W5HN

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More recent Projects

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Dallas

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Construction Projects

AQRP VNA
PiHPSDR
Triband Amplifier
FT817 Band Decoder

UK Activity

1.3GHz UKAC
SHF UKAC
VHF NFD

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AQRP VNA

- **320x240 TFT Display**
- **STM32F407-Discovery Board processor**

•8kHz to 1.17MHz and 1 to 150 MHz

•Calculates Z (Impedance), Y (Admittance), k (Reflection Coefficient) ....in complex numbers, RL (Return Loss)...in dB, VSWR

•Plots Z, Y, k, RL, VSWR, and Smith Chart.

•Numeric display of Results

•Measured data can be exported

•Coax Loss, Characteristic Impedance, and V.F. can be measured.

•FDR measurements (like TDR)

•Device transmission measurement option coming soon

- **Around $100**

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Before Encapsulation

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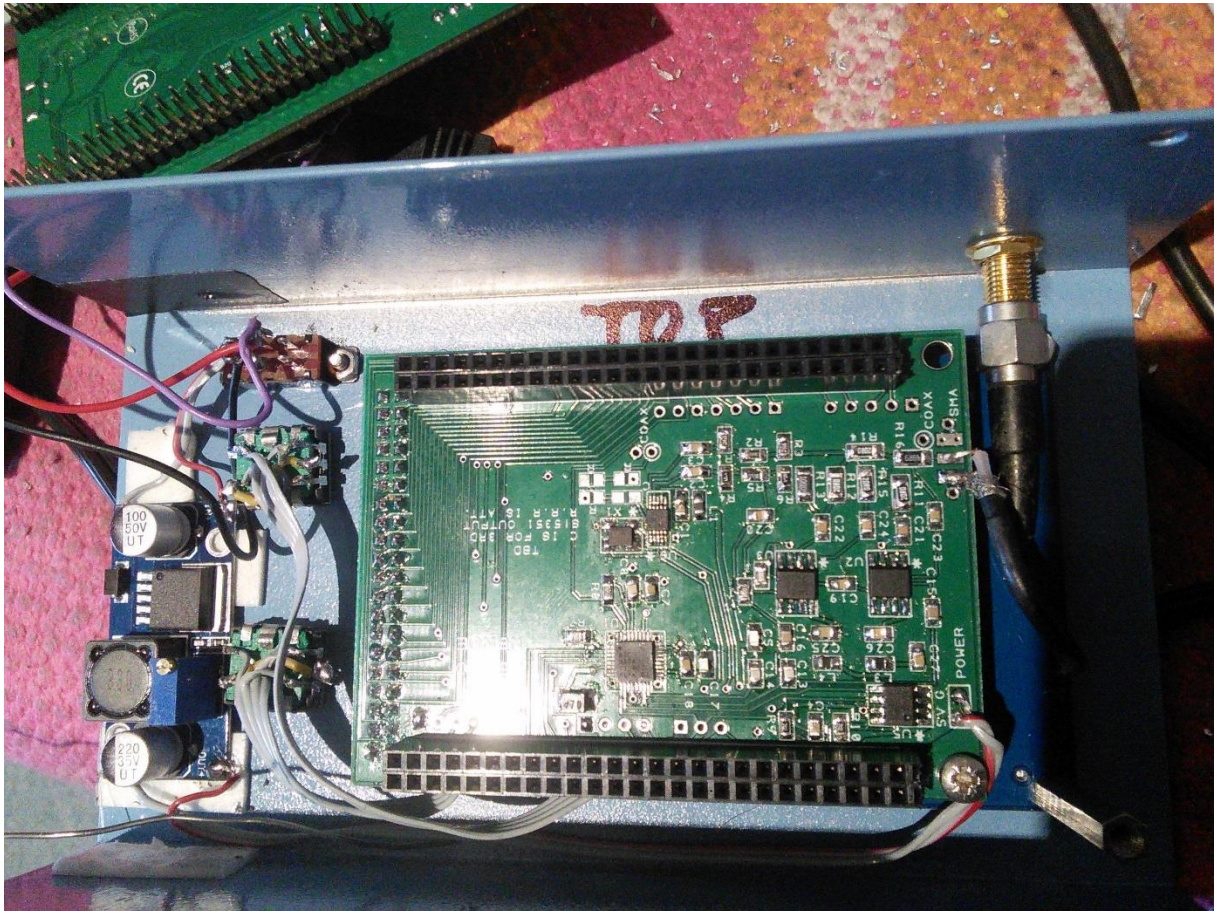
RF Board



(original AA battery power supply)

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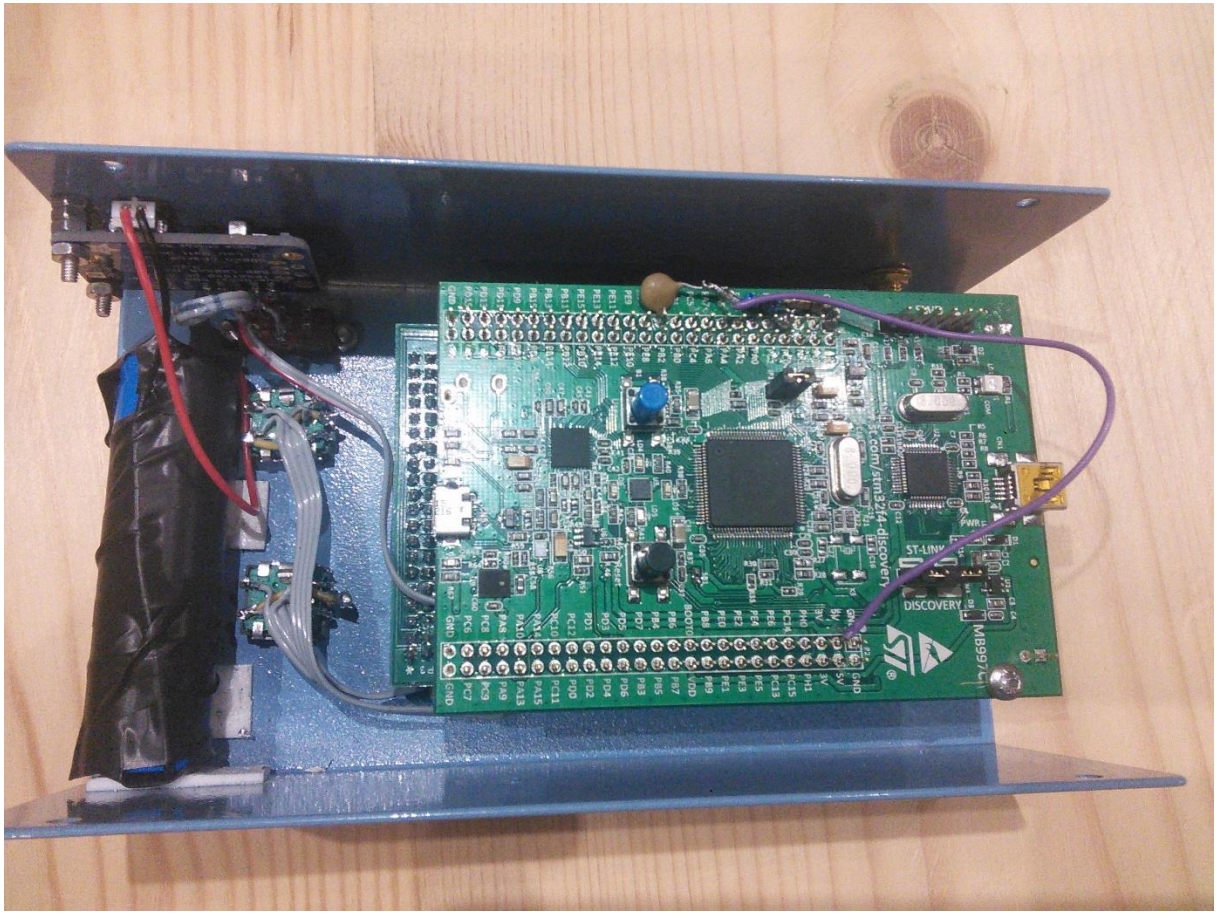
STM Discovery Board



