

Minitioune v0.8s – Read-me

IF you have already installed an older Minitioune version

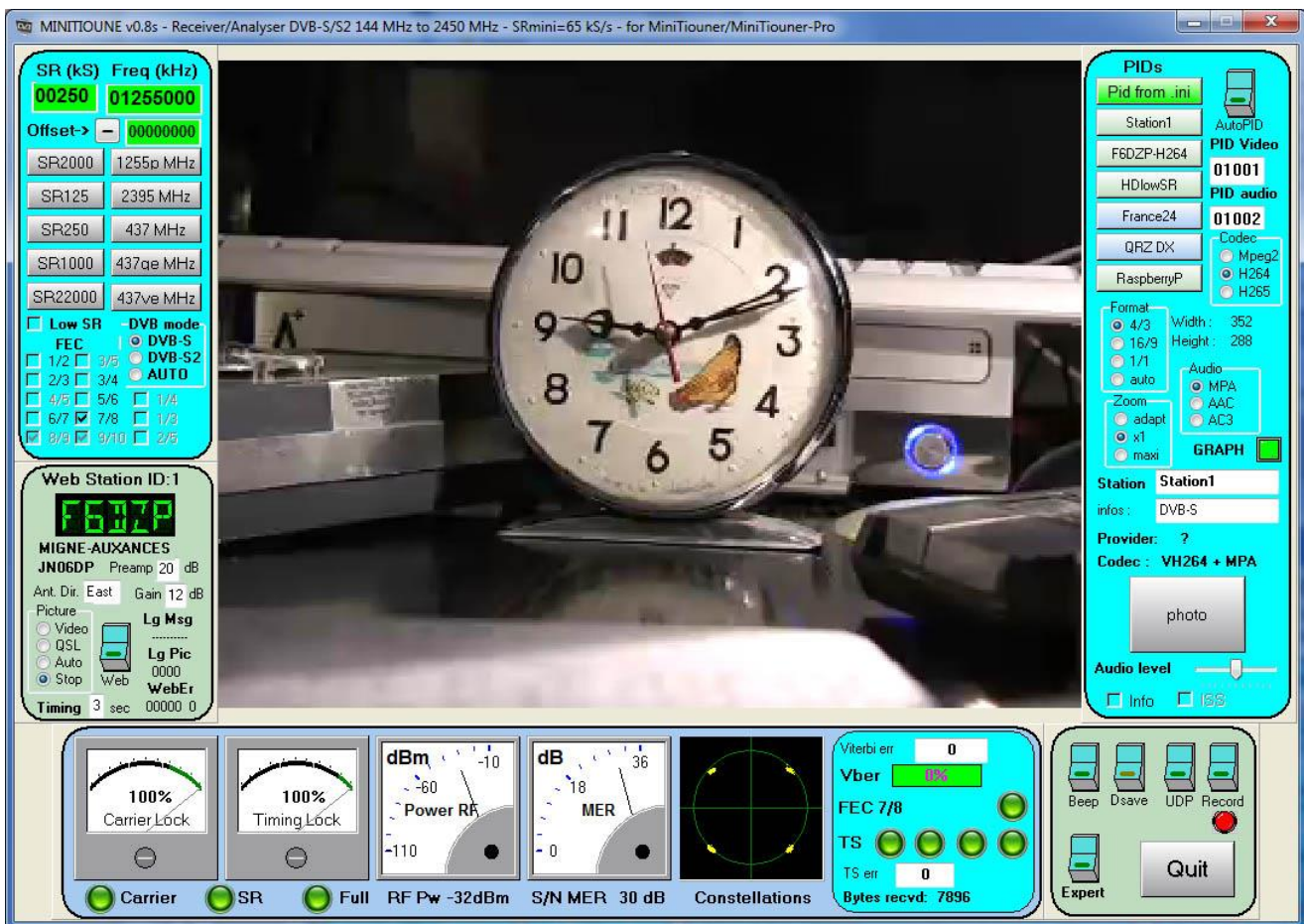
- ⇒ You need to copy the new exe file (minitioune_v0_8s.exe) in the minitioune directory
- ⇒ You need to **copy the new “minitioune.ini” file that has now more parameters** for the buttons setup, or you can add/copy the end of this new minitioune.ini to your old minitioune.ini and add the new parameters.

There are also new tools:

- Noise_Power_Measurement_Vm1_1
- CheckMiniTiouneDriverAndFilters_V0_5a
- TestMyMiniTiouner_V2_0a

IF you have already installed Minitioune

- ⇒ Go to page 13



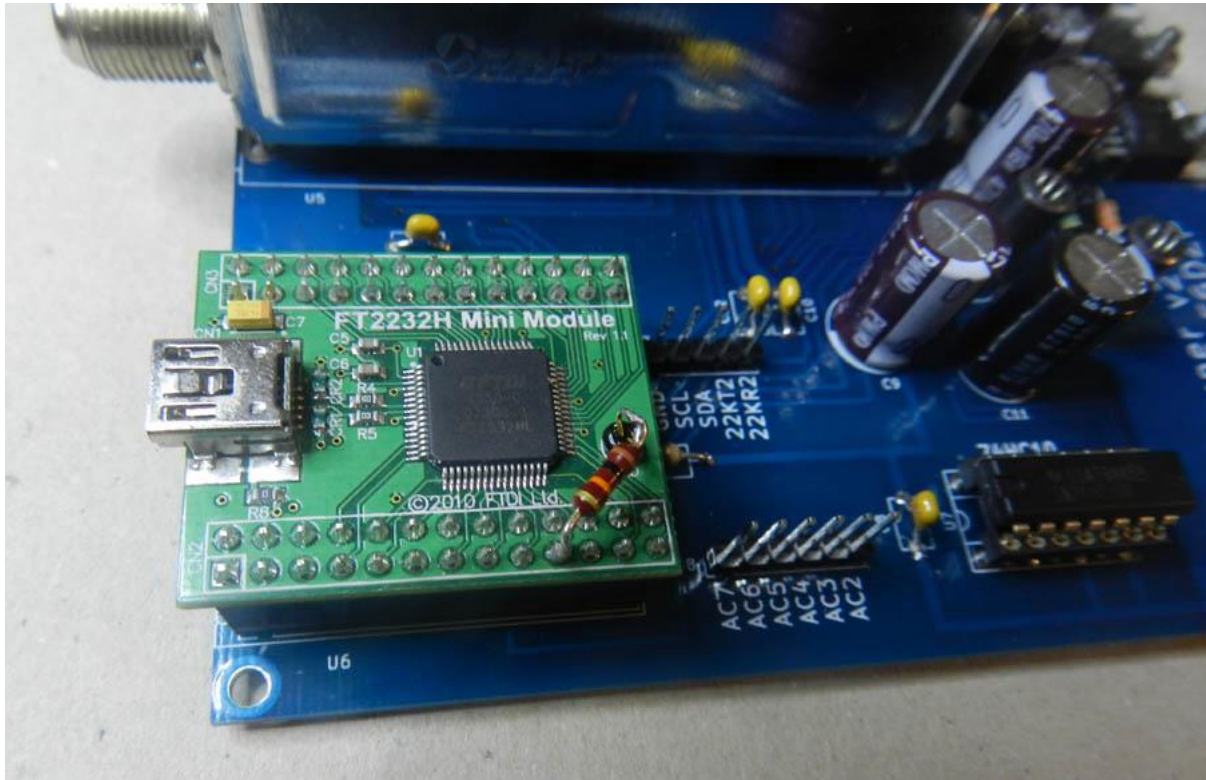
New Minitioune version v0.8s.

