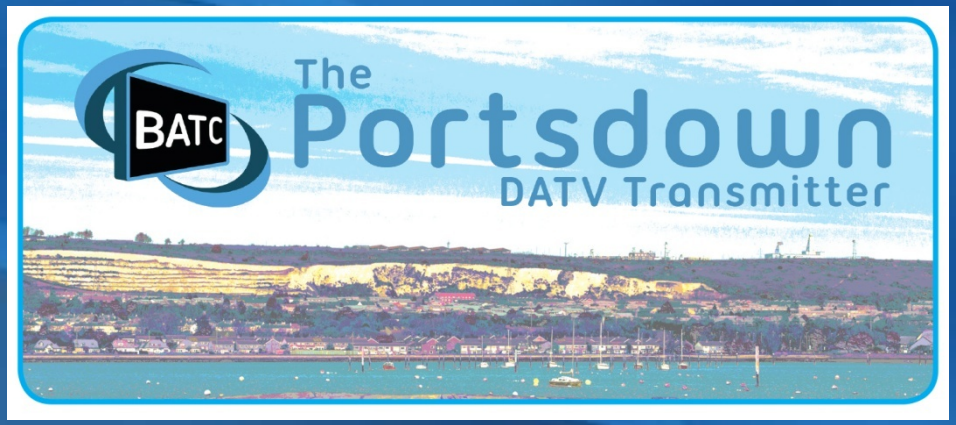
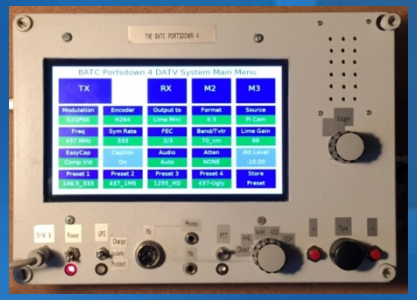



# The Portsdown Project

Dave Crump, G8GKQ

# Scope

- Recap of the project history
- Basic Capabilities
- Raspberry Pi 4
- Portsdown 2020 vs Portsdown 4
- New Features and Functions
- Way ahead
- What to Build?

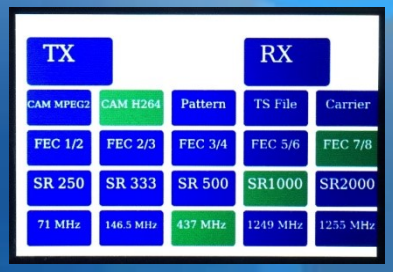


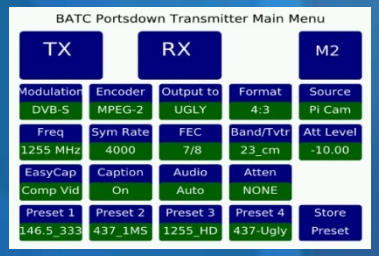
# Portsdown – What is it?

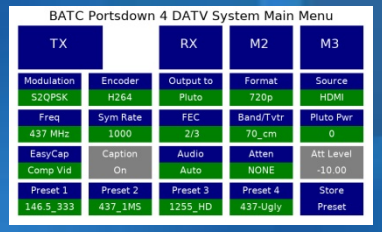

- Entry level, simple DATV exciter
- With a MiniTiouner, a DATV RX
- Intended for /P or home use
- Useful addition to the shack
- An “appliance”

- Not a broadcast-quality H265 TX
- Not like a Windows PC

# Project History



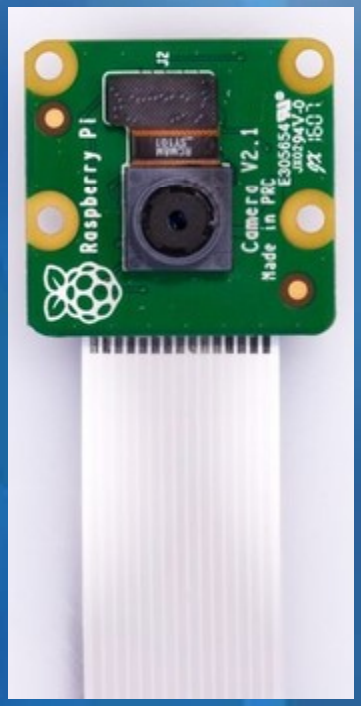




- 2017 – initial development from Evariste F5OEO's concept
- 2018 – Mature capability on "Jessie". F-M board & Express
- 2019 – Initial LimeSDR capability on "Stretch"
- 2020 – Mature LimeSDR capability on "Buster"
- Portsdown 4 on Raspberry Pi 4

# Portsdown Core Capabilities

- DVB-S and DVB-S2 transmission
- MPEG-2 and H264 encoding
- Video from Pi Cam or EasyCap



