W5HN

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The Langstone Project

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G4FRE WW2R

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Some may remember at MUD 2019 I featured a DATV Transmitter called PORTSDOWN
Which covered to 30 MHz to 3.4GHz

Main components:-

Raspberry PI 3
Lime SDR
7” Touch screen Display

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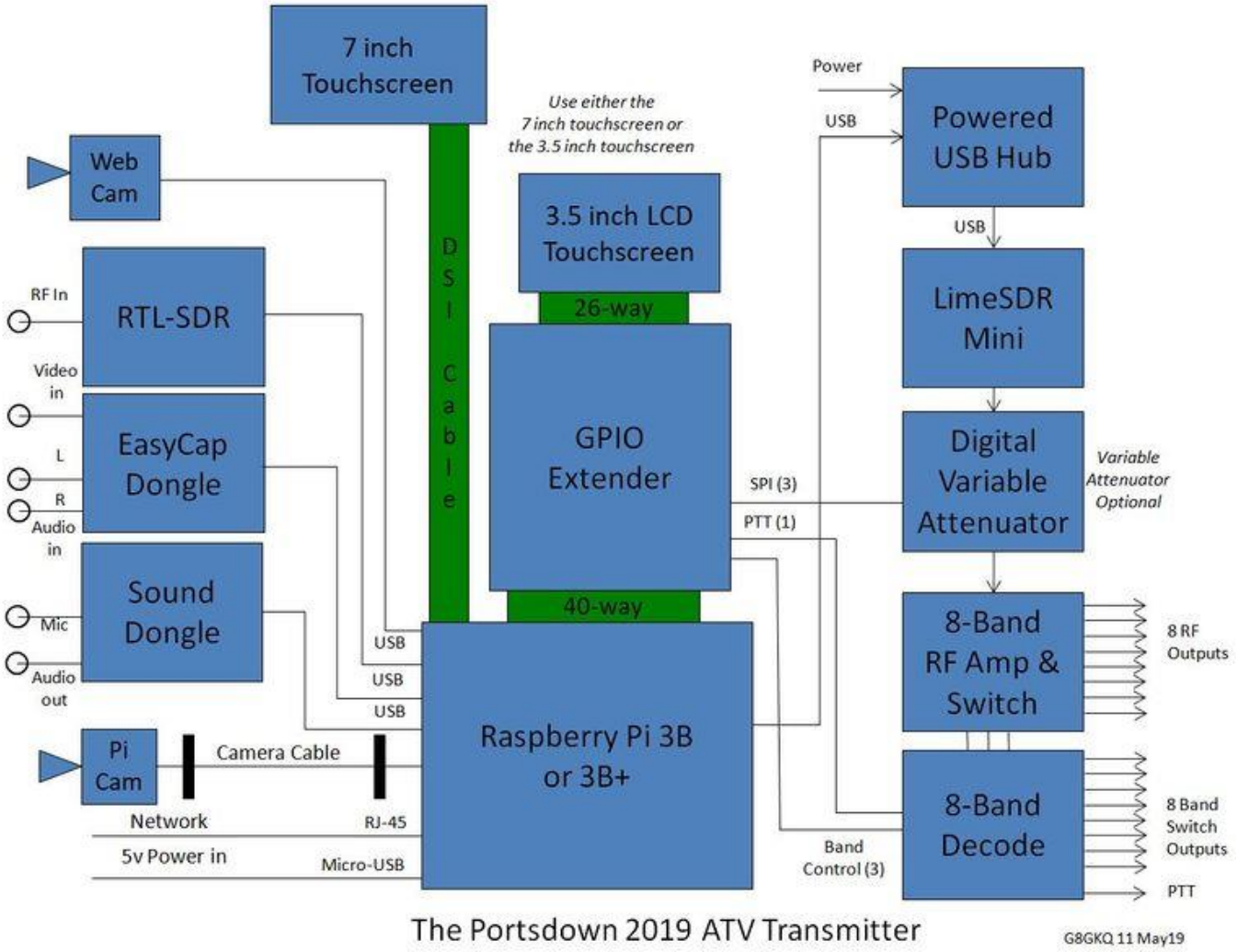
Portsdown 2019



The Portsdown 2019 ATV Transmitter

G8GKQ 11 May19

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MiniTiouner v2.0
designed by F6DZP
BATC PCB G4EWJ, G8GTZ,
G8GKQ, G4KLB, GOMJW

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Langstone Narrowband Transceiver

