

## MUSICK POINT RADIO GROUP (INC.) NEWSLETTER

--NZART BRANCH 86--

-----For APRIL 2023-----

**-Incorporating The Society for the Preservation of Amplitude Modulation News-  
and with Green Radios On The Air (GROTA)**

Musick Point Memorial Radio Station, Bucklands Beach, Auckland. Call Sign-ZL1ZLD.

BRANCH 86 NET- TUESDAYS, 7.30PM, 145.775 MHz, Musick Point Repeater. All welcome!

SPAM Remote Receiver - <http://spamnz.zapto.org:8901/>

Website- <https://musickpointradio.org> Webmaster-Neil ZL1NZ.

SPAM A.M. (ZL6AM) Nets- Mondays 11.30AM, **some Wednesdays 11.30AM**, Fridays 8.30PM , 3.850MHz.

A.M. Calling frequencies- 3.850MHZ, 7.125 MHz

Editor- Martyn, ZL3CK.

Meeting- Second Sunday of the Month (Except May-Third Sunday, to avoid Mothers' Day)

**NEXT MEETINGS- Note- AGM! a week later to avoid Easter- Sunday, 16<sup>th</sup> April at 1PM.**

**The May meeting will be also a week later on Sunday May 21st.**



Musick Point emerging from the morning fog. -from Wikipedia.

See more at [musickpointradio.org](https://musickpointradio.org)

## Musick Point Radio Group

### From the Chair-

Welcome to another information overload to keep you going for another month, or should I say: asking why you have to put up with this. As April approaches, so does the end to daylight saving on 2<sup>nd</sup> April. With that, I will find it so much easier to just subtract 12 hours from the current time and have UTC rather than adding 11 hours and 'going' back a day (you say "what?"). It makes sense to me, so please don't judge me for that ☺.

The weekend after that is Easter, 9<sup>th</sup> April which should be our April General Meeting. There is a fair chance that nobody will turn up for this, so I propose that it is held on 16<sup>th</sup> April instead and, of course, being April, it will be our Annual General Meeting. So, give some thought to your nominations for office holders. At the moment, Dave ZL1DL is Secretary and has been acting as Treasurer for a couple of years. According to our Constitution, we should have three Officers and, of course we have three positions being filled by two people. If any member feels that they could carry out the Treasurer position, please get a nomination organized and submitted before, or at, the meeting. It is not an onerous position. We also have a need for one or two other Officers without portfolio. Any volunteers will be gratefully "considered". Naturally, if there are any nominations for any position, they will be accepted and let the AGM decide. Normally, at about AGM time, there are Remits to discuss and vote on for the NZART AGM and Conference. It seems that this year, things are running later than previously, so there will most likely not be the Remits at our AGM.

Looking back to my enthusing about Fox Hunting, last month; I am not sure which of the following is the most apt description of the results: "Letting the genie out of the bottle." or "Opening a can of worms." or "Opening Pandora's box."

When I first had the idea of having a fox hunt, I was really thinking of the 'cut-down' fun version where someone hides a fox in a sneaky spot and, at the appointed start time, the fox starts transmitting the club callsign in Morse. A bunch of interested members with handhels and simple handheld yagis attempt to locate the fox first without divulging the location, so that everyone has a chance to find it. Once time is called, everyone gathers for a bit of refreshment and maybe a fun prize-giving.

Some days after the newsletter was published, I had a call, on our landline, from Wallace ZL1WAL, while I was at work. That evening, I returned his call and had a very interesting chat with him about fox hunting, direction finding and orienteering. Wallace has fox-hunting equipment that he is willing to lend us, however, after discussion, I realised that if we were to try this, we would need a great deal of planning and resources, and this would not be the simple, quick afternoon of fun for a dozen or so nutcases with radios. This does not mean, however, that we have written off fox-hunting. It just means that we think it better to stick with the initial intention of a quick, fun event and, maybe work towards a full-on fox-hunt in the future.

Dave ZL1DL and I were talking about activities, and we think that it might be an idea to have a Picnic On The Air soon. Lots to think about with this, – the weather is turning towards Winter, and that means rainy times ahead. Keep an eye out for more soonish.

Until next month:

73, and call CQ  
David, ZL1DRV

I haven't spoken to my wife for seven years..... I don't want to interrupt her.

With sufficient thrust, pigs fly just fine.

