

THE MUSE



-----JUNE 2025-----

The newsletter of the MUSICK POINT RADIO GROUP (INC.) NZART BRANCH 86
Incorporating The Society for the Preservation of Amplitude Modulation (SPAM)
and **Green Radios On The Air (GROTA) News.**

Musick Memorial Radio Station, Bucklands Beach, Auckland. Call Signs ZL1ZLD, ZL1ZLF.
BRANCH 86 NZART NET- TUESDAYS, 7.30PM, 145.775 MHz, Musick Point Repeater (ZL1HK). All welcome!
SPAM WEB SDR Remote Receiver - <http://spamnz.zapto.org:8901/>
MPRG KIWI SDR Remote Receiver- <http://musickpoint.ddns.net:8073/>
Musick Point Website- <https://musickpointradio.org> Webmaster-Neil ZL1NZ.
SPAM ZL6AM or ZL1ZLD AM Nets- Fridays 8.30PM, 3.850MHz, Wednesdays at 11.30Hrs, 7.125MHz
Museletter Editor- Martyn, ZL3CK.
Meeting- Second Sunday of the Month (Except May-Third Sunday, to avoid Mothers' Day)

NEXT MEETING- Sunday June 8th@ 1pm. Coffee and tea provided. A Report from the NZART Conference will be presented.



The Musick Memorial Radio Station at night on one of the recent Friday evening gatherings.

From the Chair

Finally, the NZART Centenary Conference venue has just been decided. This will take place over King's Birthday weekend, 2026, which is one year from when I write this. An online meeting of the 'committee' made the decision, after a lot of discussion, that the Conference will be held at Ellerslie Events Centre. By the time you read this, the announcement will have been made at the Convention in Wellington this weekend. There are some big things being worked on with the aim of having a really excellent and exciting weekend with lots to see and do. We are all hoping for a really outstanding attendance next year to help celebrate 100 years of NZART, and to look to the future of amateur radio in New Zealand.

Dave, ZL1DL, has recently been raving about Sodium batteries and their benefits. This brought me to thinking about telling a joke about Sodium, but then I thought, "Na, nobody will get it."

My XYL recently bought a couple of glass bottles with those stoppers that have the wire gadget that clips down to close the bottle. They have replaced the old plastic bottles that we used for water. The issue that I have is that the bottles have been made with characters about 20mm high on the outside that say, "1000ML". Every time I use a bottle, I cringe about this terrible 'crime' against my sanity with the use of measurement symbols that are incorrect. The international system (SI) of measurements specifies that the symbol for millilitres is "ml". The capital "M" means mega, and "l" is for litre. There is no symbol "L" used. The bottles do not hold 1 trillion litres! We would notice that, I am sure. Similarly, "m" is the symbol for metre, being about 39 inches in the old money. There is no meter in the SI system, meters being used to measure things like Volts, Amps, SWR, etc. Now that I've got these issues dealt with, I will move on (it must be my OCD kicking in again).

I left my Baofeng sitting on the centre console in my car. Someone broke in and left three more.

Friday night saw Dave ZL1DL, Maurice ZL1MPU and yours truly at Musick Point, and in the room where coffee is consumed; of course, what do you expect? Interest was focussed on Dave's new toy: the Quansheng TK11 handheld radio. You will need to read the spec sheet for all the important things available with it, but what I rather like is that, out of the box, it transmits on 6m, 2m and 70cm bands. While we were going through some of the 'features', we heard John ZL1OJ put out a call. Dave quickly changed a setting and gave the radio to Maurice to respond. The result was hilarious and had the three of us rolling with laughter; in fact, you could say that we laughed so hard that the tears were nearly rolling down our legs. Needless to say that John did not reply – he was totally confused. Maurice finally spoke normally again, having turned off the "Magic" setting so that he didn't sound like a little girl chipmunk, and had a conversation with John. After a bit of settling his nerves, attention turned to trying to use the 6m repeater at Klondyke. Results were less than satisfactory – I should say that they were actually rubbish, and we were convinced that the repeater antenna is defective. This is after Maurice tried talking to John using the IC7700 to John's IC7300 where results were no better. Not a great outcome, but we all had a bit of fun, which is what amateur radio is all about.

A young lady (YL) has a date with an amateur. They are sitting at dinner in a romantic restaurant. She asks: "So, what is your favourite band?". He replies, "7Mhz!"

Sunday found most of us outside in the icy wind, playing with Edward's (ZL1EC) VHF/UHF antenna. He has this interesting and annoying issue that he can transmit with a good signal into the Musick Point repeater but cannot hear anything. After plenty of trying this and trying that and then trying something else, we decided that there is nothing wrong with the antenna. Lots of other testing and more trying led us to the conclusion, I think, that Edward needs to move house. Harry, ZL1BK and Edward rigged up a quick-and-dirty quarter wave vertical using a SO239 and five lengths of copper wire, i.e., a vertical element and four radials, which was subjected to a VNA. This resulted in a couple of slight trims off the element which brought it to a very good resonance near the MP repeater frequencies. Good luck with that in your tests at home, Edward.

What is a ham radio called in Italian? "Radioprosciutto."

That's it for now, until next month:

73, and call CQ, David, ZL1DRV

Musick Point News

A few of us attended the annual **REG radio equipment sale** in Hamilton. A good time was had by all and a good catch up with a number of past and present Musick Point members.



Graham ZL1TOF in deep discussion...



David ZL1BOA checking out the Musick Point offerings.



Now what am I offered for this egg? **Wally ZL1WE**



Kevin ZL1KFM, Dave ZL1DL and Wally ZL1WE

And finally... An intrepid group including **Harry ZL1BK, Mark ZL1MRT, Dave ZL1DL** and others lowered **Paul ZL4AX's** aerial base from the roof. It was quite a performance as it was very heavy.



NZART Conference News & Notes

Your Editor attended this event which took place in Lower Hutt over King's Birthday weekend 31 May-2 June.

Subs for the year are to be \$130 with a \$15 discount for payment before 30 November 2025

Our **Branch 86** has 17 transmitting members and 1 non-transmitting member, the numbers would be needed for the remits should a count be required.