Now showing LIPO power supply

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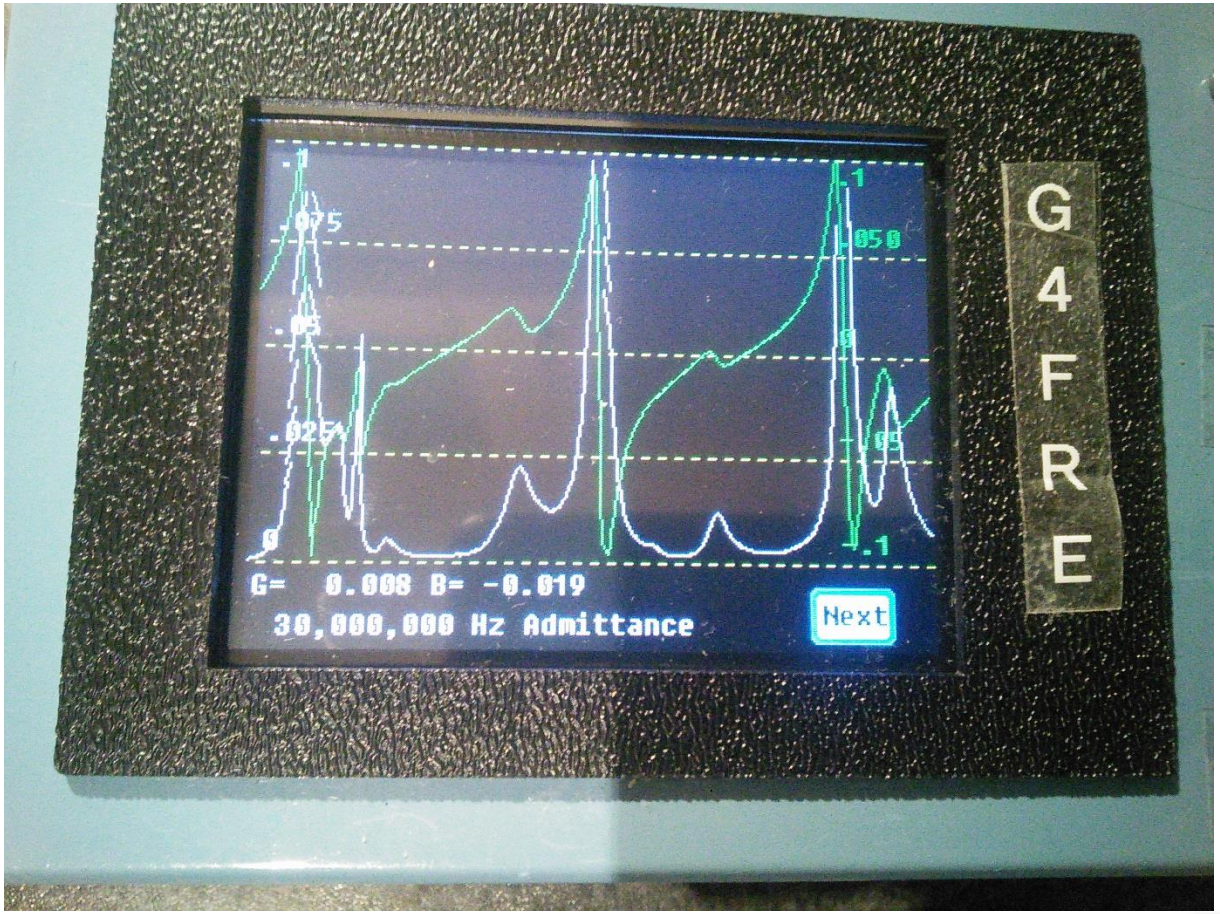
Admittance Display



