EUMETSAT

TBS 5927 DVB-S2 Receiver EUMETCast
Windows Setup Guide

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Document Change Record

Version	*Date of Version*	*Document Change Request (DCR) Number*	*Description of changes*
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v1	12/01/2018		Initial Release

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1 INTRODUCTION

Figure 1: TBS-5927 Receiver

The purpose of this manual is to guide a user through the minimum necessary steps to allow the reception of EUMETCast data (DVB-S2) on the TBS-5927 **satellite receiver**.

Please refer also to TBS "TBS5927 Professional DVB-S2 TV Tuner USB Operating Instructions" for more details, it is provided at the following link:

https://www.tbsiptv.com/download/tbs5927/tbs5957_user_guide.pdf

2 PREREQUISITES

Before performing the configuration please ensure the following steps have been addressed:

- A PC with a USB 2.0 port is available for connecting the receiver;
- Operating System is compliant;
- Internet Explorer 9 and higher, Firefox 55 and higher or any other compatible browser;
- Administrator or Root access to the reception host system;
- The EUMETCast antenna pointing has been performed correctly to EUTELSAT10A for DVB-S2 reception. (For DVB-S2 reception the antenna pointing and LNB quality are crucial);
- An EKU has been obtained from the EUMETSAT user help desk;
- The reception host has the latest EUMETCast reception software installed;

3   DEVICE INSTALLATION

3.1   Physical Connections

Figure 2: TBS-5927 Connectors

The connectors used in the TBS-5927 device configuration are described in the following table:

| Number	Connector
1	Power Supply
2	USB 2.0 Connector
3	RF In

Table 1: TBS-5927 Connectors

- Connect the power adaptor to connector 1 on the TBS-5927;
- Connect the antenna cable to the connector 3 ;
- Install the windows drivers (see paragraph 3.2) and then once the driver has installed successfully connect the device using the connector 3 to the PC using a usb cable;
- Install and Configure IP Tool (**s**ee paragraph 4) ;
- Instead of IP tool you can use BDADataEx (see paragraph 5) ;
- Configure Tellicast (see paragraph 6.1) ;
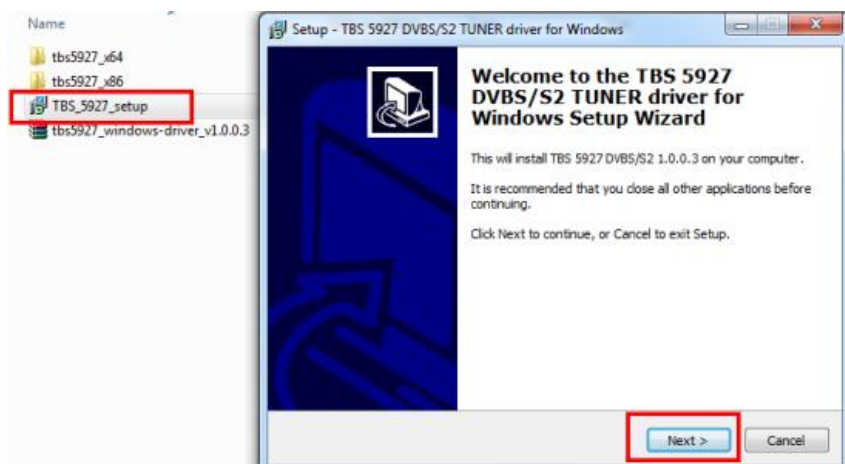
3.2 Windows Drivers Installation

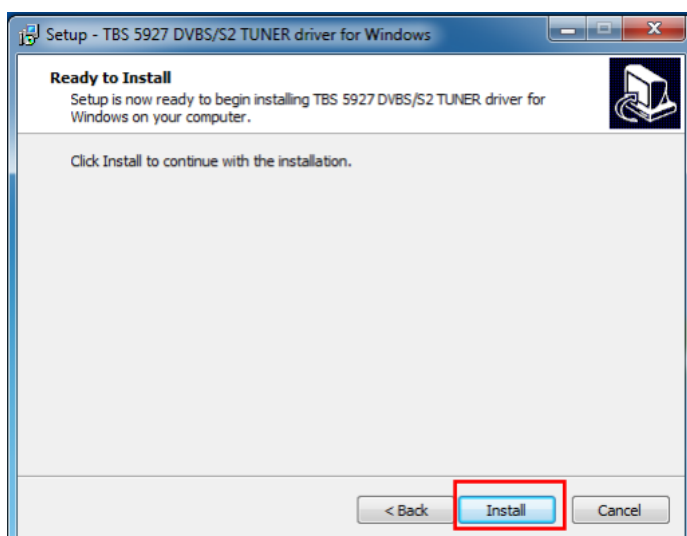a) You can find the latest windows driver at the tbsdtv web site :