The first remit has been designed to change AREC into a limited liability charitable company in order to protect members from risk, allow the AREC to enter in to legal contracts and to recruit volunteers from outside the NZART membership. Discussion about the eligibility of non-amateurs and non-NZART members being involved in AREC activities.

As a result, Paragraph "h" was amended to read-

"Members of AREC must be also members of NZART. Non-amateurs may be associate members of AREC. Associate members shall be entitled to take part in AREC activities and enjoy such other rights as the AREC rules may prescribe but shall have no right to hold office in AREC or AREC group.'

The amendment was passed and the amended remit was then passed.

The second remit is of importance to us and will require a change to our constitution The problem has been that the way the rules of NZART are written, non-NZART members are effectively excluded from a NZART "Branch" radio club. This remit was also subject to an amendment, the important part being paragraph "D" and now reads-

"Branches may also have associate members who shall be entitled to attend meetings and enjoy such other rights as the branch committee may prescribe but who shall have no right to vote *on NZART matters* or hold office in the *branch*". Thus non-NZART members can participate in *club* activities but not vote or hold office in the *branch* .

The amendment was passed, and the amended remit was passed with 1 objection and two abstentions. No formal counts were necessary.

The third remit (by the Gisborne Branch) was withdrawn.

Thus the AGM concluded in record time! **We need to ensure this happens next year** as Conference 2026 is to be more about celebrating the NZART centenary and public engagement with amateur radio than about business.

Other Conference items-

After lunch a simple transmitter hunt located in the gardens behind the conference centre kept us busy for a couple of hours. This was a good way to learn how to set up a simple foxhunt not requiring complicated rules and needing only your handheld radio. No Yagi even required! Just pull off the rubber duck to see if you are within a few meters of the fox. There were 3 UHF foxes and 2 VHF, and it took all afternoon to find them all! It also meant the editor had to learn how to program a Baofung

Ivan ZL1ATU was awarded his life membership, and **Soren Low ZL1SKL** received the Amateur of the Year Award.

The **Alpine Fault Network** is definitely of interest to us at MP as they need HF stations to act as 'calling links' for field stations in the event of the worst happening somewhere other than Auckland. We should be well suited to be one of those stations given our facilities. The philosophy of the AFN is that amateurs are

to be self motivated and set up a station on the air without being asked or otherwise organised and be prepared to do whatever is necessary to be done.

Peter ZL3PWM the founder was keen to point out that there's no PPE, payments or funding other than what you do for yourself. Go to- <https://afn.org.nz/> for the full story.

AREC forum discussed the change to a wholly-owned charitable LLC of NZART. More on this will be reported in Break-In and via email if you are an AREC member.

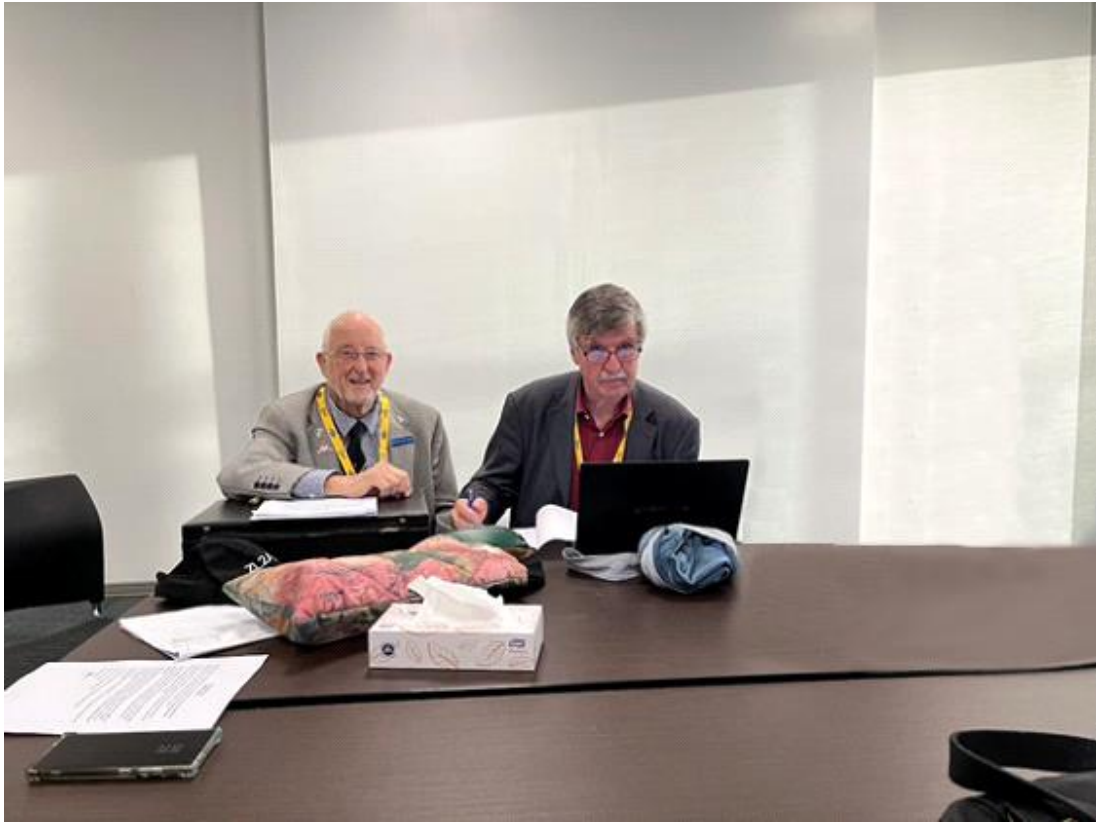
Don Robertson, the CEO is retiring and his replacement spoke briefly to the conference.

OTC reconvened after being in recess (as no-one wanted to take over from **Ivan ZL1ATU** in 2023). **Don Wallace ZL2TTL** and Ivan kept the club record in order and in fact Don spent a lot of time at Ivan's to update the database. He will continue in the role of data manger and **Kerry Frame ZL1VW** has stepped up to be Secretary/treasurer/scribe. Ivan accepted the position of GOM for another year.

Running a Ham Cram and how to keep the new Hams in the club was a very good wide-ranging presentation by Mike Woods ZL1AXG. Links to his presentation and the power point slides are available on request to the Editor.



