NERG NEWS

North East Radio Group Inc
PO Box 270, Greensborough, VIC 3088
www.nerg.asn.au ABN - 19 340 249 865
Incorporated 1985 Victoria Reg No A0006776V
Affiliated with the WIA
Editor – Greg VK3VT

Contents

March JMM Field Day

The John Moyle Memorial Field Day will be held on the 15th & 16th March 2025. The club is planning activity at the hall on Saturday 15th. Hall opens at 10am and we have booked to 10pm. Come along and have a go at contest operating, we are planning to have a couple of stations on the air and you can use your own callsign.

To get an idea of how much fun a field day can be have a look at the video of one our previous efforts from Mount Macedon on - https://www.youtube.com/watch?v=oJKa_yzL-Zc and https://www.youtube.com/watch?v=XEitSzI_9D8

March 2025

WHAT'S ON THIS MONTH?

Monthly meeting

Thursday 13th March - 8:00 PM

CPR & DEFIB Demo, talk and opportunity to practice the skills.

Presented By Michael Turner VK2WMT

Appointed NERG First Aider & Scout First Aid Trainer

This is a great opportunity to learn about CPR and Defibs and have a go on the dummy, could same someone's life – invite the family!

Every Thursday afternoon – Radio Café

At the hall – Commencing at 2:00pm

Come along and play with the radios, have a chat and a cuppa, bring your favourite nibbles. Last one for the year on Dec 19th.

Forth Tuesday of the month –

Gainfully Unemployed Group

Tuesday March 25th 11:00am for coffee lunch 12:15 at the Greensborough RSL, please let Jim VK3KE know if you are attending.

If you would like to be a member of the mailing list for this group please request membership on groups.io the group name is nerg-gug.

Kit Building and Testing plus Foundation Training and General Assessment Day

Saturday 22nd March 2025 Training commences at 9am, if you would like to attend or undertake an assessment for any licence class please let us know at :

training@nerg.asn.au

Kit day starts around 10am lunch will be available.

A Modular 6cm Transverter

Part 5 - Not Quite Final Bits.

By Paul McMahon VK3DIP

Time for reflection.

I had hoped this would be the last part for this Transverter write-up, but there is going to have to be at least one more part. There seems to be many extra bits needed to make everything work like various voltage regulators and relays etc. so that will all have to come next time. Anyway, with the detour of the CMU200 over Christmas there was time to do a bit of a rethink and rehash of parts of the transverter design, and that needs to be documented as well. In part the rethink came about as I was working on the part of the transverter that goes between the IF transverter and the mixer. The prime issue is that nominal TX power levels from the transceivers typically used as IF's are all way too high to put directly into mixers, so some sort of attenuation is required. You only want this when transmitting and not when in receive mode so some sort of T/R switching is required to separate these two paths in the single antenna outlet from the transceiver.

Basically, I had two main options:

1. *The first was to not have anything in the transverter as such, and use some sort of common level converter outside in perhaps an extension of my FT817 CAT display/switcher.*
2. *The second was to have a "this transverter" specific version built into the transverter itself, making the transverter more self-contained.*

Initially I had planned to go with the first option, a classic lazy move that would only require building it once and using it for all the transverters. Then I tried to figure out exactly what levels I should set as the TX output, and what if any I should use in the RX path? In short it came out as different values for each of the transverters, so it became more complex and would require some sort of variable levels to accommodate which transverter was currently selected. The information to do this switching was available in the CAT display, but while I knew what levels should be OK for some of my transverters, I wasn't sure what I required for this new one I was building, I basically had to build it and test it before I could be sure what I needed. Also, none of the various common schemes used in transverter interfaces lent themselves to simple switching of different levels. Typically, some sort of load is supplied (multiple higher-powered resistors in parallel) followed by a trim pot to provide variable attenuation. Providing preset values for this, that would be switchable and still provide a reasonable match at 70cm's (my chosen IF frequency), was going to be troublesome.

Suffice to say, seeing I would have to build a version anyway to determine the levels I needed, I decided to (at least initially) go with the second option. However, that still meant I had to build the rest of the transverter and test its levels before I could finalise the design for what I was now calling the 70cmSeperator.

New FAFAF's.

So let's put together a version to test of the rest of the Transverter. Given the time over Christmas I had also decided to try some alternate construction methods for the FilterAmplifierFilterAmplifierFilter or FAFAF boards. This was in part down to the extra time over Christmas allowing for additional deliveries of things like solder paste and flux, but also for a desire

to make the FAFAF builds as repeatable as possible. As may have been noted in the previous parts of this write-up my first three FAFAF iterations all ended up with very different characteristics. For the entire transverter I needed three FAFAF's, one tuned to the LO of 5330MHz for the multiplier chain, and two tuned to 5760MHz for TX and RX use. For simplicity I wanted these to be more or less identical.

One of the variables I identified was the height of the taps, even a small gas torch is a bit of a blunt instrument, and it was difficult to ensure all the tap heights were the same correct value, and there was no practical way to reposition them once done the first time.

After quite a few cases of trial and error the best approach I came up with was to (carefully) measure the central resonator tube from the top down, and then to drill the through hole for the taps, then the actual tube cut length is less critical so long as it is at least some 5 or more mm's away. As I was using 0.8mm wire for the taps the gap between the taps and the PCB (for a nominal 2.4mm tap) was exactly 2mm, which I found 2mm drill bits an ideal spacer for. The dimensions I ended up with are shown in Figure 1 - Centre Resonator dimensions. These values worked for both 5.33GHz and 5.76GHz, though in the 5.76GHz case I found in at least one case no tuning screw was needed, while the 5.33GHz case needed the tuning screw a fair way in.