http://www.tbsdtv.com/download/
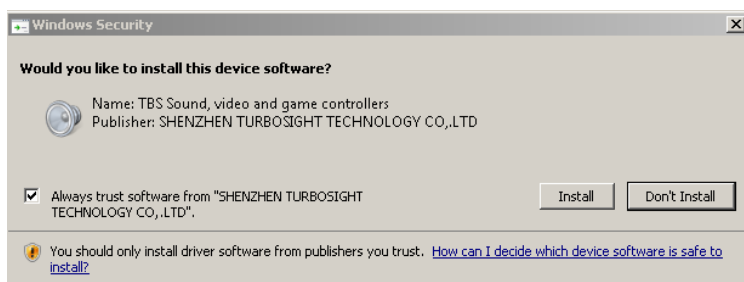
The version used for EUMETSAT testing was v.1.0.0.3
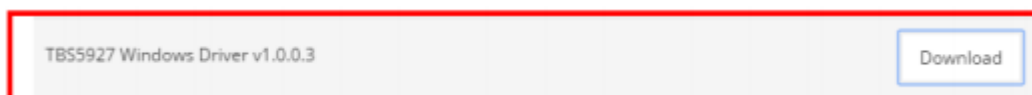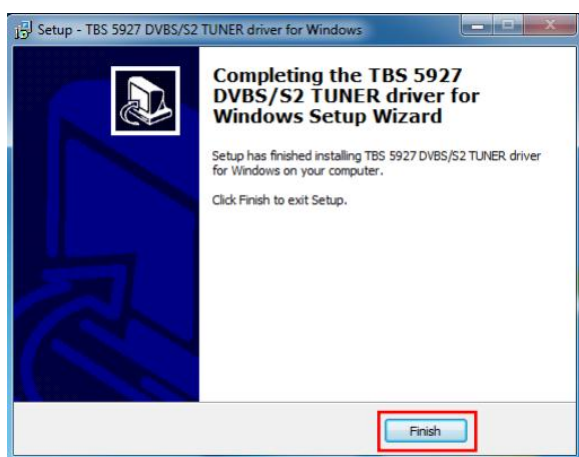

b) Run the driver installer

c) Select "Next" & "Install" to start the installation

d) If you see a "Windows Security" warning, select "Always trust ...." and "Install"
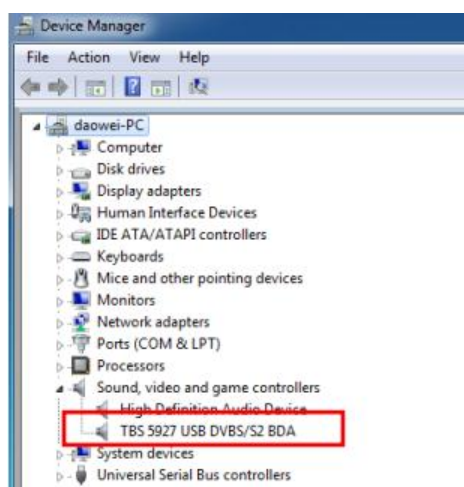
e) Select "finish". You have now installed the drivers for the TBS-5927 device

f) Ensure the device is connected to the pc with a usb cable

Note: You may get a notice about new device found or installing drivers. Click OK and proceed.

g) You can now see the TBS-5927 under the Windows Device Manager :

4   CHANNEL TUNING USING IP TOOL

4.1   IP Tool Installation

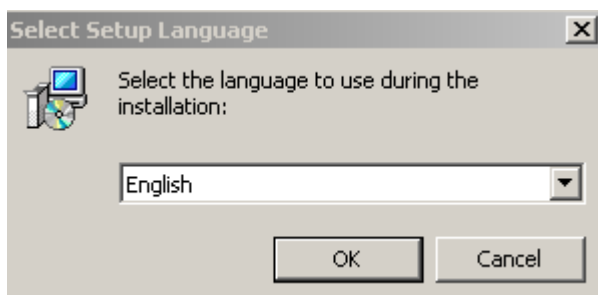a) You can find the latest IPTool software at the tbsdtv web site :

