DATV Easy

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Presentation by
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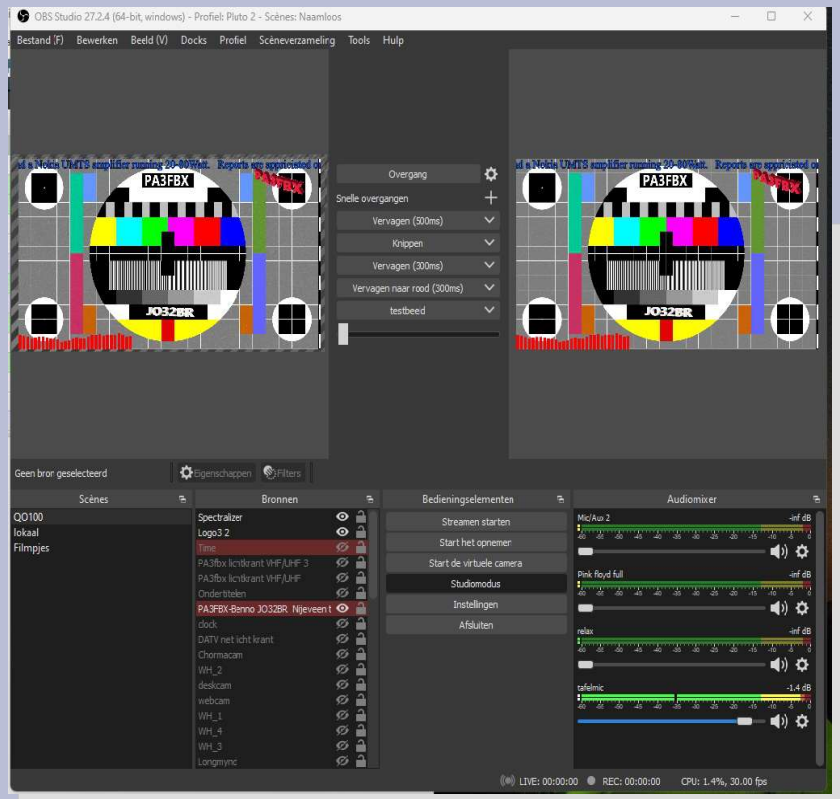
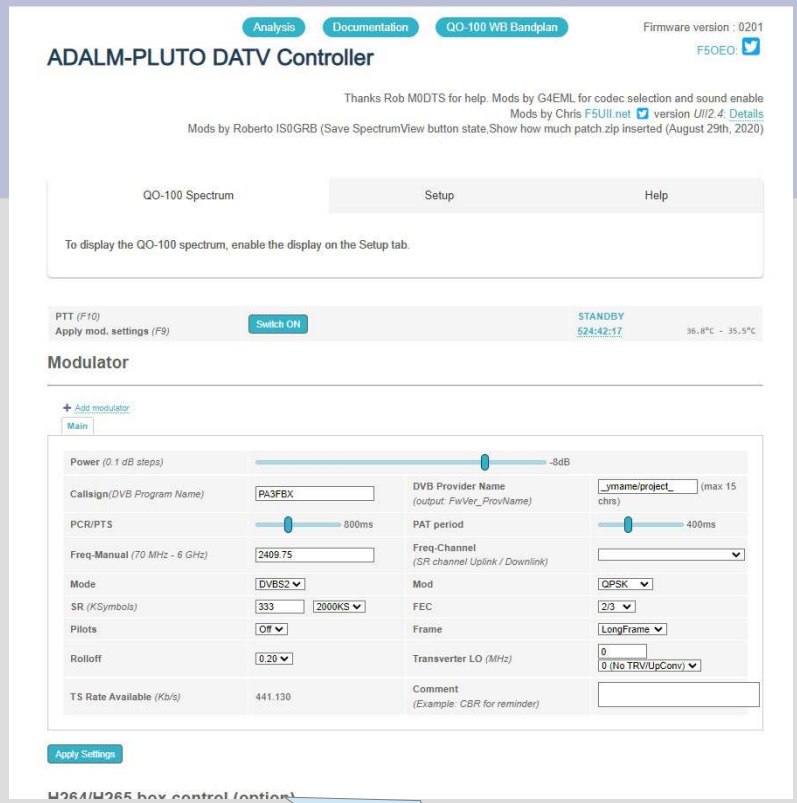
DATV has become widely available among HAM all over the planet.

