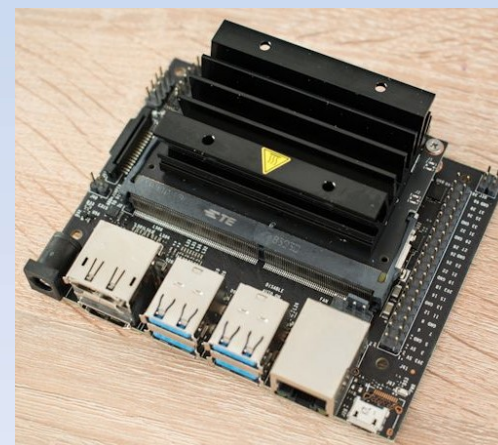




DATV Receive Systems

Dave G8GKQ

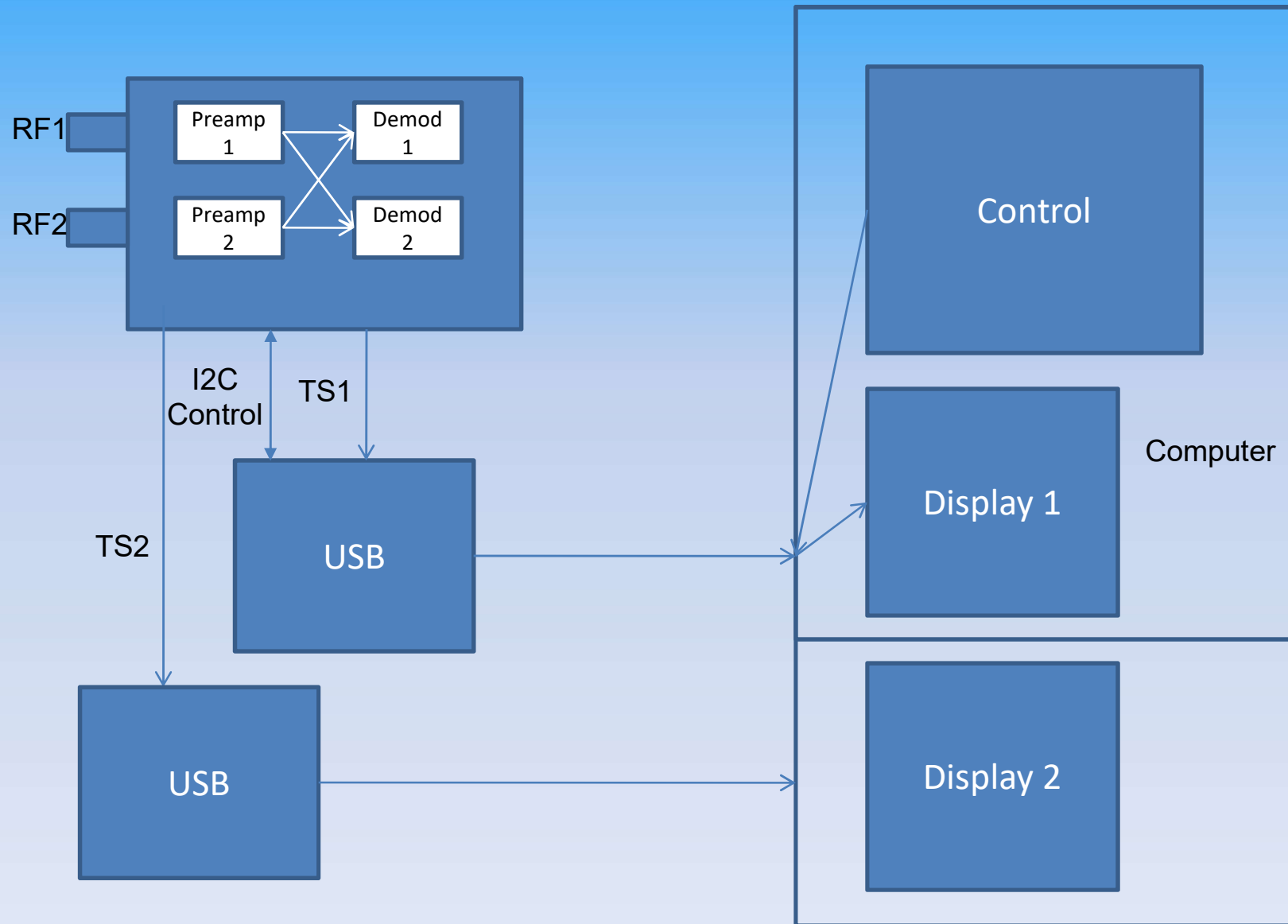


Receive Systems

-  **MiniTiouner**
 - Windows (MiniTioune)
 - Linux (LongMynd)
-  **LeanDVB**
-  **SDR Angel**
-  **DVB-S2 GUI**
-  **Sat Box**