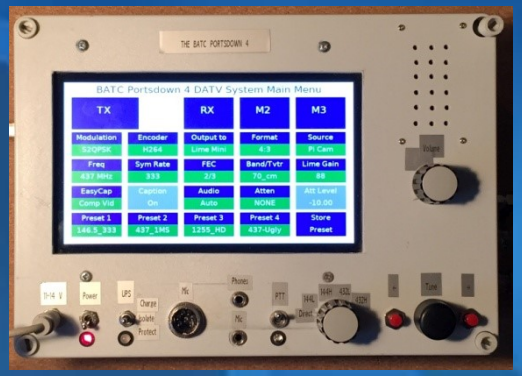

# Raspberry Pi 4

- Faster processor than the RPi3
- H265 hardware decoder
- USB-3 and Gigabit ethernet
- More heat
- No power protection
- No OpenVG graphics
- No MPEG-2 hardware decoder
- H265 decoder has limitations
- Video output difficult

# Portsdown 2020 vs Portsdown 4

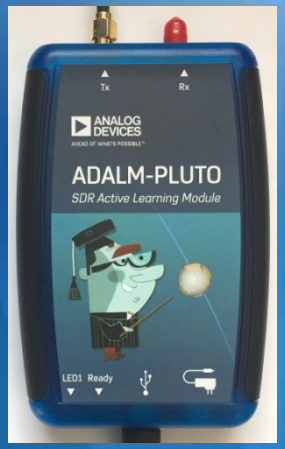
- F-M Board and Digilite
- 3.5 or 7 inch screen
- Comp Video out
- Poor video monitor

- Pluto




- 7 inch Screen only
- No Comp video
- Excellent monitors
- Langstone Compatible

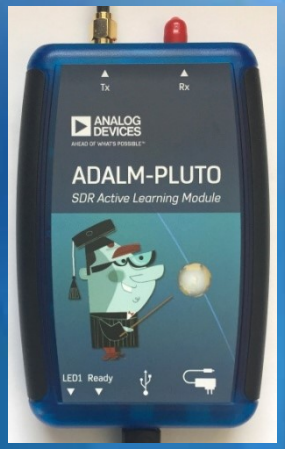
# Portsdown 4 New Features





- Pluto H264 Transmissions
- LKV373A HDMI Input
  - Streaming
  - Pluto
- HDMI and Comp Vid monitors
- Pluto Signal Generator
- No need for USB Hub

# Pluto




- Expand the frequency Range
- Enable 2nd Processor?
- Load F5OEO DATV Firmware
  - (FIRM2101RC of 5 February 2020)
- Change IP Address?
- Use with
  - Portsdown (H264 only)
  - Langstone (TCXO mod?)
  - Portsdown Signal Generator (x5?)

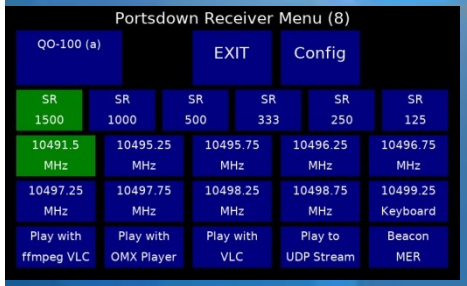
# HDMI Input

- Fast-moving field
- Current approach is to use the LKV 373A
- Network-connected
- Can be monitored by VLC on a PC
- TX Quality limited by H264 encoder

# Non-Standard Hardware

- Don't
- If you have to, make it work by modifying the software yourself
- Your modifications will be overwritten by the next update
- Unless you pass the modification to me for inclusion in the core
- Testing remains difficult