Daniel Liddle ZL2DTL and **Mike Woods ZL1AXG** presenting how to recruit new members.



Ivan ZL1ATU, Don Wallace ZL2TLL



Fox hunting- light entertainment after the AGM

Paper Capacitors

Graham Baker ZL1TOF

We often replace paper capacitors in our vintage radios because they have become leaky, Figure 1. I saw a post that said boiling the water out of the paper insulation could recover a leaky wax sealed paper capacitor. A better option is to place the film cap inside the paper or metal tube after the old innards are removed.



Fig.1: Vintage wax paper capacitor

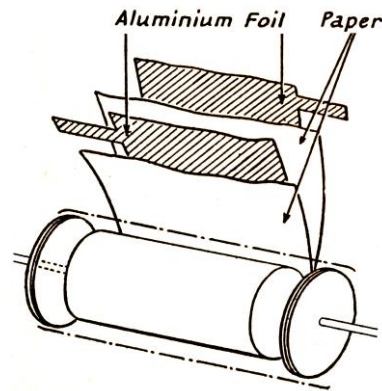


Fig.2: Cap construction with tabs

Paper capacitors were invented by D. G. Fitzgerald in 1876 to replace Leyden jars used in the study of electronics of the day. They were made with wax impregnated paper and metal foil electrodes. Metallised paper capacitors were patented in 1900 by G. F. Mansbridge.

It was not until Bosh made lacquer-coated paper vacuum-deposited metal film capacitors during World War II that they became reliable. In 1954 Bell Labs took the next step and made metallised lacquer film capacitors, much smaller than the earlier paper capacitors. Polyethylene terephthalate (PET) was patented by Whinfield and Dickson in 1941. In 1952 Dupont trademarked PET as Mylar and made metallised capacitors with it. Other plastic films were developed and used in capacitor production.

Paper is made with cellulose fibres usually from wood pulp. Paper normally has a moisture content of about 10 % by weight, this is removed before the paper is impregnated with wax or oil. The paper capacitor is manufactured by winding together two aluminium foils interleaved with a number of layers of capacitor tissue. At least two paper layers are used to avoid the effects of conducting particles in the tissue. For higher voltages more layers are preferred.

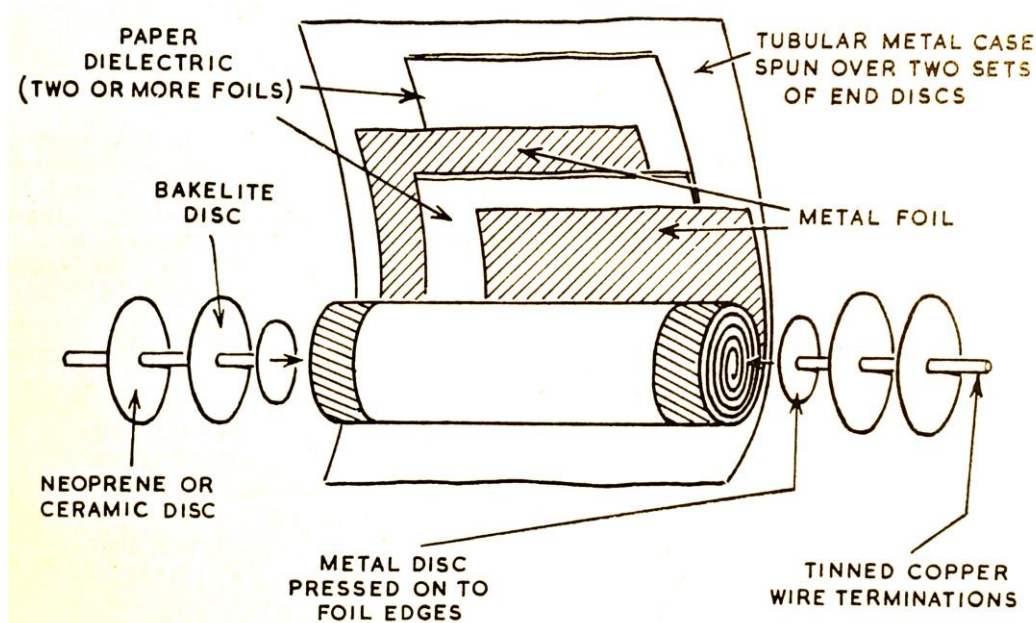


Fig.4: Cap construction with foil edge contact

Contact to the aluminium foils is usually by means of tinned copper tapes welded to the aluminium foil, Figure 2. Cylindrical models are wound on a small-diameter mandrel. A larger mandrel allows the element to be flattened to fit a rectangular case. Wax is normally suitable for DC applications. Waxes are not suitable for AC applications because shrinkage on cooling leaves gas voids. Oils have the advantage over waxes of not forming voids, minimising internal discharges which would reduce capacitor life in AC circuits. Oil filled paper capacitors are still being made for power applications.

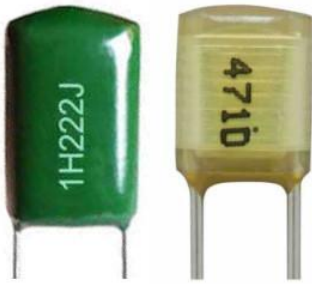


Fig.3: Film Caps with tab contact



Fig. 5: Film Caps with foil edge contact

There are two types of film capacitor: wound and layered. The terminals of the wound film capacitors may be brought out as tags on the two foils or wires wound into the metallised film capacitor, Figure 3. These are used for low frequencies as they have significant series inductance. To get lower series inductance the foil or metallisation is brought to the edge so the connection can be made to the full length of the plate in the roll, Figure 4 & 5. Early types used a pressed contact that could corrode and cause failure. Later the contact was made by metal spray, or schoopage. Layered film capacitors and surface mount types uses this technique too, Figure 6.

