date $17,796 for Stage 1 plus $4252 for additional tower leg/foundation work. This leaves Club Funds remaining of $24301. It is expected that a minimum of $100k will be needed to complete all the tower work. Fundraising required for the remaining $53k

In response to a question, George reported that the monthly power bills are currently $300-350/month on power at Klondyke, $80 for Brynderwyn and $127 for the Clubrooms.

Klondyke update

Coastguard Nowcasting system has been removed, Aerials have been removed, coax is still in place. There was a power outage on Klondyke road on 12 August, power was restored using a generator.

General Business

SDR Class this Wednesday night, 14th August. 4 coming so far, 8 is the max so get in quick!

LPFM Group Meeting this Thursday 15th

Regional AREC meeting at BR29 Thursday 15th

Warren ZL2AJ reported that the Kordia Co-location agreement was being renewed for another 3 years. The cost of power at the Kordia sites has increased by about 3 times. The cost of power at National System sites is being covered by NZART. Local repeater power cost recovery will be sought from local Clubs. Teamtalk are amateur friendly if the increased cost of staying on a Kordia site becomes unaffordable.

Presentation

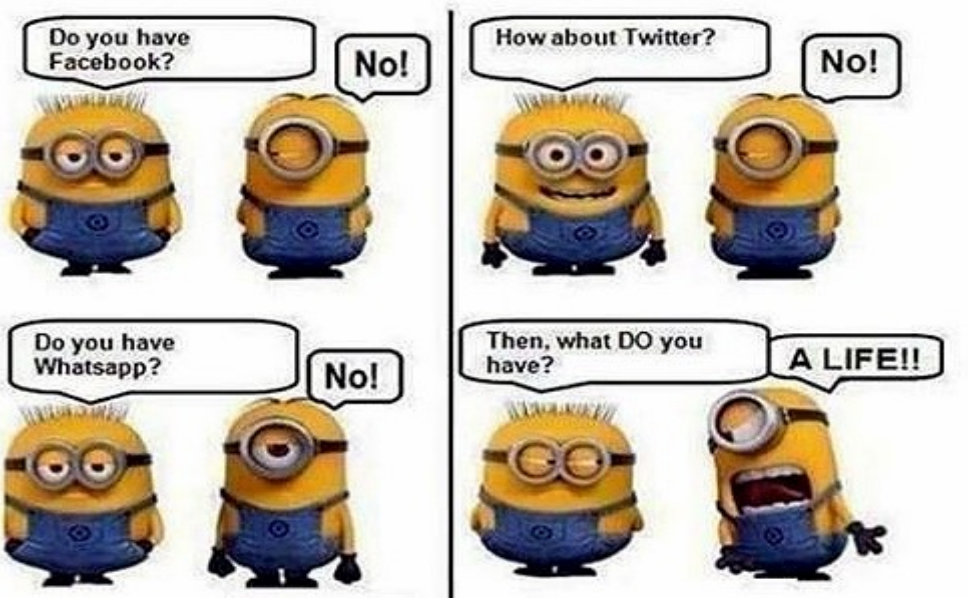
Warren Harris ZL2AJ gave an excellent presentation on Summits on the Air (SOTA) How to do it, what gear you need, tips, tricks, and helpful apps and websites. Matthew ZL1YOT thanked Warren for his talk and also thanked Emma (Warren's wife) for her photos which we use on the club website.

Next Meetings

Committee Meeting 26th August

Club General Meeting 9th September

Meeting Closed 9:14 pm



SOTA with Warren Harris ZL2AJ

Participate in an award which provides fitness along with operation

Warren works for a regional electricity distribution company covering the Waikato down to Taupo in the Central North Island. There is a communications and data network to support the power distribution network. Warren occasionally has to visit these hilltop sights for installation and maintenance of this network. This may have prepared him for Summits on the Air or SOTA when news of it arrived in NZ. SOTA originated in the UK and the home base of SOTA is at www.sota.org.uk

The SOTA web site has information about the intentions of the Award and the General Rules which sets out what sort of hill is eligible as a summit. Summits are listed by country at www.summits.sota.org.uk If you select ZL you can start drilling down to your local area of interest. For example Auckland has 26 qualifying named summits with altitude and number of points that have been earned by having operators making use of them. There are over 5000 "Summits" in New Zealand, so there is plenty of opportunity to take part!