MiniTiouner



MiniTiouner v0.9beta8_9

MINITIOUNE v0.9beta8_9 - Receiver/Analyser DVB-S/S2 144 MHz to 2450 MHz - SRmini=32 kS/s - for MiniTiouner/MiniTiouner-Pro

MiniTiouner V2
NIM : Serit FTS-4335

SR (kS) Freq (kHz)
00333 00437000
Offset-> - 00000000
SR2000 Beacon
SR1000 10496250
SR500 10497250
SR333 10497750
SR250 10498250
SR125 10498750
SR66 11597MHz
SR27500 437 MHz
Oscar 100
DVB mode M1 FEC DVBS
DVB-S1 All
DVB-S2 1/2
Auto 2/3
MP 3/4
Wide scan 5/6
Low SR 6/7
7/8
Fplug LNB volt 22kHz
A 0 OFF
B 13(V) ON
18(H) TS
Store into Memory M1 M2 M3

Symbolrate (kS)
SR set: 333949S
Deviation: -373S
SR -> 334 kS/s

LNA gain: 00 dB
Derotator Search
Reset

Carrier Width: 451 Khz
TV mode: searching

Web Station ID: 1
MYCALL
MY CITY
JJ00XX Preamp 20 dB
Ant. Dir. East Gain 12 dB
Picture Lg Msg
Video QSL 0000
Auto WebEr 0
Stop 00000
Timing 3 sec

Frequency (kHz)
Freq asked: 437000kHz
Freq -> 437069 kHz IF 437000kHz
doppler/ISS
Copy Freq found Adapt Offset keep it

Noise
I: 11 Q: 12

Extern. Request
Apply auto
232.0.0.11:6789

PIDs
Pid from .ini
BATC Auto PID
F6DZP-Mpeg PID Video 00256
HDlowSR PID audio 00257
France24 Codec
QRZ DX Mpeg2
RaspberryP H264
H265
Format Width: 704
Height: 576
Audio
4/3 MPA
16/9 AAC
1/1 AC3
auto
Zoom
adapt
x1
maxi
GRAPH
Reset