Minitioune works with MiniTiouners that can be very different under Win XP, 7, 8, 10 (32/64 bits)

- **MiniTiouner V1** (homemade, kit F1CHF, kit BATC ...)
with NIM Eardatek EDS-4B47FF1B+
- **MiniTiouner V1**(homemade, kit F1CHF, kit BATC ...)
with NIM SHARP BS2F7HZ0169/Samsung DNBU-10512IST / LG TDQX-S001F
- **MiniTiouner V1**(homemade...)
with NIM Serit SP-2246T
- **MiniTiouner V1 + extension nouveau NIM** (kit BATC V1+ pcb extension)
with NIM Serit FTS-4335 , FTS-4334 or FTS-4339
- **MiniTiouner V2** (homemade, kit BATC V2...)
with NIM Serit FTS-4335 , FTS-4334 or FTS-4339
- **MiniTiouner-PRO** (homemade or already built by REF)
with NIM Serit FTS-4335 , FTS-4334 or FTS-4339
- **MiniTiouner-Express** (already built by DATV-express.org/USA)
with NIM Serit FTS-4334

Minitioune software must now detect which kind of MiniTiouner is used because they don't have all the same hardware possibilities.

- If you are using a MiniTiouner V1 (Eardatek, Sharp..), change nothing
- If you are using a MiniTiouner-PRO, change nothing
- If you are using a MiniTiouner V1 extension or V2 (BATC kit) with a NIM FTS4335 or FTS4334, you must add a resistor between the Ground and CN2-19.



Resistor for detection of a MiniTiouner V2

Anyway, you must begin by testing your MiniTiouner with the new version of TestMyMiniTiouner (V2.0a, unique version for all MiniTiouners). It will show you if your MiniTiouner is well recognized

and, in case of a NIM Serit FTS-43xx, it will show you the celerity of your USB to I2C link. That will allow you to compare different MiniTiouners, different PC, different USB input on the same PC : **I2Cperformance**. More the value is low, more the display of measure will be slow on the software interface because it will take more time to read all data coming from the demodulator. Except very bad result, that will not change the receiving possibilities, that will only change the measuring performance. With all tests done on the same PC, MiniTiouner-PRO gives the best result (2 or 3 times faster).



Testing my MiniTiouner-PRO on my laptop

There are new functions and many procedures have been reinforced for a faster locking and decoding.

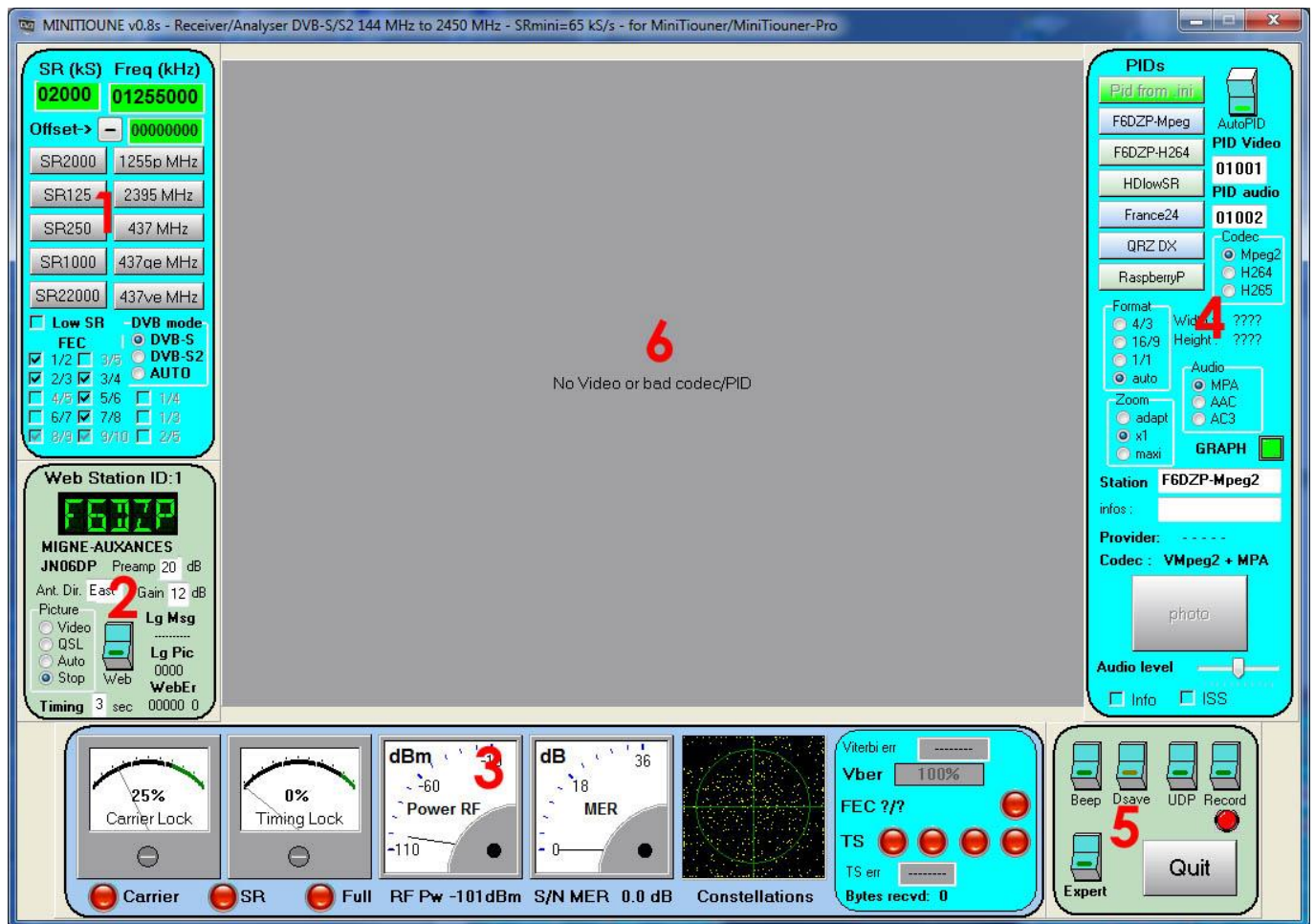
When you run it, firstly MinitiouneV0.8 detects and displays which kind of **MiniTiouner** you are using