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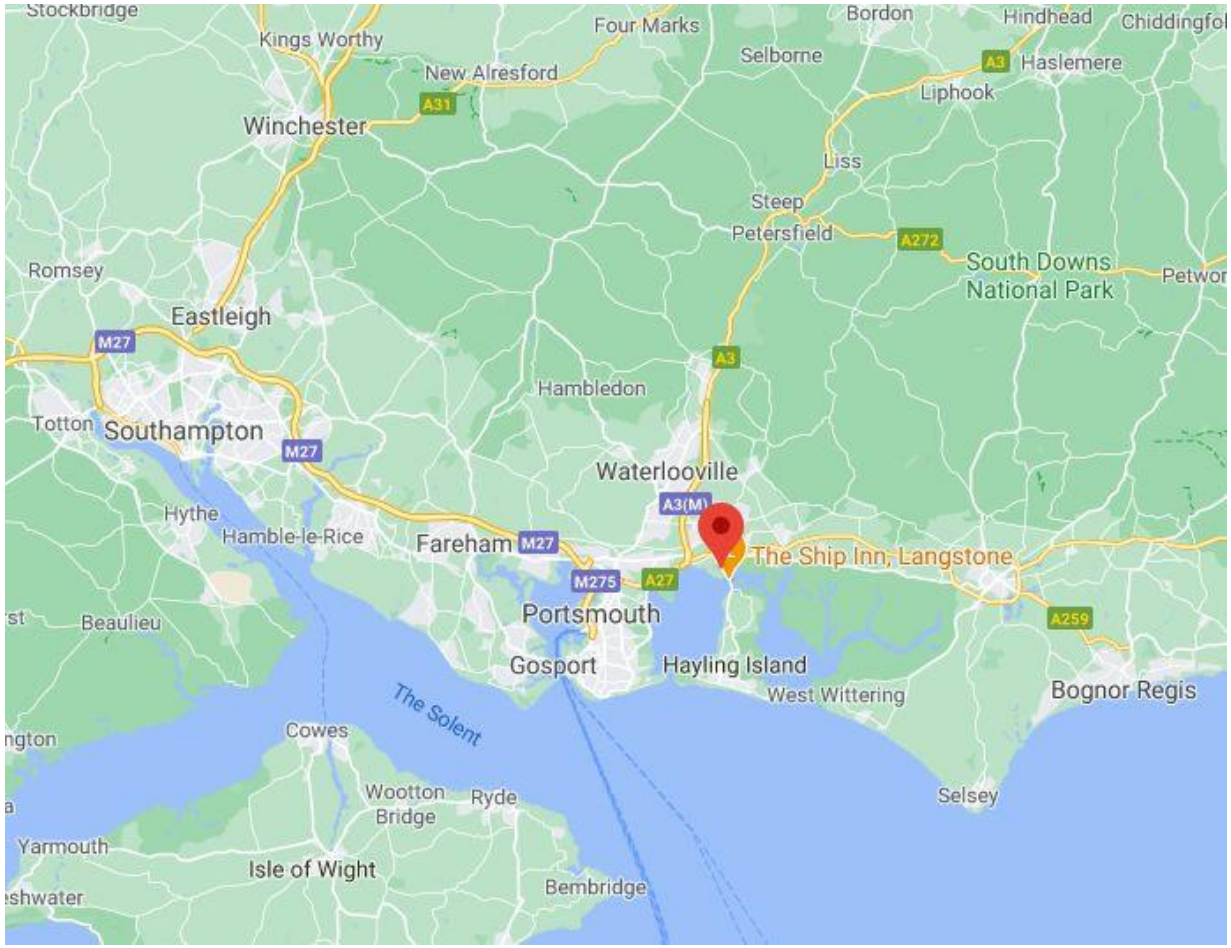
Where is Langstone?



IO90MU

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- Portsdown was very successful
- UKUWG committee thought a narrowband version might stimulate activity
- In Nov 2019 G4EML showed a prototype at RAL microwave round table
- UKUWG committee came up with a new specification (Hayling) but nothing came of it (formally ended Sep 20)
- So G4EML launched his design (Langstone)

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Prototype at RAL Round Table Nov 2019

Langstone Components

Raspberry PI 4 (needed more processing power)
Adalm Pluto SDR
Official Pi 7” Display
Modified USB mouse for Tuning
USB Sound card

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Langstone Features

- Touch screen user interface
- All mode (CW/SSB/FM/AM) narrow band transceiver
- 70MHz - 5.7GHz
- Experimental support for 10GHz and 24GHz using Harmonic mixing
- Waterfall spectrum display
- Band Data Outputs

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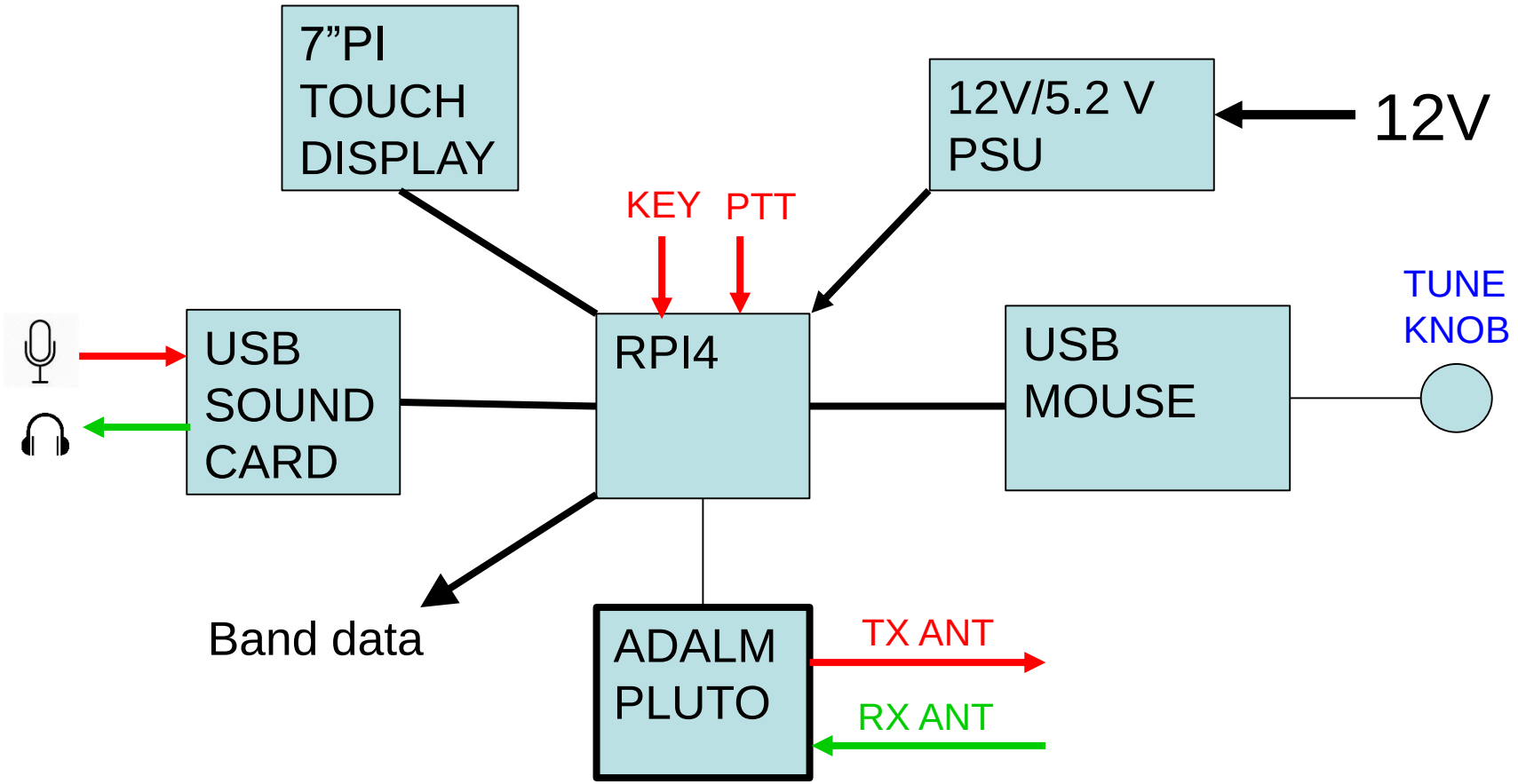
Langstone Block Diagram



