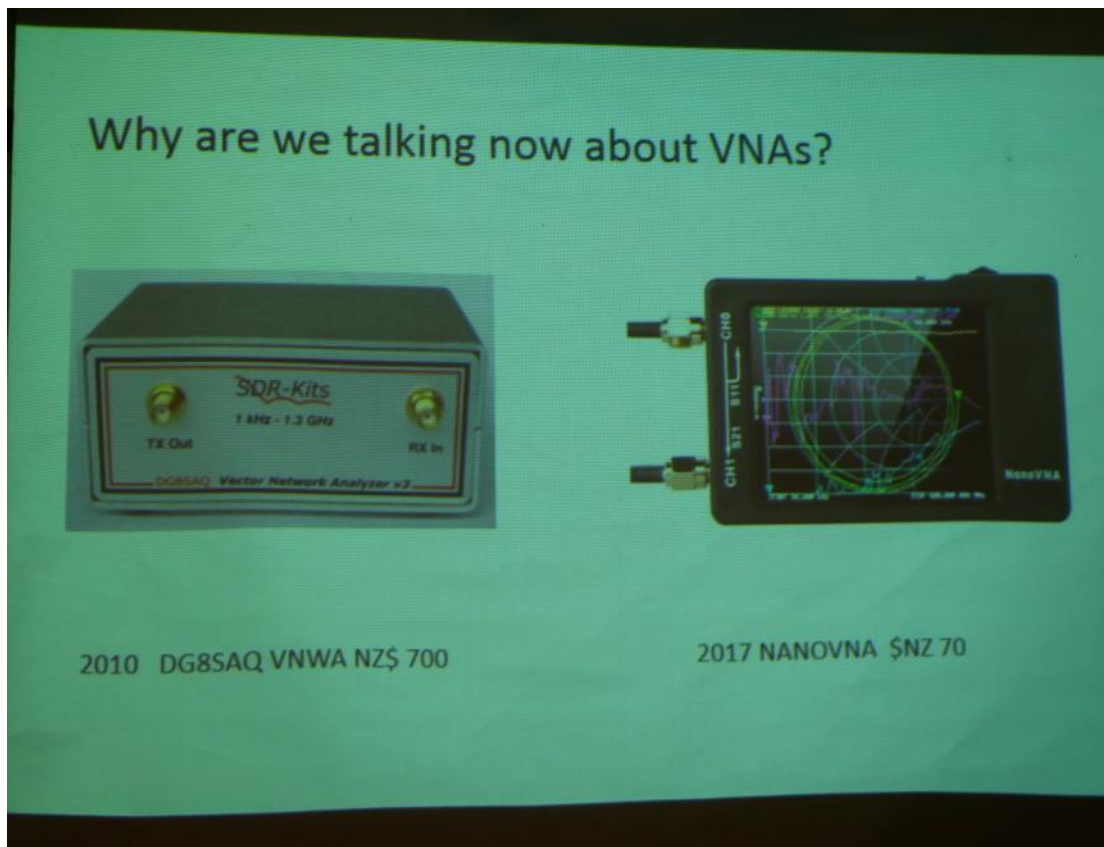


# The Official Newsletter of the Auckland VHF Group Inc. Spectrum



In the 80s and 90s HP was charging \$300k+, In the 00s HP was charging \$150k  
By 2010 DG8SAQ VNWA cost \$700. By 2017 the NANO VNA cost \$70  
Greg ZL1GSG explained how to use them

The General Meeting Notice — page 3

President's Report — page 4

April Minutes — page 5

Presentation on VNAs — page 6

Spectrum 50 years ago—page 7



# 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	Brendon Reid	ZL1XXX	021 970 785	vicepresident@aucklandvhf.org
Secretary	Vaughan Henderson	ZL1VH	021 844 804	secretary@aucklandvhf.org
Treasurer	George Raffles	ZL1TUX	021 735 361	treasurer@aucklandvhf.org
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	Greg Storz	ZL1GSG	09 849 2878	greg@aucklandvhf.org
	Darryl Grange	ZL1TCI	021 123 7733	darryl@aucklandvhf.org
	Mark Howie	ZL1UMK	022 047 3240	mark@aucklandvhf.org
AREC Group Leader	Matthew King	ZL1YOT	022 649 3310	mattking@gmail.com
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
670 Manager	Vaughan Henderson	ZL1VH	021 844 804	670@aucklandvhf.org
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Webmaster	Terry Corin	ZL1BPA	027 697 4686	webmaster@aucklandvhf.org
Club Web Page:		<a href="http://aucklandvhf.org">http://aucklandvhf.org</a>		
ZL1VHD Dstar gateway administrator: Laurie		ZL1ICU	634 5130 0274 817463	perma@xtra.co.nz
ZL1VHD Dstar gateway registration URL :		<a href="http://zl1vhd.dstar.org.nz">http://zl1vhd.dstar.org.nz</a>		

### 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](mailto:spectrum@aucklandvhf.org)**

# **Auckland VHF Group (Inc) Branch 66**

## **General Meeting Notice**

**Monday 10<sup>th</sup> May 2021 7.30pm**

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

### **Meeting topic for May General Meeting**

NZART Remits for Conference and appointing a Delegate to the AGM.