MiniTiouner-Pro with NIM Serit FTS-433x detected
(MiniTiounerPro schematic: www.Vivadatv.org)

Please Wait 10 sec, Minitioune V0.8 is loading...

Starting the software take now a little less time.

And you will see the Minitioune interface, herein standard mode:



There is not too much change with previous version: we can distinguish 6 different parts:

1. **Setup Panel:** we can select the Symbol Rate (SR) and the receiving frequency. We can use the preset buttons or write directly our own values. We can also select the FEC used and the DVB mode. All these setup and the values for buttons can be preset/changed in minitioune.ini file.
2. **WEB Panel** offers you to send in real time the measuring data to your « TiouneMonitor » on the Vivadatv forum website (www.vivadatv.org).
3. **Measuring Panel.** To be well locked, you must get all leds green.
4. **Decoding Panel:** When all leds are green, you are receiving the Transport Stream (TS), it must be decoded. Here you can indicate the PID audio, PID video and codec used, but the simplest is to use the AutoPID button that will decode the information in the TS (DVB tables) that will give the information needed.
5. **Other functions Panel :**
 - Beep : beep to set your antenna
 - Dsave : save all measuring data in a data file. Useful to study what happened during some ISS pass.
 - UDP : To send the TS to your local Network using UDP protocol.
 - Record : to record the TS on your hard disk.
 - Expert : to switch between expert mode and standard mode
 - QUIT : quit the software
6. **Video Panel,** grey when you are waiting a transmission.

NEW: You can now preset the position of the software on your screen when it starts. The values must be put in the minitioune.ini file. You can also ask for the use of dual screen mode.

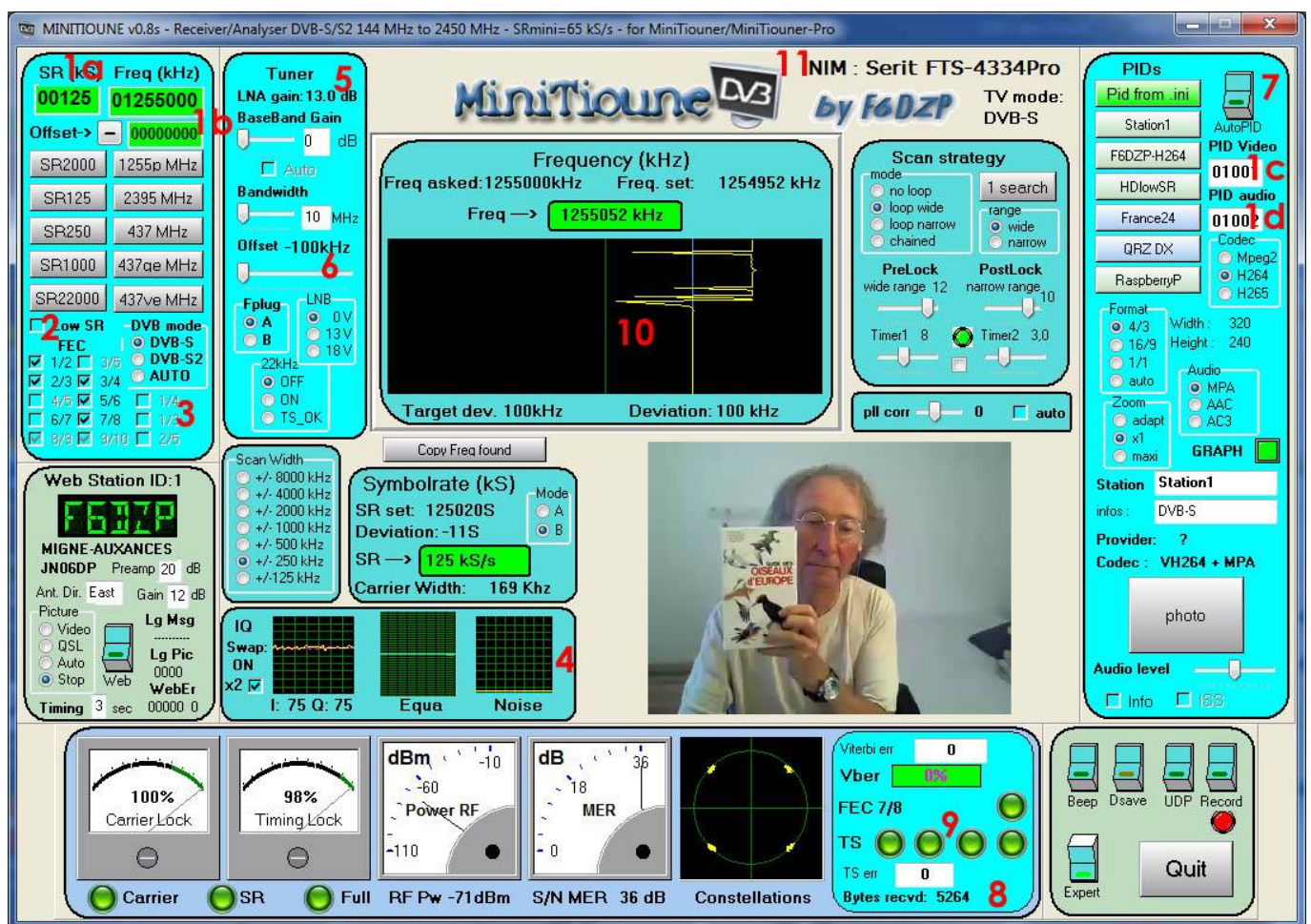
Here you can find what is new in the minitioune.ini file:

[Position]

; position sur l'écran au démarrage, très utile en mode 2 écrans
; position on the screen when it starts, useful with 2 screen mode
; dualscreen=yes or no
XPosition= 30
YPosition=20
DualScreen=no

If you press the Expert button (or if the expert mode has been chosen in the minitioune.ini file) you will see the Expert mode display.