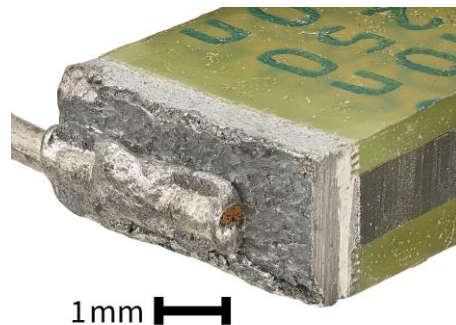


Fig.6: Layer film cap with metal spray contact

Most modern capacitors are metallised film types. Common films in order of production volume are PolyPropylene (PP), PolyEthylene Terephthalate (PET) also known as polyester, PolyPhenylene Sulfide (PPS) and Paper (P). The remaining 4% share is accounted for by the other dielectric materials.

Many paper and film capacitors were marked with a band at one end to signify the outer foil. This was done to reduce capacitive coupling to the rest of the circuit. The modern axial film capacitor we are using for replacement rarely have outer foil marking. Does it matter? Maybe. What to do? Doing nothing may degrade the performance of the set in some way.

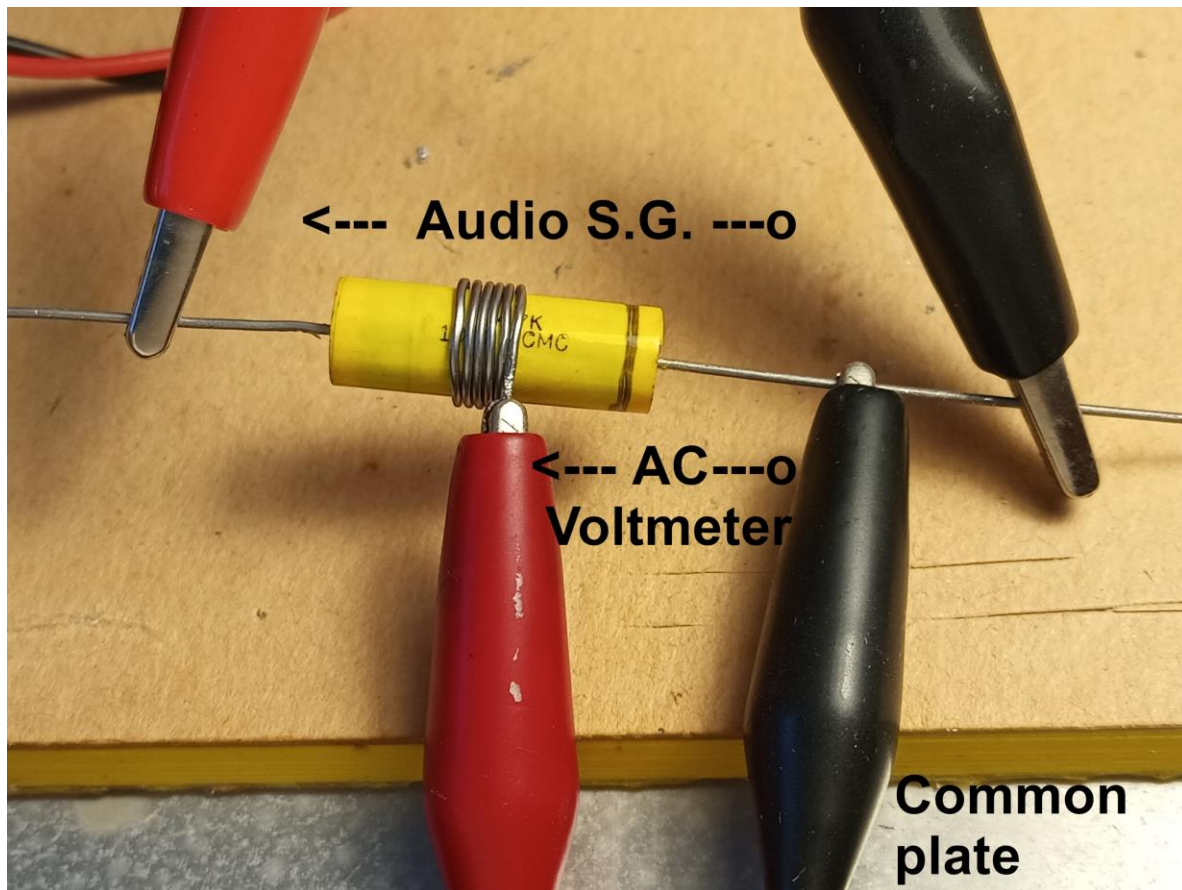


Fig.7: Finding the outer foil.

It is possible to find the outer foil of wound models by winding a short length of solder over the centre of the capacitor in the same direction as the capacitor is wound, Figure 7. Apply an audio signal generator to the capacitor and measure the voltage, with an ac millivoltmeter, between the solder and the common side of the generator.

Take a note of the measured voltage, reverse the capacitor under test and repeat the measurement. The lowest reading indicates the outer foil is connected to common, then mark the outer foil with a felt marker, before you forget. Note: common is sometimes the same as earth