- In the old Day, DVB transmitting was only available for those with lots off money as the encoder was very expensive and prohibited for the commercial market.
- QO100 made DATV interesting and lots of solutions came into the reach of the common ham shack.
- BATC made lots of nice projects, like portsdown
- DATV-Express with hardware and software.
- From France there came solution for TX datv with a Raspberry and shortly F5OEO broke the Adalm Pluto firmware to support DVB.
- Several Chinese H265 hardware streaming boxes.

- Things really started to roll over the ham community

OBS or Vmix directly to the Adalm-Pluto





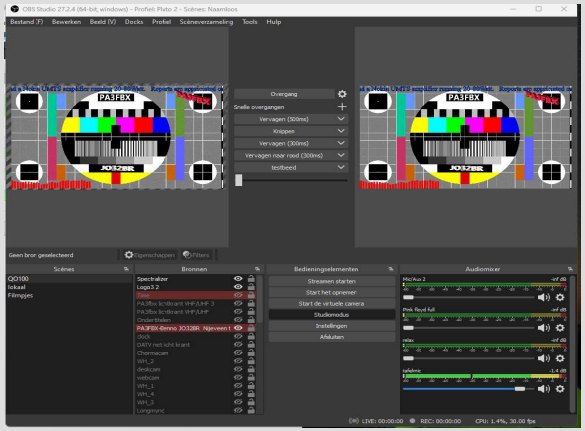
Transport stream

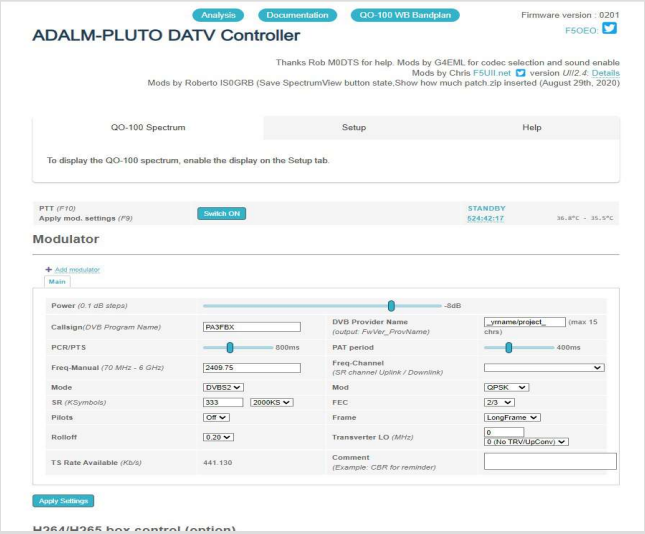
Pluto controlling
And monitoring

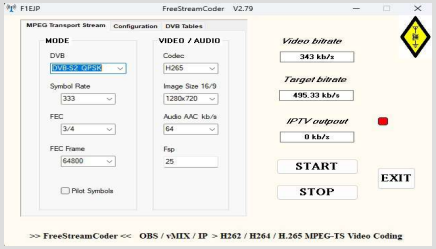
H262 or H264
Or H265 with expensive
Videocard, or a H265
Hardware encoder.