To be eligible the summit must have a "prominence" of 150 m above the surrounding land and you must operate within 25 m of the actual summit to qualify. An exemption is made for very flat terrain where the summit need only be 100 m above surrounding land. You must walk to the operating site. If you are lucky you may be able to drive close the summit but you must operate from outside your car. It is like AREC field day operation where the station must be set up at the site rather than being an existing mobile installation.

As you have to carry the equipment to the operating site it is usually light weight. Warren displayed his typical equipment. He prefers dipoles and covers the range of 160 – 6 m by having breaks in the dipole which provide a resonant length that is selected with jumpers across the breaks giving the required length. He uses an Elecraft KX3 which is a high spec light weight QRP radio providing 10W from 160 – 6 m. This can be extended with an MZ-P50M HF power amplifier that is switchable from 80 – 10 m. He uses a lithium "power bank" capable of 15 A/hr to provide the 12V power for his equipment. Experience of the outdoors is desirable to be prepared for weather changes and perhaps fitness and route finding.

At least one QSO must be made from the Summit to qualify it as an activation. You can collect points for the Summit you are activating but to do this, a minimum of four QSOs must be made, each of which must be with a different station. This requires a way to advertise where you will be and when you will be there. The SOTA web site also provides a Bulletin Board with dates and times that the "Chasers", people who want to make contact from home with the operators on summits can be heard. There is an advantage in having another operator on a summit within range so that you Activate your summit and Chase their summit.

Contact can be established using a repeater if operating on VHF and above but all qualifying contacts must be Simplex.

Peter Loveridge 15 August 2019 From notes made during the presentation

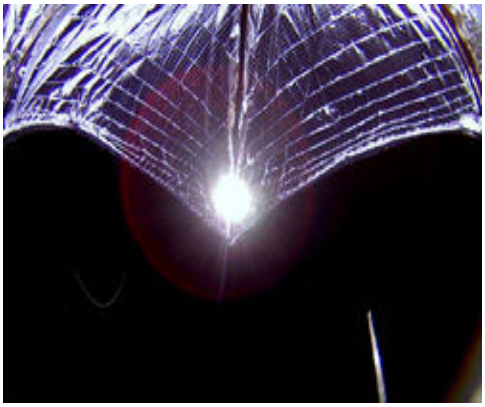
Warren ZL2AJ answering a question.

Top: Elecraft KX3 Transceiver. Middle: MX-P50M HF Amplifier. Bottom: Dipole aerials, coax cable and VHF Hand-held radios for local contacts.

LightSail 2 Demonstrates Flight by Light

The Planetary Society's crowdfunded *LightSail 2* spacecraft is successfully raising its orbit solely using the power of sunlight. Since unfurling the spacecraft's solar sail on July 23, mission managers have been optimizing the way the spacecraft orients itself during solar sailing. After a few tweaks, *LightSail 2* began raising its orbital apogee, something the mission team said demonstrated the mission's primary goal of "flight by light for CubeSats." Continuing to sail on sunlight in Earth orbit, the spacecraft's orbital apogee hit 729 kilometers (approximately 452 miles) as of August 5, an increase of 3.2 kilometers (nearly 2 miles) since sail deployment.

LightSail 2 launched on June 25, and was deployed on July 2 from Prox-1, a Georgia Tech student-built spacecraft the size of a small washing machine. Using the Experimental License call sign WM9XPA, *LightSail 2* automatically transmits a beacon packet on 437.025 MHz (9,600 bps FSK) every few seconds, which can be decoded into 238 lines of text telemetry describing the spacecraft's health and status -- everything from battery status to solar sail deployment motor state.
Every 45 seconds, the spacecraft transmits "LS2" in CW on a Frequency of 437.025 MHz.