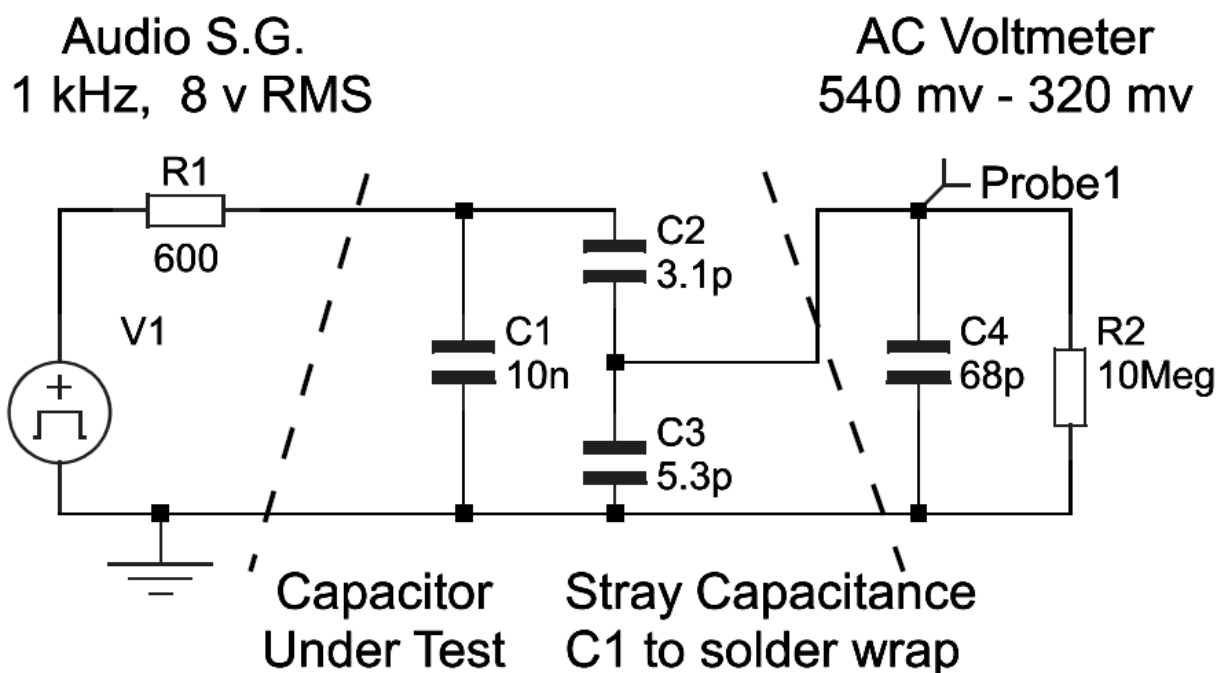
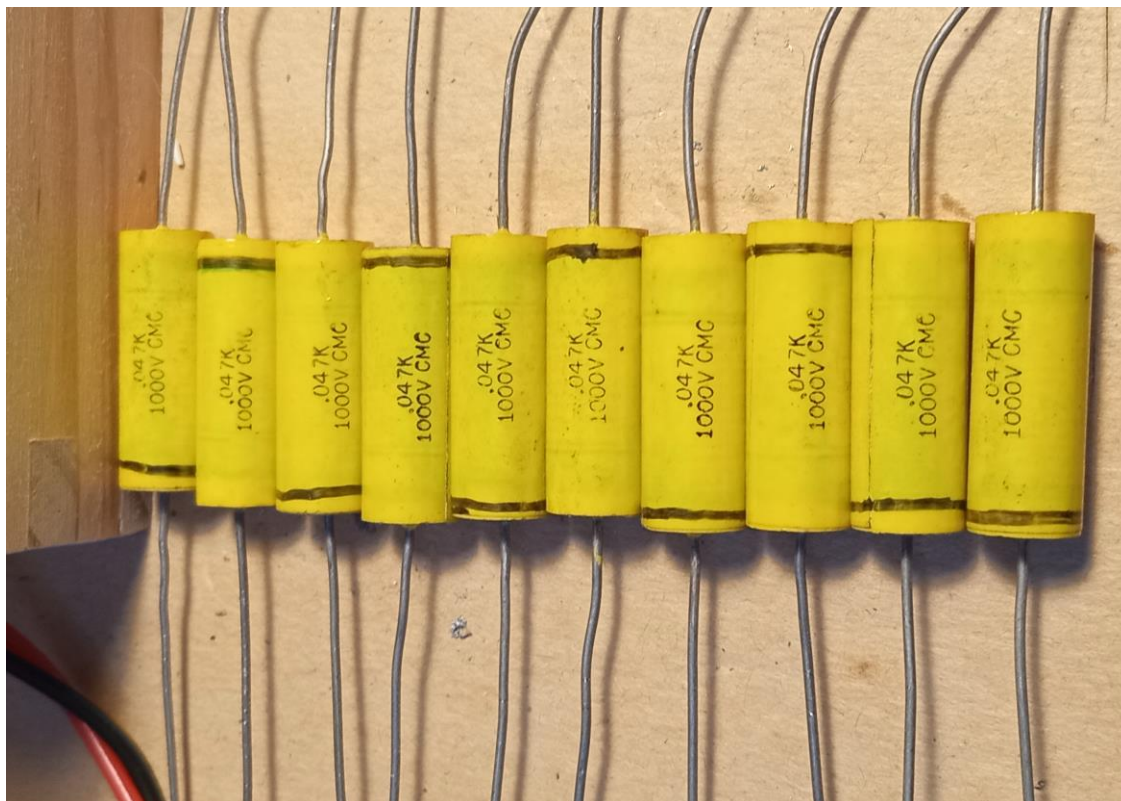


Fig.8: Schematic of finding the outer foil

Figure 8 above shows the schematic from my circuit simulator where I tried to find the value of the stray capacitance, C2 & C3. The earth symbol is necessary to make the simulator operate. On the left is the audio signal generator with R1 being the output impedance. On the right is the AC Millivoltmeter with C4 being the cable capacitance of 47 pF and the input capacitance of 20 pF in parallel with 10 megohms being part of the input attenuator. The probe graphs the output voltage, not shown, where other measurements can be done.

You will need to work over a common plate to keep the hum down as the signals are small. You can check this by turning the audio generator down to nothing and seeing the hum and noise voltage. I used 1000 Hz as the voltage across the capacitor was high on 0.47 uF, the largest value I expected to measure. If you use capacitors like the layered type, that can look like Figure 5, this test may fail. Don't think that measuring one will tell you the label printing will give an indication of the outer foil, Figure 9 below:



SPAM News

The nets on 80 and 40 meters continue to attract a fair number of regulars and the occasional new call. Interesting topics for discussion (apart from the weather and signals) are encouraged! There are quite a few listeners out there and we should try to make the nets more than just a 'contest type' QSO. The NZART conference at Lower Hutt was a good gathering of about 100 hams with many different fields of interest represented. As there was no SPAM AGM this year, in order to keep the record straight, I have attached a report in lieu of minutes.

David ZL4DK was there and we had a good chat about his ZC1 linear and his plans for it.

Gary ZL2TBH noted that he'd joined up some years ago but never received his certificate.

He is confirmed as a member, no. 315, joining on 8 Dec. 2011. A belated welcome Gary and your certificate is on the way.

Please Note- If you are a member and don't have your unique SPAM certificate, then let the editor know and it will be on the way to you.