## **MPRG News**

**AGM** is coming up! The AGM will now be held at the April meeting on Sunday April 16<sup>th</sup>.

If you have any item/s you would like to put on the AGM agenda, please let the Secretary, Dave Larcombe ZL1DL know in plenty of time. [zl1dl@intelec.co.nz](mailto:zl1dl@intelec.co.nz) If you wish to volunteer or nominate someone for the positions of Secretary, Treasurer, or President, contact the secretary.

### **Visitors to the station**

Recently, we have had a couple of artists visit the station with a view to utilise the building for artistic work. The most recent has been Layla Tweedie-Cullen, who has, with the permission of the leaseholder, scanned the inside rooms and has just released the result- a 'virtual art installation' in the building. There are 3 other historic buildings that she has done similar work with and are all accessible on the website <https://paulcullenarchive.org> (With permission of the artist). These artworks are presented as part of Layla's artist father's portfolio, the late Paul Cullen, and are thus now added to his legacy.

### **Fox Huting or RDF'ing**

As in the last newsletter, we have been talking at the Club about activities that might attract members to the meetings. David ZL1DSG is promoting the idea. Foxhunting and radio orienteering are of course amateur radio activities that have been around for a very long time, and rely on radio direction finding (RDF) techniques for which Musick Point Radio was well equipped in its 'heyday'.

### **Maintenance Matters..**

It looks like the recent weather has damaged the rotator on the western beam. It looks OK from the ground, but it will move only a few degrees in either direction. A notice that it is out of action has been placed on the controller. At least it is stuck on 050' thus pointing at N America and Australia is off the back. Reception has been very good including 10 meters the other day so feel free to continue to use the station regardless. The Kenwood transceiver is operational in the "Dansk" console, which uses the eastern beam. This is working well, as is the eastern beam rotator, feel free to try it out.

Note the 40 meter aerial has been repaired-and works well again as proved by the C & B 40 meter AM transmitter which was good signal strength on the Gore SDR. See photos below!

The VHF 145.775 repeater has been reported to have some degradation in signal strength, so its aerial/s need to be serviced, so that's another 'ladder' job to be organised.

The Collins 30K5 transmitter and the Dansk 475KHz transmitters are also needing repair and recommissioning.

The Collier and Beale '666' transmitter has been dismantled and most of its various parts have gone to good homes already. There was no modulation transformer if you are wondering-but the mains HV transformer and choke are still available, its about 50KG's. As a result the 'generator room' is now much more useable as a storage space, and more shelves are available to put up.

### **NZART 100 years.**

This important milestone will be celebrated all over the country in 2026, and ideas for how we might contribute to this were asked for at the last Annual Conference. The Musick Point Radio Group could play a part with (for example) a special station contest event, a 'boat anchor' vintage radio contest, or even a station visit, if it could be arranged. Your ideas are needed!

## Forty Meter dipole repairs on Sunday 26<sup>th</sup> March-



ZL1DRV, ZL1DL, Mark, and ZL3CK discovering how vinegar and salt strips dirty copper clean..while keeping an eye out for thunderclouds above!



Forty meter twin lead repaired and threaded back through the 'temporary' feedthroughs- probably put up by Ian ZL1BFB (SK) in the 1990's. - Photos by ZL1DL.

## **Radio Direction Finding at Musick Point**

### **The Adcock Direction Finder.**

Radio direction finding has been investigated since the dawn of radio technology. **Heinrich Hertz** discovered the directional property of the loop antenna (aerial if you prefer) in 1888. Various versions of loop direction finders were patented by others in the early 1900's, for example **Lee DeForest** in 1904.

**Bellini and Tosi** patented the goniometer in 1906. This device has a pair of small loops connected to and mirroring the receiving antennae. By rotating a pick up loop inside these, the angle of direction of a signal could be accurately estimated. As the received signal is the same strength in either direction, a further 'sense' antenna is added so the phase, thus the correct direction can be determined. The Marconi company purchased the rights to the Bellini-Tosi in 1912 and furthered its development.

The Adcock system using 4 vertical aerials was patented in 1916. The patent, GB130490, is under Ellis Eaton as **Frank Adcock** was serving in the military and was filed under the lawyer's name. Previously, large loop antennae either rotating or fixed, had been used, but were found to be affected by reflections and EM disturbances.

**Sir Robert Watson-Watt** began looking for ways to track thunderstorms for the Met office and this led to the development of high frequency radio direction finding. (abbreviated to "Huff-Duff") Prior to this time (1920's) DF'ing was mostly on long wave frequencies, because these frequencies are much less affected by atmospheric conditions and the bearings obtained are more reliable.