LightSail 2's aluminized Mylar sail shines against the blackness of space, with the Sun peeking through near a sail boom. [Photo courtesy of The Planetary Society]

More information is on The Planetary Society website.
-- *Thanks to The Planetary Society*

Notice of Annual General Meeting

Notice is hereby given that the Annual General Meeting of the Auckland VHF Group Inc., will be held on Monday 11 November 2019 at the Clubrooms, 30 Hazel Avenue, Mt. Roskill, commencing at 7.30pm.

The business of the meeting will be:

To receive the reports of Officers
To elect a President, Vice-President, Secretary, Treasurer, and four Committee Members for the ensuing year.
Appoint an account reviewer for the ensuing year.
Appoint an AERC Group Leader, Head Repeater Trustee and Editor for Spectrum magazine.
Receive members submissions and remits and deal with any relevant general business.

Please give serious consideration to offering your services to the club—we will have a number of vacancies to be filled come the AGM.

What is Software Defined Radio?

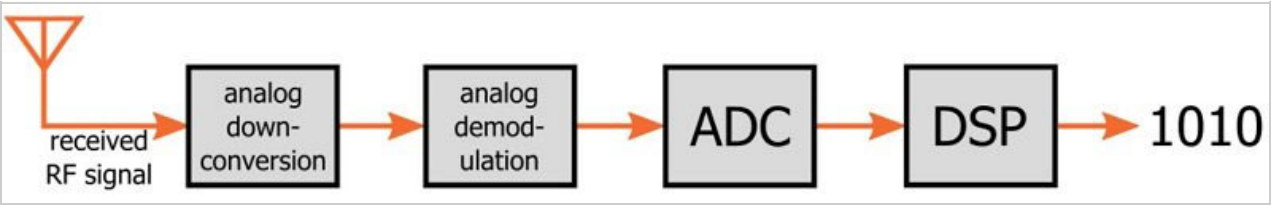
Radio components such as mixers, if amplifiers, modulators, demodulators and tuners are have traditionally been implemented using analogue hardware components. The advent of modern computing and analogue to digital converters allows most of these traditionally hardware based components to be implemented in software instead. Hence, the term software defined radio. This enables easy signal processing and thus very low cost wide band scanner radios to be produced.

A basic SDR system may consist of a personal computer equipped with a sound card, or some other analogue-to-digital converter and preceded by some form of RF front end. Significant amounts of signal processing are handed over to the general-purpose processor, rather than being done in special-purpose hardware. Such a design produces a radio which can receive and transmit widely different radio protocols (sometimes referred to as waveforms) based solely on the software used.

The ideal receiver scheme would be to attach an analog-to-digital converter to an antenna. A digital signal processor would read the converter, and then its software would transform the stream of data from the converter to any other form the application requires.

An ideal transmitter would be similar. A digital signal processor would generate a stream of numbers. These would be sent to a digital-to-analogue converter connected to a radio antenna.

The ideal scheme is not completely realizable due to the current limits of the technology. The main problem in both directions is the difficulty of conversion between the digital and the analog domains at a high enough rate and a high enough accuracy at the same time, and without relying upon physical processes like interference and electromagnetic resonance for assistance.

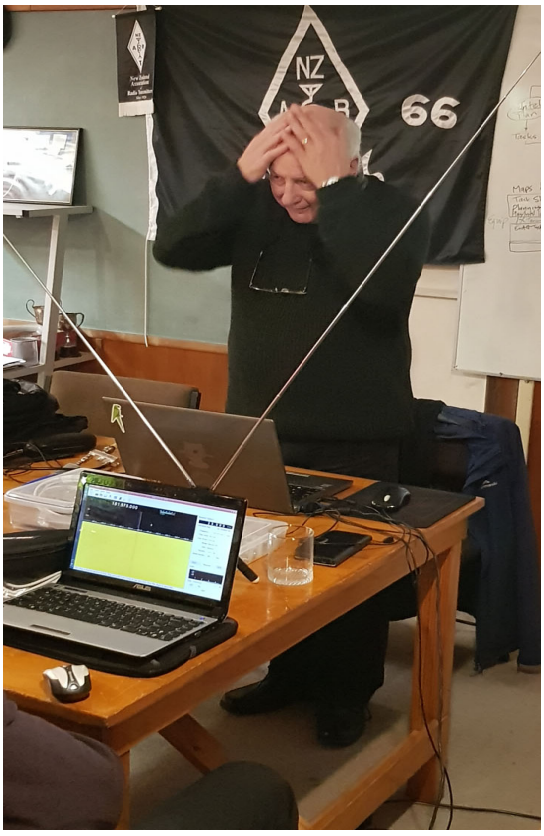


An example of a receive path in a software defined radio system.