http://www.tbsdtv.com/download/
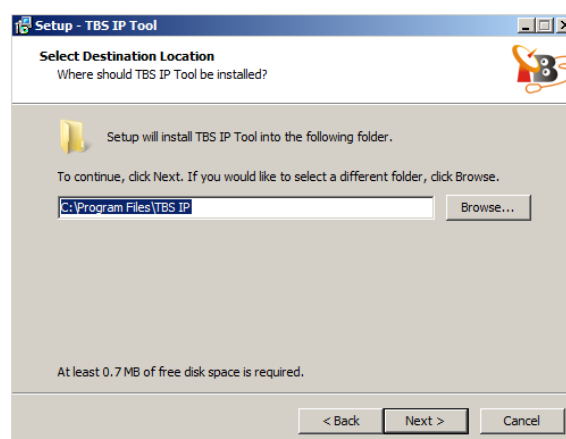
The version used for EUMETSAT testing was v.3.0.5
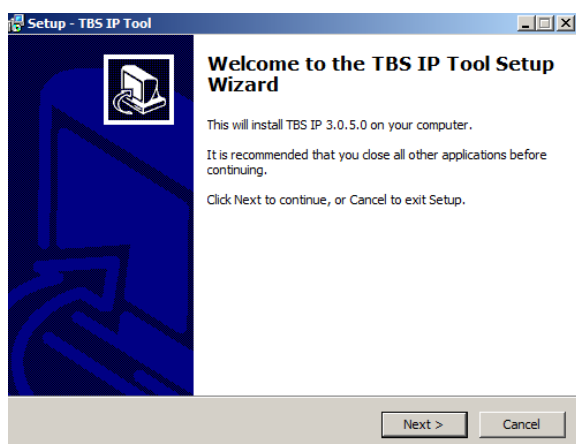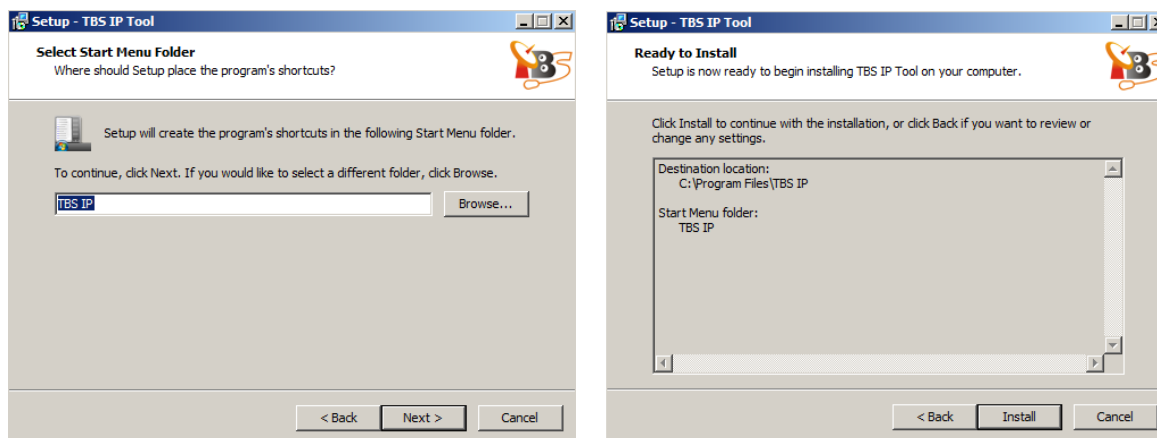
a) Run the IP Tool installer