Freestream encoder

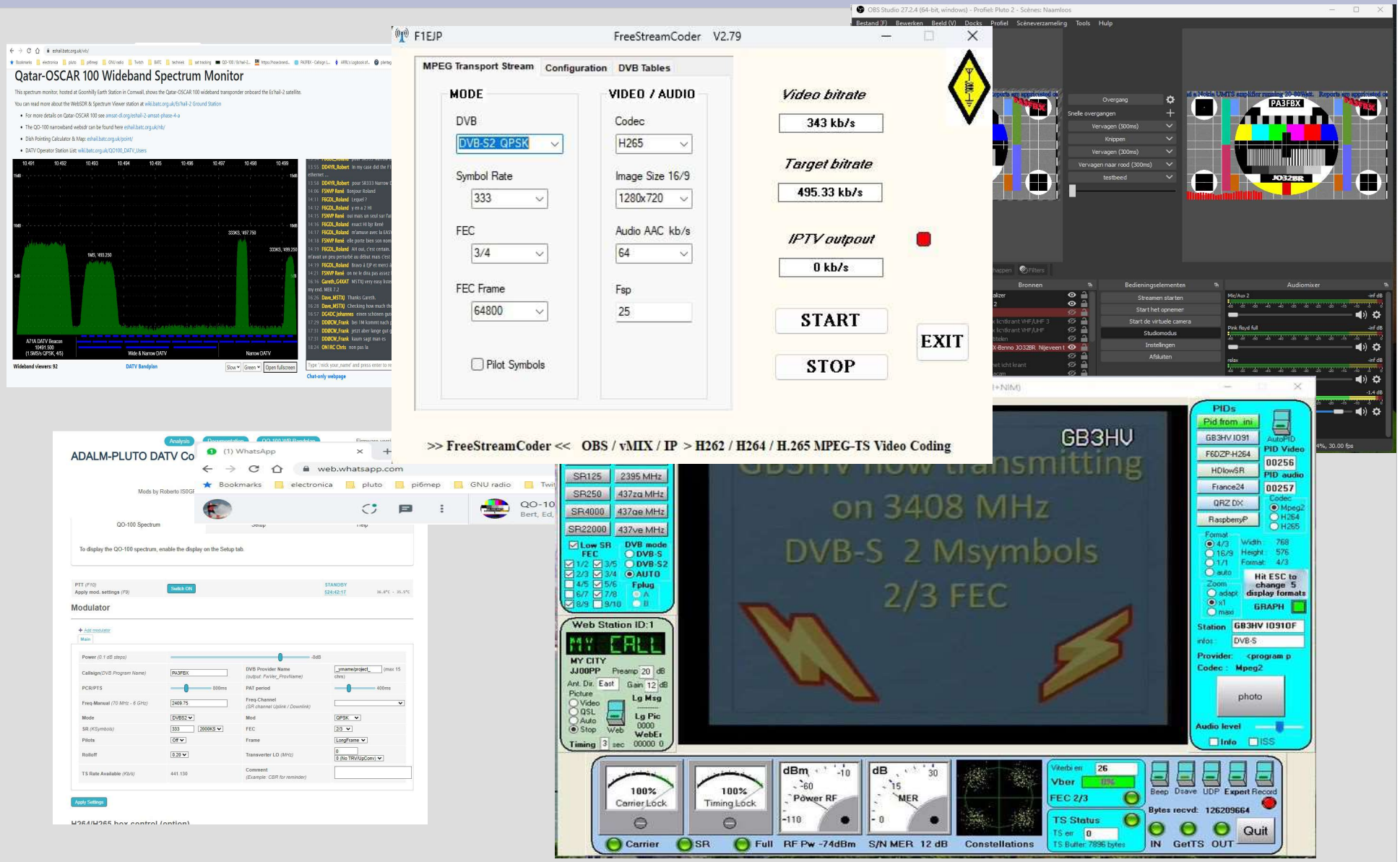
- Dominiqiue made Freestream encoder witch uses a vitual cam plugin in OBS to grab the Video and Audio.
- It is send thru a set off preset FFMEG scripts and outputs to an UDP adres







It got crowded on the PC screen






Longmynd Client (ZR6TG) - 2022/06/21

Overview | Debug | About

Connected

Properties

Frequency: 741465 Hz (10491425 Hz)
SR: 249252
Demod State: Hunting
Mode :
RF Port : 0
PID:

Service:
Provider :

Null Ratio: 100 %

Mer: 0 dB (dB Margin)

Manual Control

SR:
Frequency:
Offset : 9749960
IF : 0
Set Freq

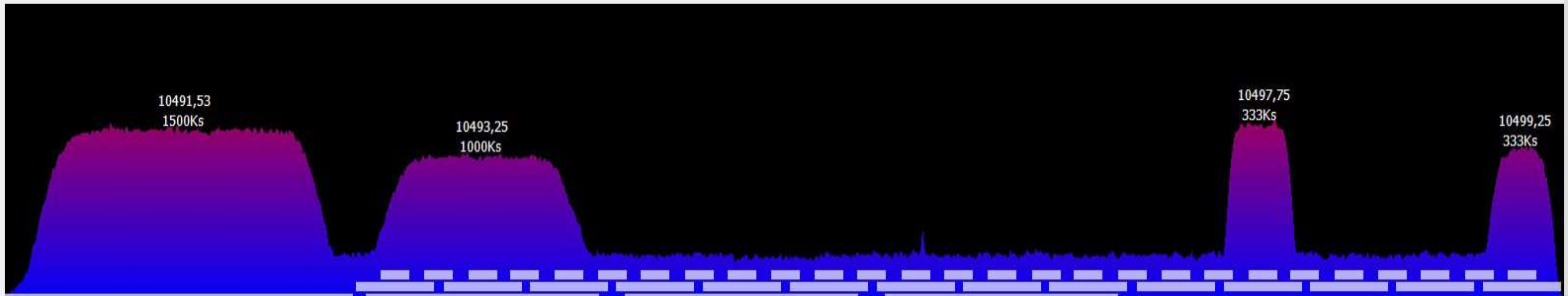
Auto Tune
- Manual Tune
- Auto Tune (Time)
- Auto Tune (Hold)