At Musick Point, there were two DF receiving set-ups, the 4 Adcock aerials with the receiver hut in the middle of the square, and another VHF DF station, this was situated about half way down the road through the golf course. There is little known about the VHF set-up but there are a few photos showing the Marconi DF panel in use as above. With these receiving systems the aircraft or ship required the direction report from the station to be transmitted back to the aircraft. This necessitated significant delay working out a triangulation from several different receiving stations. In World War Two New Zealand had several similar direction finding stations including ZLD. We have an original 'DF' map of the Tasman area in the club room.

Further investigations by Watson-Watt and a number of other teams of technicians and university graduates in Britain lead on to the development of RADAR, identification friend or foe (IFF) and innumerable other war-winning technologies much of which is still in use today. Of course, much similar work was carried out in Germany, the US and other countries simultaneously.

For further reading, see the Ditton Park Archive at <https://www.dittonpark-archive.rl.ac.uk>

Ditton Park is a stately home situated on the outskirts of London which was one of the many sites of radio research carried out by universities and the Dept of Defence from the 1920's on.

Many other systems of navigation by radio were developed in the 1920's. In America, the "Radio Range" or A/N system using directional antennas on the ground to transmit to the aircraft was in use for many years until the VHF "OmniRange" (VOR) came in to use in the 1960's. An excellent website for further study of the A/N radio range system is at-

[https://www.rantechology.com/index.cfm?key=view\\_video&TransKey=E468E019-39CB-4FA7-95F6-10C0C108C531&Small=1](https://www.rantechology.com/index.cfm?key=view_video&TransKey=E468E019-39CB-4FA7-95F6-10C0C108C531&Small=1)



Marconi Direction finding apparatus.



Bellini-Tosi DF coils

(Pictures both from Wikipedia)



Direction finding in the 1940's.

Photo on left is from the Australian Airways Museum website- <https://www.airwaysmuseum.com>

The photo on the right was taken at Musick Point, from Neil ZL1NZ, [www.musickpointradio.org](http://www.musickpointradio.org)

## Article of the month!

This is a summary of what Graham presented at the March meeting.

### Electric Lamps and RF Interference by Graham ZL1TOF

The first production of electric light was attributed to Otto von Guericke, who made a machine about the mid 1600's with which he produced sparks frequent and powerful enough to give some illumination.

Humphry Davy made a 2000 layer primary battery (~3000V) to produce a continuous brilliant electric light. He used two pieces of charcoal about 4 mm in diameter and 25 mm long and between 0.8 and 100 mm between the points. The spark assumed the form of a bow or arch caused by the rising heat. This led to the name arc for continuous discharge and spark for short discharges. This was not a practical light as the battery was expensive and had a short life.

The problem was solved in 1831 by Michael Faraday, who produced electric current by mechanical means. By 1863 the system was well developed and the first commercial use of electric arc light was in the lighthouses on the French coast.



Discharge through low pressure tubes of various gasses was developed and used for decoration and signs, even today.

### **Incandescent**

Incandescent electric lamps were developed by Edison and Swan about 1880. Platinum was the first material used – too expensive. Carbonised bamboo worked, but, had poor life. Dissolved cotton extruded, cured, shaped, dried and carbonised was more consistent and could be made any desired shape and cross section. The carbon element was placed in an evacuated tube or bulb to prevent rapid oxidation.



Carbon filament Edison Lamp



LED look alike Edison lamp

The resistance of the element decreases with temperature. The normal running temperature is about 1600 deg C (1870 K). Lamp ratings: Voltage, Wattage and light output Candle Power. Every manufacturer had different base and bulb shape and size. By 1904 most manufacturers changed to a common size base, E26s, 1 inch Edison screw single contact.

Metallised carbon filament lamps had better efficiency. Osmium, Tantalum and Tungsten filaments could be run at higher temperature. All metals have a positive temperature coefficient of resistance and result in very long thin elements for reasonable power at 230 volts. The solution was found in 1917 to make a coiled coil filament. This reduced the dissipation as the surface area was reduced and caused the element to get hotter for the same input power. Inert gas filling further improved life and increased operating temperature.

In 1924 the lamp manufacturers got together and standardised the life of incandescent light bulbs to about 1000 hours with a temperature of 2700K. Special types like photo floods ran hotter and last just 10 hours. This is why 120 volt bulbs have higher output than the same wattage 230 volt versions.