With this Expert mode, appear new possibilities and new setup different from previous versions.



MinitiouneV08s_SR125_78_S_Expert

Let us look at these new possibilities:

1. (1a, 1b, 1c, 1d) when you enter new values using your keyboard, you need now to press “Enter” or click on an external place.
2. The “Low SR” mode can be now selected using a NIM Serit FTS-433x, for testing, but we can see that, for these NIMs this setup is useless or harmful. Using NIM Eardatek, Sharp, Samsung, this mode is necessary for SR lower than 180 kS/s and forbidden for SR higher than 6500 kS/s.

Between the 2 values, we can choose and test which is the best : we can see that in low SR mode we have more noise, but that can help us for a quicker lock.

The software allows us now to go down to SR 65 kS/s using all NIMs (Eardatek, Sharp, Samsung, Serit ...)

3. FEC selection has been optimised and allows a faster lock (particularly in DVB-S2 mode) if we let the minimum of choice. When it locks indeed on a signal, it will search among all authorized, so, the less it has choice, the less it will take time to find, but take care to let at least the FEC used otherwise you will have only Carrier et SR leds green, all other leds red.
4. Noise oscilloscope values are now amplified, so we see better the noise and we can see the difference between low SR mode and High SR mode.
5. About the Tuner, we have now the preamplifier gain displayed, this LNA is inside the NIM, just before the tuner.
 - for NIM FTS-4334L, the gain is variable: the software has ordered to it to try to set its output to give -20 dBm signal to the tuner. The gain is variable (+13 dB à -17 dB), that means that it can also act as an attenuator. If the input signal level is -60 dBm, the LNA will add 13 dB of gain and will give a -47dBm signal to the tuner. If the input signal level is -15 dBm, it will set its gain to -5dB (attenuation) to give a -20 dBm signal to the tuner. This gain change also a little depending the frequency used but we have no information to correct the value displayed.
 - For all others NIMs, the gain is the transistor gain and changes depending the frequency used. The software uses the values given on the datasheet.

As previous versions, the tuner gain (Base Band gain) can be set, but most of time, it is better to let it set to 0dB otherwise we will add more noise and result will be worse.

Bandwidth is set automatically.

6. **NEW : Frequency optimisation using an offset.**

In some condition we have found that we can lower tuner VCO noise if we move away from the frequency searched. Most of time, we can get a gain of 2 dB MER.

For example, if I want to receive a SR125 signal on the frequency 1255000 kHz (*freq asked*), the tuner will be set on 1254900 kHz (*Freq.set*) and the Derotator (double PLL for locking) will search the signal 100 kHz higher (Target dev.). (+ 52 kHz of compensation - explication farther)
This offset value changes with SR and frequency used , it is automatically set if you have indicated it in the minitioune.ini file, and you can modify it with the mouse. It is less useful with a NIM Sharp/Samsung with a tuner STV6110 with a big step VCO (500 kHz or 1 MHz)

NEW : compensation value

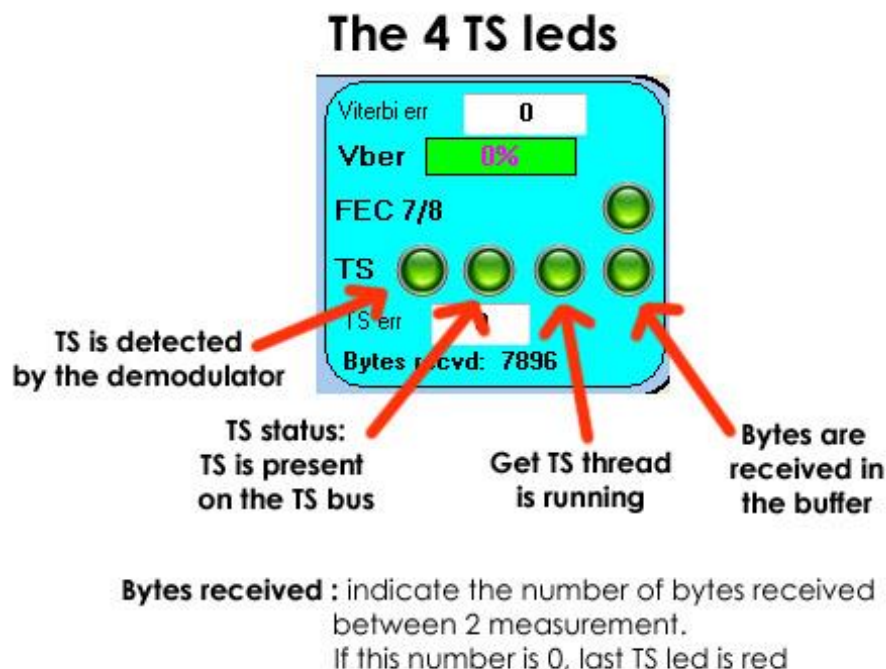
Quartz that are used inside NIMs have not exactly the same value and can result little offset in frequency.

For receiving very low SR (< 250 kS/s) this offset can add more difficulties or more time to lock. So, it is important to examine our tuner, noted the offset indicated by reading the difference between the frequency found (frequency indicated on yellow background in the derotator explorer), if you look at my screenshot you will see that it indicates 1 255 052 kHz when my transmission is (supposed to be) on 1 255 000 kHz, so the offset for this NIM is 52 kHz. (If you have several MiniTiouners, test them, you will get different values for each).