Tuner
- Port 0
- Port 1
- Enable LNB Power
- Horizontal Polarization

Media
- Auto Snapshot
- Take Snapshot

Volume: 50 %

Settings



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DVB / MPEG-TS | Configuration | DVB Tables | PTT / Monitoring

Target bitrate
440.31 kb/s

Video bitrate
290 kb/s

Frequency MHz
2409.750

MODE

DVB
DVB-S2 QPSK

Symbol Rate
333

FEC
2/3

FEC Frame
64800

Roll-off
0.20

☐ Pilot Symbols

VIDEO / AUDIO

Codec
H265

Image Size 16/9
960x540

Fps
25

Audio Codec
AAC

Audio kb/s
64

☑ Automatic Image

Easy

OSCAR-100

Transmission

441 kb/s

0 20 40 60 80 100

START PTT

STOP EXIT

>> Datv-Easy << OBS / vMIX / IP > H262 / H264 / H.265 DVB Transmission

DATV Easy

- Input Video and Audio from OBS 27.x
- Input Video and Audio from OBS 28.x
- Input Video and Audio from V-Mix

- Input user settings like bandwidth, FEC, Frequency, Power, video and audio resolution, Codec, TV name and program info and all necessary DVB codes ...

- Uses FFMEG to create transport stream
- Uses software coding or hardware coding when available

- Outputs to Lime using RTMP
- Outputs to Pluto with original analog devices Firmware
- Outputs to Pluto with F5OEO firmware using UDP

- Utilize a networked Arduino for monitoring and control

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DVB / MPEG-TS | Configuration | DVB Tables | PTT / Monitoring

Equipment
Pluto F5OEO 0201

TX Gain %
63

Adalm Pluto SDR IP
192 . 168 . 1 . 49

Port
8282

Input / Entrée
OBS + VirtualCam

230 . 0 . 0 . 11

Port
20000

Encoder
NVIDIA

Default FPS
25

Audio sync + / - ms
-300

Audio SR
48000

Frequency MHz
2409.750

Easy

OSCAR-100

Transmission

440 kb/s

0 20 40 60 80 100

START

PTT

STOP

EXIT

>> Datv-Easy << OBS / vMIX / IP > H262 / H264 / H.265 DVB Transmission

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DVB / MPEG-TS | Configuration | DVB Tables | PTT / Monitoring

Call Sign / Indicatif	Provider
PA3FBX	.Benno
PCR PID	PMT PID
256	4095
Video PID	Audio PID
256	257
Network ID	Stream ID
1	4095
Service ID	PCR / PTS
4095	800 ms

Automatic period

PCR period	PAT period	STD period
40 ms	400 ms	250 ms

Frequency MHz

435.500

Easy

OSCAR-100

Transmission

0 kb/s

0 20 40 60 80 100

START PTT

STOP EXIT

>> Datv-Easy << OBS / vMIX / IP > H262 / H264 / H.265 DVB Transmission

Frequency OSCAR 100

QO-100		Tx Uplink	<=	>=	>=
10492.75	MHz	2403.25	125kS	250kS	
10493.00	MHz	2403.50	125kS		
10493.25	MHz	2403.75	125kS	250kS	1MS
10493.50	MHz	2404.00	125kS		
10493.75	MHz	2404.25	125kS	250kS	
10494.00	MHz	2404.50	125kS		
10494.25	MHz	2404.75	125kS	250kS	
10494.50	MHz	2405.00	125kS		
10494.75	MHz	2405.25	125kS	250kS	1MS
10495.00	MHz	2405.50	125kS		
10495.25	MHz	2405.75	125kS	250kS	
10495.50	MHz	2406.00	125kS		
10495.75	MHz	2406.25	125kS	250kS	
10496.00	MHz	2406.50	125kS		
10496.25	MHz	2406.75	125kS	250kS	1MS
10496.50	MHz	2407.00	125kS		
10496.75	MHz	2407.25	125kS	250kS	
10497.00	MHz	2407.50	125kS		
10497.25	MHz	2407.75	125kS	250kS	
10497.50	MHz	2408.00	125kS		
10497.75	MHz	2408.25	125kS	250kS	
10498.00	MHz	2408.50	125kS		
10498.25	MHz	2408.75	125kS	250kS	
10498.50	MHz	2409.00	125kS		
10498.75	MHz	2409.25	125kS	250kS	
10499.00	MHz	2409.50	125kS		
10499.25	MHz	2409.75	125kS	250kS	