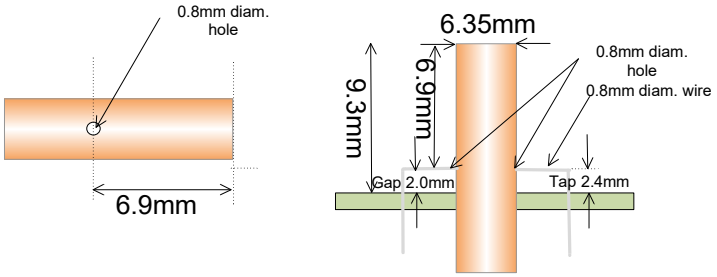

Figure 1 - Centre Resonator dimensions

Note, the portion/length of the tube protruding below the PCB doesn't really matter, it is the upper dimensions that are critical.

I also found that for everything other than the final soldering of the pipe cap, a soldering iron with a larger bevel tip, turned up to 350 Degrees C, plus abundant flux, was enough to solder the central tube and taps and was much more controllable. The sequence of events was to; drill and cut the tube to the dimensions shown, insert a length of 0.8mm bare copper wire through the tap holes, bend the wire ends over the right distance apart for the PCB holes, flux the board and tube, insert the tube and wire into the PCB using two 2mm diameter drill bits as spacers between the wire and the PCB. Then solder the wire onto the PCB, followed by soldering both the bottom and then top of the PCB to the tube. Once the top has been soldered the tube is typically hot enough to solder the taps in the tube holes simply. Doing it the reverse order was more difficult.

I also discovered that the mounting of the surface mount components was more quickly done by using solder paste in a syringe and a hot air gun. This way effectively all the components could be placed at once and then just heated up/soldered at the same time. There was one downside though you do have to very carefully examine the board afterwards. While commercially made boards with solder mask etc. really do make this easy, and while the solder surface tension is amazing at centring components on pads, if you even partially miss applying solder paste on a pad the surface tension can be strong enough to actually lift up a small component and place it on its end. This is known quite comically as tombstoning (because it looks like a tombstone, and also I suppose it marks a place where the circuit is dead). This did happen to me once on one of the FAFAF's see Figure 2 - Tombstone Example. These components are very small and I didn't notice this had happened until testing the board showed it as having significantly lower gain than expected. Under high magnification you can see that the capacitor on the left has "stood up" on one pad making a break in the circuit, whereas the one on the right has seated correctly to both pads.

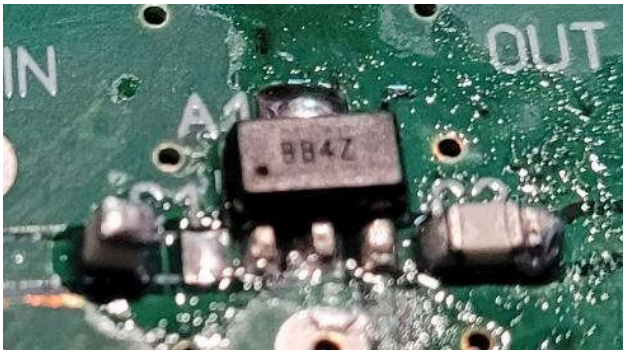

Figure 2 - Tombstone Example

Anyway, following these procedures, I ultimately came up with three FAFAF's with the responses shown in Figure 3 - New FAFAF1 - RX candidate, Figure 4- New FAFAF2 - TX candidate, and Figure 5- New FAFAF3 - LO Multi Candidate.