So I have written this result in the [FreqPresetButtons] data inside minitioune.ini file:

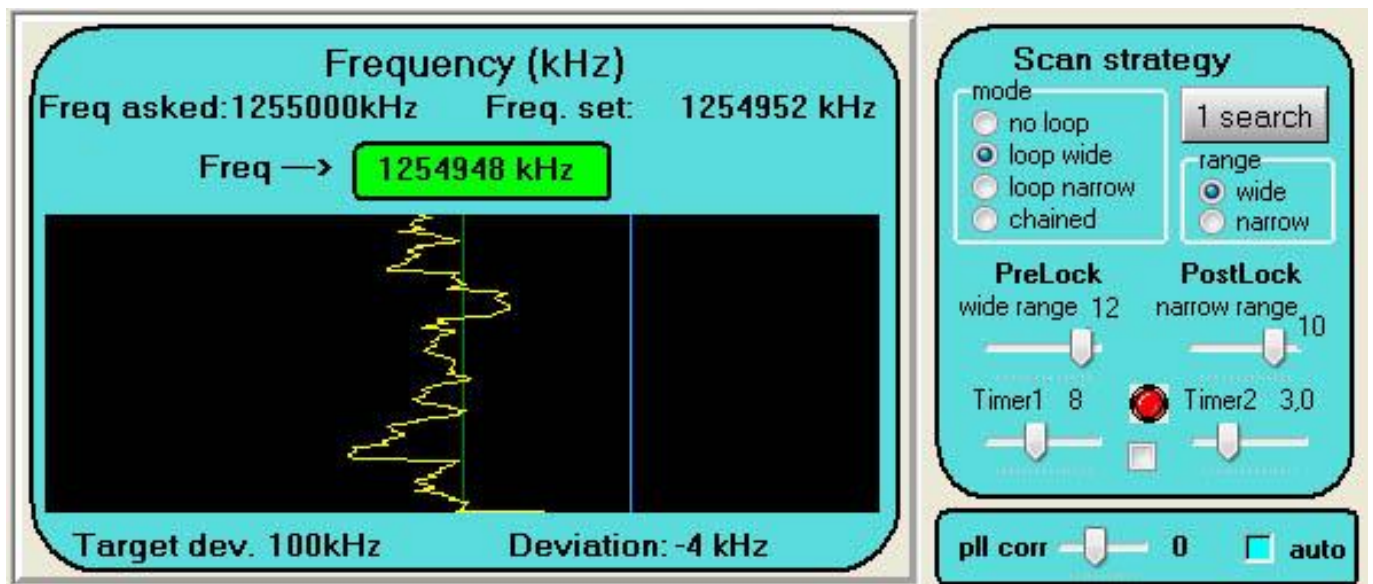
```
FreqOptimisation=yes  
; MiniTiounerProS2  
FreqCompensation=52
```

7. AutoPID : to get PIDs and codec , the way the information is extracted from the DVB tables has been completely changed and optimized also for receiving great multiplexed TS from satellites. You can look at the info found inside the DVB tables by clicking on « Info » at the bottom of the decoding Panel.
8. Number of “Bytes received” indicates now the number of byte received during a loop of measure display. It is variable, depending of your “I2C performance” and of the SR. It is just important that it is different from 0.
9. About the TS leds.

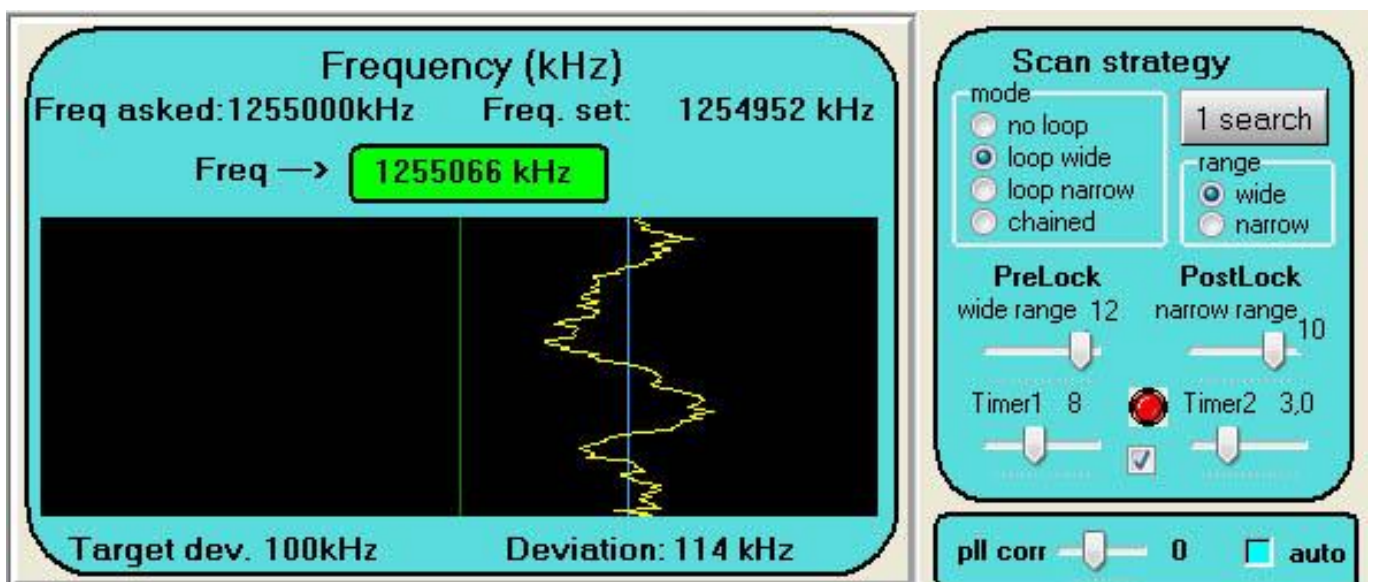


10. The Derotator tracer:

- The red vertical line indicates the frequency set (for ex. 1254 952 kHz), (result from 1255000 kHz asked, less 100 kHz of offset for noise optimization, plus 52 kHz for compensation of VCO offset.)
- The blue vertical line indicates the frequency searched: 1 255 052 kHz (result from 1254952 kHz set, plus 100 kHz of offset asked to the Derotator (target deviation).
- If there is a difference between the frequency searched and the frequency found, the blue line position is changed to this new found value.
- With a Serit FTS4334/35/39 we can also manage which line we want the derotator to scan around.



The derotator searching around the frequency set (red line)



The derotator searching around the frequency asked (blue line)

11. Other new possibilities :

- We can ask that, when the software starts, pictures are sent to the TiouneMonitore and WEB button is ON.
;.....
; WebMonitor 0=OFF 1=ON 2=ON + Auto
web_switch=0
- Dragging of Minitioune on your PC screen is now fluid.
- New functions have been added to fix some blocked situation we could have with the version 0.7b. When we encounter the Red TS led freeze of TS data, this new function correct it automatically.