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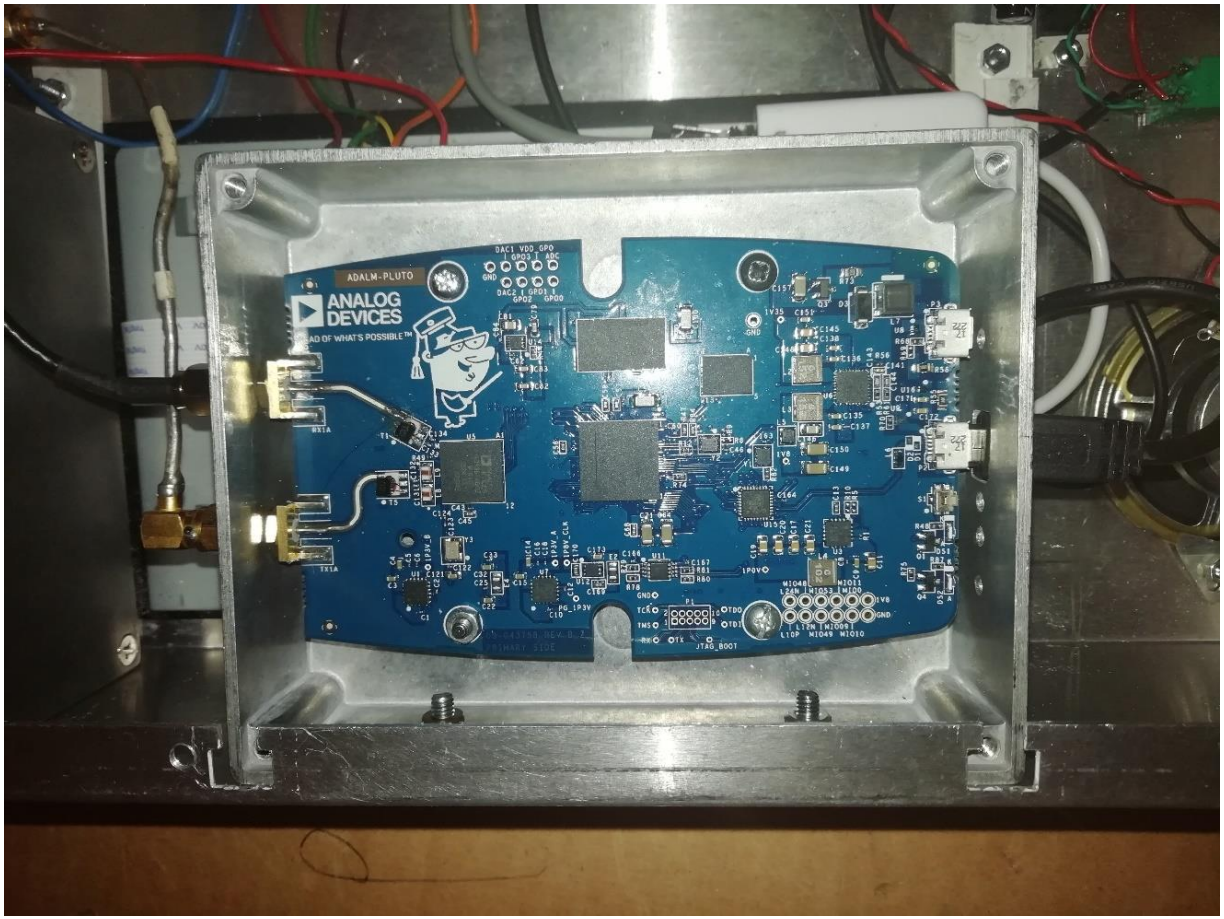
First task Ruggidize the Adalm Pluto



Pluto has some physically delicate components

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USB Soundcard

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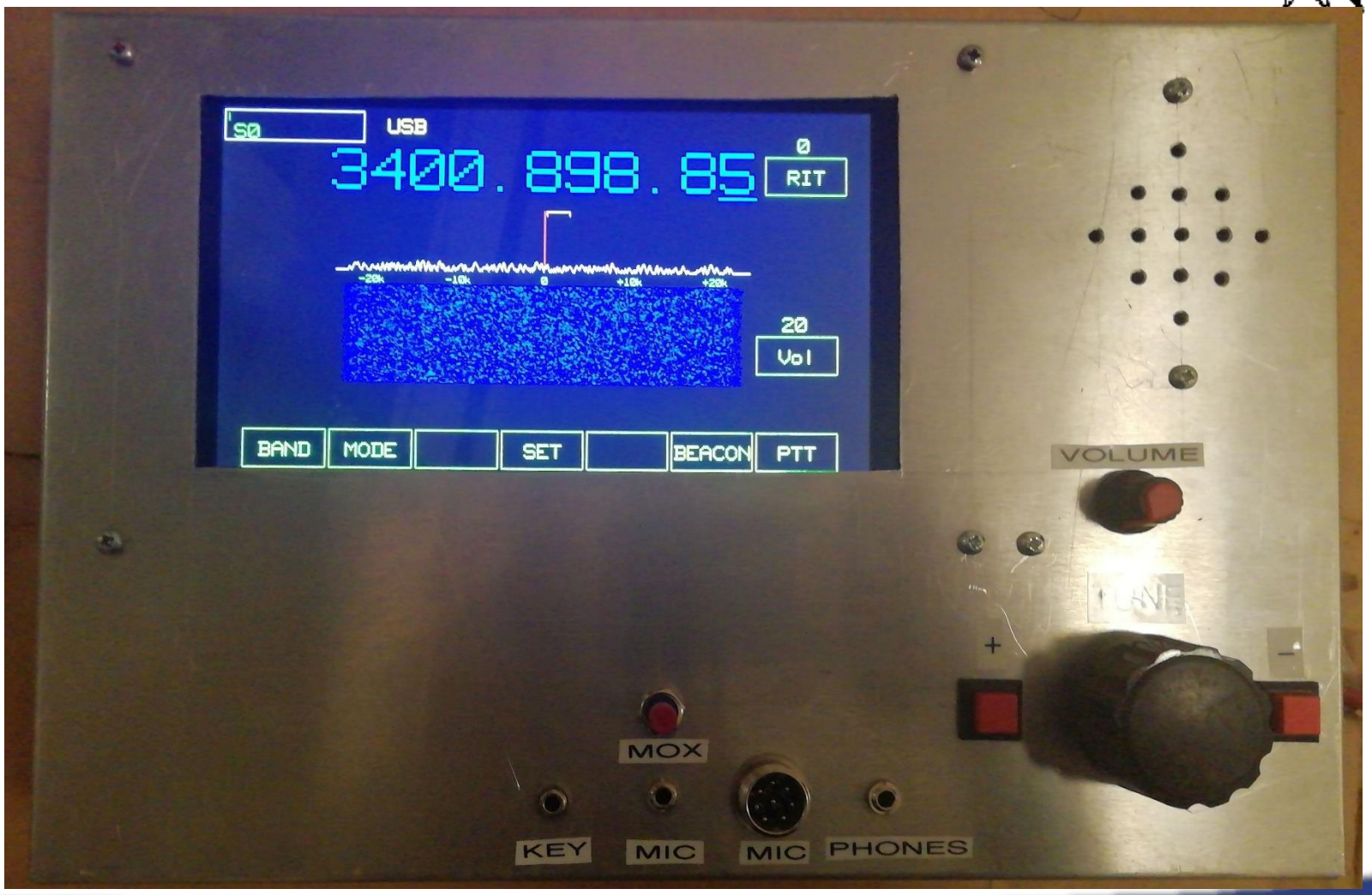
Front Panel