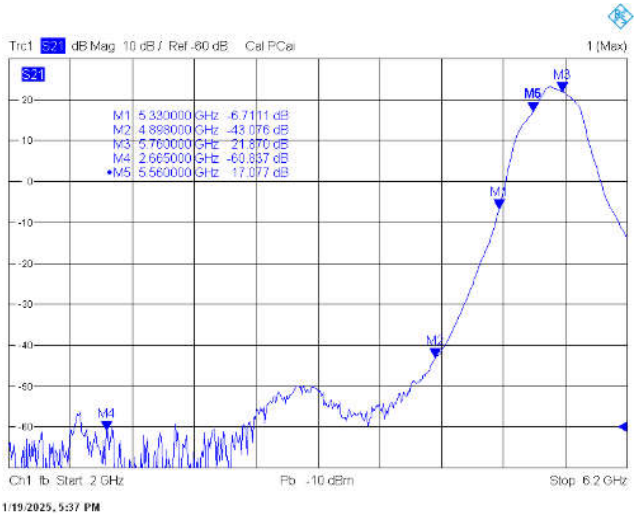

Figure 3 - New FAFAF1 - RX candidate

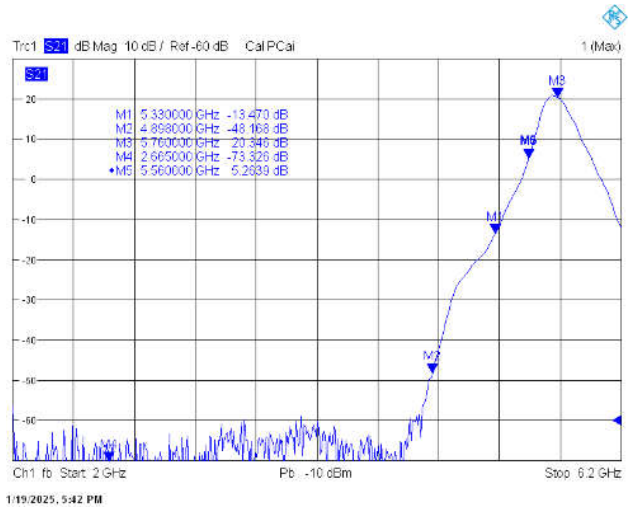

Figure 4- New FAFAF2 - TX candidate

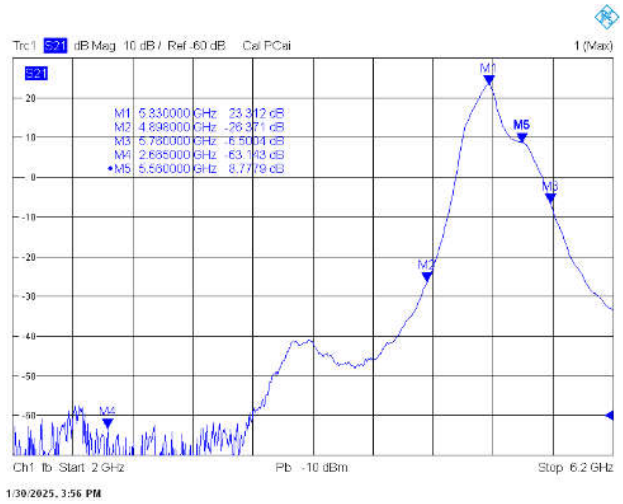

Figure 5- New FAFAF3 - LO Multi Candidate.

As can be seen even with attempts to make the FAFAF's identical the measured responses are still slightly different. The one in Figure 3 - New FAFAF1 - RX candidate, with its slightly broader peak is most suited to the receive chain, whereas the one in Figure 4- New FAFAF2 - TX candidate, with its higher attenuation at the LO frequency is more suited to the TX chain.

Mixer with a PCB.

Apart from the FAFAF's one of the other modules required is the Mixer. In the earlier parts of these articles I put together a mixer using air wiring, while this worked quite well I always was worried it might not be robust enough for longer term use. So, another advantage of the CMU200 diversion was I had time to create and send off for manufacture a PCB specifically for the HMC220 mixer chip, particularly for the small milled enclosure I was using. In fact, I actually had time to do it twice, because I got the first version wrong, using the wrong footprint for the chip. The correct version is shown in Figure 6 - Latest Mixer PCB. and assembled in the case in Figure 7 - Mixer in box.

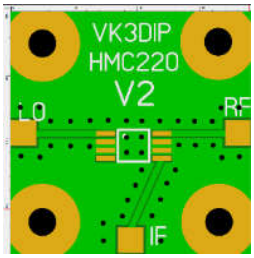

Figure 6 - Latest Mixer PCB

Figure 7 - Mixer in box

Note, this is a very small chip (MSOP-8), for reference those are 2mm screws, and the whole board is about 19mm square.

The chip was again soldered using solder paste and a hot air rework tool, it is quite magical watching the paste go from grey sludge to shiny metal, and you can actually see the chip move and centre itself on the pads as the solder surface tension moves it. Because the surface tension is not super strong though you do need to have the rework air flow rate pretty low and it therefore does take time to get things hot enough, but a bit of time is much better than blowing the component off the pads. Also to note, do the soldering to the PCB before mounting the PCB in the milled case. The board has been specifically designed to have good conduction to the case, electrically and thermally. If you try and solder with the board in place you will basically have to raise the whole box to solder melt temperatures which is much harder to do.

When finished the only way to really examine the soldering is under a microscope see Figure 8 - Mixer under the microscope.

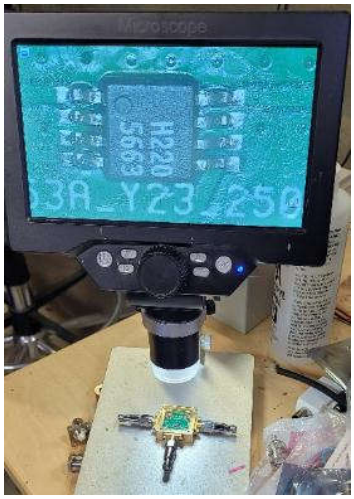

Figure 8 - Mixer under the microscope

You will note in the microscope picture there are SMA attenuators on each of the three ports. These are basically the reasonably cheap SMA attenuators from AliExpress sellers in this case quoted as 3dB to 8GHz about $6AUS each including postage. They actually perform very well at least making spec. up to the 6GHz I need here. The attenuators are in leu of a much more complicated terminated diplexer arrangement. The idea is that if you don't properly terminate the ports of most DBM's for all frequencies unhelpful reflections back into the mixer cause undesired behaviour. For lower frequency usage typically this is done with a diplexer circuit that passes the wanted frequencies through, but routes the unwanted ones to a terminator load. Making something to do this well at GHz is challenging so as an alternative the wideband attenuator is used instead. On the plus side this is very simple, and presents a return loss of at least twice the rated attenuation across the range, on the minus side it puts some attenuation in the desired signal path. 3dB is a commonly used alternative here, low enough that the 3dB loss can be easily made up by additional gain, but high enough that the 3+3 = 6dB additional return loss (on top of what ever the next stage presents at a particular frequency) is enough lessen reflection problems. Having said all that in actual testing of this arrangement I found that the 3dB on the LO port made little difference so I only ended up terminating the RF and IF ports.