This will be followed by more on VNAs if we can get someone to speak otherwise some videos of VNA applications.

The meeting will conclude with our usual supper and time to chat over a cup of tea or coffee.

If you are unable to attend in person, we will have the meeting live via Microsoft Teams. Go to the Group's website at <https://aucklandvhf.org/> and navigate your way to "Meetings and Events" where you will find the link to join us on Teams.

### **Coming Events:**

- \* 15 May Radio Electronics Group Market Day from 8:30 am for Vendors and 10 am for Buyers. 211 Peacocks Road, Glenfield, Hamilton.  
Tables \$20 Public— \$2 Lucky Ticket Entry  
Trade Display — Refreshments — Door Prizes  
Plenty of Parking  
For Vendor Registration and Inquiries — Contact  
Vern ZL1TKJ @ ZL1REGSALE@gmail.com or phone  
John ZL1PO 021 204 5990

## Auckland VHF Group Presidents Report

### May 2021

#### AREC

Anyone interested in joining our AREC section is invited to come early to our May meeting. Like seven o'clock. We can sort out paperwork, take a note of experience and emergency mobilisation capabilities, and run the training syllabus past you.

#### EME

On Wednesday I went along to Branch 80 Hibiscus Coast Radio Society meeting after they announced on the Sunday night net that they were making progress on their EME dish. Doug and his team (including Peter L) were very welcoming, and took me up to the dish further up the hill from the clubrooms. They have put a chicken coop at the base of the dish, and are fitting it out for the computer control for azimuth/traverse, and maybe some image processing. (That's my interpretation. It sounded complicated.) There are a bunch of cables running down to the clubrooms. It feels like they will be getting operational in a few months, so I'll be there for that. I'll get to talk to myself without people thinking I've gone mad! They also have a replica of a satellite which is ready to be launched. Peter Loveridge kindly took a shot of me holding it.



While perusing that club's April newsletter I found this little gem from Mark Sullivan ZL3AB "I was having a look at the new Incorporated Societies Bill which has been introduced to parliament. The bill will replace the Incorporated Societies Act 1908. Interestingly the bill expressly says one of its purposes is to recognise the principles that - societies are organisations with members who have the primary responsibility for holding the society to account; and societies should operate in a manner that promotes the trust and confidence of their members.

A third item found in the original document adds that;

(3) Societies should not distribute profits or financial benefits to their members

My comment: Running an incorporated society is a complex operation that people are shying away from in droves. I expect there to be a dramatic reduction in the number of societies over the next few years because people want to DO what their societies are set up to do, not be administrators, fundraisers, recruiters and problem solvers.

After last month's VNA meeting I was inspired to build a 70cm double loop antenna with metal tape from holding fence strainers on a pallet. 4NEC2 says with a reflector and director it will give nearly 13dB gain (over a quarter wave whip?). Construction was completed quite easily, but my VNA refused to spring to life even though it had worked at our club night. The orange LED glows happily, but that's all that happens. So my next step is to use the TV dongle and SDR Sharp to see if it is putting out any signal. Damnation! Cheap toys. Watch this space!

Cheers,  
Matthew King  
02264 93310

**Minutes of the April General Meeting of the Auckland VHF Group Inc.**  
Held on Monday 12 April 2021 at the Clubrooms, Hazel Avenue, Mt. Roskill

Meeting started at: 19.47

**Present:** 13 members as per the Attendance Book and one visitor.

**Apologies:** ZL1TIA

**Minutes of February General Meeting** – as published on page 5 of the March 2021 issue of Spectrum. Moved the minutes were a true and correct record:

ZL1TUX Seconded: ZL1TCI Carried

Matters arising: NIL

**Reports:**

Finance: ZL1TUX reminded the meeting that subscriptions for 2021 were now due. Unfinancial members are no longer receiving the email notice of meeting. The 2020 accounts are now complete and with the reviewer.

President: ZL1YOT spoke on his President's report in April Spectrum - We need to get some new members into the club. A "road show" targeting schools, technical institutes with interesting practical demonstrations. He invited any VHF Group member to contact him to assist.

**Correspondence:**

In – newsletters from North Shore Branch 29 and Branch 65 Papakura Radio Club.

**General Business:**

1. Approval of expenditure for new cable tray Klondyke tower. ZL1VH gave a background to the work required, quote received and answered questions from the floor.

Moved ZL1VH, Seconded ZL1YOT "That the quotation from Connecta for cable tray and ladder replacement at Klondyke of \$13,904.54 incl GST be accepted".

CARRIED.

2. ZL1YOT reported that earlier in the evening Marlene ZL1MYL had returned the last of the TYT MD-380 DMR hand-held radios and also keys to Klondyke and the Clubrooms which had been held by Laurie ZL1ICU.

This concluded General Business and the business part of the meeting closed at 20.20.