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Impedance Display

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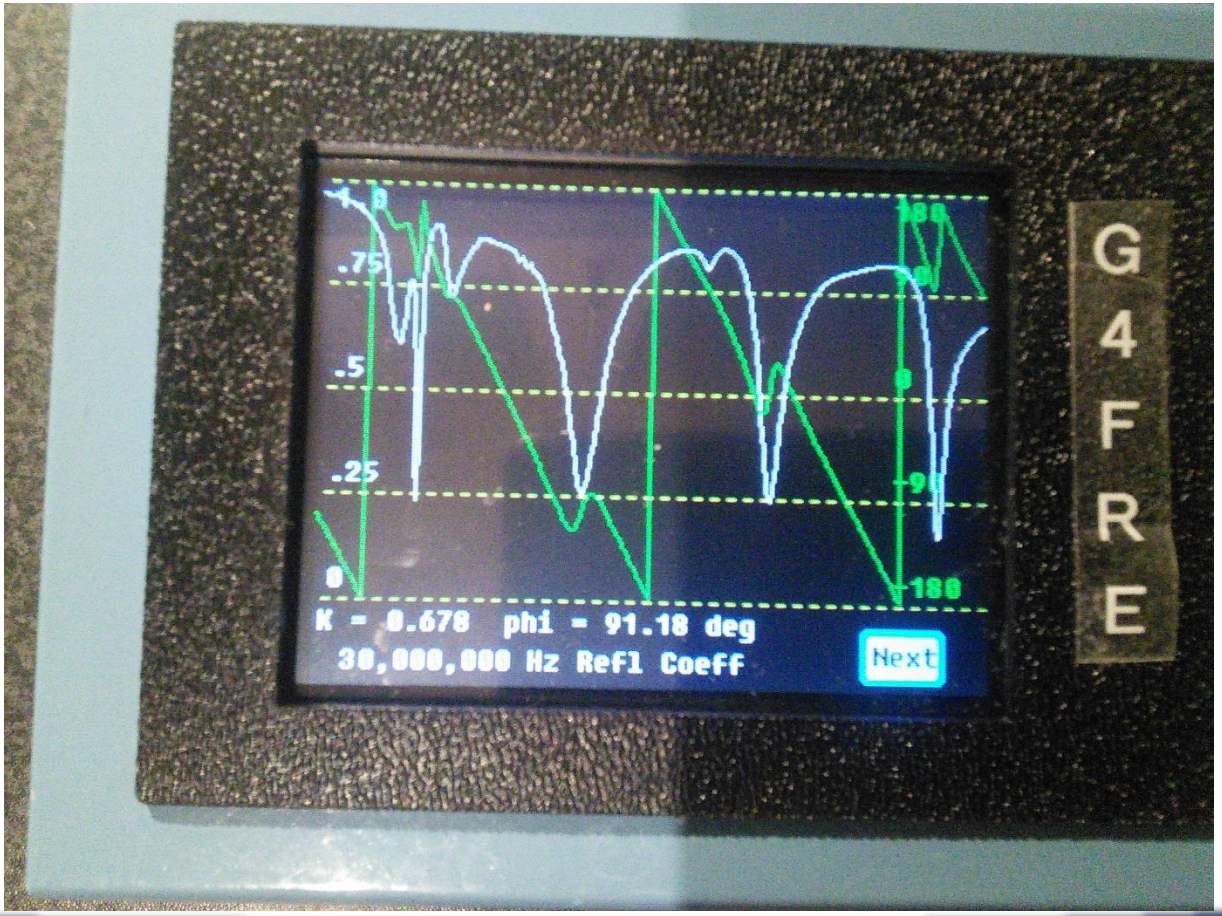
Reflection Coefficient Display



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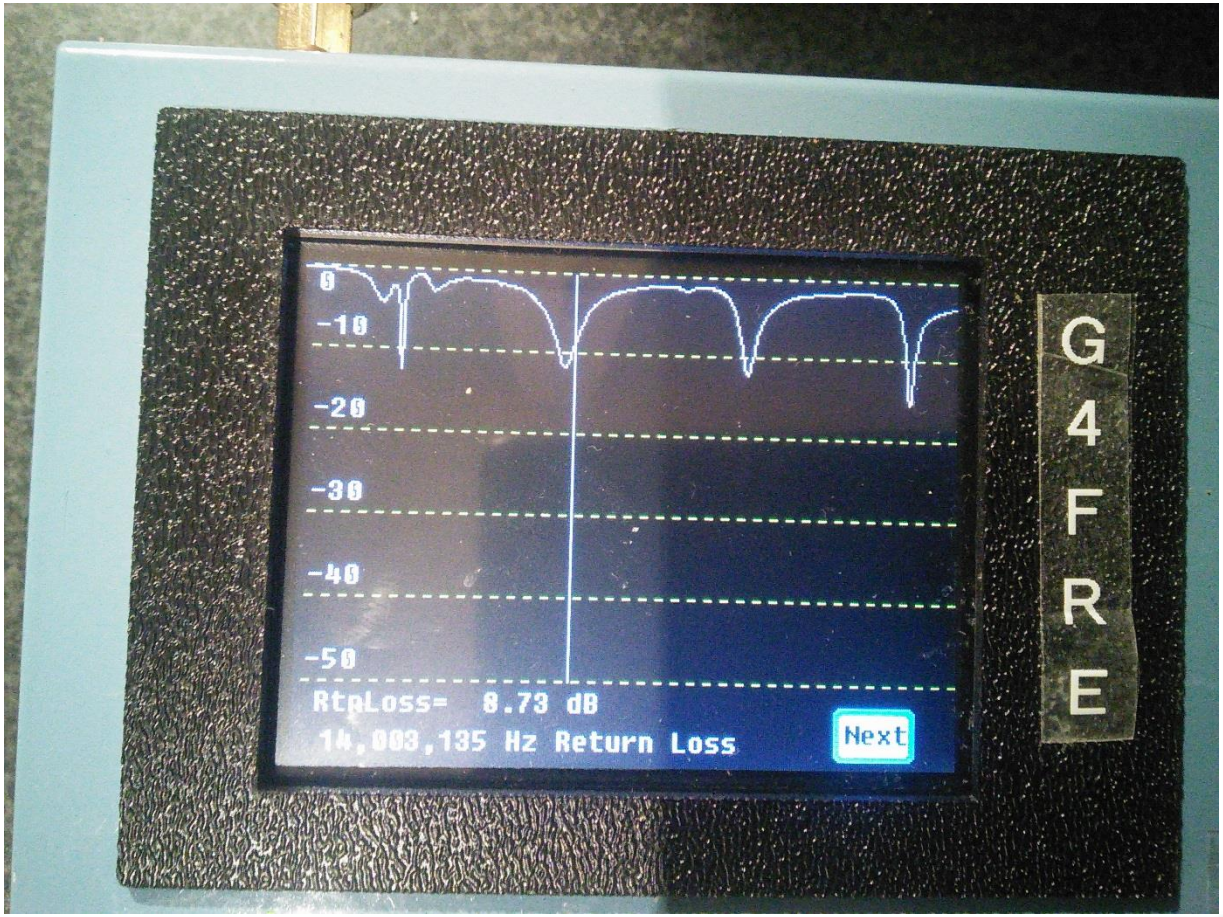
Return Loss Display