Doing Some TX chain Level Tests.

While I have not explicitly mentioned the various design signal levels around the Transverter till now its not because I didn't have a plan of what was needed. What I will say though is that because I was worried about PCB losses in normal FR4 at nearly 6GHz, I had been erring on the side of having too much gain rather than not enough. Adding extra attenuation to a completed module at GHz is relatively trivial, extra gain not so much. So, for example with the choice of two amplification stages in each FAFAF, I knew assuming no PCB losses this should be more than I needed. It is however much easier with tuning the filters if they were buffered from each other, and the simplest way to do that is with amplifiers, so three filters to get the selectivity I wanted, mandated two amplifiers.

All this is easy to say but ultimately it needs to be tested and the final levels set so that I could finalize the 70cm Separator design. The setup for these tests was basically everything pretty much completed in the final box as shown in Figure 9 - Partially complete transverter..

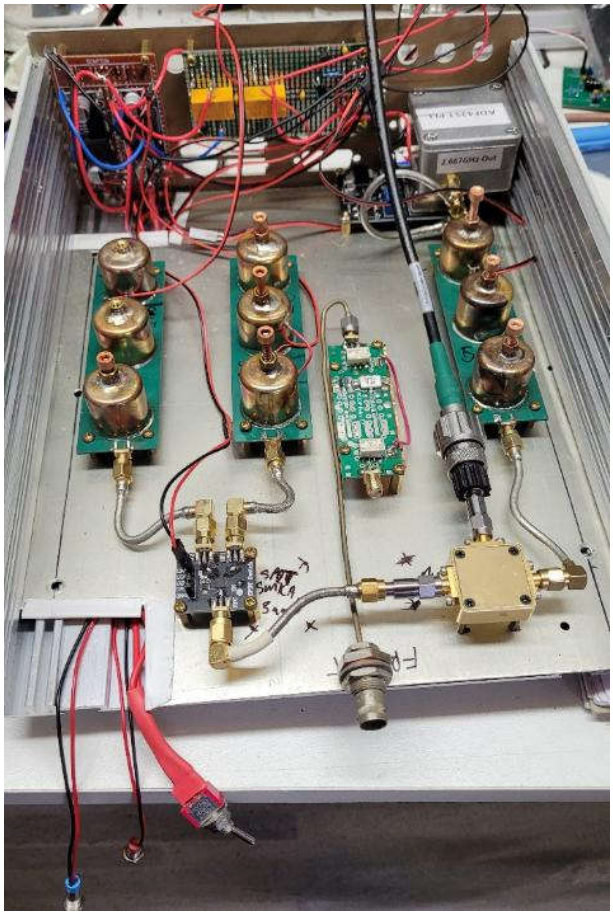

Figure 9 - Partially complete transverter.

You can see the 70cm separator is in place but not in circuit, I am driving the IF in to the mixer (via a 3dB attenuator) from a signal generator so that I can easily vary the input level. The setup can be represented diagrammatically as shown in Figure 10 - Diagrammatic Test Setup.

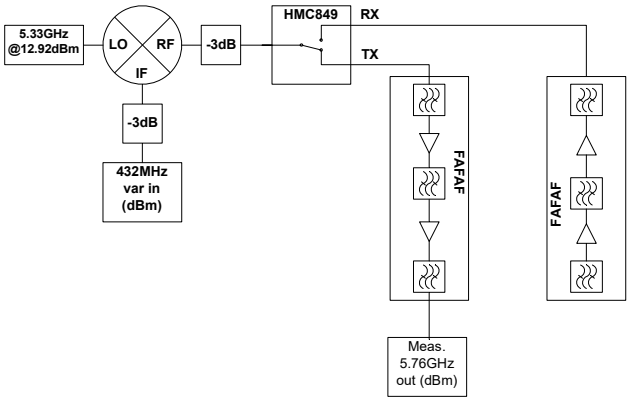

Figure 10 - Diagrammatic Test Setup.

Running through a range of input (432MHz) levels quickly shows I had overestimated how much gain I needed. The response I got is shown in Figure 11 - Initial TX chain response.

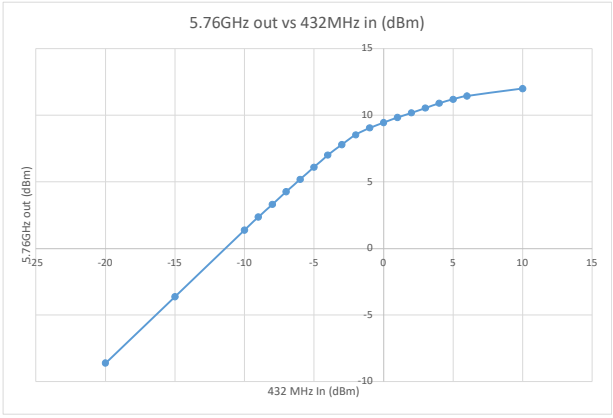

Figure 11 - Initial TX chain response.