Greg ZL1GSG and Matthew ZL1YOT talked about the low cost Nano-VNA's available and Greg demonstrated their use measuring return loss. He looked at the Smith Chart display available and also a linear plot using different types of termination and a small antenna. The presentation generated much interest and questions from the floor.

At the conclusion, Matthew ZL1YOT thanked Greg ZL1GSG for his presentation.

Meeting closed at 2130, followed by a cup of tea/coffee and informal chat.

## Greg Storz ZL1GSG Presents some current Micro VNAs that provide Amateurs with affordable test devices

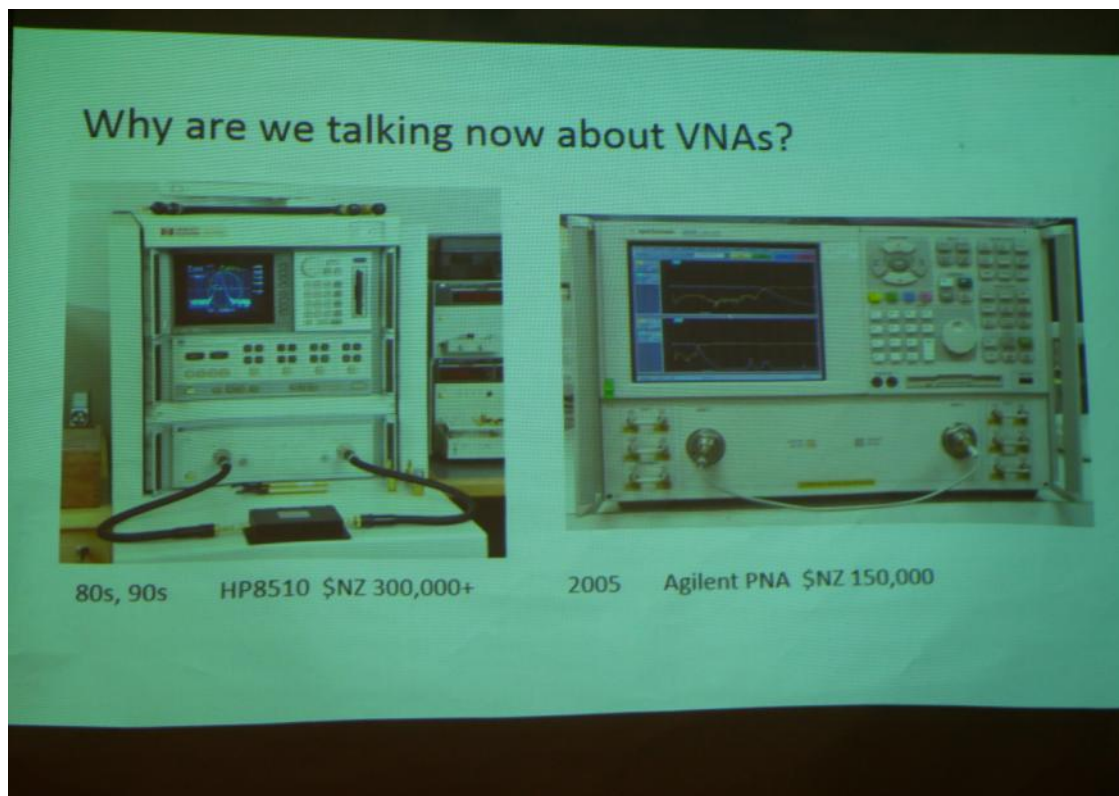
There are still building blocks in a modest VNA. The difference between a VNA and a Spectrum Analyser is that you are told what the phase angle is between the applied signal and the reflected signal. If little energy is reflected back the load presented by the load it is the same as the source impedance of the signal source. Where there is substantial power reflected back it may be a resistive mismatch which could be determined with a Spectrum Analyser. If the mismatch is reactive the test equipment must be able to measure the phase angle difference from the applied to the reflected energy.

To do this there must be a reference load value and a small processor in the amateur instrument that can determine the phase difference. To make sure that the starting values of the circuit are known it is necessary to calibrate the VNA to give a known starting phase angle with a reference load. Once the shift due to mismatch is known it allows the user to calculate what change is needed to bring the DUT reactance in load to zero and the resistive load will now absorb be able to absorb all of the energy from the generator. The measurements can be presented by a Smith Chart and also linear plots.

Technology has come a long way since they could only be afforded by large Corporations. For an online guide try visiting the web site contribution of W2AEW. There are links to Youtube videos on many topics including VNAs.

This account was written up from memory of Greg's presentation by the Editor

Editor Peter Loveridge ZL1UKG





## 50 Years Ago in Spectrum

May 1971 Spectrum – meetings continued to be held at the Auckland Technical Institute on the 2<sup>nd</sup> Monday of the month. The Group was selling 2m down converters with a 14MHz IF – built and tested for \$20..