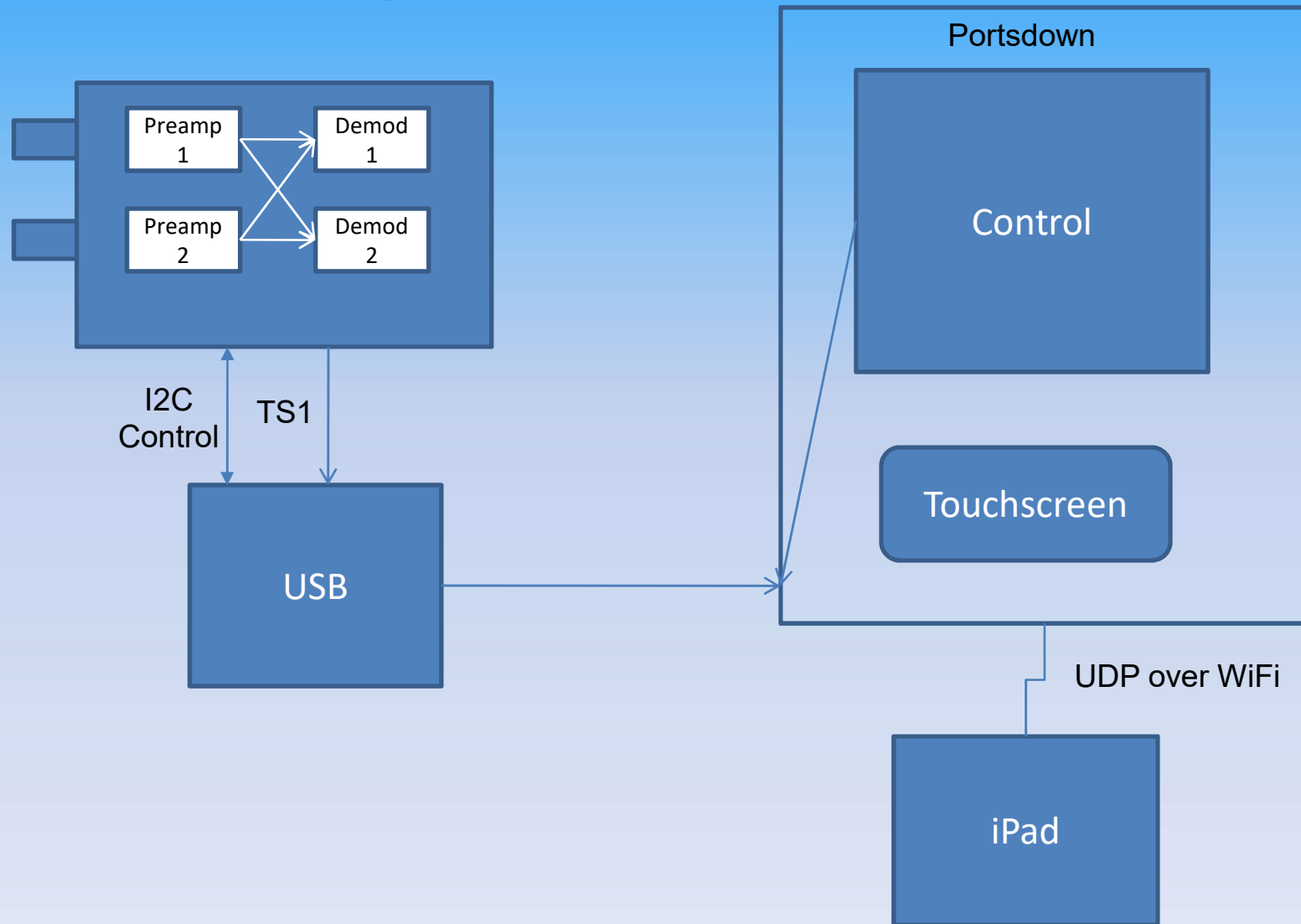
Program BATC
infos: DVB-S
Provider: BATC
Codec: VH264 + AAC
photo
Audio level
Info

Carrier Lock
SR Lock
Full RF Pw -93dBm
C/N MER 0.0dB
Constellations

Viterbi err
Vber
FEC ??????
TS
Bytes recvd: 0 kb/s 334ms

Beep Dsave UDP Record
Quit
Expert Web

LongMynd on the Portsdown



Receiver Menus (Initial)

Portsdown Receiver Menu (8)

QO-100	EXIT		Config	
SR 2000	SR 1000	SR 500	SR 333	SR 250
FREQ 10492500	FREQ 10494750	FREQ 10495500	FREQ 10496250	FREQ 10497250
FREQ 10497375	FREQ 10497625	FREQ 10497750	FREQ 10498250	FREQ 10498750
Simple MPEG-2	Simple H264	OMX Player	UDP Output	

Portsdown Receiver Configuration (13)

Sat LNB Offset	Input A		
UDP IP	UDP Port	Exit	

LongMynd on the Portsdown

-  Early days yet – only been running for 2 weeks
-  Prototype shows promise
-  Displaying the TS on RPi is a challenge
-  RPi 4 may help in time
-  iPad makes a good display
-  Beta test next week
-  General release at least 2 months away