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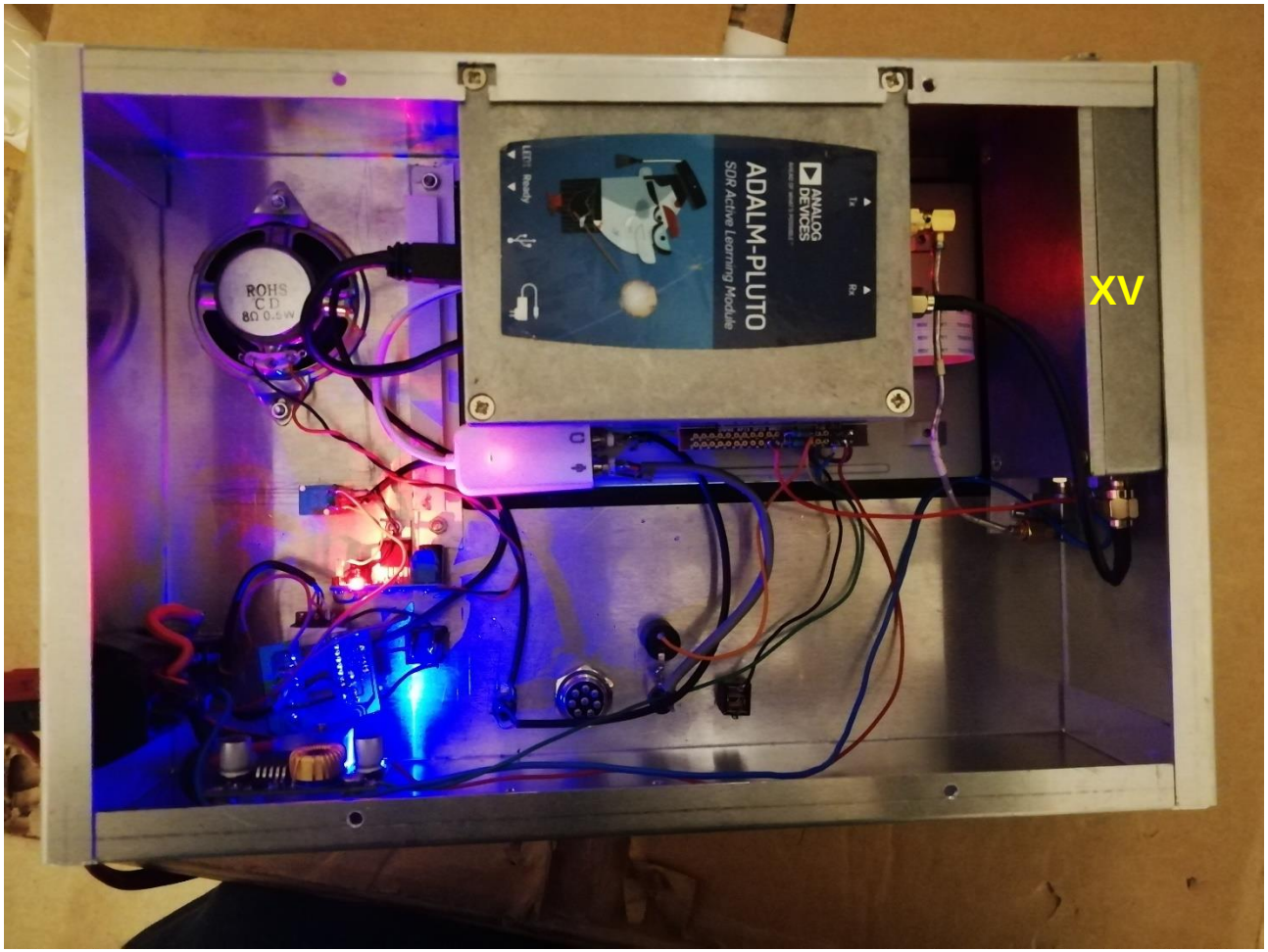
Langstone Innards