- **The use of Digole LCD is completely implemented** and the software can distinguish different size of model. We indicate it in the minitioune.ini file.

At the end of the minitioune.ini file, we will find this text :

```
; .....
[Display]
; OLED 1.3" : yes or no
; Digole 1.44" or 1.88" => Digole=14 // Digole 2.2" or 2.4" => Digole=22 // 2.6"
=> Digole=26 // NO Digole => Digole=0
OLED=no
Digole=no
```

If we use a 2.6" LCD TFT Digole, we will write:

```
OLED=no
Digole=26
```



Main improvements over the v0.6d:

- **Works MiniTiouner or MiniTiounerPro**
- codecs Mpeg2, H264, H265 for video and MPEG Audio, AAC or AC3 for audio
- You can choose the screen size when you start (tell it in « minitioune.ini »)
- You can click on the video screen to change all the displaying mode including Expert mode.
- RF level computation revisited.
- LOw SR can go down to 75 kS/s if you use a FTS-4335 or FTS-4334
- All FEC values used with DVB-S2 are usable.
- **.grf files are no more indispensable.**
- **If you use a MiniTiounerPro** : you can set 13v/18v/22kHz and use Oled or LCD_Digole display and led TS2 (master).

BUG or known difficulties:

- Sometimes, the video renderer stops at the beginning, Solution : restart the graph by changing codec and go back to the codec you need..
- When you lock on a big TS coming from a satellite (Astra...) with SR>20MS/s, the TS content several multiplexed programs, the part of software that extract the list of stations (**AutoPID**) **don't always find them**. If not, write the PIDs yourself.

Main improvements over the v0.5a:

- We can use the new NIM Serit « Pro » **FTS-4335 that can receive from 144 MHz to 2450 MHz without any converter.**
- You can choose between 2 RF inputs (if you have a NIM Serit Pro)
- You can set the DVB mode when starting (in minitioune.ini)
- Fix some little bug (choice of UDP port)

Main improvements over the v0.4c

- We can now receive DVB-S and **DVB-S2** en QPSK et 8PSK
- We can decode video codecs : Mpeg2, H264 and **H265**
- **More accurate values for MER and power**
- Some little bugs fixed
- Useful for a PIPO,
 - A click on vu-meter « MER/SN » changes standard/Expert mode
 - A click on vu-meter « RF Pw » switches the AutoPID button
 - A click on vu-meter « TimingLock » changes the DVB mode(DVB- S, S2, Auto)
 - A click on vu-meter « CarrierLock » asks a new lock (= « 1search »)
 - In standard mode, un click on thea video changes the display format (= Echap)

- There are new FEC values for DVB S2
- We can preset the BBgain value and the lowSR/highSR mode
 - ⇒ **The file Minitioune.ini is now different with the new FEC values and the new possibility to preset BBgain and LowSR.**
 - ⇒ **There is a new file « H265 decod.grf » for H265 decoding.**

*Tested usingr Win XP pro 32bits, Win7pro 32bits, WIN10 64 bits and my PIPO X8 ...
using NIM Sharp, NIM Eardatek, NIM Samsung et NIM LG*

Main improvements over the v0.4b

- Fix the bug with autoPID that did not work the first time if set in the .ini file.
- Fix the TiouneMonitor display when several freq buttons have same frequency
- Correction of some bad colors in the interface
- Fix bad picture format in TiouneMonitor when in auto QSL/video mode
- Add a message during loading

Main modifications since version 0.3b release:

- Minitioune can now work with **NIM SERIT SP2246 (STV6111, STV0913)**
- Offset values for LNB or converter can be positive or negative.

WARNING: You must now indicate in the “minitioune.ini” file if the offset values must be used for a subtraction or an addition. (Make modification to your old .ini file)

- The minitioune.ini file allows to setup TS bit error and Expert mode when the software starts

```
;.....
;TSErrorBit_switch 0=ON 1 = OFF
TSErrorBit_switch = 0
;.....
;Expert_switch      0=OFF 1=ON
Expert_switch=1
```

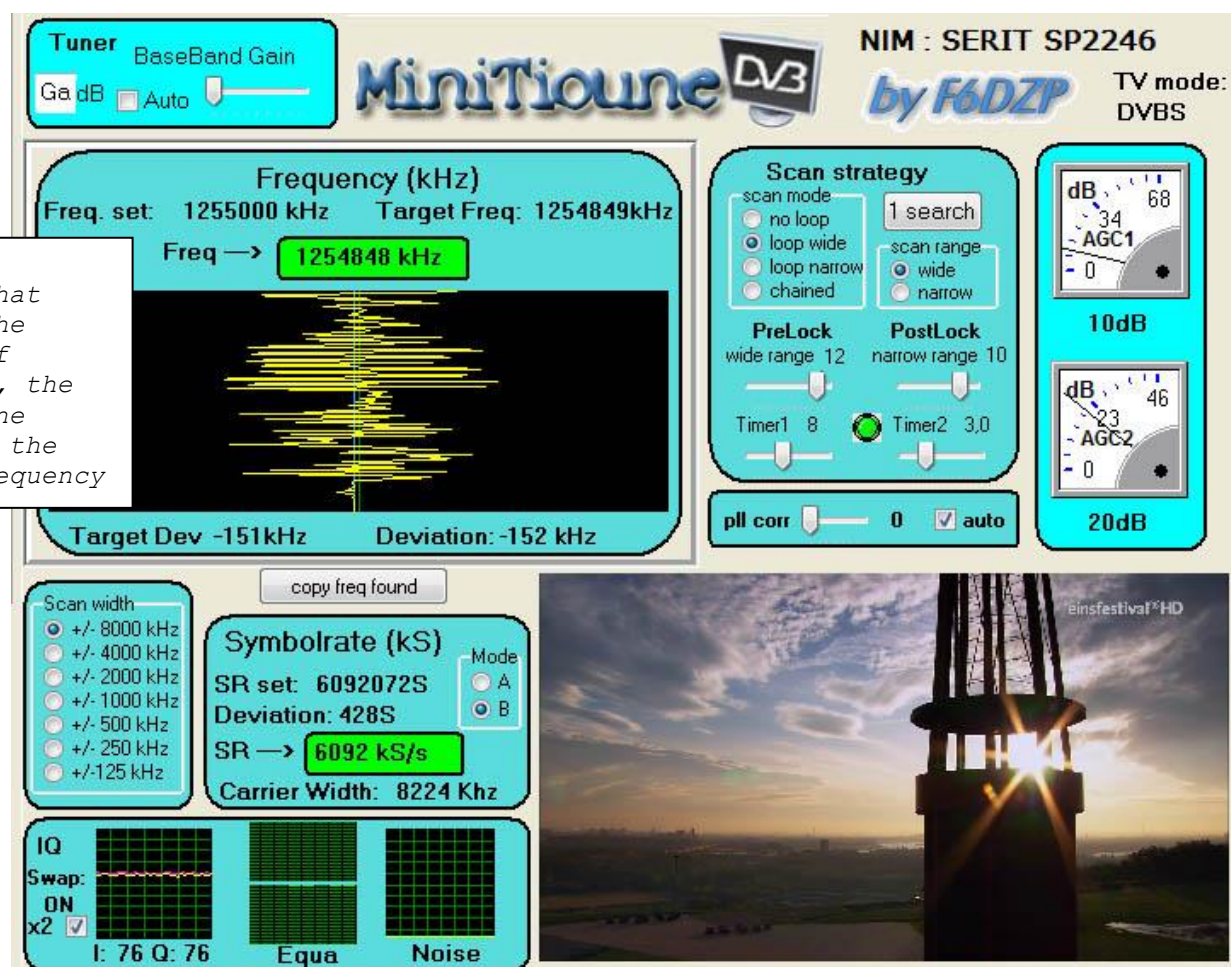
- **Expert mode is now simplified and shows only what is important**