### **Fluorescent**

Edison made a fluorescent lamp in 1896, but, did not develop it. GE got into production of fluorescent lamps

in 1938 after many patent issues. The tube has a small filament at each end to heat the mercury. Current passes through the mercury vapour to create ultra violet light which excites the phosphor coating on the inside of the tube. The normal circuit consists of an inductance, the ballast, in series with the supply and a starter between the ends of the tube. A high voltage is needed to start the discharge. This is provided by the starter. The starter is a gas discharge tube with a normally open thermal switch inside. When the power is first applied the gas in the starter has mains voltage across it and heats the switch which closes turning off the heating and applies mains voltage to the two filaments vaporising the mercury. When the starter switch opens a large voltage is developed across the main tube and a plasma discharge begins. Because the plasma

has a low impedance there is not enough voltage to heat the starter. The plasma in the tube is current limited by the ballast.

In the late 1980's Philips made compact fluorescent bulbs using the same technology. In the early 1990's the compact fluorescent bulbs came with an electronic ballast. They were expensive. In the early 2000's less expensive models came available. These used a discrete half bridge inverter, started with a diac and running at a high frequency to ignite the mercury glow discharge then running at a lower frequency once the plasma developed.



## LED

In 1907 experimenters found a glow when forward biasing cats whisker silicon carbide detector to improve their sensitivity. In 1962 the first patent for the IR LED was issued. In 1991 high brightness blue LEDs were made. White LEDs followed by using a blue LED to excite a phosphor cover. Brightness increased and the first 1 watt white LEDs appeared in about 2006. A limit to the current a single chip could take was reached and the cause discovered, non-radiative recombination. As more light was needed many LEDs are used (in series and parallel).

For light bulbs and fittings there are several common driving circuits. For low power, up to about 6 W, a capacitor input circuit is used. A switch mode constant current converter is used in many bulbs. Recently a new topology appeared, linear current regulator. These may have a large filter capacitor (2-10 uF) for slight flicker or no filter capacitor and serious 100 Hz flicker.

LED Filament bulbs have strings of 28 LEDs on a glass strip coated with the yellow phosphor. These have a light pattern similar to the incandescent bulb they look like.

In 2021 the EU re scaled the energy label for lighting. This applies to all light fittings and light sources sold in Europe. Labels must be applied to the light ranging from A (most efficient) to G (least efficient). "F" applies for 95 to 105 lm/W.

## Interference

RFI from the fluorescent tube lamp is caused by the discontinuous plasma a result of the mains voltage changing direction each half cycle. This is usually managed by a three lead ceramic X-Y capacitor mounted at the power entry point, on the chocolate block connector. Fitting mesh on the open sides of the fitting can further reduce RFI.

Compact fluorescent lamps sometimes have RFI reduction components to reduce the transistor switching speed and low pass filtering at the mains input. The LED bulbs and lamps that have a flyback or buck converter need a mains input filter.

NZ EMC rules are weakly enforced, so, electrically noisy products are often available and in use. What can you do?

Choose known brands, they are likely to meet international standards.

## **GROTA News with Kelvin ZL3KB**

There is a like-minded group of military radio users in Australia recently discovered by Kelvin-

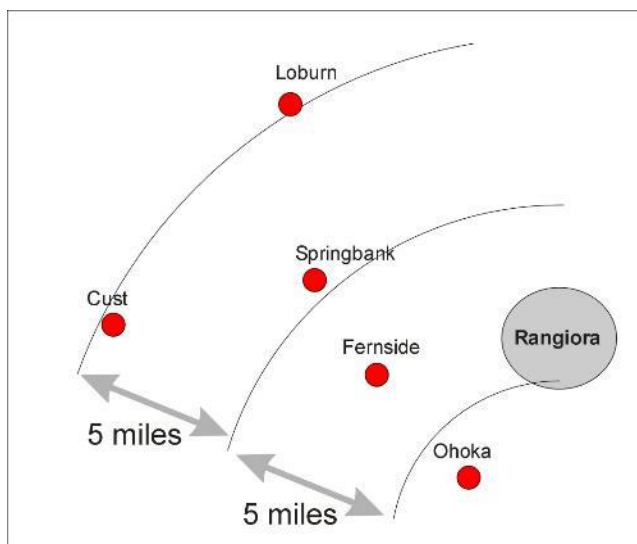
<http://users.on.net/tosty/AMRO/AMRO-2023.htm>

They have a contest coming up for ANZAC day, on Saturday April 29<sup>th</sup> and Sunday April 30<sup>th</sup>. the frequencies are on the website. Their contest seems very much in line with our "H" night as a commemorative event. There is much of interest on the above site so enjoy exploring it.