President Doug ZL1TFY in his President's Log page reported on the effort put into producing an acceptable Contest Calendar for 1971. He noted that there had been much comment on Contests on the subscription forms when members were renewing and hoped that this would result in an increased level of support for contests in the ensuing year. A 6m only contest had been introduced. He urged members to support the contests which are provided now and in doing so, show your personal appreciation for the work done by the Contest Committee. With Winter drawing near, propagation on the VHF Bands was poor with little or no DX. A very few operators were getting contacts to the South, but the general trend was local only. RTTY activity was growing on 144.8MHz, with more stations taking the "band plan" to heart.

The Group had 29 members at the 10<sup>th</sup> of May general meeting. Jumbo ZL1HV was appointed delegate to the NZART Conference and the remits were discussed and voted on by the Branch 66 members.

Spectrum editor Marion ZL1BKL wrote a couple of pages on the cost of producing Spectrum which was typeset and printed at her business "Techni-Type". The magazine cost the Group \$55.00 per issue (210 copies each month posted out to members) and the actual cost of production was \$78.42 including typing, duplicating. Average time to produce each issue was 25 hours, with some issues taking 30 to 40 hours and not including the time spent chasing material, organising and sorting. The difference in the cost to the Group and the actual cost of production was being covered by Marion's business.

The May issue contained reports from Christchurch (ZL3TFL), and the VK3 VHF Group Publicity Officer Bob VK3AOT. The Waikato VHF Group had held it's AGM on 9 May with Ian Brown ZL1TAT elected President; Ian Perkins ZL1BHF Secretary; Rod Rowe ZL1TFX was Vice-President and Eddie Amon ZL1ACL Assistant-Vice President.

In Wellington, Murray ZL2THW (now ZL1HI) had obtained a firm quotation for the supply of 1296 MHz parabolic dishes spun in #18 aluminium at \$12.00 each. Members could order these through the Wellington VHF Group.

Technical stuff included a design for a four-way power splitter by Doug ZL2TAR. Design details included how to calculate the coax cable lengths (allowing for velocity factor) for splitters for the 2m and 70cm bands. Construction without connectors by removing part of the outer jacket, cutting the braid and removing a small portion of the dielectric to expose the inner conductor, then soldering and restoring the coax cable. For those with deeper pockets, a version using coaxial connectors was described. Doug suggested that UHF connectors should be avoided like the plague as their impedance varied between 25 and 30 Ohms. BNC connectors would not take the RG8/RG213 cable so this left type N connectors. Details of the cut lengths of RG213 cable for use with N connectors on both 2m and 70cm were given.

To round-out the issue, a simple converter for 70cm TV was presented (from 73 Magazine) and reproduced from QST was a design for a transistor FM transmitter. The issue concluded with an item on "Frequency Modulation, What Is it?" by ZL1TFE. He noted that like it or not, FM was coming.

Doug Ingham ZL2TAR wrote up an experiment building splitters.  
This text has been extracted from a printed issue 50 years ago.

This was scanned from Spectrum May 1971

#### SIMPLEST FOUR WAY POWER SPLITTER - ZL2TAR

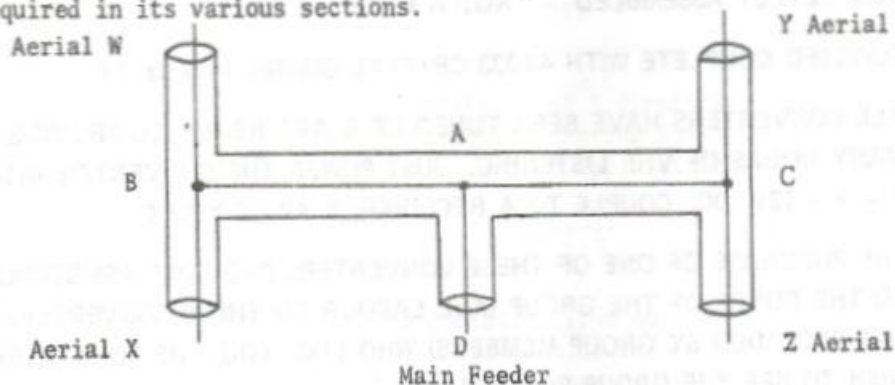
When transmitter power and receiver sensitivity pass a certain level it becomes cheaper and easier to obtain an improvement in DX capability by improving the aerial rather than by making a corresponding improvement in equipment. In addition an aerial improvement works both on transmit and receive.

Let's say you've decided to build three more aerals, identical to your existing one, for stacking. The problem now is how to feed four identical aerals with a minimum of effort and maximum of performance.

Feeding an increasing number of aerals with open wire feeders becomes messy. Ensuring equal power split and in-phase excitation (for maximum gain and minimum beam squint) becomes difficult. The professionals lose interest in open wire feeders at VHF when the number of aerals to be fed is 4 or larger and many won't consider feeding more than two, before going to coax.

Once we have decided to use coax we must decide how to split the input power into four equal parts on transmit, or combine four equal signals to give a maximum on receive.

The simplest and cheapest splitter takes the form shown below. One advantage of this form is that all four outputs are inphase and that no weird cable impedances are required in its various sections.