We get only what is essential for the fine tuning of our DVB-S receiver.

Others information can be get using CTRL+A for a complementary panel. In normal use, we never need it.

Expert mode allows us to follow exactly the derotator movement of Derotator.

have a graphic that shows us the levels of the derotator, the sample line indicates the target frequency



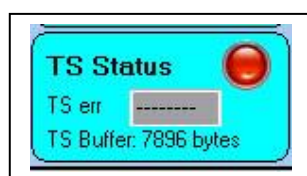
The new Expert panel

Main modifications since version 0.3a :

- Some situations where locking was difficult are now fixed.
- Changing aspect ratio from 4 : 3 to 16 : 9 now stretch the picture, so we can now correct bad situation like we have with HamTV that send 16 : 9 pictures and indicate 4 : 3 ratio.
- The frequency found is no more systematically copied in the frequency asked. There is now a separate button to do it. « copy »

Main modifications since version 0.2c :

- Now IIS mode is full working, we can receive, record ... HamTV signal.
- Derotator scan strategy improved, a new window can be opened using "CTRL + A "and will show us the graphic of the derotator movement.
- We have now the possibility to preset all buttons position when Minitione start.
- The buffer used to transfer the TS to the decoder is adjustable. The value by default is very little, so the delay for sending the TS is 1/10th of second.



IF you have not already installed Minitioune:

Unzip the file in a minitioune directory and follow these instructions:

Installation

1. I suppose that you have firstly :

- You have downloaded the FTDI D2XX driver

<http://www.ftdichip.com/Drivers/D2XX.htm> click at right on « setup executable »

You will get something like CDM21228_Setup.zip → CDM21228_Setup.exe

- Installed the FTDI driver by running the software:
- **CDM21228_Setup.exe**
- **If you have bought a new separate Mini-Module, you must change the setup of your mini module FT232H using FTprog.** (explanations here: <http://www.vivadatv.org/viewtopic.php?f=80&t=379>

2. Test your MiniTiouner using **TestMyMiniTiouner_V2_0a**

You must get 0 errors.

If you are using a Serit FTS-4334 or Serit FTS-4335, the software will show you the efficiency of the link between your USB port and the I2C line. So you can compare different USB input on your PC, or different PC, or different MiniTiouners.

3. You have now 3 steps to do :

a) Download and installation of GraphStudioNext

go to : <https://code.google.com/p/graph-studio-next/>

Download the last version.

There is no installation.

This software will allow you to read the .grf files used by Minitioune. These are graphs that show us the structure of decoding and rendering TS data.

This software will help you to install easily Directshow filters like **usrc.ax**

b) Download and installation of « LAVfilters » : if LAVfilters is not found in the software package, you must download it:

Go to : <https://github.com/Nevcairiel/LAVFilters/releases>

Download last version : [LAVFilters-0.71-Installer.exe](#)

Run it and let the installation of video decoder , audio decoder and TS splitter.

c) Installation of usrc.ax Directshow filter

The file **usrc.ax** must be in the Minitioune directory.

You have also the software: « install_usrc_ax_WinXP.exe »

- If you are working under win XP , you have just to run this software
- If it doesn't work or you are using an another version of Windows:
 - Run **GraphStudioNext** in administrator mode (right click ...)
 - Go to **Graph → insert Filter**
 - You have opened a new window: **Filters**, you click at the top right on **Register**
And you link to **usrc.ax** which is in the Minitioune directory
 - Reboot your PC

4. You can now check that all is well installed using the software:

CheckMiniTiounerDriverAndFilters_V0_5a

You must get all Leds Green. (the WEB led can be red if you have no Internet access)

5. Now you can run the software **Minitiounev0.8s**
-

Annex

About minitioune.ini:

1. Use of scan parameters :

Here is the part of « minitioune.ini » that presets the derotator parameters

```
=====
;scan parameters
[scan]
=====
; range/course affect the nbr of KHz the derotator will explore for locking
;value is between 5 and 12
range1=12

; timer1 unit is 1 sec, timing between each scanning start value 2 to 16 sec
timer1=8

; range2 = afterlock, value : 0 to 8 0=freeze on freq
range2=10

; timer2 unit is 1/2 sec so value : 2 to 16 ==> 1 to 8 sec
timer2=6

;PLL corrector 0=no 1=yes
pllcorrection=1

; default scan mode: wide or narrow
scanmode=wide

; SR search mode A ou/or B
searchmode=A
```

range1 will define the range of steps made by the derotator. A value of 12 seems good for low SR like SR250.

Timer1 show us the number of seconds between each Search that start again the derotator on the frequency using the loop wide mode.

If we hit **CTRL+ A**, we see a new window that show us the scan made by the derotator, the fuchsia line show us the frequency asked and every 8 seconds (=Timer1 value) we start a new search from the frequency asked.

Range2 and **Timer2** show us the **narrow** mode, that allow a narrower search using a shorter timing for each search.