Real analog-to-digital converters lack the dynamic range to pick up sub-microvolt, nanowatt-power radio signals. Therefore, a low noise amplifier must precede the conversion step and this device introduces its own problems. For example, if spurious signals are present (which is typical), these compete with the desired signals within the amplifier's dynamic range. They may introduce distortion in the desired signals, or may block them completely. The standard solution is to put band-pass filters between the antenna and the amplifier, but these reduce the radio's flexibility. Real software radios often have two or three analogue channel filters with different bandwidths that are switched in and out.

Caption Competition:

What is Graham ZL1GH thinking or about to say:



No prizes but send your entry to the Editor.

Best answer published in October Spectrum

The Auckland VHF Group SDR Radio workshops are initially focussing on one model of SDR: The RTL-SDR, a very cheap ~ $35.00 “dongle” that can be used as a computer based radio scanner for receiving live radio signals over the frequency range of 24 MHz to 1.75 GHz. [See TradeMe Listing 2271801420 for more details]. This unit also has built in direct sampling mode support and can receive HF frequencies between about 500 kHz and 24 MHz. Most software for the RTL-SDR is also community developed, and provided free of charge.

At the first of the SDR sessions run by Graham ZL1GH, he distributed a survey form to elicit the preferences of those attending. The preference for a software platform was almost overwhelmingly Windows! As a result at the next workshop session on Wednesday 11th. Graham will be bringing a Windows 10 system.

Also there were two main interests expressed:

1. VHF Direction Finding
2. General listening to the Amateur and Broadcast spectrum

At the next SDR workshop on Wednesday 11 September and will Graham will be demonstrating a number of SDR software packages that run on MS Windows and can use the RTL-SDR (as well as other SDR devices). The intention will be to work with the attendees to iron out any problems that they have with their installation.

Good news for the two-metre band

From Radio Society of Great Britain - August 30, 2019

The past week has seen CEPT meet in Turkey, where it finalised positions on a wide range of WRC-19 Agenda Items, including proposals for WRC-23.

After a major effort, the 144 to 146MHz frequency range was successfully withdrawn from the French WRC-23 aeronautical proposal. This hot topic had been the subject of detailed submissions by the IARU, France and Germany.

This excellent result for amateur radio occurred in parallel to a number of other proposals being adopted to support aeronautical interests.

Germany hits back against French 144 MHz Aeronautical plans

The German Administration has robustly responded to the attempts by France to have the amateur radio 144-146 MHz band allocated to the Aeronautical Mobile Service.

In a paper submitted Monday, August 26, to the CEPT ECC CPG meeting taking place in Ankara, Germany stated:

"Germany does not support the inclusion of the 144-146 MHz primary allocated to the amateur service/amateur satellite service in the proposed WRC-23 agenda item regarding a possible new allocation to the aeronautical mobile service for non-safety applications."

"Germany cannot determine a single realistic sharing scenario, not leading to serious mutual interference on both sides and not seriously degrading the use of the 144-146 MHz band."

The full text of the German paper is here
https://www.cept.org/Documents/cpg/53066/cpg-19-info108_d-ai10-german-view-on-144-146-mhz

Thanks Southgate Amateur Radio News for this item.

AMSAT SPACE SYMPOSIUM AND MEETING

October may seem a long way off but if you're planning to attend the 50th Anniversary AMSAT Space Symposium and General Meeting, it's closer than you realise. Tickets have gone on sale for the symposium, the banquet and a Sunday bus tour. AMSAT recently announced its panel of speakers for the banquet to be held on Saturday October 19th. The panel will take on the topic of "The Foundations of AMSAT." They include AMSAT's founding president Perry Klein W3PK; Project OSCAR's Lance Ginner K6GSJ, author and diplomat George Jacobs W3ASK along with several others.