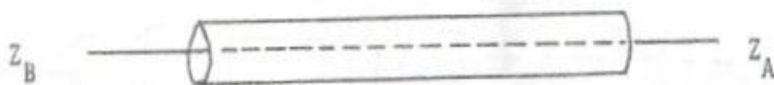
The splitter is usually placed at some central point in the aerial cluster, so that the four aerial feeders connected to B and C are as short as possible, but equal in length.

Choose a cable impedance (most people choose 50-ohms as the majority of test gear is made for this impedance) and individually match the four aerals to this, say  $Z_0$ . The branch feeders WB, XB, YC, ZC, the transforming sections AB and AC and the main feeder AD, to transmitter and receiver, are then all of the same impedance  $Z_0$ . See, no weird cable impedances, just like I promised. How does this happen?

Let's choose  $Z_0 = 50$ -ohms. If all four aerals are matched to this cable impedance  $Z_0$  there are no standing waves on cables WB, XB, YC and ZC, and looking into each cable we see 50-ohms. Let's now consider point B.



The impedance at point B, looking from the direction of AB is 25-ohms (two 50-ohms in parallel). If section AB is electrically a quarter wave long it acts as an impedance transformer thus:-



$$Z_0 = \sqrt{Z_A Z_B} \quad \text{OR} \quad Z_A = \frac{Z_0^2}{Z_B}$$

$Z_0 = 50\text{-ohms}$ ,  $Z_B = 25\text{-ohms}$ , then  $Z_A = 100\text{-ohms}$ .

Thus looking into section AB at point A we see an impedance of 100-ohms. If the section to the right of A is identical to that to the left, then the impedance looking into section AC at point A is also 100-ohms. If we combine these and look at A along DA what do we see? Yes you guessed it, 50-ohms, which is a perfect match for the main feeder DA. Note that this splitter works for any cable impedance provided all the cable is the same and the individual aeralis are matched to this impedance.

Let's now find the lengths BA and AC for a 2 metre and 70 centimetre "FOUR WAY CABLE SPLITTER"

$$\text{Electrical length BA} = \text{AC} = \frac{\text{free space wavelength}}{4}$$

$$\text{Physical length} = \text{velocity factor} \times \frac{\text{free space wavelength}}{4}$$

For solid dielectric polyethylene cables V.F. = 2/3

$$\text{Therefore Physical length} = \frac{\text{free space wavelength}}{6}$$

A good compromise design frequency for each band is:-

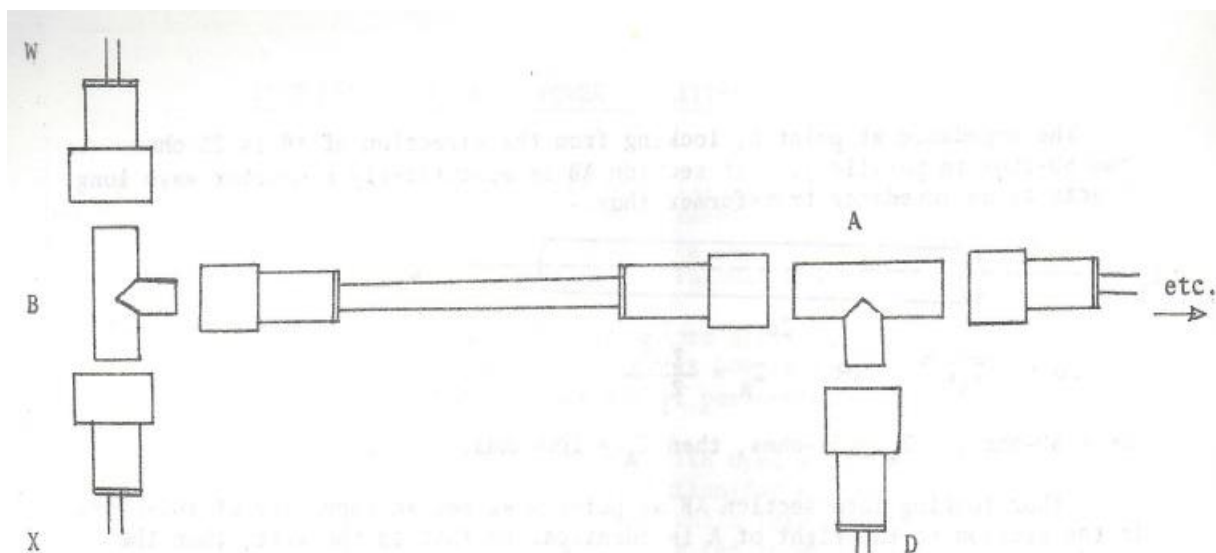
$$145\text{MHz Physical length} = 82/6 = 13 \frac{11}{16} \text{ inches}$$

$$435\text{MHz Physical length} = 82/18 = 4 \frac{9}{16} \text{ inches}$$

and at these frequencies the VSWR of the splitter will be 1.00.