SPAM Report for June 2025

Silent Key- Howard Buxton ZL1BXA/ZL1WAI

New members- since previous AGM-

327	ZL1NUX	Denby	Gavin
328	ZL1AJC	Shaw	Reuben
329	ZL2UV	Prout	Steven
330	ZL1TOB	Crawford	Jeff
331	ZL1BXA/ZL1WAI	Buxton	Howard(SK)
332	ZL4QT	Donoghue	Alan
333	ZL2TSU	Bristow	Eric
334	ZL3TDE	Bicknell	Roy
335	ZL2ASB	Anderson	Hugh
336	ZL4ROB	Patterson	Rob

Welcome to all the new members.

Finance- \$535.09 in the ASB society account.

The SPaM ASB bank account is still operating under signatories Steve ZL1FS and Martyn ZL3CK. A few postage expenses in addition to the purchase of the Kiwi SDR have reduced the amount. There is enough left to purchase a second "Kiwi", it would be desirable to have another in the South to hear the Christchurch GROTA activities better.

Long term it is suggested we close the account.

Activities-

H night- again well attended, about 28 contacts at Musick Point, and was a lot of fun.

Thanks to Rob ZL2IW for organizing this.

SDR's- The SPAM webSDR at Musick Point continues to give good service especially on Friday night's Net.

The new Kiwi SDR has taken quite a bit of work to sort out including a repair by the agent due to RF overloading from a nearby AM transmitter. The aerial has been successfully moved to a remote mast 50 meters away with excellent results. This has been achieved by the MP group including ZL's 1DL, 4ROB, 1BK 1DRV and others.

Discussion- suggestions? Another Boat anchor night?

GROTA update for May 2025 from Kelvin ZL3KB-

In the recent GROTA (Green Radios On The Air) trials, the team were operating on Mt Pleasant in Christchurch with WS48 and a C12 radios. By good fortune, Dave ZL4DK in Mosgiel, Dunedin managed to work them with his modified ZC1, a DX of 320km. The C12 (5Watts) was good copy to him, the WS48 set was "marginal but OK, with QSB". Although this contact was mostly sea path, the surface signal would have dissipated after ~10km of the 60km ground segment, therefore it had to be Near Vertical Incidence sky wave, and the fading nature of the contact confirmed that. The lower D layer could have been quite obstructive, but at 7MHz with the signal going straight up and down, it probably got through with little hinderance.

Nevertheless, a good achievement considering the Chch WS48 set was only emitting 20mW (EIRP) on AM, and the vertical rod aerial does not radiate well vertically. Also, Dave must have had very low noise at his site.

This QRPP contact starts to show the effect of the solar maximum we are going through, where the daytime ionosphere F and E layers are getting dense enough to efficiently 'turn around' a relatively high frequency (7MHz) signal and send it straight back down.

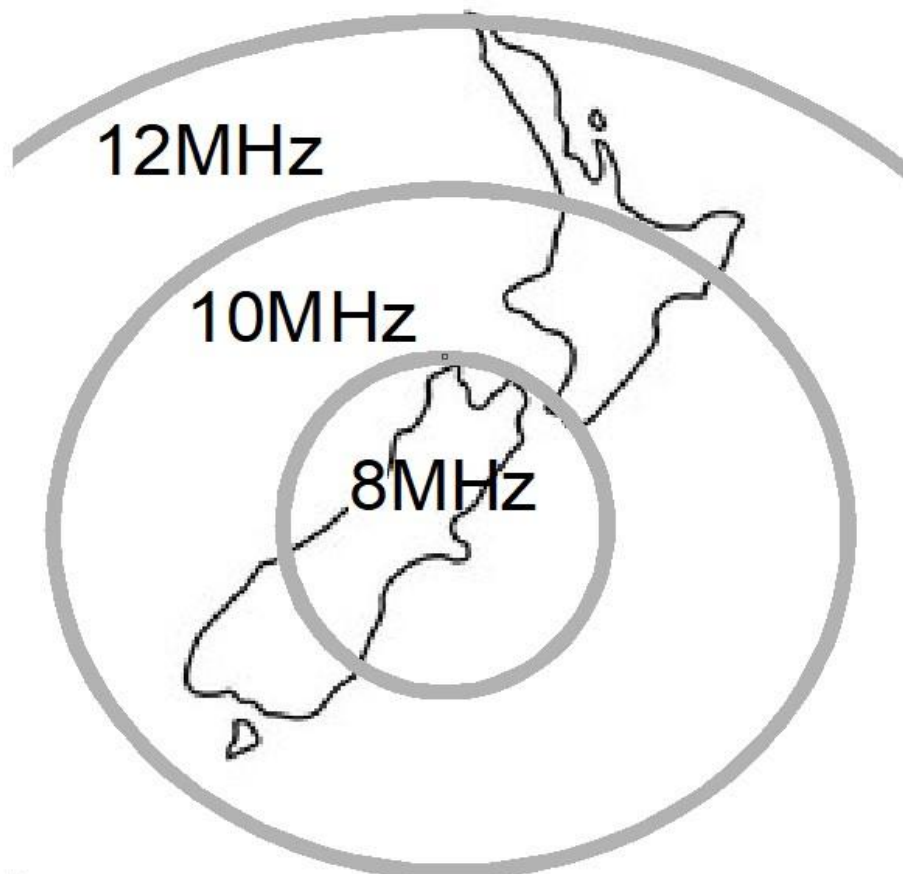


Fig. 1. Propagation Chart 11 May 2025.

The diagram in Fig1 shows the ionospheric situation on that day, (redrawn from the charts from https://www.sws.bom.gov.au/HF_Systems/1/1/2)

You can see Christchurch Dunedin path could be covered by frequencies up to 8MHz. Any higher frequency would either go straight out into space or take a longer skip distance and hence cover the rest of the country.