TBS_IP_TOOL_V3.0.5.0

b) Select the preferred language to use during the installation
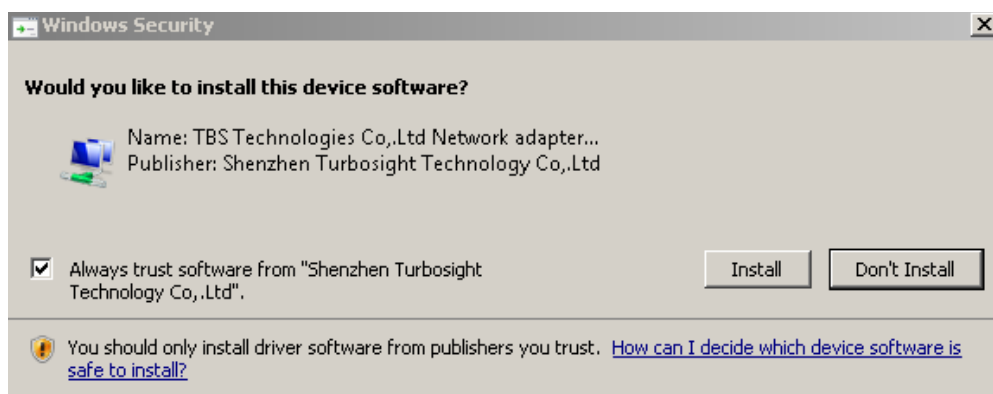
c) Select "Next" to start the Installation & then "Next" again to select the installation directory :
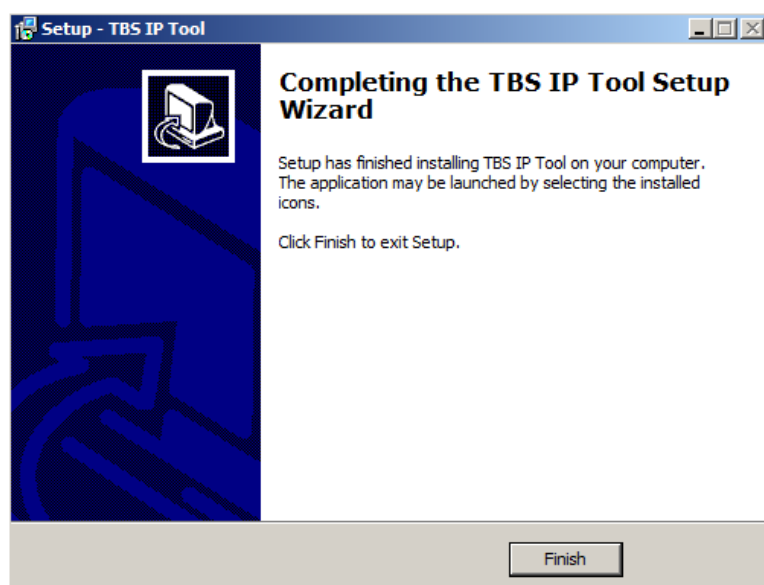
d) Select "Next" to create the programs shortcut & "Install" to continue the installation :

e) If you see a "Windows Security" warning, select "Always trust ...." and "Install"

f) Select "finish". You have now installed the TBS IP TOOL for the TBS-5927 device
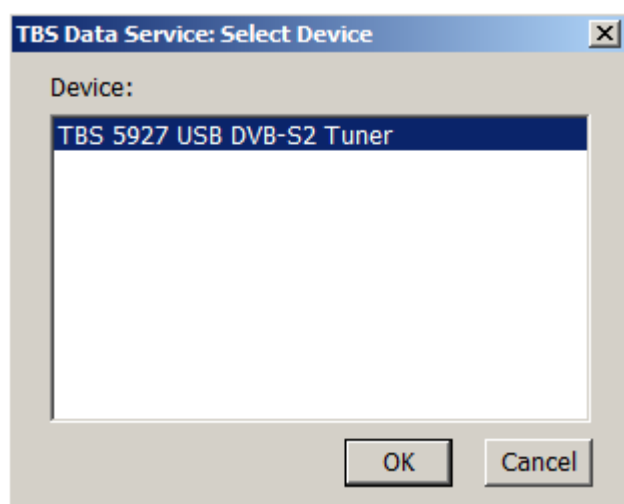
4.2 IP Tool Ku Band Europe Configuration

a) Run the IP Tool software

Double Click and run

Note: After the double-click, you may get a security warning, which you should accept.

b) Select the used DVB Device and "OK"

c) Input the correct parameters into *Tuner Setting*, and select *Lock TP*. When you have a signal lock the device LOCK LED lights green.

For EUROPE Ku-Band Transponder-1 (T1) Reception the following settings should be entered:

- select Eutelsat W2A (10.0E) Satellite
- Frequency 11263 MHz
- Polarity: Horizontal
- Symbol rate: 33000 KSps
- press "Add"
- press: "Save"
- Code : 0, Code Type : Root Code and then press "Set"