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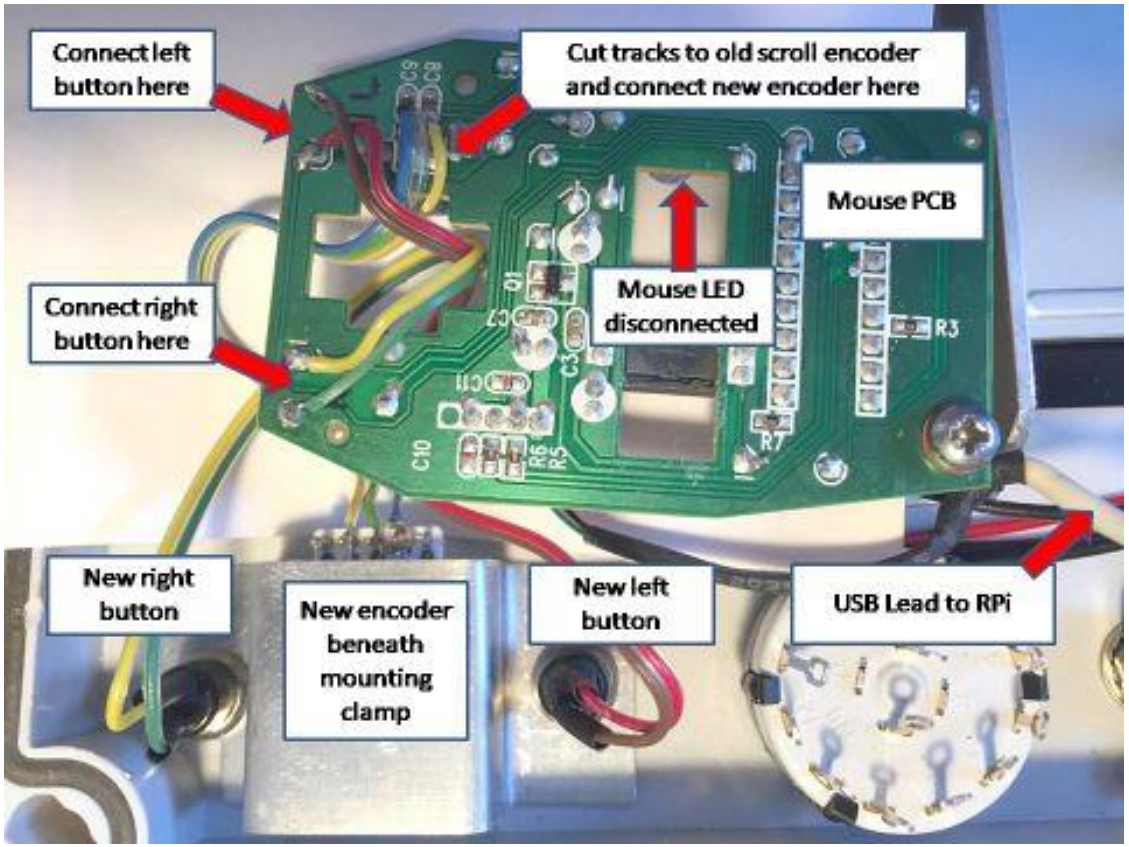
Mouse Modifications



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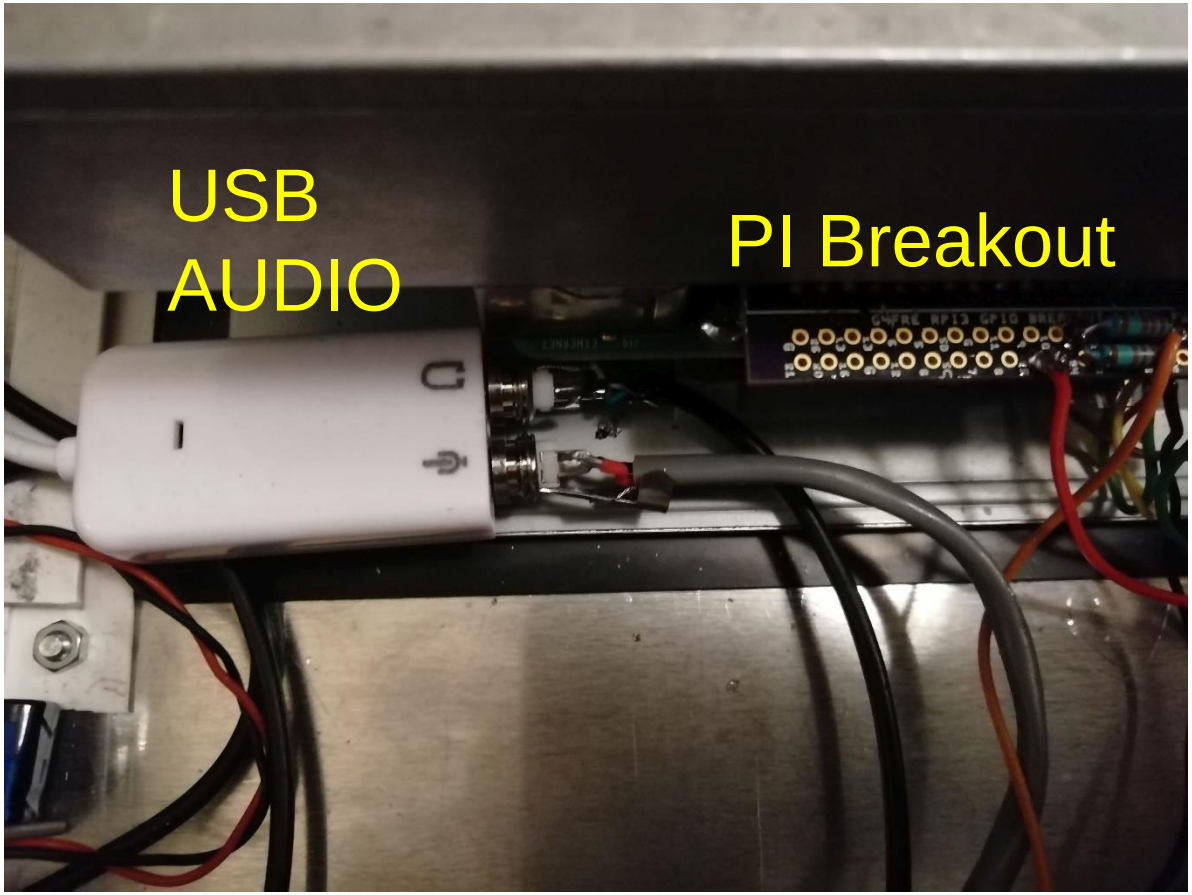