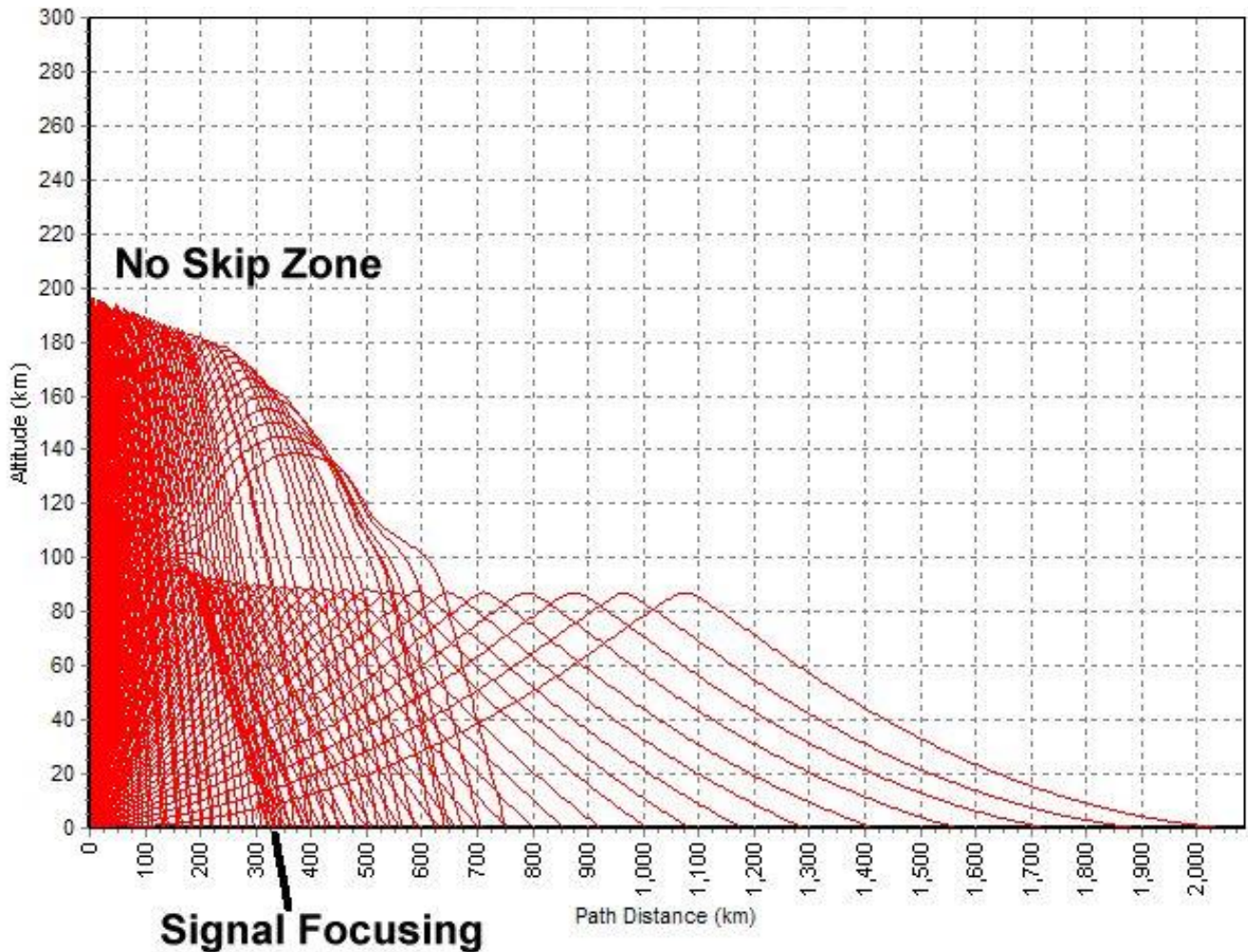


Fig. 2 . Near Vertical Incidence Propagation

Interesting ray trace diagrams can be found on Wikipedia under the “skip zone” title, reproduced here. Fig 2 shows how a dense ionosphere can return ‘Near Vertical Incidence’ (NVI) signals to earth in a short distance, as happened to our 7MHz to Dunedin. However, Fig3. shows how higher frequency NVI signals will be lost to space or skip over the near distances.

In support the Christchurch - Dunedin trial, the team attempted an evening contact over a similar distance from Christchurch to Tasman Bay, with higher power (>30W SSB) radios. Despite the extra power, this test resulted in just a marginal one-way contact only on 40m, showing the ionosphere had diminished at nighttime, and could not support short distance skip.

So, with this solar maximum, we can look forward to some record-breaking daytime skywave QRPP trials this year, hopefully we can crack the Trans-Tasman path with 48 sets?

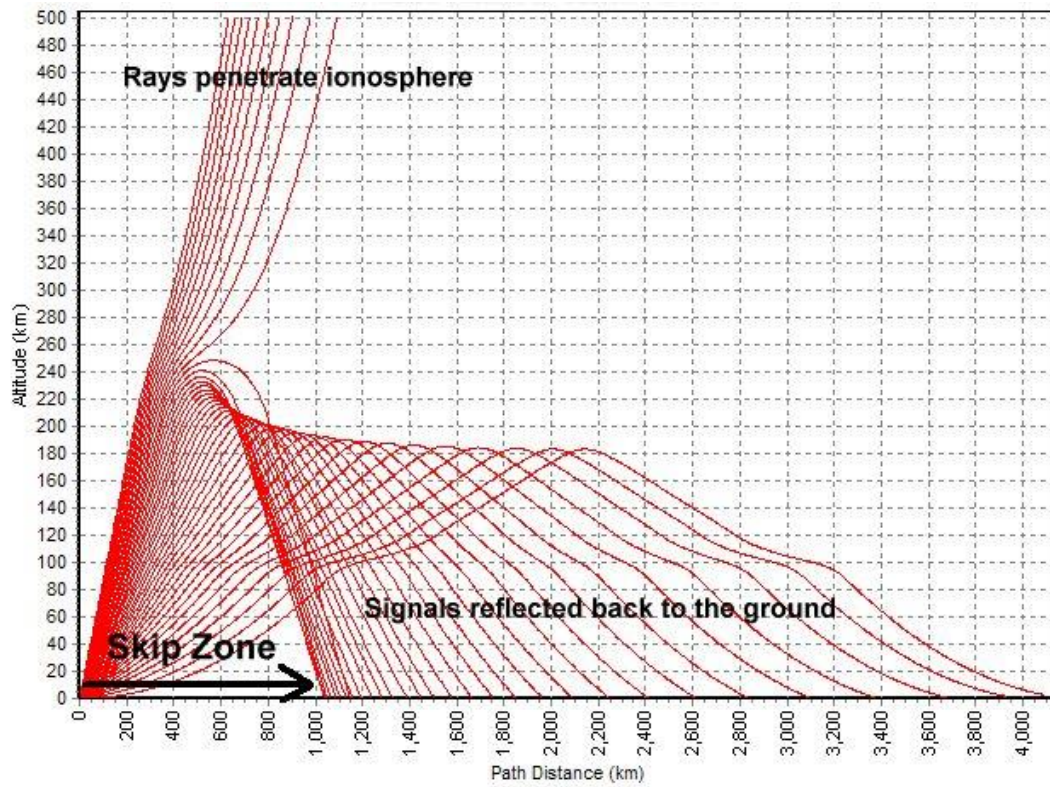


Fig. 3. Ray tracing of signals in the F layer



Des ZL3AK at Mt Pleasant

Tracking Noise Sources on VHF

Locating RF noise sources can be frustrating but certainly satisfying when you finally "seek and destroy" the source of annoyance.