The symposium weekend will be held in Arlington Virginia from the 18th to the 20th of October and will include a side trip to the Steven F. Udvar-Hazy Center at the National Air and Space Museum. For details and registration information visit amsat dot org (amsat.org).

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 Laurie Mathews ZL1ICU.

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:

Laurie Mathews ZL1ICU 634 5130 0274 817 463 perma@xtra.co.nz

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AREC News:

Auckland LandSAR – There will be a significant Search and Rescue Exercise (SAREX) over the 13/14/15th of September. The scenario will have a maritime basis with multiple casualties after a simulated boat rollover on the Manukau Bar. Control will start off manually then introduce the computer system SARTrack. Marine Rescue Centre will be the headquarters, with Operations based at Onehunga Wharf. Multiple repeaters will be used with a mix of channels and locations including temporary sites. Amateur repeaters may be used in conjunction with this exercise.

As always, if as amateurs, members hear traffic for the exercise on amateur channels then the AREC personnel would appreciate being given priority. Other organizations may be listening so the reputation of amateurs for courteous operating practices is encouraged.

Heritage Walks - Between the 5th and 28th October. Operators wanted to assist.

Farmers Parade - 24 November. Operators wanted to assist with this event.

AUCKLAND VHF GROUP (INC)

SUPPORT THE EFFORTS OF THE VHF GROUP THROUGH YOUR SUB-SCRIPTION

SUBSCRIPTIONS FOR 2019

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 **$45.00**

ASSOCIATE MEMBERSHIP **$40.00**

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:

Light travels faster than sound....

This is why some people appear bright until you hear them speak.

NAME	Mr/Mrs/Miss/Ms	Christian or given name	Surname
Address			
		Phone: (home)	
		Phone: (work)	
		Phone (Cell)	
		Email	
Occupation:		**Callsign**	
NZART Member		**Branch assigned**	
AREC Member		**Branch assigned**	
Category			To pay
Membership	Full	$45:00	$
New/Renewal/ Change	Associate	$40:00	$
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	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. **(Please Note the Account Number and email may have changed from last year)** **Email to: info@aucklandvhfgroup.org.nz**		
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, 2nd Monday of the month or to the Committee meeting last Monday of the month.		

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 ***2019***

Repeater frequency and name	Repeater location	Sponsorship advised for 2019	Amount paid
53.725 Repeater	Klondyke Road	Gwynne Rowe	$50
14**4.253** Beacon	Nihotupu	Not operating	
14**5.625** Data Rptr	Klondyke Road	Not operating	
14**5.650** Dstar repeater	Klondyke Road	Laurie Mathews	$50
14**6.625** Repeater	Klondyke Road	Laurie Mathews	$50
14**6.70**0 Repeater	Ruaotuwhenua	Dennis Thorton	$50
14**6.90**0 Repeater	Mt Puketutu Radio	David Wilkins	$50
43**2.253** Beacon	Nihotupu	**Stability testing**	
43**8.175** Dstar repeater	Klondyke Road	Laurie Mathews	$50
43**8.50**0 Repeater	North Head	Not operating	
43**9.850 Link Tx to Kaimai**	Klondyke Road	Franklin Radio Club	$50
43**9.875** Ak Nat Sys Rptr	Klondyke Road	Franklin Radio Club	$50
43**9.900 Link Tx to Egmont**	Klondyke Road	Franklin Radio Club	$50
43**9.950 Link Tx to Brynderwyn**	Klondyke Road	Franklin Radio Club	$50
1291.9 Repeater	217 Glenfield Rd	Soren Low	55.00
		Total Sponsorship	**$555**

NZART Inc: Branch/Personal donations	
Manakau Branch	$100
Papakura Radio Club	$500
Helicopter Trust (Brynderwyn)	$360
Auckland Branch	$100
Compass Communications	$2,760
Donations	**$3,820**