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Smith Chart Display

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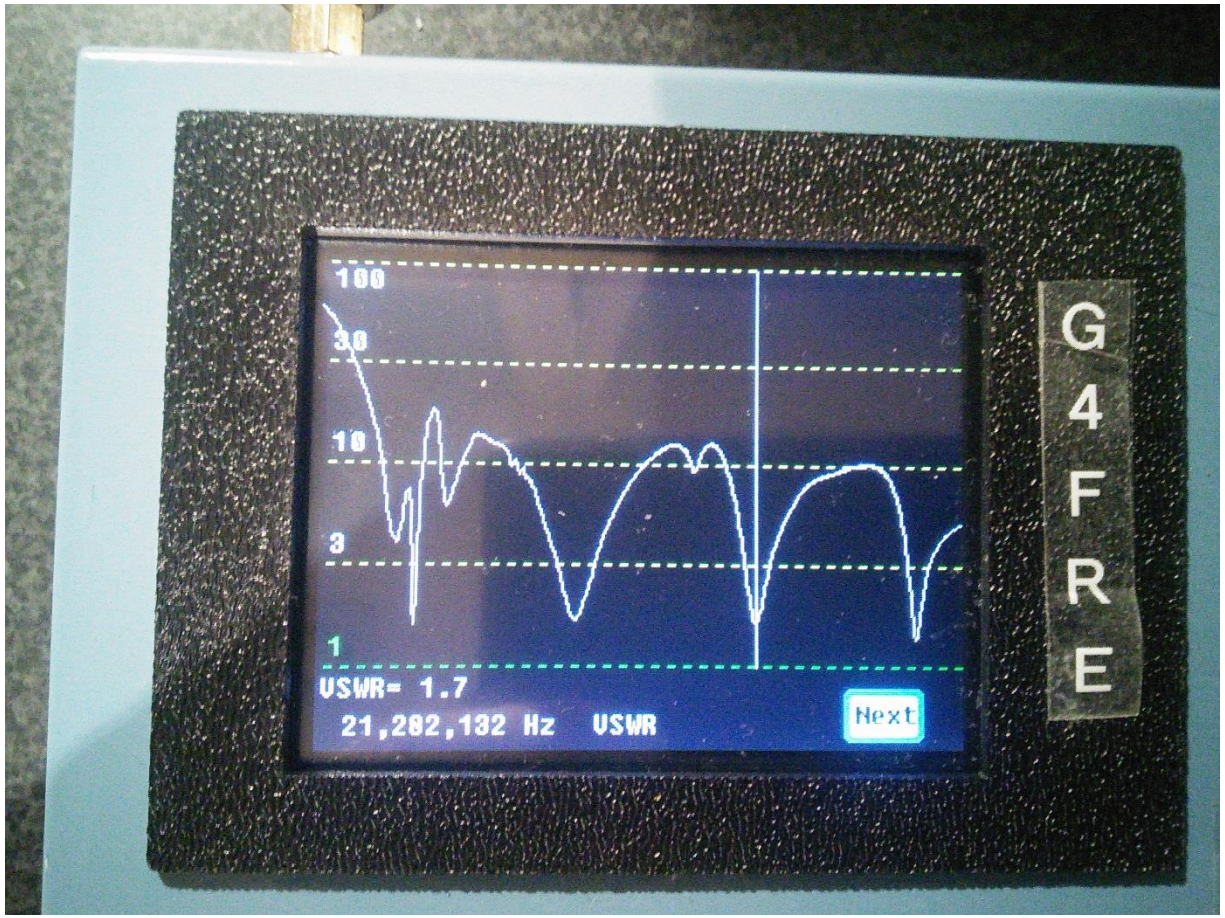
VSWR Display



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VX1R Antenna Return Loss Display

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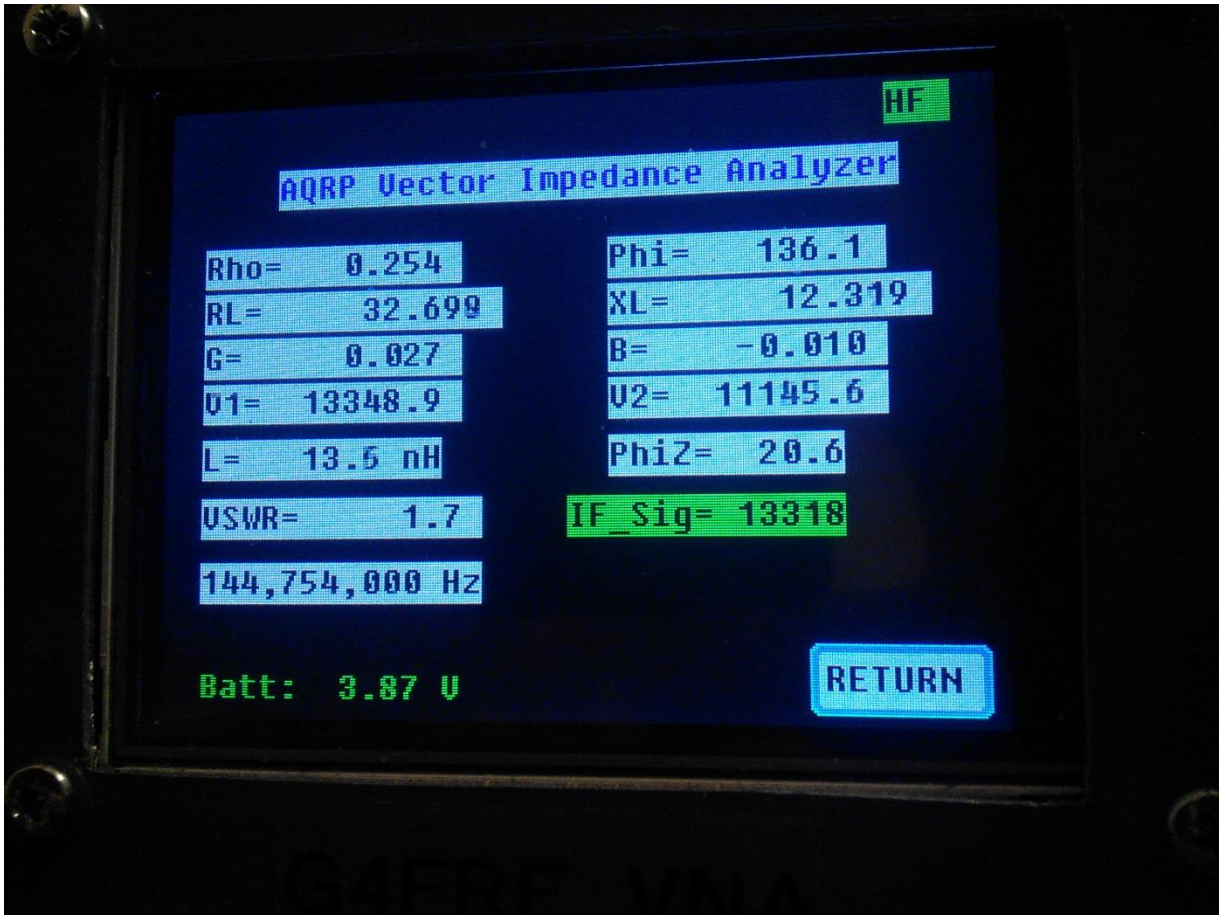
VX1R antenna Alpha Display



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Pi HPSDR

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Apache Labs PiHPSDR

$600

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Pi HPSDR

CQWWCW at MW2I

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Homebrew Pi HPSDR

The Apache unit was nice but I wanted to add some features. Putting hardware inside would stop resale.