## **GROTA update – ZC1 trials**

K.P.Barnsdale ZL3KB  
14 March 2023

The ubiquitous ZC1 Mk2 was originally supplied with a large 34' vertical aerial, consisting of three 'A' section tubes supporting up to four 'F' section rods. The 'A' section looks like 6 feet of water pipe, whereas the 'F' section is 4' of tapering thin steel tube. The book says to remove one 'F' section when operating 7MHz, as the ZC1 is designed to match into a capacitive load and 34' is too close to  $\frac{1}{4}$  wave; so our aerials were reduced to 30'. We in the GROTA group had now collected enough aerials to give these monsters a try in the field.



The group set up five stations in the Rangiora area, with the Ohoka team using the new GROTA LOAN equipment. The handbook quotes a range of 20 miles with these aerials, but before pushing our luck we decided on just 10 miles between stations (see map) and see how we went.

Again, we had some new GROTA members come along to see what all these knobs are about (!), so the teams were:

**Tony ZL3TVP** supporting **Des ZL3AK** at Cust,

**Noel ZL4OW\*** with **Dave ZL3TRX** at Springbank,

**Aidan ZL3APB\*** at Fernside,

**Bryan ZL3BHS** in a churchyard (above ground!) in the Loburn area,

and nice to see Bryan's daughter **Gracie ZL3NotYet\*** (but see below!) helping me at Ohoka. She is so keen she has signed up for Hamcram already.

(\*Yes, we had three members under 40!)

A few of us had our trusty WS48 sets with us, and again we found the 48 set receiver outperformed the ZC1 on 40m.

So the results? Communications between distant stations were marginal (RS 23) on 7MHz, with a little fading raising suspicions of skywave despite the vertical aerials, and hampered in the end by strong SSB QRM. That drove us down to 80m where things got better all round, resulting in signals of RS 55 over 10 miles, conforming to the theory that ground

wave is much better at LF. Whilst on 80m, Bryan tried adding one 'F' section to make the full 34' and surprisingly it made a big improvement.

Dave's transmitter at Springbank developed a bad fault on 80m, and Bryan's set took on a masochistic trait of only working when you hit it.



**Tony ZL3TVP** finds some shade at Cust Domain.



Tony at Cust..



Another **ZC1 (ZL1BHS)** grazing at Loburn.



**ZL4OW** at Springbank



In conclusion, the handbook's "20 miles" is very optimistic on RT using 7MHz, but could be quite feasible on 3.6MHz due to lower ground wave attenuation. Maybe next time we will stretch it to the full 20 miles and see.

The sun got to us in the end and had to repair to the pub for some cool down juice. Everyone was smiling at the end, so I guess we haven't disillusioned anyone!

Lastly, we must say many thanks to the people that have donated gear to GROTA for our trials, it enables rooky operators to have a go on their own, and learn some neat operating skills.

**On the Left, Gracie, now ZL3GMS, at Ohoka. Well done Gracie, you have joined a pack of loonies!!**

## Other S.P.A.M. News-

### **Conference '23-**

We hope to see a good turn out of SPAM members at the NZART annual conference to be held in Palmerston North, on King's birthday weekend as usual. We have a "slot" on the Sunday morning already planned. **Kelvin ZL3KB** has promised to send something about the latest GROTA activities in Christchurch. Unfortunately he'll be away over that time. If any of you have something to show or talk on, let's hear about it!

Finance- There is about \$1300 in the account just waiting for a good project. This money has been carefully built up by **Roy Symon ZL2KH (SK)** and Jeff Reid ZL1AKY (SK) collecting the \$5 once-in-a-lifetime subscription from 1994. **Steve ZL1FS** and **Martyn ZL3CK** are the current signatories to the account. Have a think about it-ideas welcome!

Note, you do **not** have to belong to NZART to be a SPAM member.

### **AM Nets-**

As above, the weekday net usually run from Musick Point Memorial Radio Station ZL1ZLD is now on Mondays, 11.30 am, 3.850 MHz. Also Wednesdays- the band is still there for your use! There have been regularly 4-5 on, including **ZL1BLB**, **ZL2UV**, **ZL2JDH**, and not heard for a long time, **Kerry ZL1KE** from Te Aroha. He's using a home brew rig with Geloso VFO and 6146's in the final, putting out 110 Watts. Note that ZL3CK will be away for the next few Mondays and Fridays, so here's your chance to use the ZL6AM call sign! It is licensed to be used by the AM net controller, whoever it is- just take it and run!