Current as at 05/05/2019

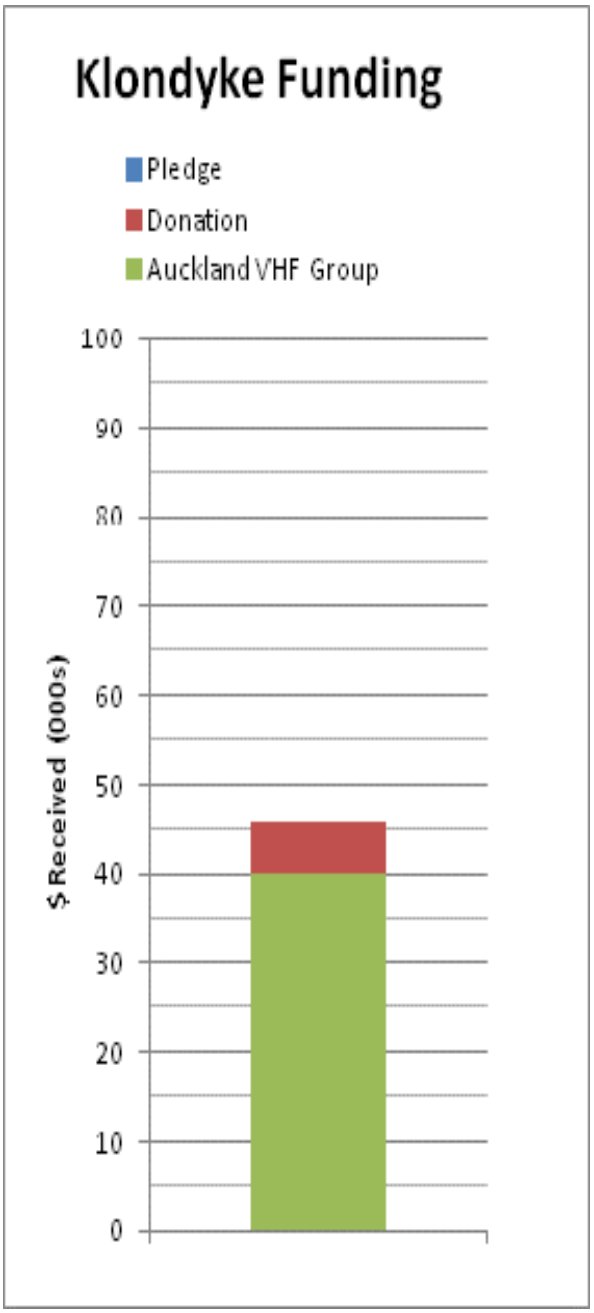
The Auckland VHF Group, Branch 66, would like to thank all those who came forward to sponsor the licence fee for our Beacons, Repeaters or Fixed Links for the year 2019 or donate towards the Group's repeater Operations.

Target 100,000

Name	Donation	Pledge
Western Suburbs Radio Club	200.00	
Michael Sheffield ZL1ABS	500.00	
Ross Glover ZL1BGB	50.00	
Andrew Brill ZL1COP	100.00	
Martyn Seay ZL3CK	50.00	
Aaron Pelly ZL1FAT	10.00	
Cris Hodgetts ZL1CLH	20.00	
David Crosier ZL1THF	20.00	
Ann Walker ZL1BFB	20.00	
Bruce Churcher ZL1BLB	20.00	
Klondyke Raffle @ Western Suburbs	160.00	
Dennis Thornton ZL1TAY	50.00	
George Raffles ZL1TUX	100.00	
Keith Dix ZL1BQE	100.00	
Franklin Radio Club ZL1SA	800.00	
Terry Corin ZL1BPA	1000.00	
Keily Peterson ZL1KM	150.00	
Gilbert Eckroyd ZL2EK	100.00	
David Blackett ZL1AD	50.00	
Ian Sexton ZL1PZ	500.00	
Auckland Branch 02 ZL1AA	100.00	
Ralph & Rosemary Boshier	40.00	
Nick Emery ZL1BOP	50.00	
Kelvin McLean ZL1AKM	20.00	
Soren Low ZL1SKL	100.00	
North Shore Radio Club	1500.00	
Brendon Reid ZL1XXX	20.00	
Auckland Branch 02 ZL1AA	500.00	
Gary Ball ZL1FAB	20.00	
Total	6350.00	-
Percent	6.35	0.00

Tower	63,245.00	Other	27,268.25
GST	9,486.75		
Total	72,731.75	Total	27,268.25

Auckland VHF Group	40,000.00	40.00



TRADING TABLE

Currently our Trading Table is only open on meeting nights.