As you can see the response is quite linear up to about 6 dBm out of the FAFAF but then starts saturating. Now 6dBm is actually a good spot as this is the datasheet maximum allowable input to the SE5005L the main chip in the PA I plan to use, but more on this later. The problem is that even with the 3dB attenuator in place this is saying I would want no more than say -6 or -7 dBm coming from the transceiver, and getting things down to this level (peak) at 70cM is going to require some fancy attenuators, plus it is a much lower level than I wanted to run the mixer. However as I said before adding attenuation is a lot easier than adding gain so I just added a 10dB (8GHz) attenuator in the line as shown in Figure 12 - Additional 10dB and re-ran the test with the results shown in Figure 13 - With additional 10dB Attenuator. The 10dB attenuators are the same as the 3dB ones mentioned before and can be purchased for about $6 from Aliexpress, so adding a few around the circuit doesn't add too much to the cost.

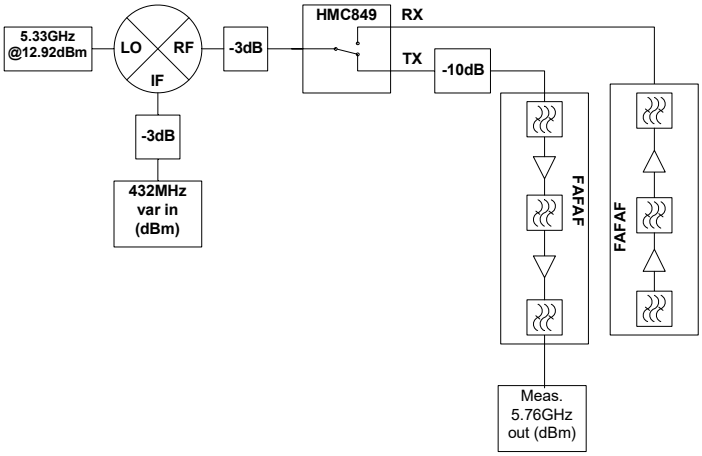

Figure 12 - Additional 10dB

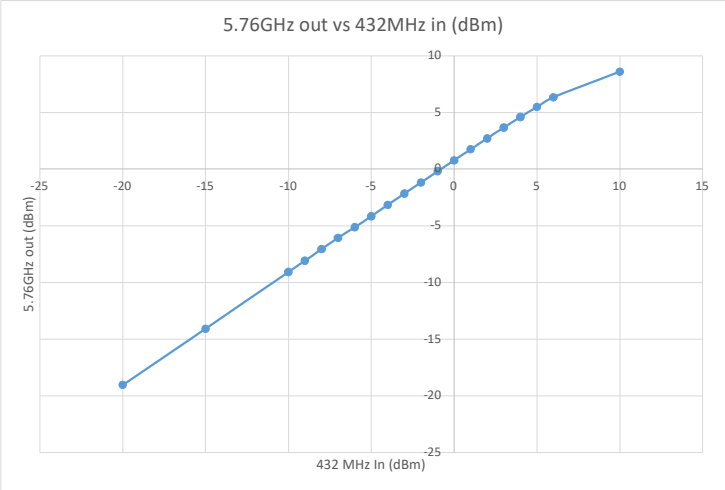

Figure 13 - With additional 10dB Attenuator

This is much more the curve/line I wanted, instead of 6dBm out being with -5dBm of drive, it now occurs at +6dB 70cM drive (to the 3dB pad) , this is much more manageable. Also, the response is very linear for pretty much all of the probable input values, given that 6dBm maximum. We now have enough information to set at least the TX side of the 70cM separator.

6cm PA.

Before getting to the Separator we should try/talk about the power amplifier that goes on the FAFAF output. I have previously mentioned the intent to use an Ali module targeted at WiFi use, which uses a SE5004L chip along with a SBB5089 MMIC driver for a claimed total gain of 40dB. Now obviously given the above tests that is way too much gain. These chips targeted at commercial WiFi were not intended to be driven hard and have very little self protection. As mentioned the SE5004L chip itself has a maximum allowable input of 6dBm and with a nominal 30+ dB gain probably shouldn't be driven to that level for CW. So the module needs a mod. The before and after photo's of the module are shown in Figure 14 - Before Mod., and Figure 15 - After Mod.

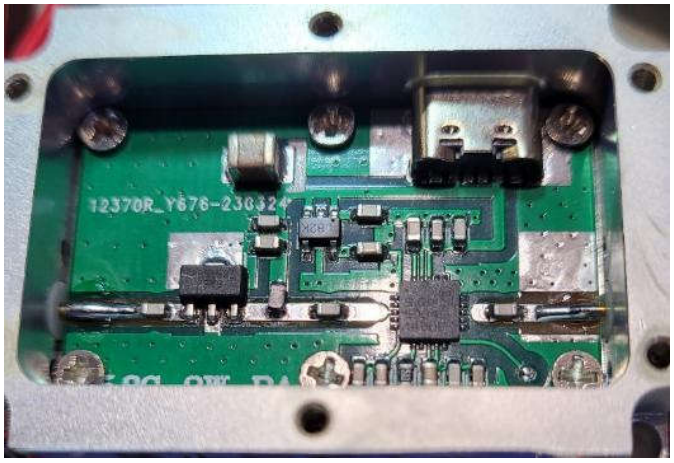

Figure 14 - Before Mod.