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### **The meaning of nostalgia.**

'Gerald Clark from Time magazine May 3rd 1971 says in part "illogical though it may be some people in their 20s and 30s do feel a longing for a time they never knew. Indeed there seem to be two kinds of nostalgia one for youth and one for middle age and beyond." ... 'Nostalgia is also very selective. There is an indefinable time after which experience and imagination blend-memory sieves the agreeable out of the blurred result, and even that is distorted. That is why the past can never be accurately recreated, try as the television and film industries might. Perhaps it is just as well.'

-Quoted with permission from "**Random Thoughts on Vintage Radio**", **RG Newlands**, published by Bernard Robbins, Wellington, New Zealand, with the support of the **Wellington Amateur radio club** at [www.zl2wb.com](http://www.zl2wb.com) (from where copies of this excellent publication may be obtained).

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My son kept chewing the power cords, so I had to ground him. He's doing better, currently, and conducting himself properly.

You can tune a piano, but you can't tuna fish

To write with a broken pencil is pointless.

...With apologies- Ed.

### *MP Members Offer*



2M/ 70cm Fibreglass Base Station Vertical Antennas. Complete with mast mounting clamps, this antenna is available in two heights: 1.3m (model SD-X30) and 1.7m (model SD-X50). Modelled on the Diamond X series antennas, these are quality Chinese built antennas at a price that won't buy Diamond.

For a limited stock quantity, these antennas are available to MP members at a special price of **SD-X30 : \$90**, **SD-X50 : \$124**. Further info available at <https://intelec.nz> or contact Dave ZL1DL@intelec.co.nz

### FREE to a good home-



Contact **Charles ZL1RKO**, he'll bring it to the mainland at a convenient time. [charles@waiheke.radio](mailto:charles@waiheke.radio)

### Wanted by Steven ZL2UV (New Plymouth)

I am still wanting to buy a high power modulation transformer, with a view to making Big Bertha (T1509 converted to a 1KW linear by the late Eric Duffy) a dual mode amplifier, Class C as well as a linear amp. The power transformer in it looks to have plenty of current available. I think it may be a pole transformer.

Email- [steven.prout@gmail.com](mailto:steven.prout@gmail.com)

Wanted by Martyn ZL3CK- any of the larger ZC1 aerial sections. I have the 4 smaller "F" ones but not the big bottom sections to make up a full 40 meter  $\frac{1}{4}$  wave vertical. Fair price paid.

**A big 'thank you'** to the contributors this month. Contributions to the newsletter are always welcome.

Best 73 to all, Martyn ZL3CK.

**Musick Point Radio Group Inc.**

**Minutes of General Meeting held at Musick Memorial Radio Station on 12/03/2023**

Present: Per attendance book, apologies: Nil

Minutes of previous meeting 11 Dec 2022: As read: ZL2MOH / ZL3CK. Errors & Omissions: Nil

**Financial (as at end of July 2022)**

**Bank Accounts**

- Current Acct: \$2254.66      was \$2380.59 as of 30/11/22
- Serious Saver: \$7530.83      was \$7428.25 as of 30/11/22
- Repeater:      \$ 464.32      was \$ 462.87 as of 30/11/22

**\$10,249.81      \$10,271.71**

**General**

Congratulations to John, ZL3AQT who sat the exam early February.

The 5775 repeater antenna appears to be slightly deteriorated. The antenna is on a slight lean ( potential mounting failure ) and there are reports of signals being down ( albeit a few dB ). Harry ZL1BK and Simon ZL1SWW gave the filters a once over a couple of weeks back; they were relatively optimal. The antenna apparent resonant freq shifts considerably with change of feedline length, indicating excessive reactance somewhere. Owing to difficulty accessing the antenna, it may be prudent to obtain a replacement so a single maintenance visit can be arranged.

ZL2DSG suggested club construction projects as a way of increasing member interest, with the possibility of building receivers for fox hunting, then organising fox hunts. There was general agreement with the idea to research potential designs. ZL1DL indicated he would set up a repository on the MP server where ideas for all potential projects can be aggregated. Another potential project previously discussed is a remote antenna match for a long wire which could appeal to members who do not have room for full size antennas (e.g. modifying the ATU100 tuner for wider output impedance range / remote control / remote indication).

Minutes Taken by Dave ZL1DL.