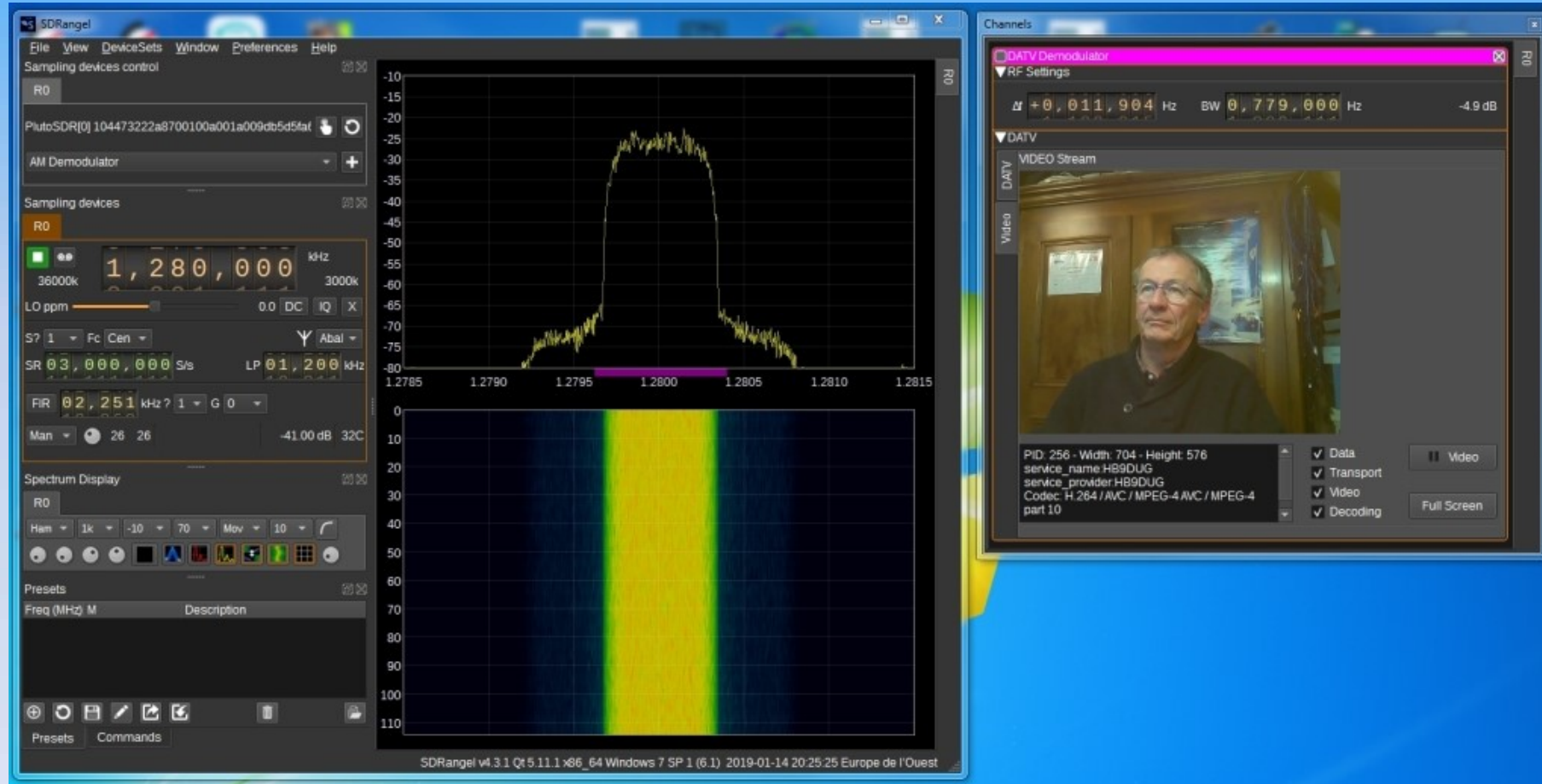
LeanDVB

-  Linux software by Pascal F4DAV
-  Uses an RTL-SDR
-  Basic DVB-S or DVB-S2
-  No error correction (6 dB loss?)
-  Available on Portsdown for 2 years

SDRAngel

-  Windows and linux software DVB-S/S2 ? demodulator
-  Based on leandvb from Pascal F4DAV
-  Limited to QPSK mode and $SR < 2000$ ks/s
-  Still 6 dB down
-  Support Lime, Airspy, Pluto and RTL-SDR products
-  Info and link to the soft are on :
<https://github.com/f4exb/sdrangel/releases>