Resistors: We are no longer going to stock the standard 1/4W carbon film resistors on the Trading Table. Any members wanting to stock up on resistors before they are otherwise disposed of – come along to the next meeting and help yourselves.

The shelf space currently taken up by resistors will be used to display other Trading Table stock items. Watch this space for details.

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

Back in Stock—
SO239 UHF Adaptor:
Just what you need to make up a mobile antenna. SO239 socket and mounting nut. The tube on the side is a screw-in fit for RG58 coax cable. Just strip the outer sheath off and allow about 6 to 7mm of centre conductor, screw the RG58 into the side of the adaptor and solder the center conductor to the centre pin of the fitting.

Coax Adaptors:

Thanks to a recent donation we have a range of assorted coaxial adaptors available at only $3.00 each, but be in quick!

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Capacitors, Transmit:

Capacitors, Metal Clad Mica (Unelco, Semco) $2.20 each
Values (in pF): Or 10 up for $2.00 each
3.9, 4.7, 6.8, 10, 12,15, 20, 22, 24, 27, 30, 33, 34, 47, 51, 62, 82,
100, 120, 130, 150, 220, 240, 300, 360, 680pF
Most are rated 350V working ±5% tolerance.
Similar to illustration, tab does not have hole:

Resistors Surface Mount:

Packed in bags of 10 for $0.50 bag
Most are 1206 size: 2.7 ohm, 4.7 ohm, 22 ohm, 49 ohm, 56 ohm, 68 ohm, 82 ohm, 100 ohm, 180 ohm, 270 ohm, 330 ohm, 390 ohm, 470 ohm, 510 ohm, 680ohm, 820 ohm, 1K ohm, 2k2 ohm, 3k3 ohm, 5k6ohm, 10K ohm, 68K ohm, 100K ohm.

Quartz Crystals:

3.579545 MHz HC18/U wire ended holder		
4.194304 MHz HC18/U wire ended holder	[F.4.1]	$1.00 each
4.1952 MHz HC18/U wire ended holder	[F.4.2]	$1.00 each
4.33618 MHz HC18/U wire ended holder		$1.00 each
6.000 MHz HC49/S SMD package 20pF load capacitance	[F.4.3]	$1.00 each
8.192 MHz HC18/U wire ended holder		$1.00 each
8.867238 MHz HC18/U wire ended holder		$1.00 each
13.875 MHz HC18/U wire ended holder	[F.4.5]	$1.00 each
14.31818 MHz HC18/U wire ended holder. Rakon J30G-4H spec	[F.4.6]	$2.00 each
14.7456 MHz HC49/S SMD package	[F.4.7]	$1.00 each
17.472 MHz HC18/U wire ended holder		$1.00 each
18.432 MHz HC18/U wire ended holder	[F.4.8]	$1.00 each
20.0000 MHz HC49S SMD package P/No.7D20000183BSAF25Q3	[F.4.9]	$1.00 each
24.567 MHz HC18/U wire ended holder		$1.00 each
45.600 MHz HC18/U wire ended holder		$0.50 each

Miscellaneous:

Battery clip for 9V (PP9) type battery	[F.2.5]	10 for $1.00
RJ-12 sockets, 6-way PCB mount	[E.6.10]	20c each
TO-3 Mica Washer and insulating bushes	[S.9.9]	50c bag of 20
LED Holder panel mount type	[S.7.10]	50c bag of 10
Test point sockets pcb or chassis mount	[F.2.4]	10c each
Brass rivets, ideal for through-hole connections	[F.2.6]	50c/100
Cable retainer clips black plastic fits 25mm square boom	[F.2.7]	50c each
Plastic standoff mounts for PCB mounting	[F.4.8]	10c each
Handle, Grey Plastic, for equipment enclosures	[F.2.1]	$1.00 each
Crystal socket PCB mount for HC25/U crystals	[F.2.10]	10c each
Crystal socket chassis mount for HC6/U crystals	[F.2.9]	10c each
Rubber switch boot (waterproof) 15/32”	[F.2.7]	50c each