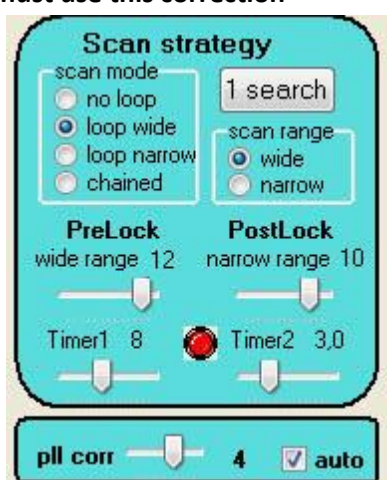
For greater Symbol Rate, the scan range become greater. We must remain that when we search a SR2000 station, this station occupy about 2.7MHz in bandwidth, so a scan of + or - 1 MHz around the frequency asked is not strange. We can set this scan width by putting the range1 value to 5 or less.

Take care, it seems that the use of a too much narrow scan (= a smaller derotator step) can result in a longer time for locking as the derotator has more constraint and changes its value using little step.

In fact, don't hesitate to try and retry and find the best value for you, for a specific SR that gives the quickest locking. You can change the value in the Expert mode and when you have found your best values, write them in the "minitioune.ini" file.

Last info to know:

- The chained mode allows us to start in Wide range mode before first lock, and after having locked a station, go automatically in narrow mode if we have lost the station.
- Each time we lock on a station, the frequency found is written instead of the frequency asked, so, if we lose the station in QSB, we will search it using the last frequency value where we have locked it.
- the « **pll correction** » mode can be very important: if you are receiving a station at LOW SR that has not a very good Nyquist filter, you must use this correction



We can see this value (PLL corr) under the "scan strategy" panel in Expert mode.

If "Auto" is checked, the pll correction value will be set automatically, depending of the SR used.

If "Auto" is not checked, you can set yourself the value you want

2. use of preset position of buttons

At the end of the minitioune.ini file, we can find now information to setup the position of each button when Minitioune start.

```

=====
; Ici on peut pr  r  gler les boutons / Here you can preset buttons
[buttons]
=====
; ISSmode
; utilis   pour suivre l'effet Doppler et corriger le bug HAMTV  oui/yes(1)   Non/No : (0)
; used for ISS doppler effect and HamTV bug correction  Non/No : (0)   oui/yes(1)
issmode=0
;.....
; Dsave_Switch    0=OFF  1=ON

```

```

dsave_switch=0
;.....
; WebMonitor      0=OFF 1=ON
web_switch=0
;.....
;UDP_switch      0=OFF 1=ON
udp_switch=0
;.....
;Record_switch    0=OFF 1=ON
record_switch=0
;.....
;22 kHz          0=OFF 1=ON 2= ON when TS OK
22kHz_switch=0
;.....
;TSErrorBit_switch 0=ON 1 = OFF
TSErrorBit_switch = 0
;.....
;Expert_switch    0=OFF 1=ON
Expert_switch=1
;.....
;LowSR_switch    0=OFF 1=ON // can be ON only if SR1Value<6500 kS/s
;                                     // can be OFF only if SR1Value>=300 kS/s
LowSR_switch=1
;.....
;BBgainAuto_switch 1= auto_ON    ..,-2,0, 2, 4, 6, 8 ... = auto_OFF
;value accepted for Sharp/samsung NIM: 0,2,4,6,8,10,12,14,16  for Eardatek NIM: -10,-8,-6,-4,-
2,0,2,4,6,8,10,12,14
BBgainAuto_switch=-10

```

We can keep **BBgainAuto_switch = -10** even if we don't use an Eardatek NIM, the value will be automatically set to 0 for a Sharp or Samsung NIM

In general, this is the best value if we use a converter (for 146MHz or 437 MHz) that already has a great gain.

New with version 0.6 :

```

;.....
;DVBmode          choix/choices : DVBS  DVBS2  AUTO
DVBmode=AUTO
;.....
; TS1 or TS2 choice for NIM SeritPro  1 or 2 // Choix de la sortie TS1 ou TS2 utilisée
; use:  1 => if you use TS1 output      2 => if you use TS2 output
TS=2

```

New with version 0.7 :

In the [buttons] zone, you can ask the screen mode at start (if you are not in Expert Mode)

```

;.....

```


; si on démarre en mode standard (Expert_switch=0) on peut choisir le type d'écran de démarrage
; if you start in standard mode(Expert_switch=0), you can choose which kind of screen you want
; 1: normal, 2: full screen, 3: full screen + measure, 4: maxi, 5 : mini
Video_mode=3

New zones:

;
[Directshow_Graph]
; Graph : use of .grf file / utilisation des fichiers .grf
ReadGRF=yes
SaveGRF=no
AddToROT=no
;
[Display]
OLED=no
Digole=no

New with version 0.8

At the beginning of the text you will find now :

=====
[Position]
; position sur l'écran au démarrage, très utile en mode 2 écrans
; position on the screen when it starts, useful with 2 screen mode
; dualscreen=yes or no
XPosition= 30
YPosition=20
DualScreen=no

In the part [FreqPresetButtons] you will at the end :

FreqOptimisation=yes
; MiniTiounerProS2
FreqCompensation=52
; MiniTiouner Eardatek
;FreqCompensation=04

About the WEB monitor, we can ask to send automatically pictures:

;.....
; WebMonitor 0=OFF 1=ON 2=ON + Auto
web_switch=0

About display, we can use OLED or different TFT Digole :

;
[Display]

```

; OLED 1.3" : yes or no
; Digole 1.44" or 1.88" => Digole=14 // Digole 2.2" or 2.4" => Digole=22 // 2.6" => Digole=26 //
NO Digole => Digole=0
OLED=no
Digole=no

```

3. Adjusting the TS buffer :

We can now adjust the number of buffers of 1316 bytes that will be used to transfer the TS to Decoder, UDP ...

The value by default is 6.

```

;=====
[TSbuffer]
;=====
; Nombre de buffers de 1316 octets pour le transfert du TS --- mettre valeur 2 à 30
; number of 1316 bytes buffers used for TS transfert --- use a value 2 to 30
Totalbuffers=6

```

Current software versions :

- CheckMiniTiouneDriverAndFilters_V0_5a
- TestMyMiniTiouner_V2_0a
- Noise_Power_Measurement_Vm1_1
- Minitiounev0_8s
- TiouneDataReaderV0_2b