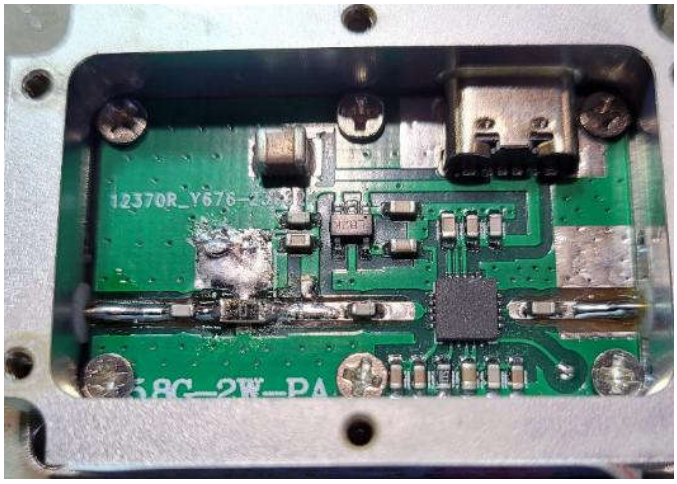

Figure 15 - After Mod.

Note I have removed the driver MMIC and its DC feed choke, and replaced it with a 1206 0 ohm resistor.

So, the test to do is to connect the modified PA up to the output of the TX FAFAF, provide it with a suitable switched source of 5V (data sheet suggests possibly 800mA's may be required even at 26dBm), and see what power we get out vs 432MHz dBm in. As mentioned previously the SE5004L data sheet headline figure is +26dBm out but in the tables it claims +34dBm under certain conditions which is where the 2W on the box figure comes from. I take any figure like this on an AliExpress advert with a large grain of salt, the advertised mA Hrs on some 18650 Lithium batteries for example are just pure marketing/lies.

Well surprise surprise what do we actually get? Much closer to the 26dBm than the 34dBm in fact, so the 2Watt is again marketing hype. The actual results obtained were as shown in Table 1 .

Table 1 - Power Out vs Power in

432MHz dBm in	Equiv 432 Power in (mW)	5.76GHz dBm Out Corrected	5.76GHz dBm out Raw	Equiv 5.76GHz Out (mW)
-20	15.85	13.75	-6.25	23.71
-15	50.12	18.46	-1.54	70.15
-10	158.49	23	3	199.53
-5	501.19	27.23	7.23	528.45
0	1584.89	27.12	7.12	515.23

You will see the output power is basically limiting at about 27dBm or slightly over 500mW, corresponding (allowing for the 32 odd DB attenuation of the 70cM separator (,see next section)) to about 500mW in or the lowest setting for power out for the FT817. Note the raw figure is because not wanting to blow the NRPZ22 up I had an extra 20dB power attenuator in line.

So basically, not as much as I had hoped but 500mW is probably usable with a good antenna.

70CM Separator.

As mentioned earlier I had originally planned to do the IF/Transceiver differential attenuation in my CAT display module. While I was now going to at least initially put it in the Transverter, I had originally done a PCB for it as part of the CAT display work. This PCB is shown in Figure 16 - IF

Separator.. It consists of a SPDT relay switch, selecting two possible paths, each with provision for some fixed PI or TEE attenuator network, plus another SPDT relay/switch to come back to a common in/out.

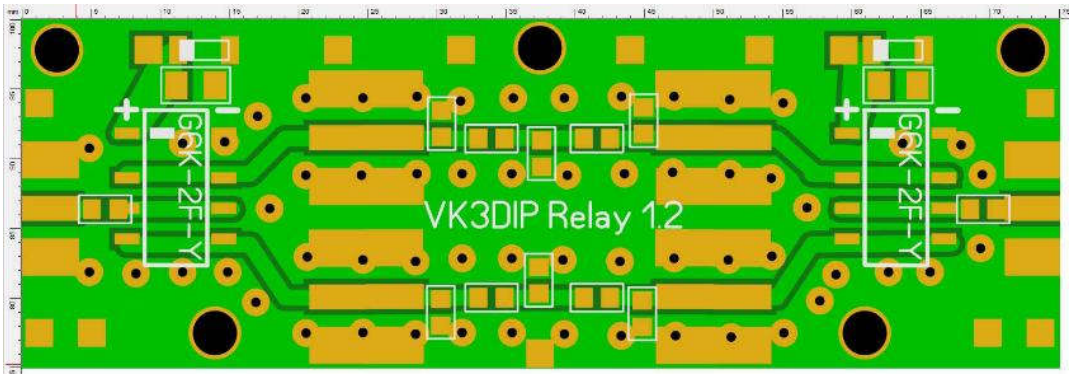

Figure 16 - IF Separator.

As discussed back in the CAT display project where I tested a single one of these relays (the front third of one of these boards), the switches showed good matching and low (0.27dB) losses at 70cM, so the two relays combined should contribute just over 0.5dB of loss.

If I was to use an FT817 as the IF Transceiver it can be set to produce up to four different power levels. i.e. 0.5W, 1W, 2.5W, and 5W. In dBm this equates to about 27, 30, 34, and 37 dBm. If I wanted to peak at about 6dBm with the 5W in (37dBm) I need about 31dB of attenuation. The attenuation is relatively easily obtained, the problem is dissipating the 5watts, and presenting a reasonable match at 70cm. The answer I came up with here was to basically buy it, i.e. for $8 from Aliexpress we can buy a single chip (60watt rated) 30dB attenuator that can be made to fit on the board. See Figure 17 - 70cm Separator.

Figure 17 - 70cm Separator

You will see I had to cut the board with a nibbling tool and have added a sheet of copper on the board underside to act as a heatsink.