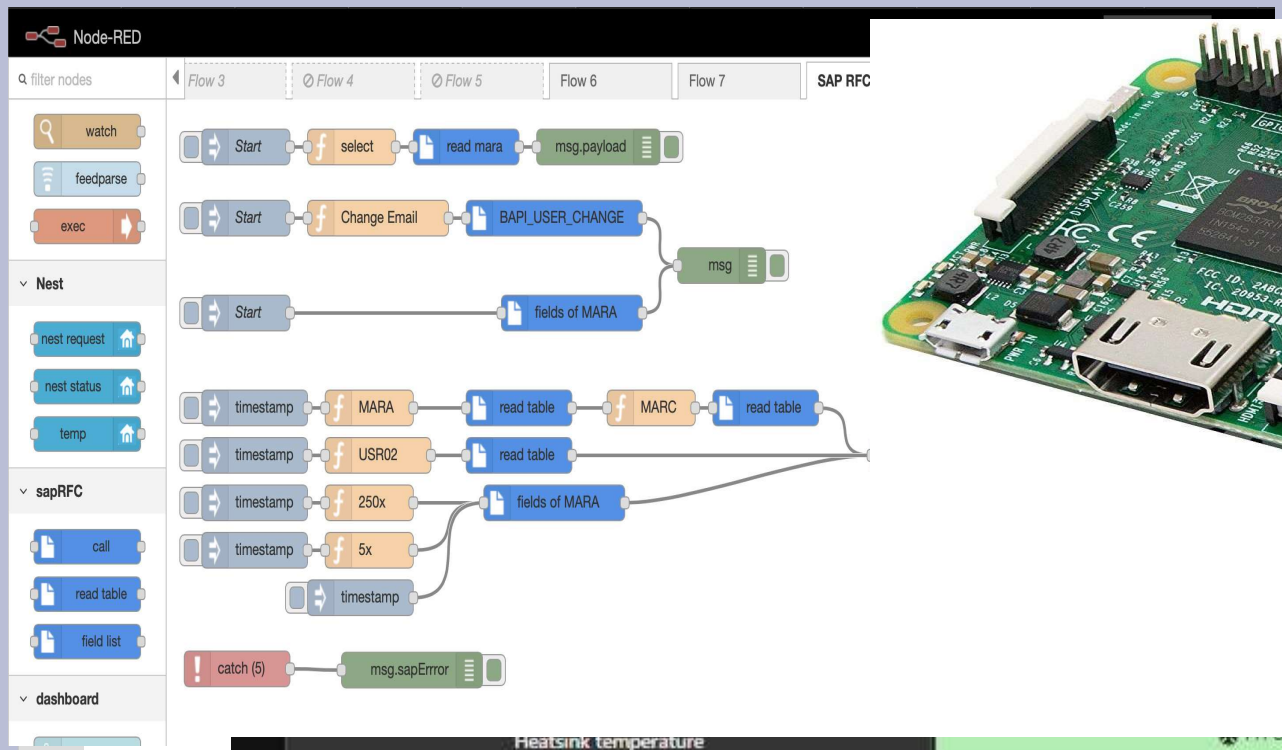
VALID

ARDUINO_DATV_Easy | Arduino 1.8.19 (Windows Store 1.8.57.0)