# The Portsdown Receiver



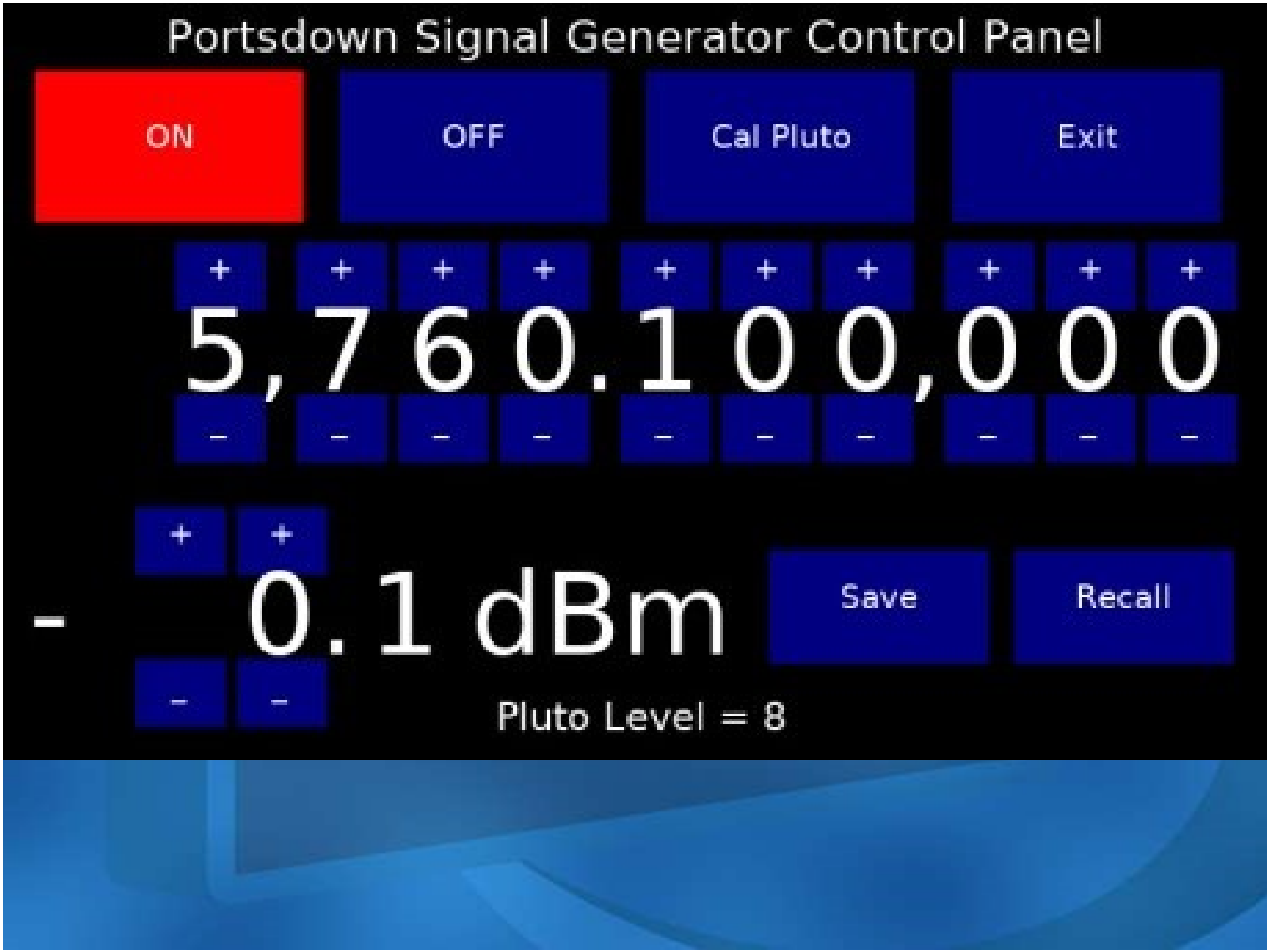


- Uses the same LongMynd core as Ryde
- Works on Portsdown 2020 and Portsdown 4
- Three players:
  - VLC with ffmpeg (software)
  - VLC with hardware decoder
  - OMXPlayer
- UDP Stream to PC (MER Display)

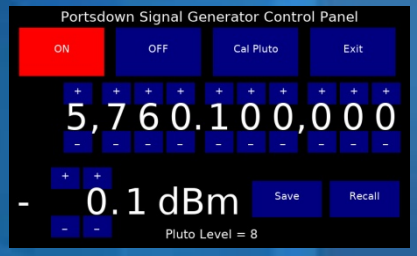

DVB-S2 Lock
10494.993 MHz
999 kS
QPSK
FEC 1/2
999 kS
DG0OPK
2908Mike@QO-100
H265 AAC
MER 2.4 (1.0 needed)
Touch Left to Hide Overlay
Touch Right to Exit
DG0OPK JO50GQ
SV8RV
TEST H265 ENCODER
via Software (no GPU needed)
ffmpeg libx265
SV8RV qth: Zakynthos (Zante) isl. GREECE loc:km07ks dish:1.8m feeder:POTY pwr:5-60watts
43.9dBm 21,59W

# Don’t Forget

- BATC Stream Receiver and sender
- Portsdown Signal Generator


Portsdown Signal Generator Control Panel
ON
OFF
Cal Pluto
Exit
5,760,100,000
- 0.1 dBm
Save
Recall
Pluto Level = 8