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Settings

SSB and FM Mic Gain
Rx Offset TX Offset
Rx/TX Harmonic Mixing
Band Bits (8)
FFT Ref
Tx Attenuation
S-Meter Zero
SSB Rx Filter Low and Hi Freqs
Rx Gain
CW Ident & Carrier Length

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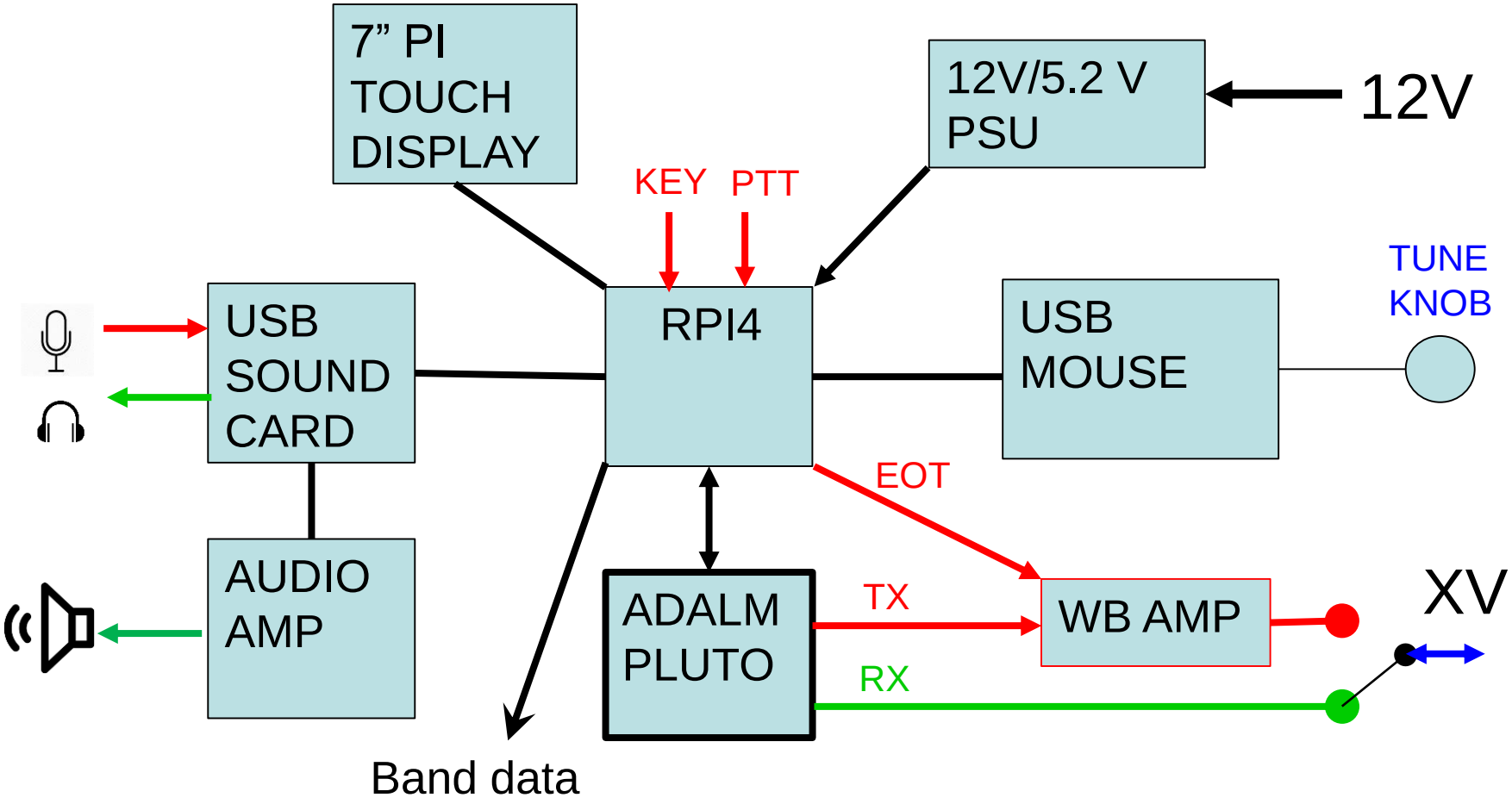
Langstone Updated to drive DB6NT Xverters



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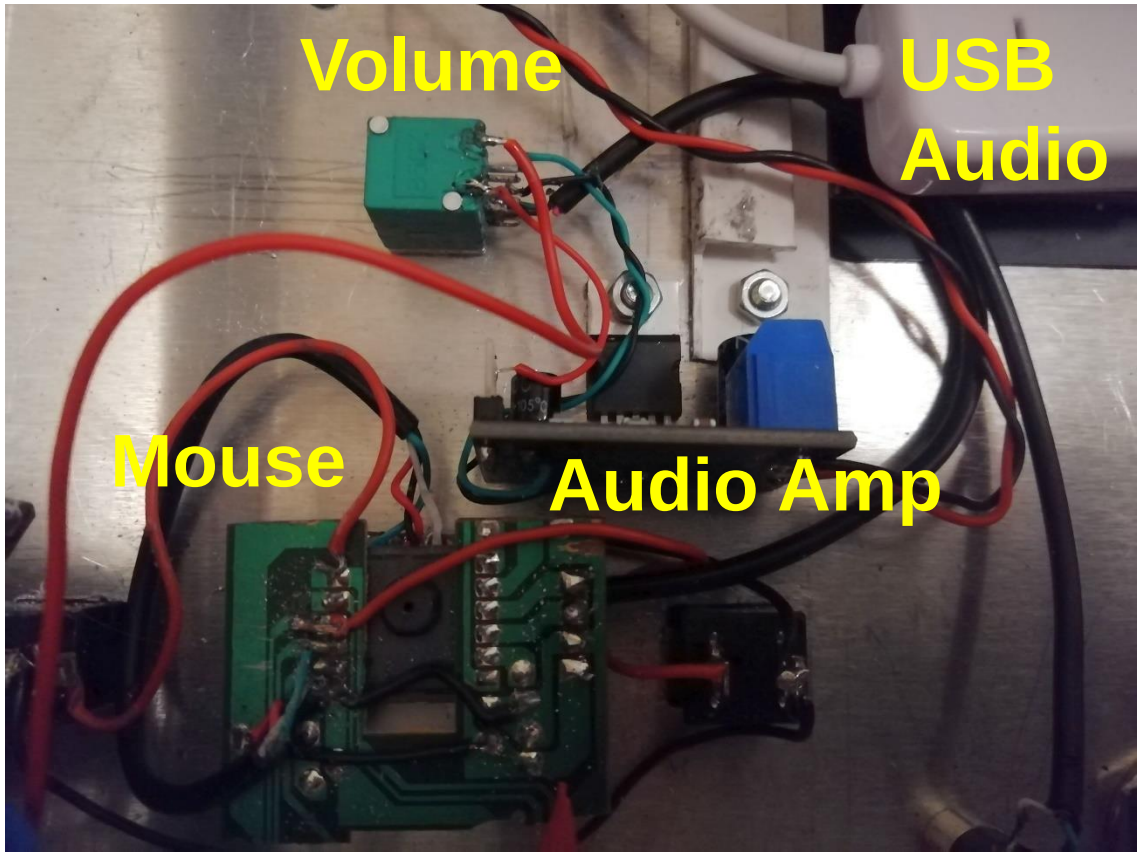
Modified mouse and audio Amp