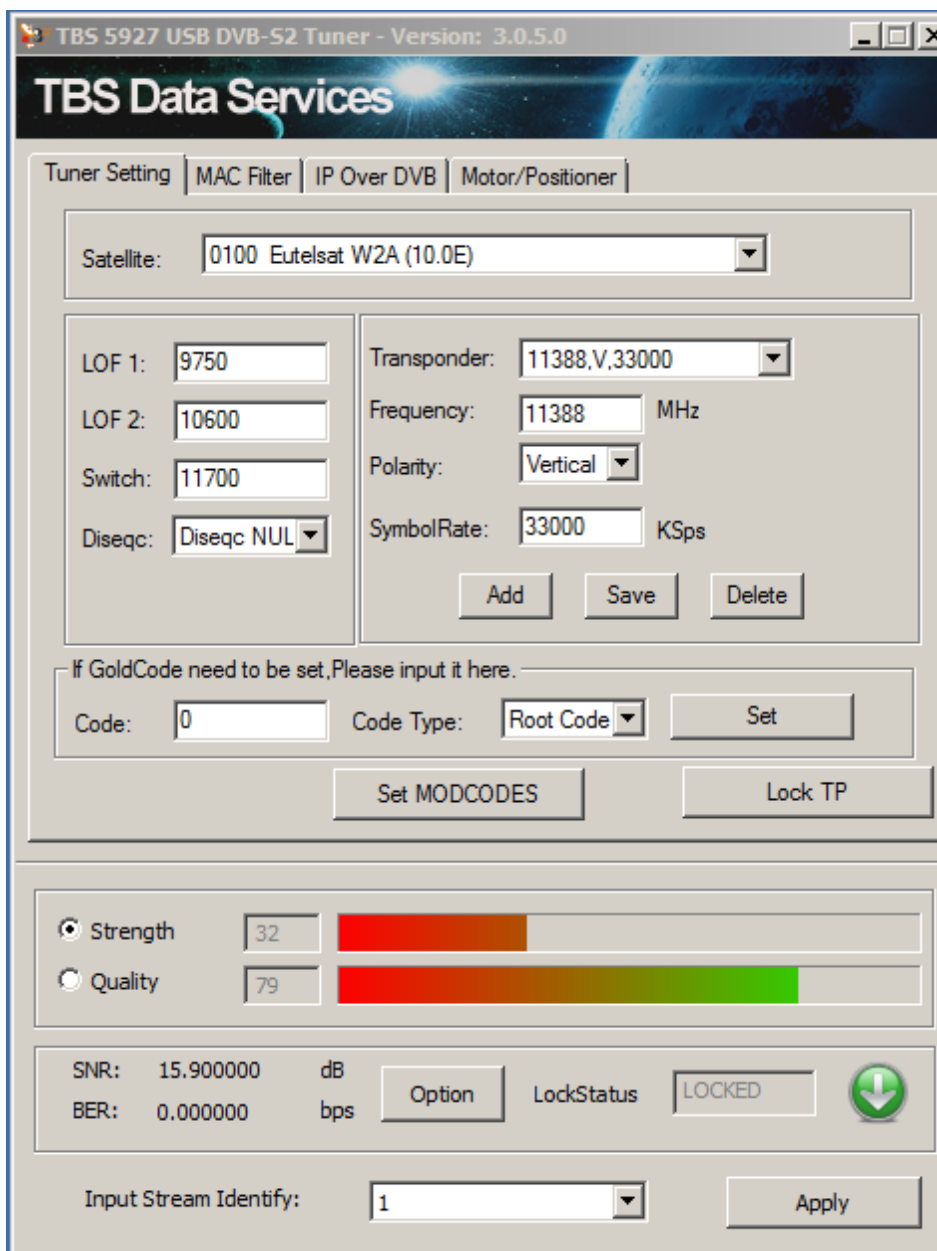**TBS 5927 DVB-S2 Receiver EUMETCast Windows Setup Guide**
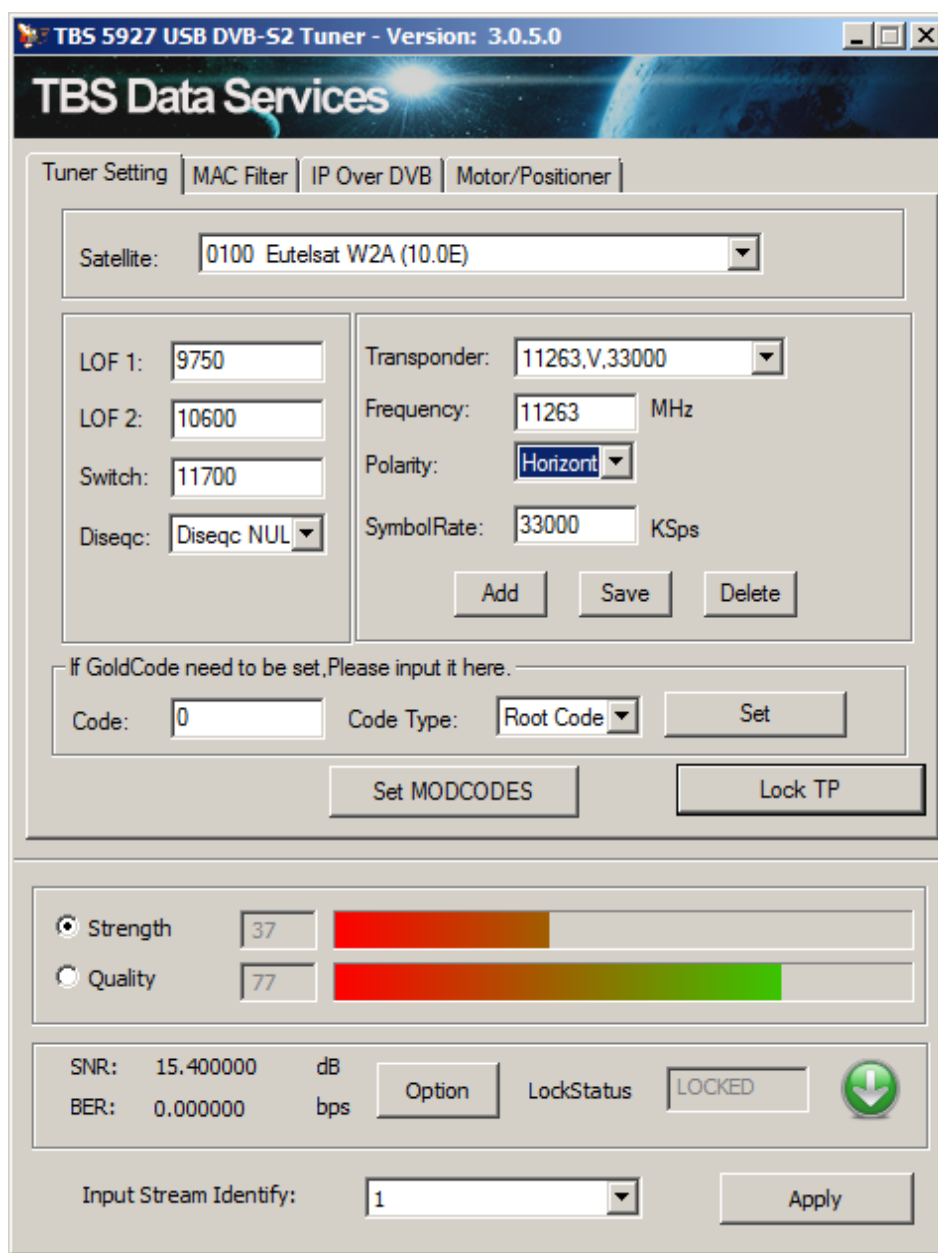
Figure 3 IPTOOL EUMETCast EUROPE Ku-Band Transponder-1 (T1)