# Don’t Forget

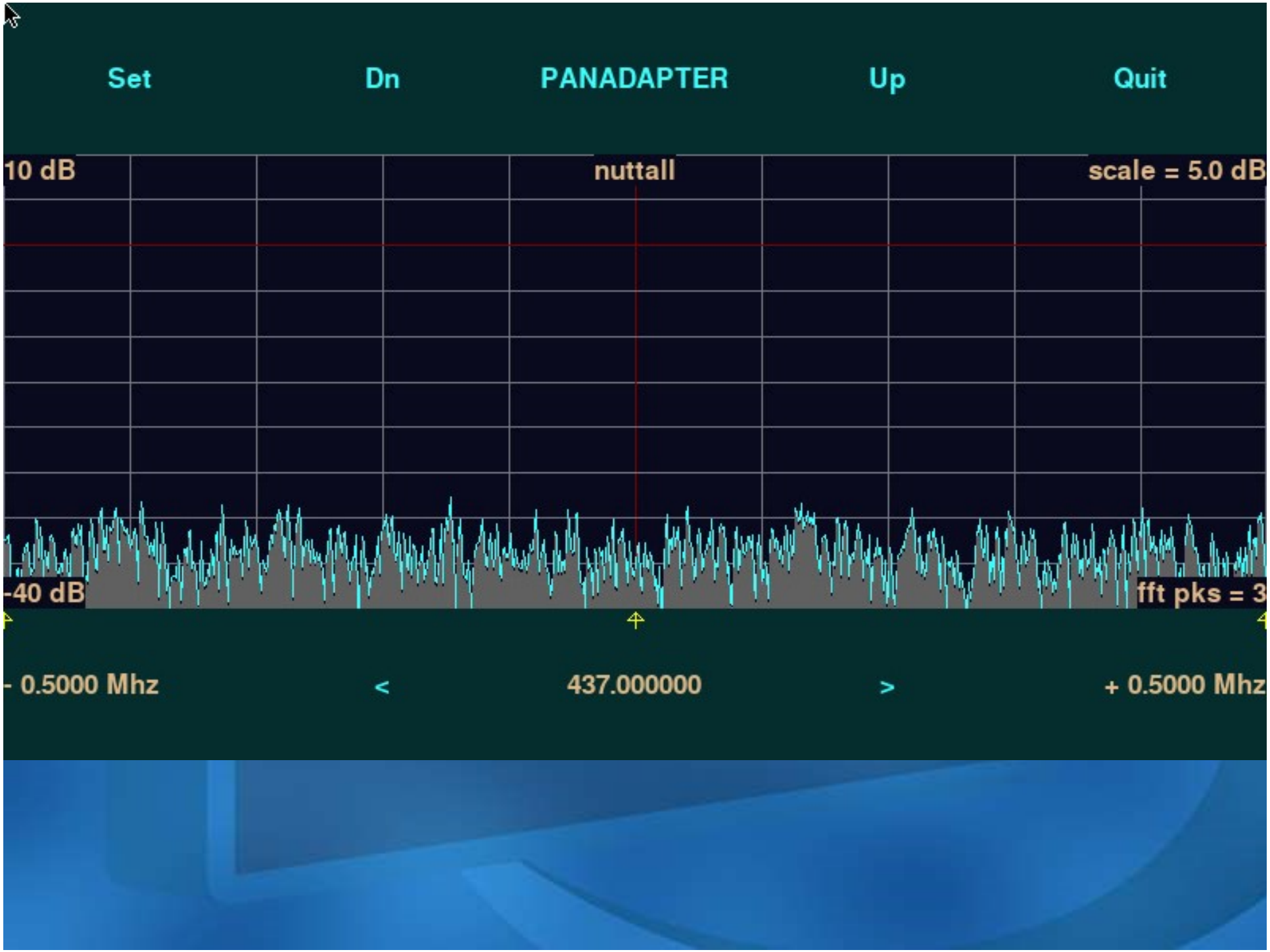





- BATC Stream Receiver and sender
- Portsdown Signal Generator
- Range and Bearing Calculations
- Video monitors
- Ability to screenshot - “snap”
- Control a Jetson
- RTL-FM

# Future Enhancements

- Return of “FreqShow” using W7QT’s “Panadaptor”

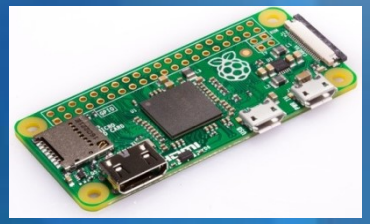

Set
Dn
PANADAPTER
Up
Quit
10 dB
nuttall
scale = 5.0 dB
-40 dB
fft pks = 3
- 0.5000 Mhz
<
437.000000
>
+ 0.5000 Mhz

# Future Enhancements


- Return of “FreqShow” using W7QT’s “Panadaptor”
- ADF5355 drive from SigGen
- TX Video quality improvements
- Web Interface?
- QuickTune RX Control?

- Not CM4

# What to Build?



- Build a Portsdown 4
  - Compatible with all BATC RF switches
- If you want Comp Video
  - Use a separate Pi Zero
- Both Portsdown 2020 and Portsdown 4 will continue to be supported
- New development will be concentrated on Portsdown 4


BATC
Questions