Needed a USB soundcard as RPI has audio output but no audio input.

Decided I would build my own so I customise it

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Pi HPSDR Design

Design by John Melton G0ORX, N6LYT
well documented hardware and software

Hardware Needs:-

Raspberry Pi 3
7” PI LCD
Three 24 PPR encoders
One 600 PPR optical encoder
8 push buttons

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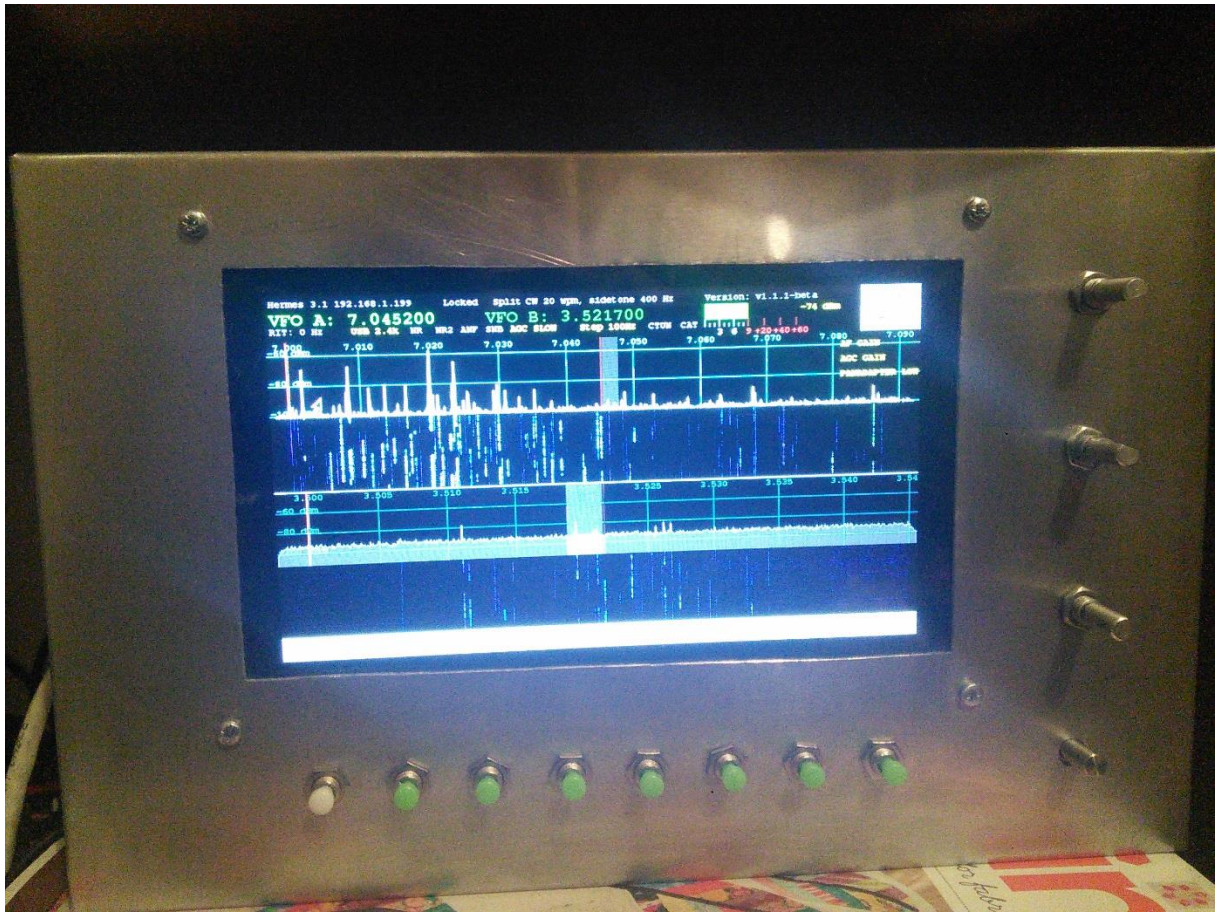
ARRLDX CW at G4FRE



Now has dual receiver capability
(40m upper, 80m lower)

Inside my box

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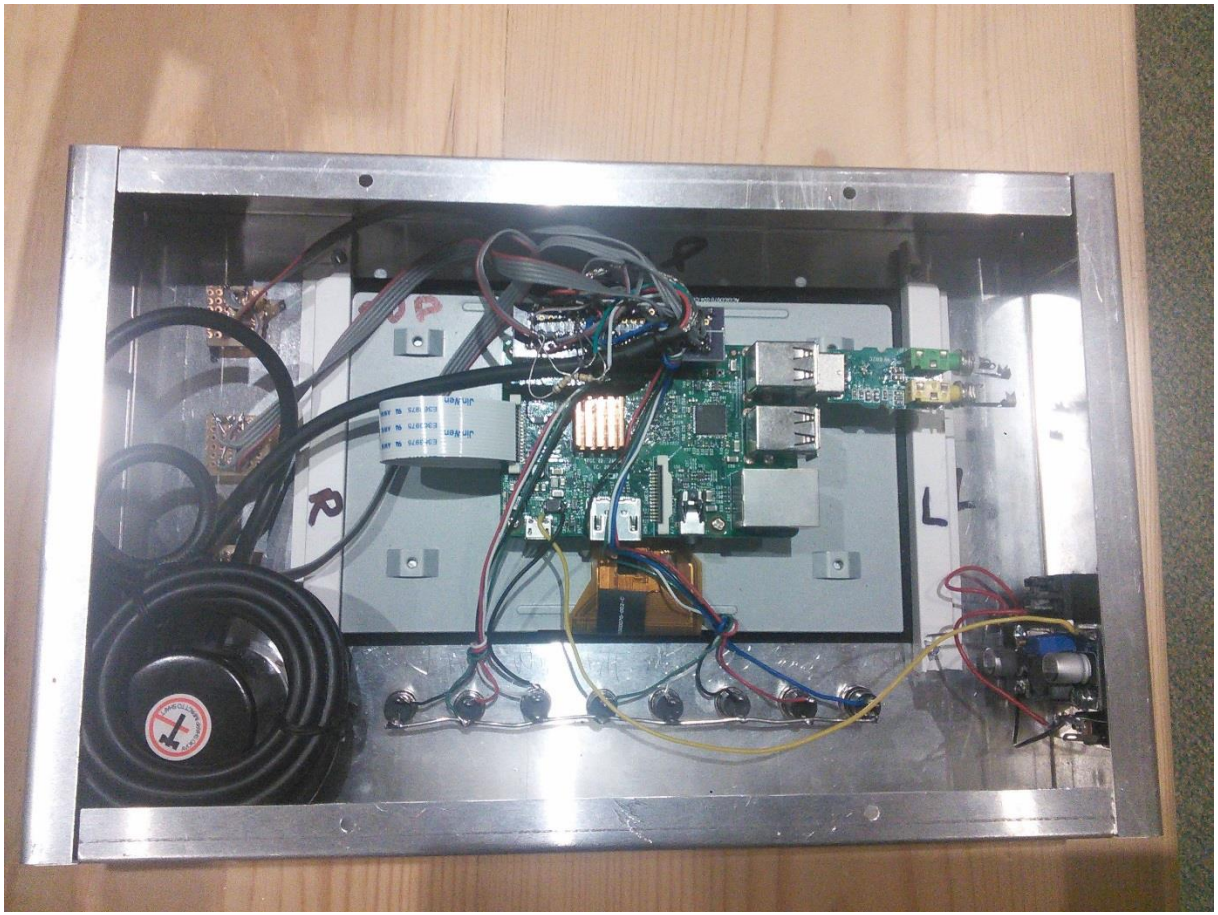