Bestand Bewerken Schets Hulpmiddelen Help

ARDUINO_DATV_Easy

```
#include <SPI.h>          // needed for Arduino versions later than 0018
#include <Ethernet.h>
#include <EthernetUdp.h>          // UDP library from: bjoern@cs.stanford.edu 12/30/2008
#include <avr/wdt.h>      // library watchdog

//variable pour la gestion du temps
long currentMillis;
long interval = 4000;
long lastMillis = 0;

byte mac[] = {
  0xDE, 0xAD, 0xBE, 0xEF, 0xFE, 0xED
};
IPAddress ip(192, 168, 1, 48);
byte subnet[] = {
  255, 255, 255, 0
};
unsigned int localPort = 5001;      // local port to listen on

// the next two variables are set when a packet is received
byte remoteIP[4];         // holds received packet's originating IP
unsigned int remotePort; // holds received packet's originating port

// buffers for receiving and sending data
char packetRecu[UDP_TX_PACKET_MAX_SIZE]; //buffer to hold incoming packet,
char  packetEnvoi[] = "";       // a string to send back
int ip2[4];                     // pour afficher l'ip dans la console
String recu = "";               //pour convertir en string les char reçut
char etat_do [7] = "";

EthernetUDP Udp;
void setup() {
  // start the Ethernet and UDP:
  Ethernet.begin(mac, ip);
  Udp.begin(localPort);
```


Node-RED
filter nodes
Flow 3
Flow 4
Flow 5
Flow 6
Flow 7
SAP RFC
watch
feedparse
exec
Nest
nest request
nest status
temp
sapRFC
call
read table
field list
dashboard
Start
select
read mara
msg.payload
Start
Change Email
BAPI_USER_CHANGE
msg
Start
fields of MARA
timestamp
MARA
read table
MARC
read table
timestamp
USR02
read table
timestamp
250x
fields of MARA
timestamp
5x
timestamp
catch (5)
msg.sapErrror


Heatsink temperature
28
0
C
100
Eindtrap Spanning
Eindtrap low Voltage
Eindtrap Stroom
Forward power
Disk Space
CPU
CPU Temperature
DC Monitoring
PTT / TX
Powersupply amplifier
Ventilator
Relay 3
IP Address
192.168.1.49
DATV easy
DATV easy IP
DATV easy Port
SHUTDOWN
REBOOT

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DVB / MPEG-TS | Configuration | DVB Tables | PTT / Monitoring

Monitoring ARDUINO

Temperature 28 °C	*Power* 60.72 W
Voltage 32 V	*Ampere* 5 A
Ref Power 0.61 W	*SWR* 1.22