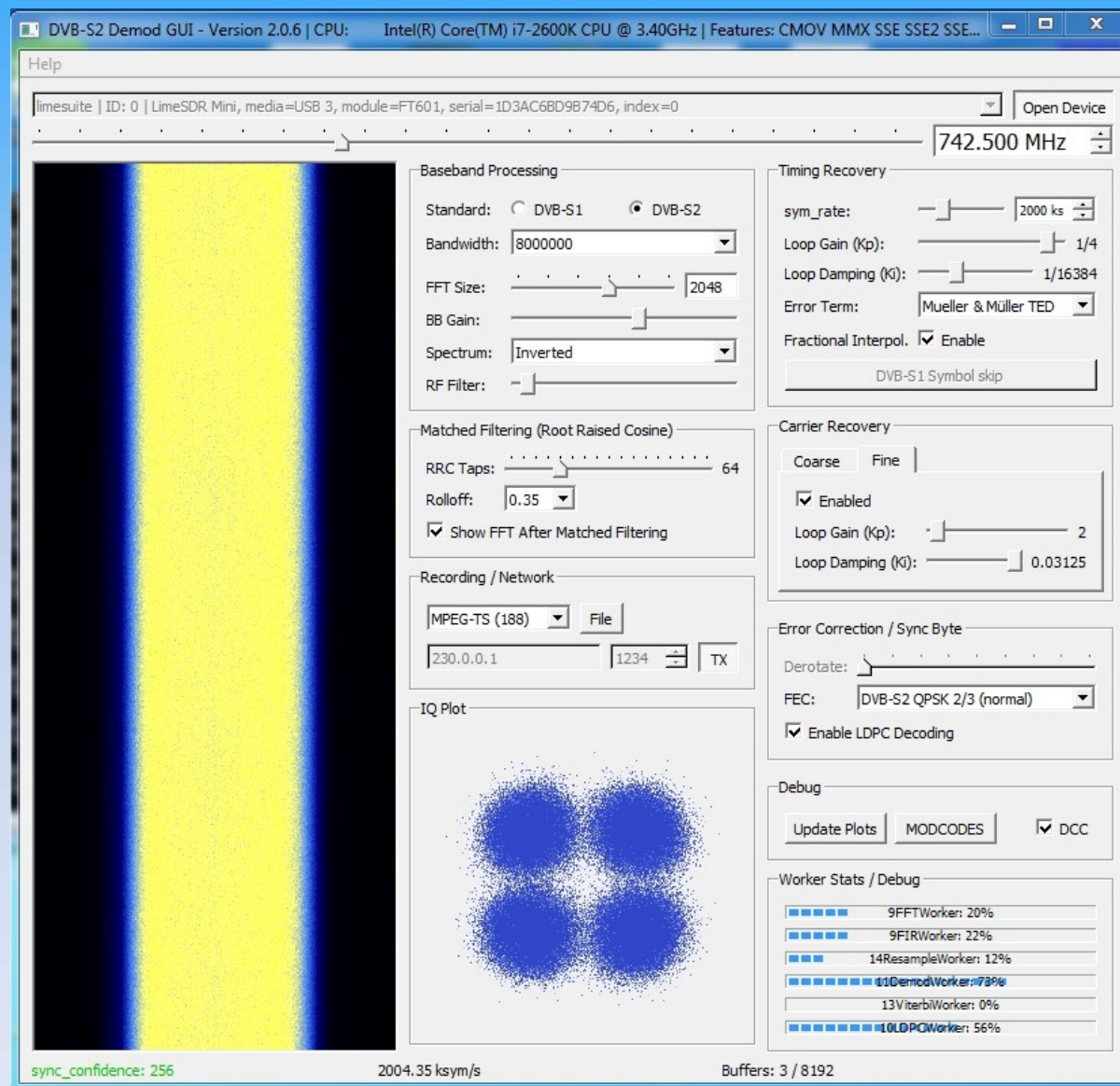
SDRAngel



DVB-S2 GUI

-  Windows software DVB-S/S2 demodulator !
-  Limited to QPSK mode and $SR < 2000$ ks/s
-  Support LimeSDR Mini and Airspy products
-  Use VLC Media Player to display
-  Developed by Marcel Kröner
-  Info and link to the soft are on the
ASMAT-DL Forum under :
Software DVB-S Demodulator (SWL-marko92)