- Now press "Lock TP" to lock the signal.

For EUROPE Ku-Band Transponder-2 (T2) Reception the following settings should be entered:

- select Eutelsat W2A (10.0E) Satellite
- Frequency 11388 MHz
- Polarity: Horizontal
- Symbol rate: 33000 KSps
- press "Add"
- press: "Save"
- Code : 0, Code Type : Root Code and then press "Set"

Figure 4 IPTOOL EUMETCast EUROPE Ku-Band Transponder-2 (T2)

d) Click the **Set MODCODs** button, and then select the MODCODs you want to receive. For Basic Service (BS) select 8PSK_3/5 and for High Volume Service (HVS) select 16APSK_2/3. Select **OK**
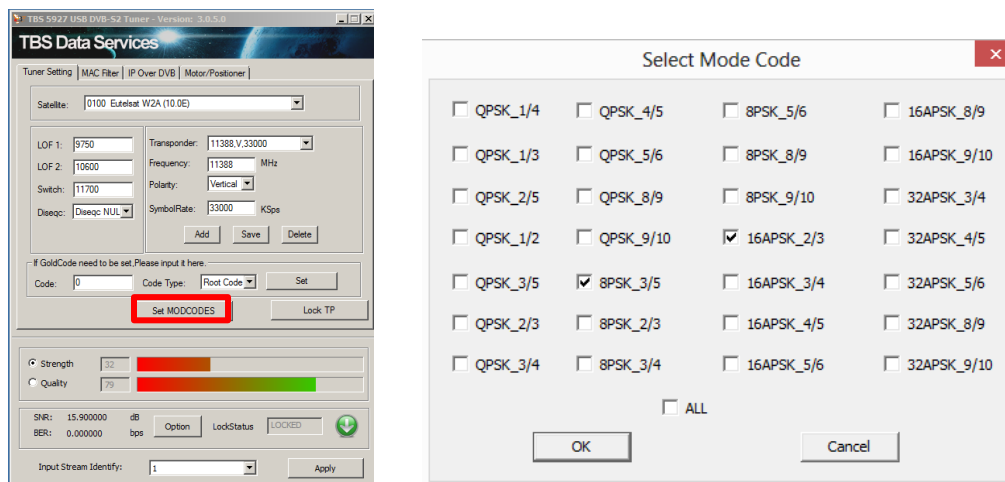
e) After setting the MODCODS filters, press "Lock TP" to lock the signal again and then click on the IP Over DVB. Add the selected PIDs :