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Triband Amplifier

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Saw this listing on ebay

"Kalmus broad band vhf power amp model 172F High gain 200 watts rf output <1w @ 50-100mhz <4w @ 144Hz, on the tin it does say 80-160Mhz but it does cover 50-70MHz, supply required 28 volts dc 14 amps"

Looked Interesting so I bought one

The module produced around 250W with around 2.5W of drive on 50 /70/144MHz. Time to Integrate it

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Front Panel

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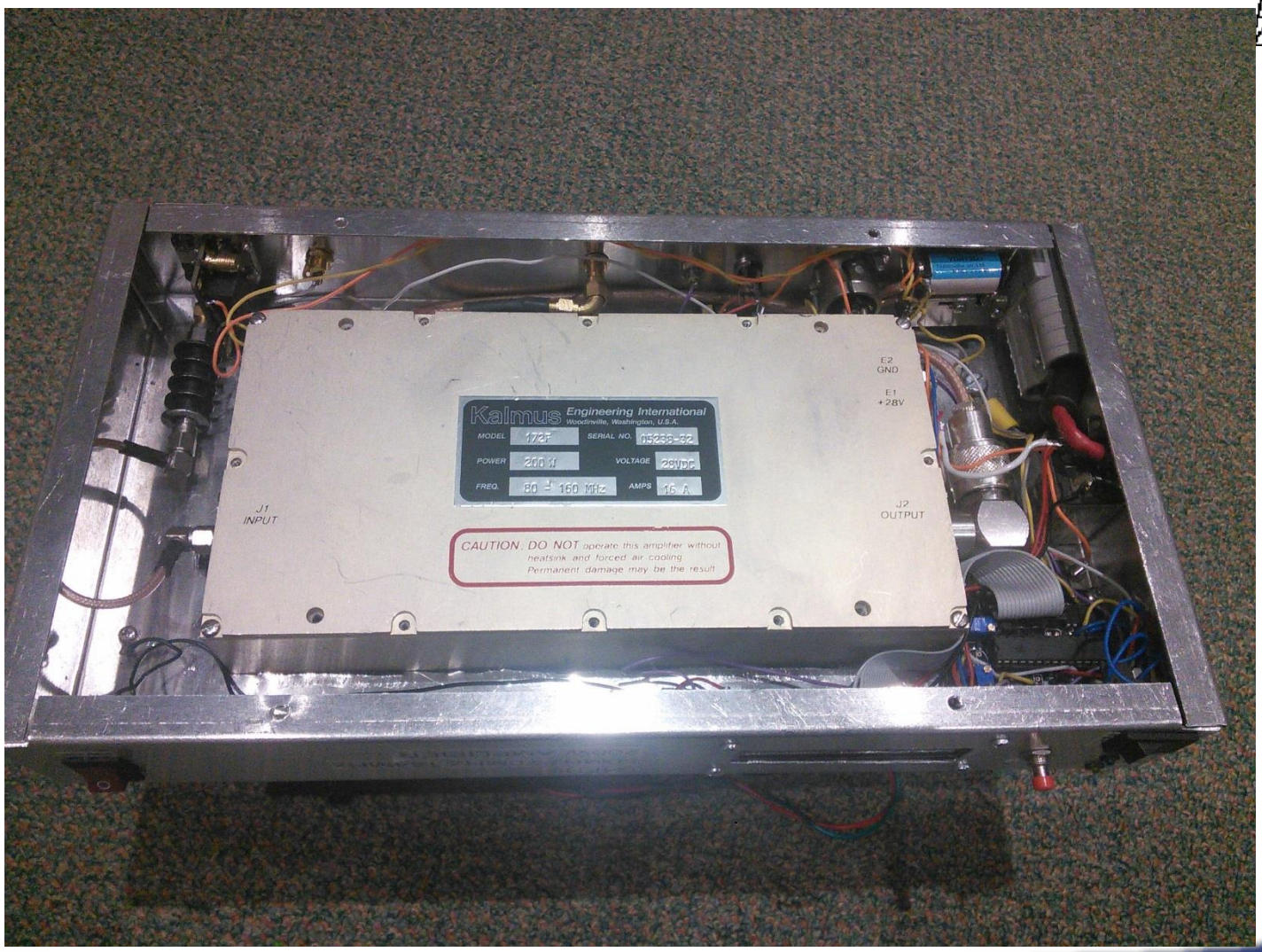
Underside