Radio Frequency Transistors

ATF55143	Low noise E-PHEMT 0.6dB noise figure. Low noise amp for frequencies between 450MHz and 6GHz. SMD package SOT343 (4 lead). [S.case]		$1.00 each
MGF1302	Low noise GaAs FET Nf = 1.4dB @ 4GHz, 4dB @ 12GHz.	[S.case]	$5.00 each
BF199	NS 25V 25mA, 500mW ft = 550MHz TO92[S.4.14]		$1.00 for 10
BF494	NS 20V 30mA Low noise mix-osc/IF amp TO-92 [S.4.15]		$1.50 for 10
BFR91	NS RF Amp. 5GHz 1.9dBnf @ 500MHz	[S.case]	$2.00 each
MFE121	Dual gate N-MOSFET 20V 5mA VHF Amp BF352 equiv. [S.case]		$0.50
MPS5179	NS TO92 12V 50mA 200mW fT 2000MHz Nf 5.0dB [S.5.13] RF Transistor. Use in UHF/VHF amplifiers with collector currents in the 100 uA to 30 mA range, and in low frequency drift, high output UHF oscillators.		$0.50 each
BFG67	NS 8GHz 50mA rf amp/preamp SOT143B package	[S.case]	$1.50 each
MPS5172	NS 25V 100mA Ft 120MHz	[S.7.5]	$0.10 each
MPS6507	NS, VHF Mixer, 20V, 100mA, Ft 700MHz	[S.5.8]	$0.20 each
C1-12	NS RF Pwr 400 – 500 MHz 1W 12.5V	[S.Case]	$1.00 each
C3-12	NS RF Pwr 400 – 500 MHz 4W 12.5V	[S.Case]	$2.00 each
MRF237	NS RF Pwr. VHF 4.0W 12V TO39	[S.5.13]	$3.00 each
MRF449	NS RF Pwr. 2-30MHz 30W 12.5V stud mount	[S.Case]	$10.00 each
MRF559	NS RF Pwr. 806-960MHz 0.5W 12.5V	[S.5.13]	$0.50 each
MRF628	NS RF Pwr 400 – 500 MHz 1W 12.5V	[S.Case]	$2.00 each
MRF904	NS RF Small signal amp. Ft 4GHz 15V TO206	[S.5.13]	$3.00 each
SD1144	NS RF Pwr 400–550 MHz 2W 12.5V stud mount	[S.Case]	$3.00 each
2N5945	NS RF Pwr 400–700 MHz 2W 12.5V stud mount.	[S.Case]	$3.00 each
2N5946	NS RF Pwr 400–550 MHz 10W 12.5V stud mount	[S.Case]	$4.00 each
2SC908	NS TO39 RF Amp 1W @ 500MHz 13.6V Designed as driver and RF power amplifier. 0.5 to 0.8W output at UHF land mobile band. Gain 15dB (Vce=6.0V, Ic=5mA, ft=2000MHz)	[S.5.13]	$1.00 each
3SK45	Packaged as ECG221, dual-gate N-channel MOSFET for vhf amp and mixer applications.	[S.6.16]	$0.75 each
3SK192GR	Dual-Gate MOSFET 15V 30mA(max)	[S.7.13]	$1.00 each
2SC5488	NS 30V 70mA low noise rf pre-amp	[S.6.4]	$0.10 each

Recent additions:

BST70A	N-Chan DMOS 80V 0.5A TO92 switch	$0.20 each
PMBT3904	NPN 40V 200mA switching transistor SMD	$0.50 for 10
PMBT3906	PNP 40V 200mA switching transistor SMD	$0.50 for 10