DVB-S2 GUI

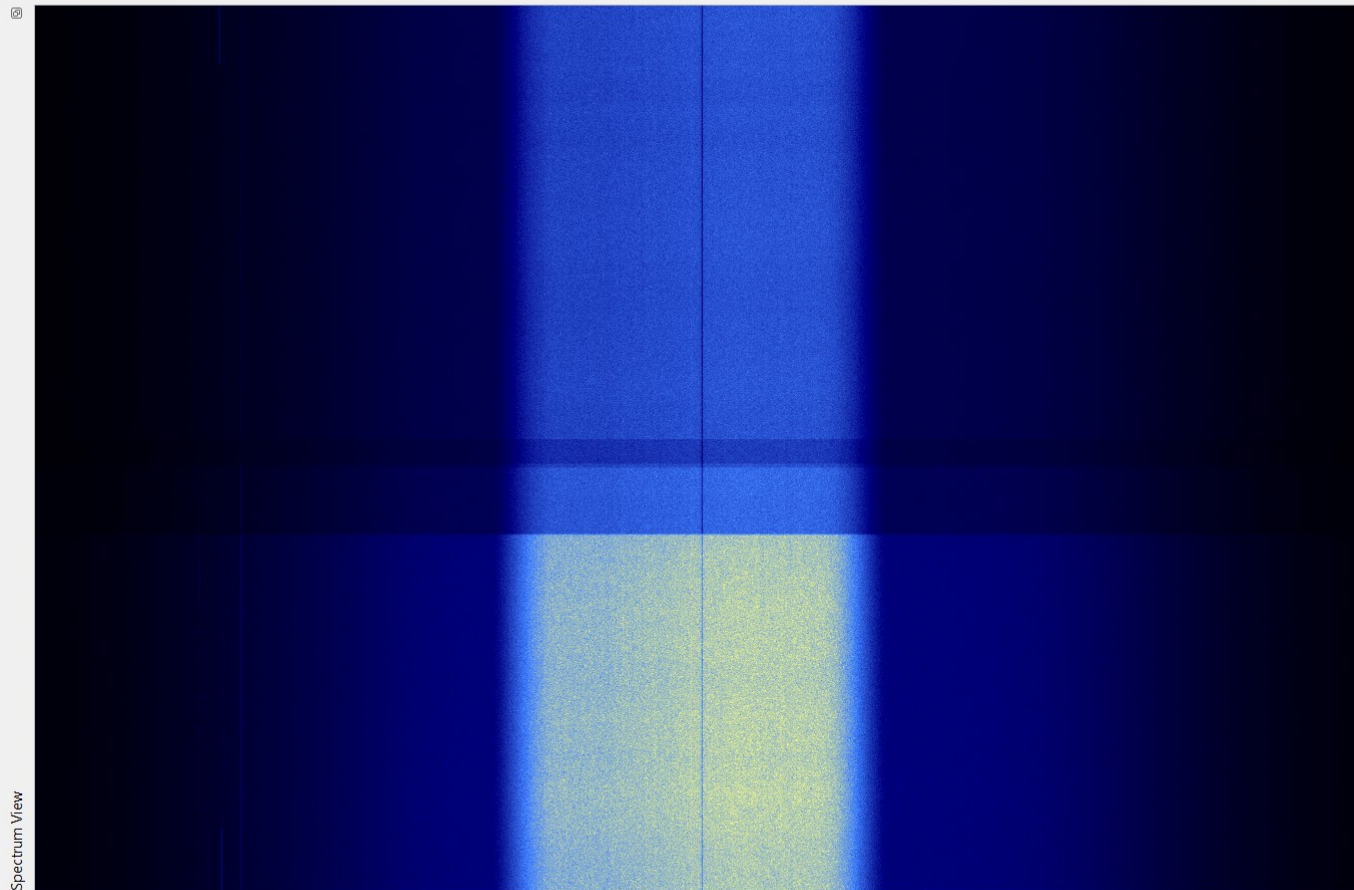


Help

limesuite | ID: 0 | LimeSDR Mini, media=USB 3, module=FT601, serial=1D3AC72FDA3062, index=0

Open Device

742.817 MHz



Baseband Processing

Standard: ☐ ☒ ☐
Bandwidth: 8000
FFT Size: 148
BB Gain:
Spectrum: Inve
RF Filter:

Timing Recovery

sym_rate:
Gain (Kn): 1/16
Damping: 1/16
Error_Lerp: 0.0000
Interpolate: ☒ Enable
DVB-S1 Symbol skip

Matched Filtering (Ro

RRC Taps: 64
Rolloff: 0.35
☐ Show FFT After M

Carrier Recovery

Coarse Fine
☒ Enabled
1.1386

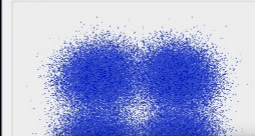
Recording / Network

MPEG-TS (1) File
.0.0.1 8888 TX

Error Correction / Syn

Derotate:
FEC: DVB-S
☒ Enable LDPC Deco

IQ Plot

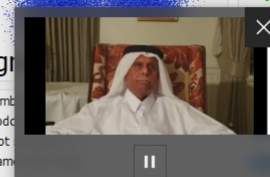


Debug

date P DCOD ☒ DCC
sync_con Buffers: 3

Sign

Symbol
Modu
Pilot
Frame



Worker Stats / Debug

9FFTWorker: 58%
9PIRWorker: 53%
14ResampleWorker: 41%
11DemodWorker: 47%
13ViterbiWorker: 0%
10LDPCWorker: 95%