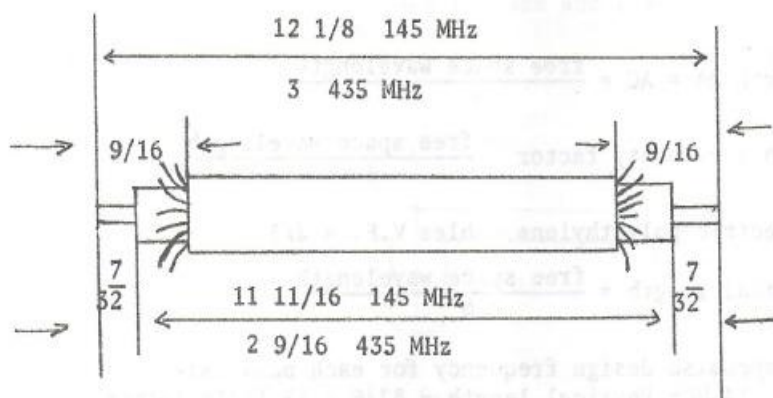
The junctions A, B and C may be easily made without connectors by removing the outer cable jacket, cutting the braid and removing a small portion of dielectric to reveal a length of inner conductor. Solder the inner conductors at the junction, melt a little polyethylene over the gap, from the chunk you cut out and mould it back to the original diameter. Comb the braid out slightly till there is a continuous cover, wrap a little thin tinned copper wire over the top and tack in place with a little solder. Apply waterproof tape.

If you are rolling with dough then a better solution is to use connectors. Type UHF connectors should be avoided like the plague. Their impedance varies between 25 and 30-ohms. Type BNC won't take the size of cable desired and Type C tend to uncouple themselves while the plastic tape is being applied for waterproofing, so that leaves type N connectors.



For use with RG - 8A/U and RG - 213/U cable (50-ohms) the tees are UG - 28A/U and the cable connectors are UG - 21B/U not UG - 21D/U which have a poor grip on the cable. AWA and a number of other suppliers have small quantities of these connectors.

Cable cutting instructions for type N connectors:-  
quarterwave sections.



#### Performance.

The splitter maintains equal power division and exhibits negligible loss over a wide range of frequencies either side of the design frequency, the only fault being a slow rise in VSWR, though a lot less rapidly than the rise in VSWR found with most common aerials.

#### Design frequency.

VSWR	1.10	1.05	1.00	1.05	1.10
2 metre version	139	142	145MHz	148	151
70 cm version	417	426	435MHz	444	453

Any aerial mismatch will worsen the overall VSWR.

When RG - 8A/U or RG - 213/U cable is used the splitter will handle the output from a kilowatt Ham transmitter on both hands. At this level the main feeder will have to be a little larger, say RG - 17A/U, RG - 218/U or even RG - 318/U.

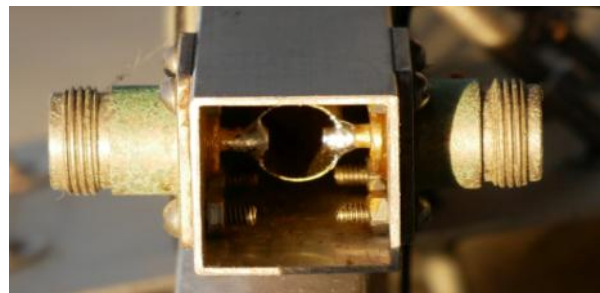
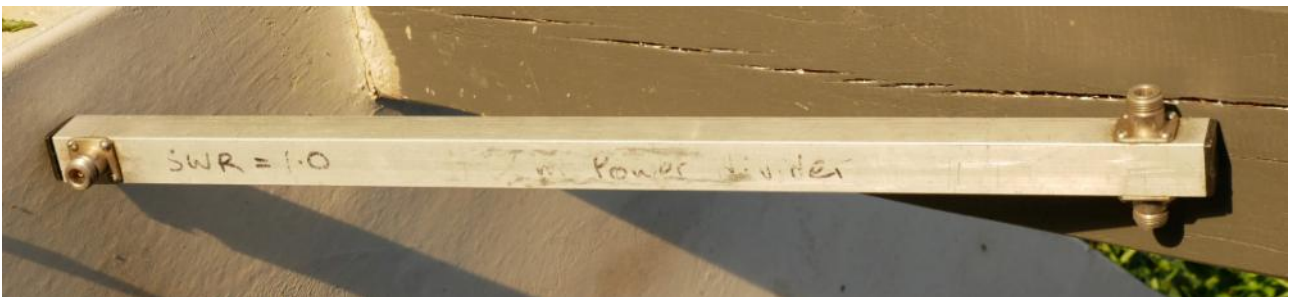
Now, if you want to run 10 KW .....

## An alternative way to make more robust Splitters

This concept is more precise and weather-proof

There is a simple formula for the diameter of a tube inside a square extrusion to present any given impedance to a N(f) connector (or two) at the ends (or middle) of the tube. A common requirement is 1 input to 2 or 4 outputs. The photographs illustrate a 2 m and 70 cm use. The tube is available from Hobby City at Mt Wellington in 12 inch and 36 inch lengths. A 36 inch tube can be cut for a 70 cm half wave 4-Way splitter and 2 concentric tubes can be used for a 2 m 2-Way splitter. The 36 inch is cut to the 70 cm half wave length and two concentric tubes satisfy the 2m quarter wave length. The larger tube uses the 12 inch and the next size down 12 inch is cut to the quarter length allowing for an overlap. A solder fillet will join them.