9cm FMI 20dB horn Antenna

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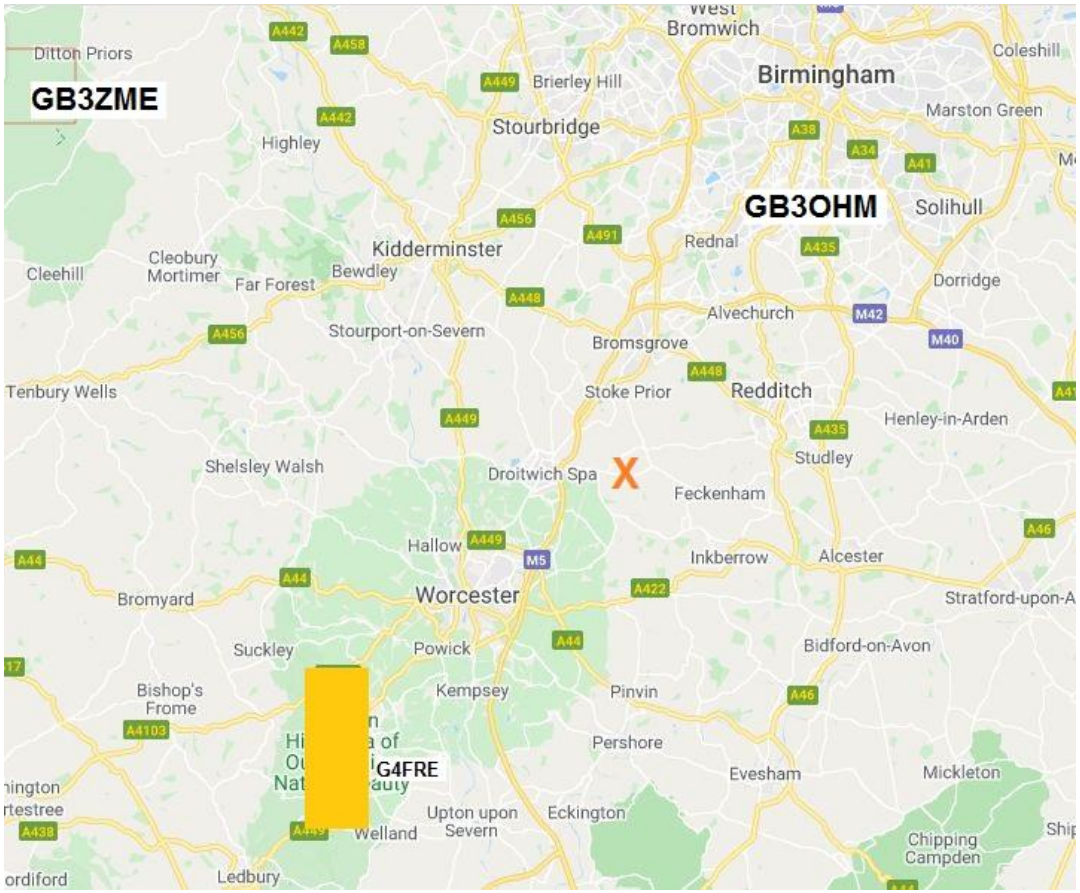
Beacons



GB3OHM LOS GB3ZME blocked by Malvern Hills (orange). Use 1000’ masts at X as reflector