Satellite RX STBs

- Most are limited to
 - 950 – 2150 MHz
 - > 1MS

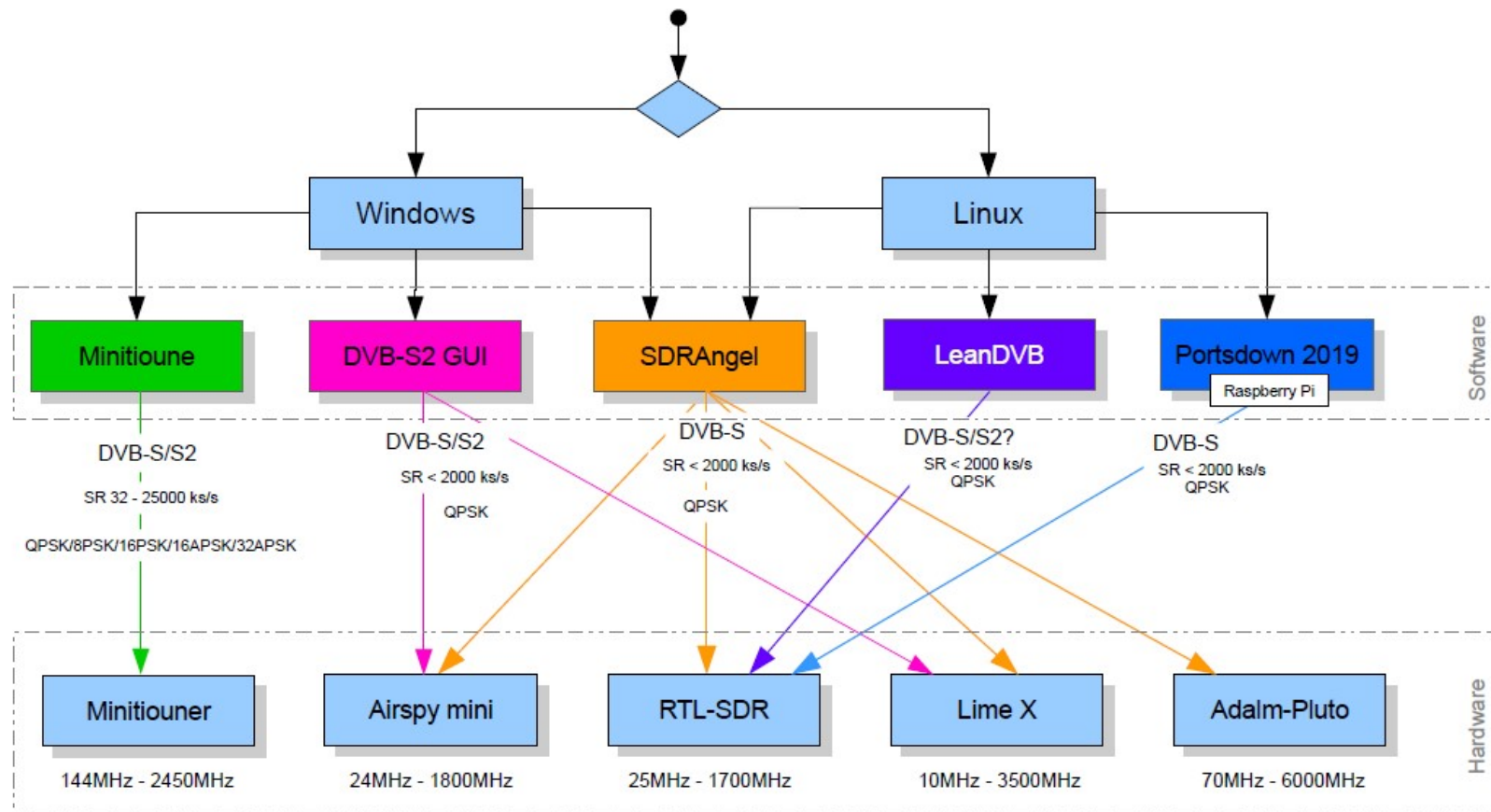


- Octagon SF8008 goes down to 250KS
 - Only 1 MHz frequency resolution
 - Selects strongest valid signal
 - Needs up-converter for QO-100