The square 25.4 mm square extrusion has holes drilled at the ends allowing for clearance of the plastic end plugs. The hole's diameter should allow the N(f) connectors to sit flat. The flanges can be used to mark out holes for bolting the N connectors to the extrusion. For the 4-Way splitter holes must be drilled in the middle on both sides of the extrusion. A hole is drilled through the tube big enough to pass a wire through the tube from the N(f) connector and long enough to fold over and solder to the tube on the other side from the N connector. Tape can be used to weather-proof the extrusion. The ends of the tube can have a "V" notch made to make for a good solder joint to the N(f) pins.



Peter Loveridge ZL1UKG  
Editor



## **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](mailto: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 2021

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 **\$55.00**

ASSOCIATE MEMBERSHIP **\$50.00**

FAMILY MEMBERSHIP ADDITIONAL **\$20:00**

*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,  
Web: <http://www.aucklandvhf.org>  
NEW ZEALAND



NAME				
Mr/Mrs/ Miss/Ms	Christian or given		Surname	
Address			Date:(dd/mm/yy)	
			Phone: (home)	
			Phone: (work)	
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 #)
Category			To pay	
Membership	Full		\$55.00	\$
New/Renewal/Change	Associate		\$50.00	\$
Receipt #	Family (per member)		\$20.00	\$
Donations	Klondyke Refurbishment			\$
Auckland/Brynderwyn/ Klondyke/670/690	Repeater Maintenance			\$
	Data/D-Star			\$
	Beacon/Repeater/Links/ Licences			\$
	Other			\$
			<b>Total</b>	\$
Payment (Mark One →)		Cash <input type="checkbox"/>	Cheque <input type="checkbox"/>	Internet deposit <input type="checkbox"/>
Invoice/Statement required		<i>Please Advise Treasurer</i>		
Internet	To account ASB 12-3011-0830580-00. Account name is: Auckland VHF Group Inc. Include your Name/Callsign for us to track. Note: this form needs to be sent to us to update records. Email to: <a href="mailto:treasurer@aucklandvhf.org">treasurer@aucklandvhf.org</a> .			
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 <sup>nd</sup> Monday of the month or to the Committee meeting the 4 <sup>th</sup> Tuesday of the month.			
Privacy	Unsubscribe from Email Notifications <input type="checkbox"/>		Do Not disclose contact Information <input type="checkbox"/>	



***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 2021*

**2021-04-13, 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		Waiting for Antenna
144.575 Digipeater	Whitford		
145.625 Data Rptr	Klondyke Road		
145.650 D-Star Rptr	Klondyke Road		
146.625 Repeater	Klondyke Road	\$50.00	David Wilkins
146.700 Repeater	Ruaotuhenua	\$50.00	Dennis Thornton
146.900 Repeater	Mt Puketutu	\$50.00	David Wilkins
432.253 Beacon	Nihotupu		Stability testing
438.175 D-Star Rptr	Klondyke Road		
438.450 Repeater	Klondyke Road		
438.500 Repeater	North Head		
439.850 Kaimai Link	Klondyke Road	\$50.00	George Marr
439.875 Nat System Rptr	Klondyke Road		
439.900 Egmont Link	Klondyke Road		
439.950 Brynderwyn Link	Klondyke Road	\$50.00	Kylie Peterson
1291.900 Repeater	217 Glenfield Rd		
DMR Rptr (Waitakere)	Quinns Rd		Auckland Area AREC
		<b>\$300.00</b>	