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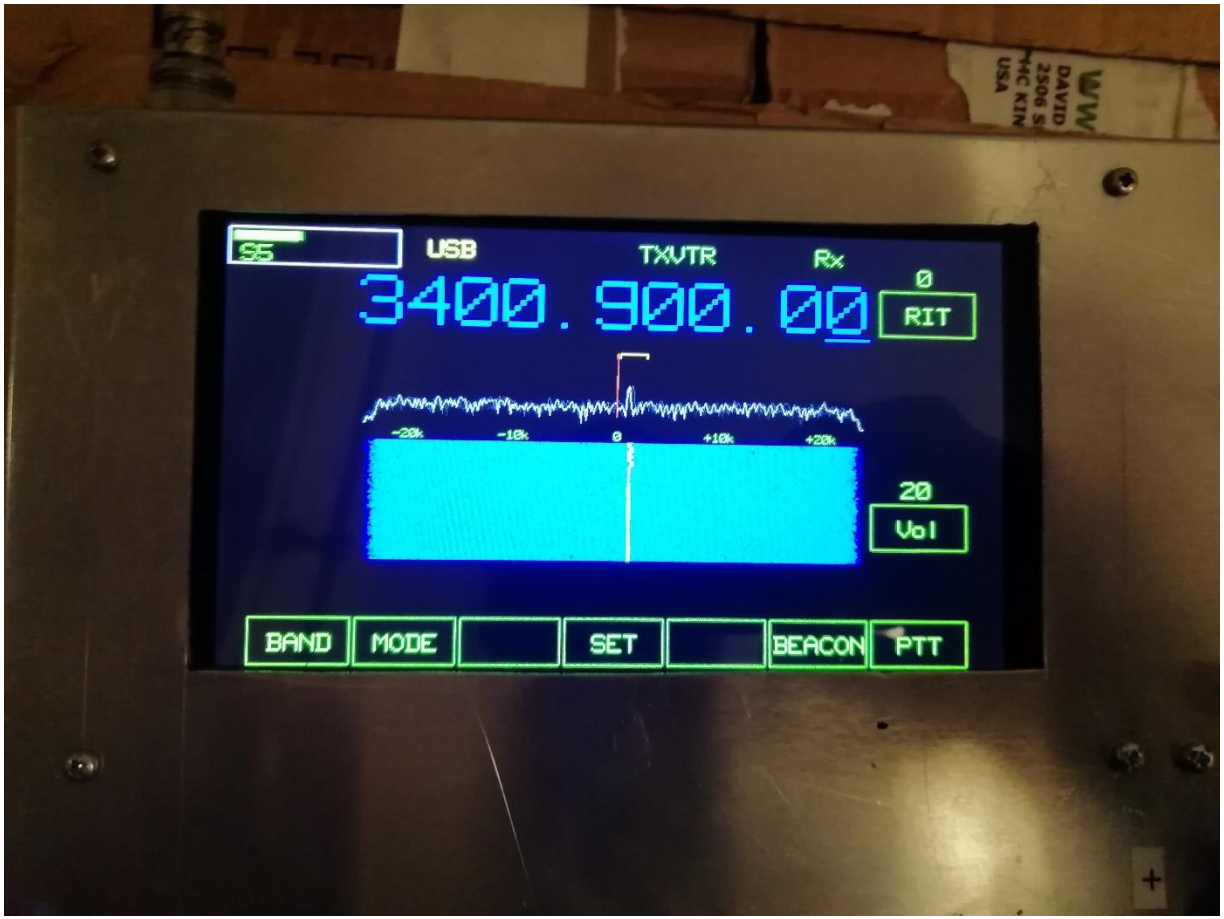
GB3OHM using H/B 3400/144MHz Xverter



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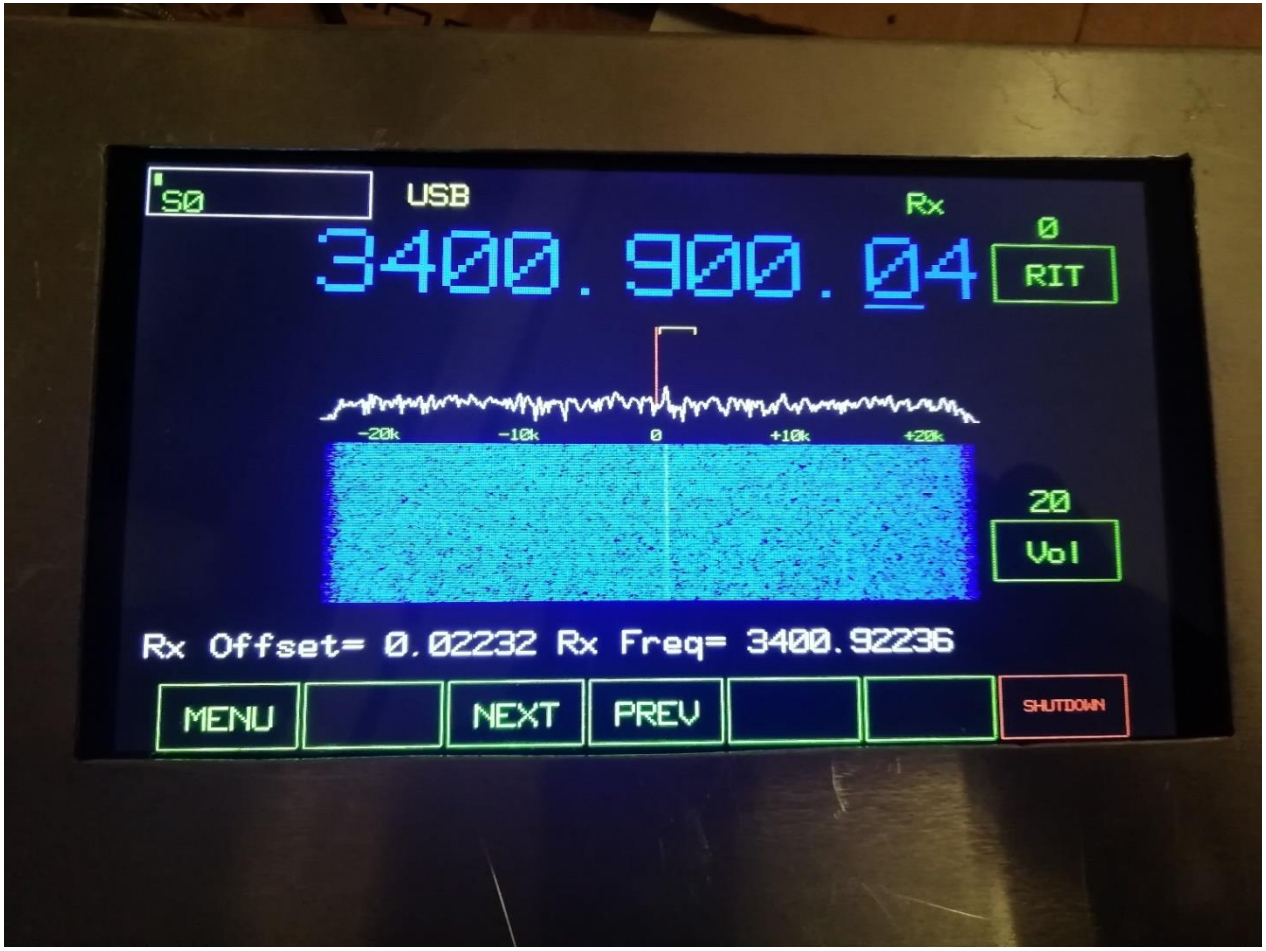
GB3OHM Direct (No preamp or filter)



Pluto has 22kHz offset, reference to be upgraded shortly

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GB3OHM/B Setup demonstration video

GB3ZME/B video

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References

https://wiki.microwavers.org.uk/Hayling_project
https://wiki.microwavers.org.uk/Langstone_Project
https://github.com/g4eml/Langstone
https://wiki.batc.org.uk/Custom_DATV_Firmware_for_the_Pluto#PTT_output