For some time, I suspected reception of marginal signals on VHF was not quite what it should be – possibly owing to local noise. So time to seek out the "noisy oyster". Unlike manmade noise on HF – which tends to have quite a definite rowdy cadence, a lot of noise on VHF is more like "white noise"; far more subtle and not as easy to audibly track down.

In hunting noise, we normally listen for the strongest indication of the noise. Easy when the noise has a distinctive identity! Instead of looking for noise per se, I wondered if looking for deterioration of the wanted signal owing to noise increase would be easier, given the quiet hiss of white noise isn't so easy to chase. Now FM has an interesting signal to noise (s/n) characteristic. Above a certain s/n ratio, audio recovery is arguably the best of any analogue audio modulation. But below a certain s/n, audio rapidly deteriorates. This rapid decline in intelligibility at low s/n ratios could be an advantage!

In the two images to the right (taken from a Quansheng TK11), the first photo shows the response to a noise generator set to provide an indicated -100dBm. The RSSI for the 146.5 MHz frequency is displayed as A-100. This indicates -100dBm for the "A" channel. To the right of the RSSI value is an RSSI bar graph. In the second photo the noise source is replaced by a 146.5 MHz signal at -100dBm. Note the additional bar graph that has appeared above the RSSI indication; this bar graph indicates s/n.



1: Noise Generator at -100dBm



1: Signal (144.6 MHz) at -100dBm

To demonstrate the falloff in audio recovery on FM compared with SSB, the noise source is switched on along with the wanted signal. The levels of both the noise and wanted signal are set to approximately -100 dBm. Photos 3 and 4 show the comparative s/n bar graphs for FM and SSB. Note the deteriorated s/n for FM while SSB holds up well.



3: Noise + Signal: FM response



4: Noise + Signal SSB response

To take advantage of the FM characteristic of a rapid falloff in recovered audio at low s/n ratios, I set a signal source on 146.5 MHz with 1kHz modulation at a level just above noise in my lounge and went seeking. On approaching a noisy plugpack, the 1 kHz received tone rapidly declined in strength then disappeared as the received noise level from the plugpack increased. How convenient!

And finally....


You probably have one or more of those handy utility knives that take snap-off blades. Forever not being able to find a replacement blade when I need one, I got to thinking: Do I throw away kitchen knives when they lose their edge? Nope, I haven't won power ball yet. So the knives get a quick rejuvenation with the kitchen steel. So why do we throw away little bits of perfectly good blade simply because they have gone a bit dull? A couple of swipes with a steel and you're back in business.

Free Amateur Radio Buy, Sell and Wanted website-

See "ZL Ham Ads" at- <https://ZLham.net.nz>

Recently listed items for sale include -a BC211 frequency meter, a genuine No. 19 set linear amplifier and a for free: a 2.4m dia antenna dish with tracking controller.

"The Machine", the FAMOUS MPRG Blog is found at- <https://MPRG.zlham.net.nz>



The **TK11** Quadband Handheld
from Quansheng - available now
(Special pricing available to MPRG members)

from **QUANSHENG**
intelec™
Integrated Electronics
<https://intelec.nz/quansheng>

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Contact the editor if you have something you need to find a new home for.



Sent in by- Gary- ZL3SV!!

Minutes of the General Meeting of the Musick Point Radio Group
May 18th, 2025 Commenced at 1315.

Present- ZL1DL, ZL1DRV, ZL1EC, ZL1MRT, ZL1TGS, ZL1TOF, ZL2JDH, ZL3CK, ZL4ROB

Apologies- Jim Reed ZL1LC and requests Proxy for remits be ZL3CK

Clive Brumby ZL1CJB

Rosscoe Walker ZL1AAF

April G.M. minutes- Matters arising- Nil.

Accept as published- Moved- ZL4ROB , Seconded- ZL1TOF- Carried, unanimous

Finance- ZL1DL-

Financial Statement for year ending 31/3/25 has now been reviewed by Mr. G.J.Foster
CA, (Ret) who finds the Annual Financial Statement to be a true and accurate record.

Accept the Annual Financial Statement- Moved ZL1DRV, Seconded ZL4ROB.

Carried Unanimously.

Financial Statement for April 2025- Income-\$406.95 Outgoings-\$80.99 Surplus \$325.96

Total assets (Bank deposits)- \$11946.49

Moved accept- ZL1DRV seconded ZL4ROB,

Carried unanimously.

New Member- Edward Cheeseman ZL1EC. Proposed by ZL1DRV. Seconded- ZL1MRT

Carried unanimously.

General Business-

Centenary 2026- current plans of the newly formed committee discussed.

MPRG's role probably to offer visits to the station. Actions required-

1. Spark to be contacted regarding permission for this. ZL1DRV/ZL1DL
2. Tidying up and repairs- ZL1TOF working steadily at the repairs,
3. Liability for visitors would be covered by our \$2M policy.

NZART Remits –

There were 5 NZART financial members present (as per list supplied by NZART)-plus
one by proxy. Votes were-

Remit 1- In favour- 6 against Nil

Remit 2- In favour Nil , against 6.

Remit 3 In favour- Nil against 6.

ZL3CK to be delegate at NZART conference- Proposed ZL1DRV, seconded ZL2JDH

Carried unanimously.

Meeting concluded at 1345.

Minutes taken by ZL3CK