**2021-04-13, Donations for Refurbishment**

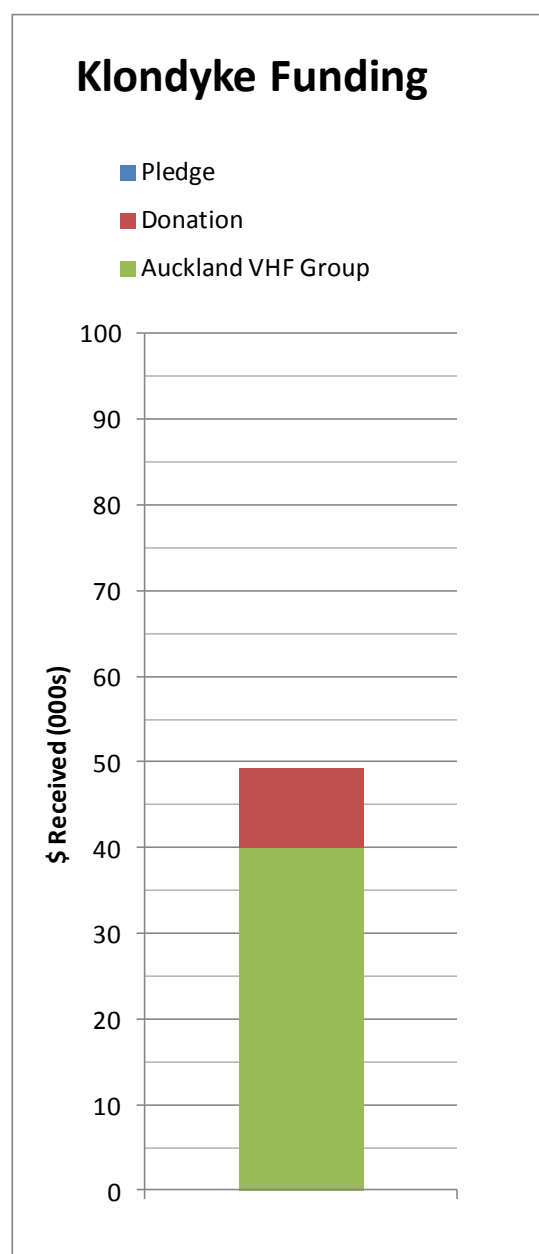
Auckland Branch	\$100.00
Manukau Radio Club	\$100.00
Brenton Faithfull, ZL1BBF	\$50.00
Papakura Radio Club	\$500.00
Ann Walker ZL1BFB	\$100.00
Soren Low ZL1SLK	\$100.00
	<b>\$950.00</b>

**Total \$1,250.00**

**Klondyke Tower  
Donations towards Maintenance**

**Target      100,000**

Name	Donation	Pledge	Tower	63,245.00	Other	27,268.25
			GST	9,486.75		
Donations 2018 - 2020	8444.00					
			Total	72,731.75	Total	27,268.25
Margaret Dingley ZL1AYV	100.00					
David Dingley ZL1TIA	100.00		Auckland VHF Group	40,000.00	40.00	
Jennie Dingley, ZL1TDB	100.00					
Yuri Muzyka ZL1GYM	50.00					
Martyn Seay ZL3CK	500.00					



Total	9294.00	-
Percent	9.29	0.00

## 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!

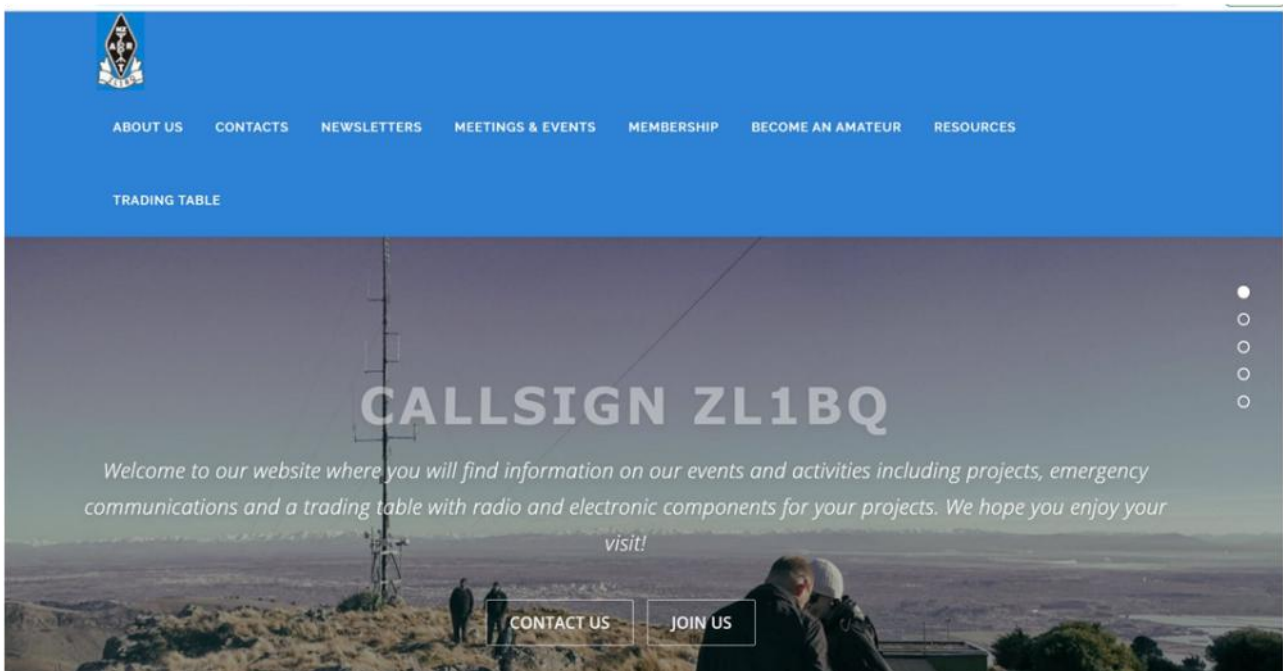
**NEW** – RG58C/U 50 Ohm Coaxial Cable. Thanks to a bulk purchase we are able to offer this good quality coax at a competitive price. The cable has tinned centre conductor and screen braid making it resistant to long term corrosion. The price is \$2.00 per metre with a discount for purchases of 20m or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



## 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