The measured input Return Loss (in TX mode) is about 20.98dB at 432MHz which equates to just under 1.2:1 in terms of VSWR which is easily good enough to keep the transceiver comfortable. As far as attenuation is concerned Figure 18 - Separator Attenuation in TX mode. shows a value of 32.1dB at 432MHz which is reasonable given the 30dB attenuator was a cheap Chinese one, plus the known relay and PCB losses.

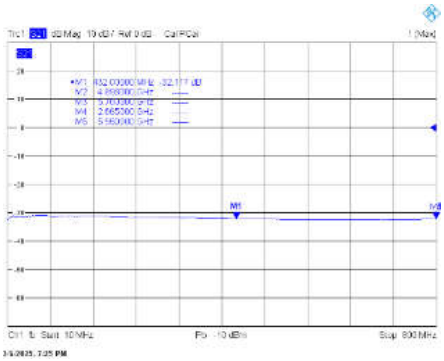

Figure 18 - Separator Attenuation in TX mode.

Anyway, that is basically within one dB of our ideal figure and on the safe side to boot, so I am happy.

Next Time.

That's probably enough for this time. Next time I will look at the extra bits, power supplies, and switching relays, as well as finally getting to the RX path. I must admit I have been leaving the RX until last as I don't have a good/accurate/low level 5.76GHz signal generator or noise figure meter so making accurate measurements of the RX side performance is challenging.

73 Paul VK3DIP.

TRAINING News

We conducted a training and assessment session on the 22 Feb and six candidates were successful in obtaining their Foundation Licenses – congratulations to you all and don't forget to let us know your callsigns!!

The advanced class continues on Tuesday evenings and everyone seems to be studying diligently.

Greg VK3VT will be conducting the next foundation training and assessment session on 22nd March.

73

Phil VK3BOY

March 2025 PLANNED DXPEDITIONS

Remember the NERG is trying to improve on our 13th place in the world club ranking in the DX marathon, we need your score to help us.

Start	End	Entity	Callsign
Feb 25	Mar 14	Greenland	OX3LX
Mar 01	Mar 09	Montserrat	VP2MMN
Mar 01	Mar 30	Jamaica	6Y
Mar 03	Mar 18	Comoros Is	D68Z
Mar 03	Apr 01	Turks & Caicos	VP5
Mar 04	Mar 10	Falkland Is	VP8
Mar 04	Mar 11	Cocos Keeling	VK9CU
Mar 04	Mar 22	St Martin	FS
Mar 05	Mar 16	Barbados	8P9CB
Mar 06	Mar 11	Cayman Is	ZF2CA
Mar 06	Mar 14	Cape Verde Is	D4AHV
Mar 07	Mar 11	Guernsey	MP7DX
Mar 07	Mar 12	Minami Torishima	JD1
Mar 08	Mar 15	Turks & Caicos	VP5
Mar 08	Mar 29	St Kitts & Nevis	V4
Mar 09	Mar 10	Antigua & Barbuda	V26MN
Mar 09	Mar 19	San Andres & Providencia	HK0A
Mar 09	Mar 20	Bahamas	C6AJB
Mar 09	Apr 05	Sint Maarten	PJ7AA
Mar 10	Mar 11	St Martin	FS
Mar 10	Mar 25	Andaman Is	VU4AX
Mar 11	Apr 26	Guyana	8R1TM
Mar 13	Mar 24	Jamaica	6Y7EI
Mar 14	Mar 24	Turks & Caicos	VP5
Mar 15	Mar 24	St Lucia	J6
Mar 16	Mar 30	St Vincent	J87PE
Mar 17	Mar 31	Grenada	J38XB
Mar 18	Apr 01	Micronesia	V6WG
Mar 18	Apr 08	Tanzania	5H3MB
Mar 20	Mar 26	San Andres & Providencia	HK0
Mar 24	Apr 05	Rodrigues I	3B9DJ
Mar 24	Mar 31	Cyprus SBA	ZC4MK
Mar 24	Apr 04	St Barthelemy	TO1P
Mar 24	Apr 05	Rodrigues I	3B9DJ
Mar 26	Mar 31	St Lucia	J62K

Mar 26	Apr 05	Sint Maarten	PJ7EE
Mar 29	Apr 19	Bahmas	C6APS
Mar 30	Apr 06	Honduras	HR9
Apr 01	Apr 07	Surinam	PZ5IP
Apr 02	Apr 10	Ogasawara	JD1
Apr 03	Apr 10	Maldives	8Q7EF
Apr 08	Apr 17	Ogasawara	JD1
Apr 09	Apr 15	French Polynesia	TX7XG
Apr 10	Apr 27	Br Virgin Is	VP2VI

Thanks to http://www.ng3k.com/misc/adxo.html

March 2025 CONTESTS

*This coming weekend we have the **JMMFD** and the club will running from the rooms, come along and have some fun.*

*The last weekend in March (29/30) sees the **CQ WPX Phone contest** – there will be lots of DX around and this is a great contest to fire up your contesting juices!! Have a listen around late on Sunday to hear some mammoth scores and working them is easier as they have worked nearly everyone.*