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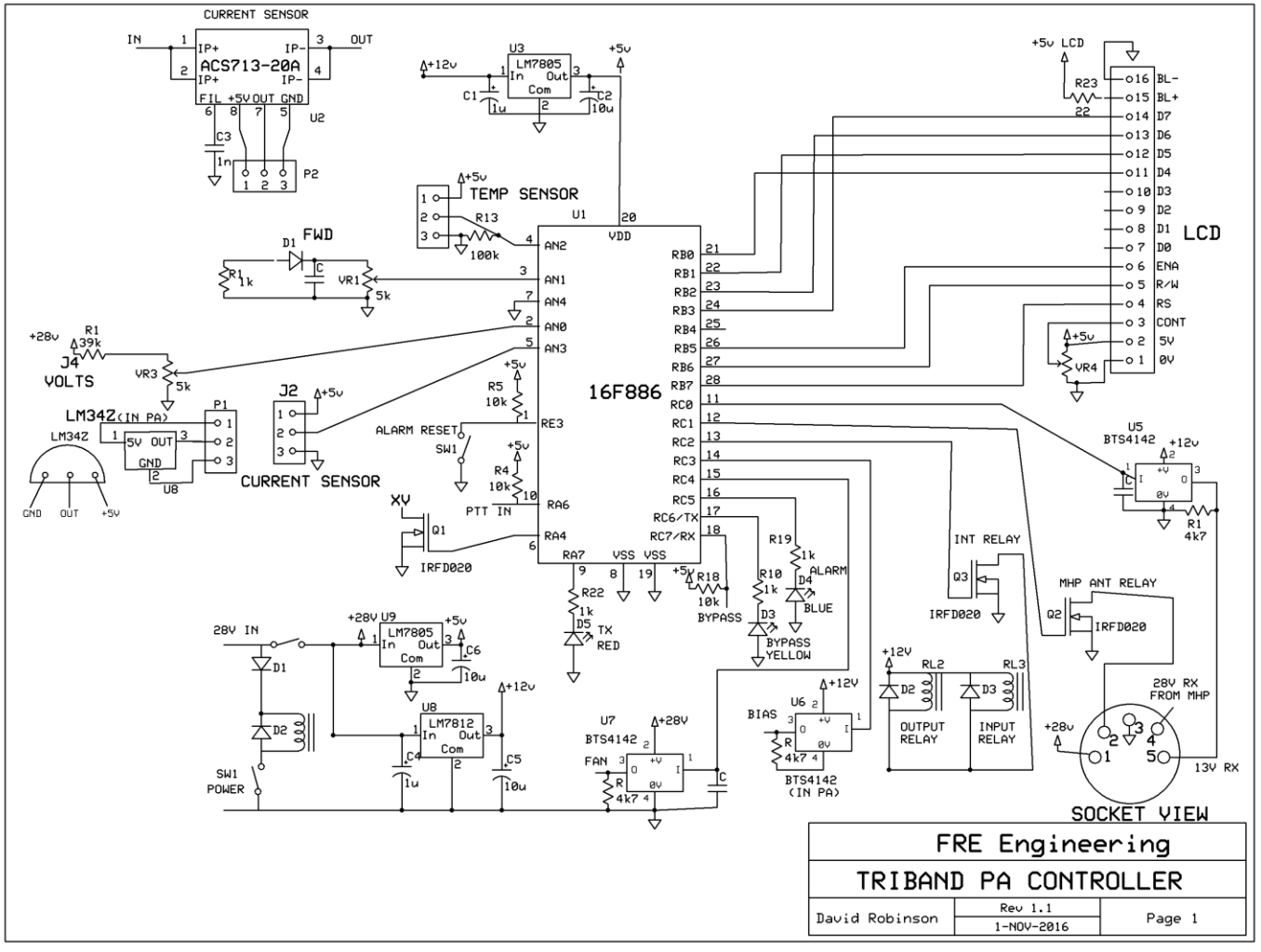
Controller



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FT817 Band Decoder

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Automatically switches the antenna from the FT817 to 4 output ports HF, 6m, 2m and 70cm

Provides corresponding PTT output per band

Started in 2004 with help of N5PYK and G4DDK measuring the actual band output voltages

Proof on concept 2014

Finished 2016

Circuit

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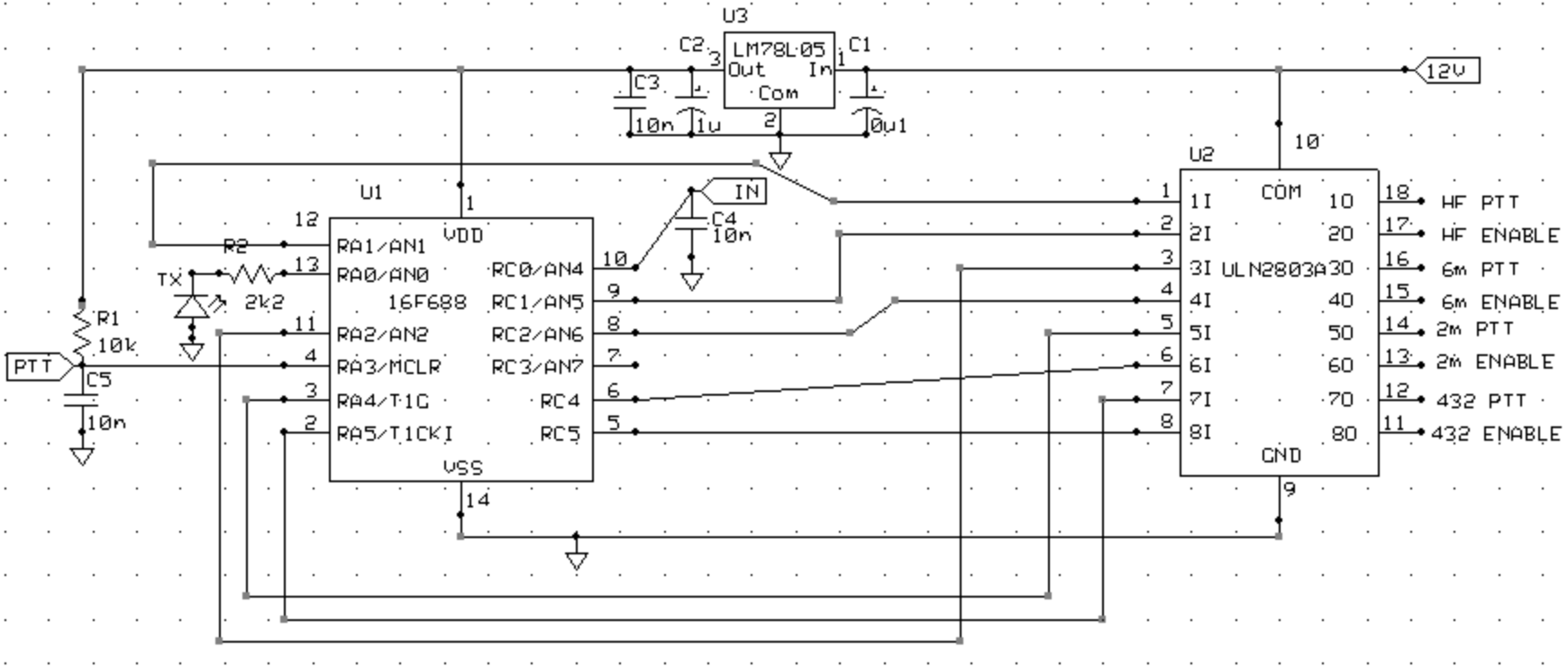