- Ensure the Hex box is unchecked.
- Enter a PID value starting with 100 in the PID value box, and press the Insert PID button. It should appear in the Selected PIDs list.
- Repeat this for all the remaining PIDs you need, typically :

| Ku Band T1 BS	Ku Band T1 HVS-1	Ku Band T2 HVS-2
100, 300, 301, 500, 509, 511	600, 601	610
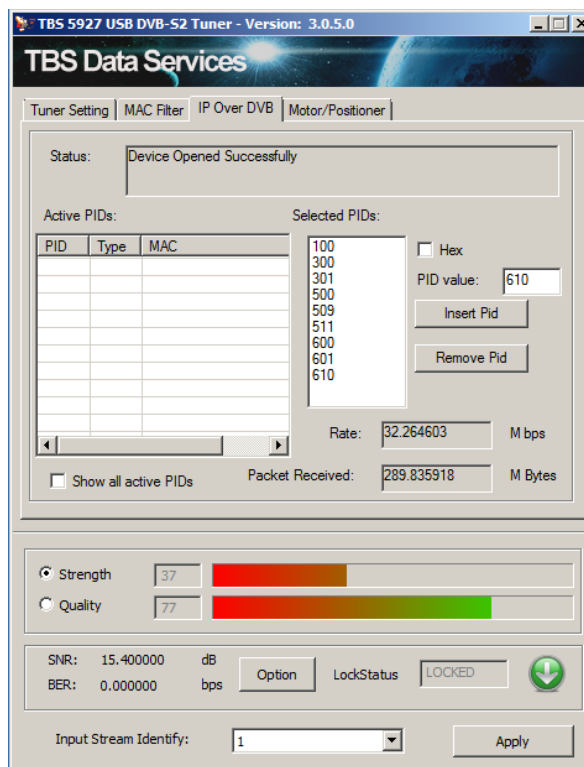
*Figure 5 IPTOOL EUMETCast EUROPE Ku-Band Transponder-1/2 (T1/T2) PIDs*