Contest	Times & Dates
WIA - JMMFD Australian Field Day	**0100Z, Mar 15 to 0100Z, Mar 16**
BARTG HF RTTY Contest	0200Z, Mar 15 to 0159Z, Mar 17
Russian DX Contest	1200Z, Mar 15 to 1200Z, Mar 16
Virginia QSO Party	1400Z, Mar 15 to 0400Z, Mar 16 and 1200Z-2400Z, Mar 16
FOC QSO Party	0000Z-2359Z, Mar 22
Russion YL/OM Contest	0700Z-1059Z, Mar 22
Africa All Mode International DX Contest	1200Z, Mar 22 to 1200Z, Mar 23
CQ WW WPX Contest, SSB	**0000Z, Mar 29 to 2359Z, Mar 30**
April 2025	
ZL Sprint	0800Z-0829Z (CW), Apr 1 and 0830Z-0859Z (SSB), Apr 1 and 0900Z-0929Z (SSB), Apr 1
YBDXPI SSB Contest	0000Z, Apr 5 to 2359Z, Apr 6
Georgia State Parks on the Air	1200Z, Apr 5 to 2359Z, Apr 6
EA RTTY Contest	1200Z, Apr 5 to 1200Z, Apr 6
Florida State Parks on the Air	1400Z-2200Z, Apr 5 and 1400Z-2200Z, Apr 6
Missouri QSO Party	1400Z, Apr 5 to 0400Z, Apr 6 and 1400Z-2000Z, Apr 6
Mississippi QSO Party	1400Z, Apr 5 to 0200Z, Apr 6
Louisiana QSO Party	1400Z, Apr 5 to 0200Z, Apr 6
SP DX Contest	1500Z, Apr 5 to 1500Z, Apr 6
ZL Sprint	0800Z-0829Z (CW), Apr 8 and 0830Z-0859Z (SSB), Apr 8 and 0900Z-0929Z (SSB), Apr 8

Many thanks to
http://www.contestcalendar.com/contestcal.html

Discounts from Suppliers

Club members can get discounts from two suppliers:

***Altronics. (Australia Wide)**, Mention you are from the North East Radio Group or give our customer no - 64429. Discount will be minus 10% up to 45% off depending on the item. (Actual discounts depend on the product type and quantity purchased). There is No Minimum Spend in store to receive the discount. For on-line or phone Sales there **IS** a Minimum spend of $25.00 inc GST but **NOT** including Freight. In the comments section put "64429" to receive the discount.*

***Jaycar Electronics stores** by mentioning you are from the "NERG" no spaces quotes or dots etc, Account code is 44700493. You need to spend a min $25.00 to receive a 10% discount. http://www.jaycar.com.au/*

VK3CNE REMOTE STATION

Can be used for receive on all HF bands. Provides transmit on 160 metres using a dipole, 80 and 40 metres using a trapped dipole and a Spiderbeam for 20 through 10 metres. NO TX on 30M at this time.

This is only available to members, you will need:

- *An Amateur Radio Licence – any grade – Remember you can only use the bands and power **you** are licenced to use.*
- *A windows computer with sound card connected to a speaker and a microphone. A PC headset is ideal.*
- *OR an android tablet or phone and are prepared to pay for the app (less than $20)*
- *Download the free client from RemoteHams.com install it on your machine and register with RemoteHams.com using your **callsign**. The android app is called RCForb and is available on google play.*
- *The NERG station is "VK3CNE" Connect to it and request "club" membership and TX capability. Then wait until your membership is approved and away you go!*
- *Usage privileges are only available to financial NERG members with VK callsigns.*

VHF / UHF Remote

The VHF/UHF remote operates exactly the same as the HF version, the Station is "VK3CNE – 9700"

About the NERG

The NERG Inc. *Reg No A0006776V* http://nerg.asn.au *The North East Radio Group, Inc. is an amateur radio club devoted to encouraging members and others to enjoy the hobby of amateur radio. It tries not to hang on ceremony and endless reporting but rather participate in the fun aspects of this fascinating hobby.*

MEMBERSHIP FEES

Due in August: Full: $35 Family: $50 Remote Member: $50 Concession: $25 You will get a renewal notice please wait for this before you pay.

COMMITTEE

President	*Anthony VK3YH/BNR*
Vice President	*Greg VK3VT*
Secretary	*Peter VK3PCC*
Treasurer	*Mick VK3PRR*

Committee Members

Mark VK3BYY
Ash VK3HAG
Phil VK3RP/BOY
Chris VK3IK/AWG
David VK3UQ

NERG NEWS ARTICLES

The NERG is always happy to receive news, articles, and member's wanted or for sale advertisements for inclusion in the newsletter. Please contact the editor at news{at} nerg.asn.au

NETS

NERG *NETS run on the club's 70cm repeater VK3RMH TX 438.325MHz and RX 433.325MHz both C4FM and analogue.* ***That means you RX on 438.325MHz and TX on 433.325MHz.*** *You will need a 91.5Hz CTCSS tone on your analogue FM TX and if you don't want to be bothered with listening to the C4FM digital signals on the output then set your radio to 91.5Hz CTCSS tone on RX as well.*

(8.30 – 9.30 pm Non-meeting Thursdays). Feel free to join the discussions.

146.575MHz is used as a general Net frequency by a number of NERG Members and is often used by the DX chasers in the club while hunting DX. Foxhunters use this channel for liaison as well on the third Friday of the month.

Club Sponsor

Margherita Pizza ph 9434 4980

89 Main Road, Lower Plenty, Vic 3093

web www.margherita.com.au

Margherita's Still Sponsor the NERG and provide the excellent suppers that we have come to enjoy. Order your next Pizza dinner from them and tell them you appreciate their support of the club.

Facebook

The NERG is on Facebook – A group has been established and can be found at

https://www.facebook.com/groups/nergamateur/

Members are encouraged to join this group