Digital outputs / sorties

START	☑ 2	☐ 3	☐ 4	☐ 5
DELAYED / RETARDE	☐ 2	☑ 3	☐ 4	☐ 5
PTT MANUAL - BUTTON	☐ 2	☐ 3	☑ 4	☐ 5

Adalm Pluto ouput GPO-0

Relay USB HID

START	☐ 1	☐ 2	☐ 3	☐ 4
DELAYED / RETARDE	☐ 1	☐ 2	☐ 3	☐ 4
PTT MANUAL - BUTTON	☐ 1	☐ 2	☐ 3	☐ 4

Frequency MHz

2409.750

Easy

OSCAR-100

Transmission

440 kb/s

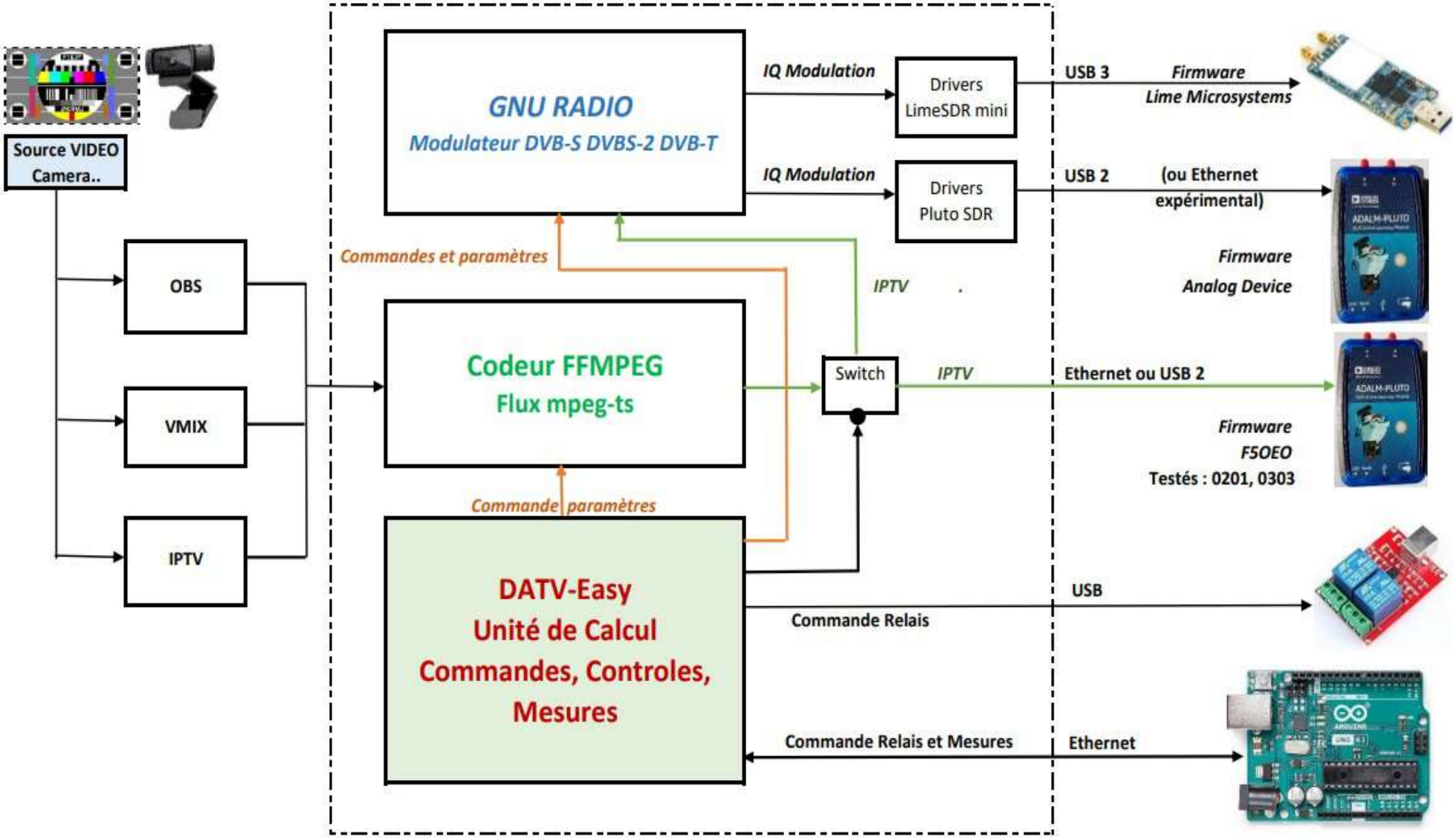
0 20 40 60 80 100

START PTT

STOP EXIT

>> Datv-Easy << OBS / vMIX / IP > H262 / H264 / H.265 DVB Transmission

DATV-Easy Diagramme Fonctionnel



So Why would you need DATV-EASY

- If you want to use Portsdown.
- If you are using a hardware encoder due to low end PC
- If your completely happy with your current setup
- If your an FFMPEG expert in scripting
- I would say you don't need it.

- But for all other hams who like me keep changing frequency and quality settings.
- And want an easy transmission with good quality.
- And don't want to bother about null packets and audio dropouts
- And would like to setup a remote controlling and monitoring system for your amplifier
- And want to minimize the programs on you PC screen
- I guess you want to try it.

Q&A...

- Does it run on my PC?
  - Its a windows program running on Win10 and 11
  - If you run it in normal pluto or Lime mode you need CPU power to get stable transport stream, but on F5OEO mode its light on the CPU very much like free stream encoder.

- Can I use it with my Nvidia or Intel or AMD encoder card?
  - Yes it runs with several HW encoders if available.

- Will OBS 28.x work?
  - Yes DATV Easy supports droidcam, virtualcam and virtual audio cable.

Q&A..

- Will it run on my Pluto firmware?
  - Yes it will support original AD firmware and F5OEO 0201 and F5OEO 0303, others still need tested
- What modes does it support?
  - DVBS, DVBS2 , DVBT from 20ks to 2000ks in H262, H264 and H265 in 15, 25 and 30 FPS.
  - Audio MP2, AC3 and AAC from 0 to 265Kb/s with 44K or 48K sampling.
- Will it run on my networked Pluto?
  - Yes it will run on usb and network connected Plutos and on usb connected Lime-SDR.

Q&A.

- Where can I find it?
  - vivadatv.org/viewtopic.php?f=84&t=940
- Where do I find instructions?
  - In the download you find French and English instructions, please read and follow them before reporting problems...
- Where do I find help?
  - forum.batc.org.uk/viewtopic.php?f=15&t=8156
  - forum.amsat-dl.org/index.php?thread/4223-donwload-datv-easy-v2-08/
- ?

Thanks for watching.