Front Panel

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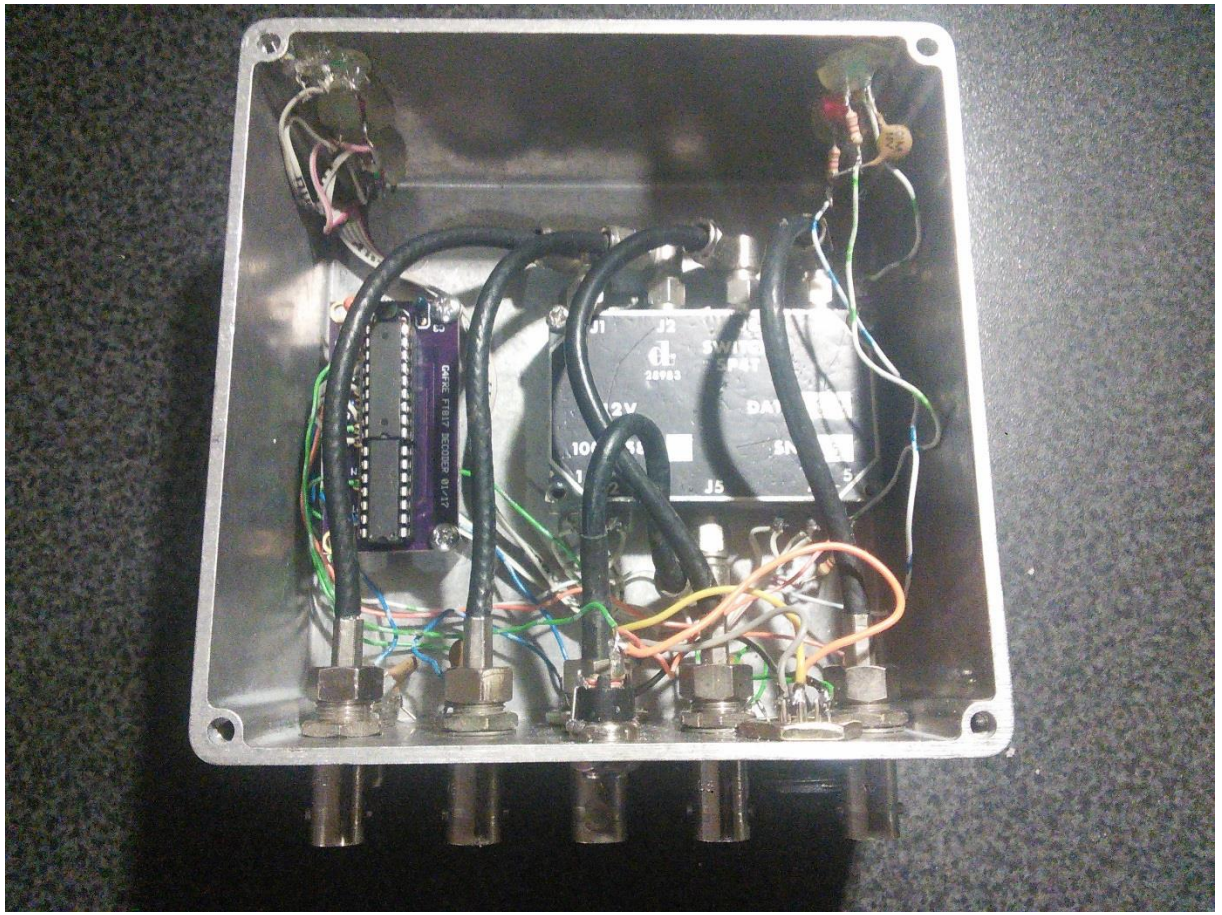
Inside



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UK Microwave Activity

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Microwave Activity Overview

Activity Increases dramatically when Hepburn Index predicts good conditions!

Otherwise contests sustain activity:-

In May and October are the two European coordinated 432 to light contests

At other times there are UKAC (UK Activity Contests)

1.3GHz has its own 2000 to 2230 the 3rd Tuesday night per month

2/3/5/10GHz share 2000 to 2230 the 4th Tuesday night per month

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1.3GHz UKAC 2.5 hours 3rd Tuesday night

Squares	19/01/16	16/02/16	15/03/16	19/04/16	17/05/16	21/06/16	19/07/16	16/08/16	20/09/16	18/10/16	15/11/16	20/12/16
IN79		1										
IN89		1		1		1		1	1		1	1
IO64	2		1	1		1			1	1		1
IO70				3	1		2	3		1	1	
IO71					1	1	1	1	1	1		
IO73								1	2			
IO74	3	1	5	3	1	2	1	2	3	2	1	2
IO75	2	2	2	3				1	3	2	3	2
IO78			1	1			1	1	1	1		
IO80	1	1			2	4	4	5	3	1	1	
IO81	4	6	7	6	7	6	7	8	5	5	6	5
IO82	12	9	9	10	14	11	8	12	11	13	11	10
IO83	19	14	19	16	20	18	18	18	20	18	15	18
IO84	2	1	3	1	2	2	2	3	3	3	1	1
IO85	3	2	3	4	3	1	2	4	2	2	4	1
IO86	1	2	1	1	1	1	2	2	1	1	1	1
IO87						1	1	1	2	1		
IO90	4	2	5	6	6	7	2	3	3	1	2	1
IO91	23	24	23	29	27	23	25	17	18	21	20	16
IO92	18	15	23	22	18	17	18	17	15	18	16	20
IO93	26	31	32	28	34	27	28	32	30	30	33	28
IO94	4	7	4	5	5	4	6	7	6	6	9	7
IO95	3	2	2	2	2	3	3	2	2	2	2	2
JO00				1	1		1	1	1	1		
JO01	4	5	7	4	6	4	8	7	5	6	6	3
JO02	9	8	11	8	5	4	7	6	6	8	4	6
JO03	1		1	1	2	1	3	2	1		1	
UK Sqs	19	19	19	22	20	21	22	25	25	23	20	18
Other Sqs	13	12	14	15	14	8	16	15	14	11	14	20
Active Stns	156	149	180	179	179	150	171	175	165	160	159	151
Entries	107	104	116	112	115	98	103	106	102	100	101	87

QRV Leaders work Best DX

160 75 800km (AS)

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SHF UKAC 2.5 hours 4thTuesday night

2000 to 2230 Hours for ALL 4 bands

Band	QRV	Leaders work	Best DX
13cm	35	15	500km
9cm	17	9	250km
6cm	14	4	200km
3cm	14	7	250km

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VHF NFD 2016

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Location: 20miles east of London

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VHF NFD 23cm Antennas 4 x 44 ele Wimo

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23cm VHF NFD Equipment

M0BAA/P 45 QSOS, total 10,398kms Best DX DR9A at 615km

K3+ G4DDK XVERTER + W6PQL 300W SS AMP+ G4DDK VLNA23 MHP

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References

AQRP VNA
http://www.qsl.net/k5bcq/Kits/Kits.html
Pihpsdr
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FT817 decoder
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Triband Amplifier
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HepburnTropospheric ducting predictions
http://www.dxinfocentre.com/tropo_nwe.html

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