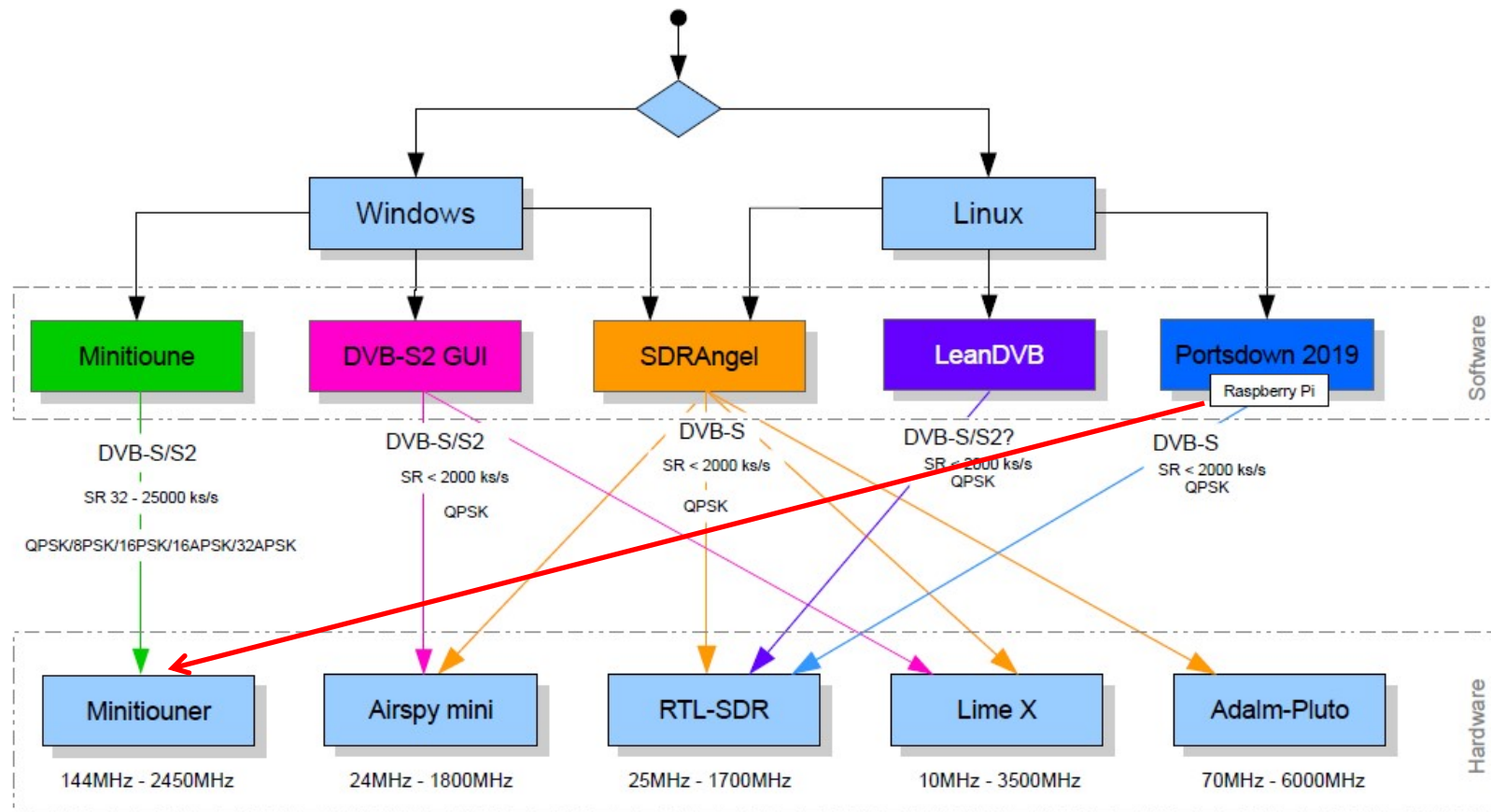
- Zgemma H9s



Summary



Summary



Questions



Portsdown: https://wiki.batc.org.uk/Portsdown_2019



DVB-S2 GUI: <https://forum.amsat-dl.org/index.php?thread/101-software-dvb-s-demodulator/>



SDRAngel: <https://github.com/f4exb/sdrangel/releases>