f) Virtual MPE Decoder Adapter Configuration.
We now need to define the network address of the virtual network card presented by the software so that TelliCast knows where to find its data
Open "Network & sharing Center" . Go to "Change adapter Settings" . Double Click on the "Virtual MPE Decoder Adapter" and select properties.
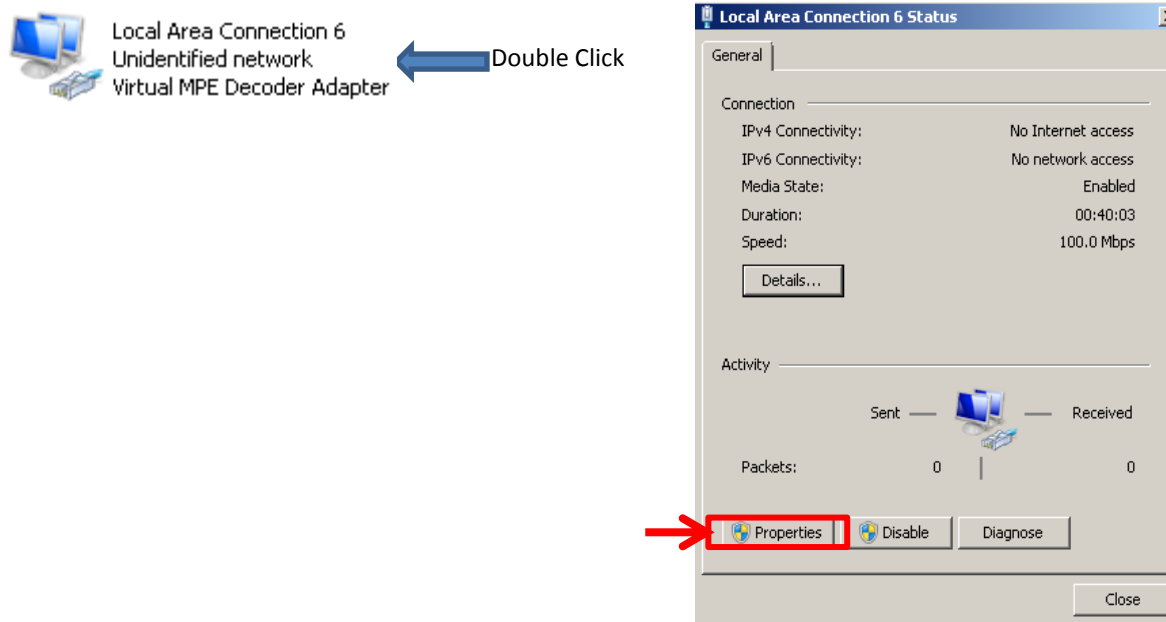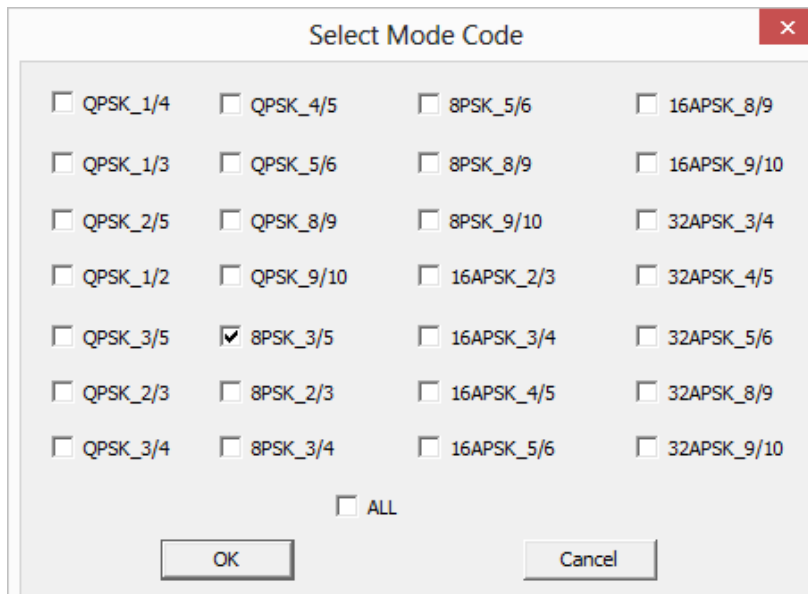
g) Change the IP address to 192.168.238.238 and the subnet mask to 255.255.255.0
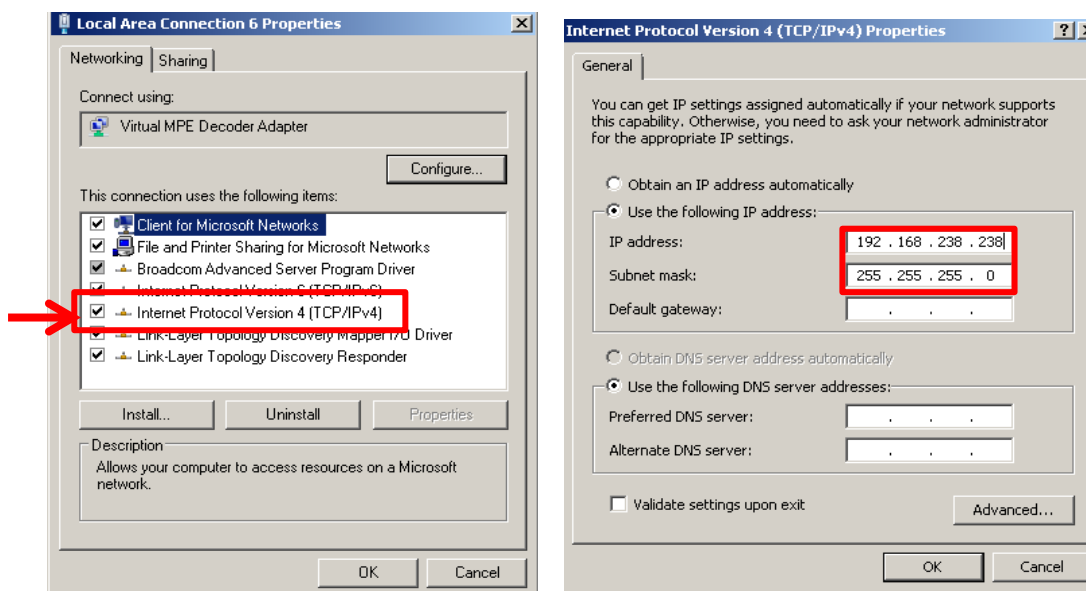
Note : It is suggested to uncheck all the items in the items list, except Internet Protocol Version 4 (TCP/IPv4). This may reduce the load on the network "card".

4.3 Disabling the High Volume Service on Europe Ku-Band T1

To disable the High Volume Service (HVS) and receive only the Basic Service (BS) change the "Set MODCODES" selecting only "8PSK,3/5" and click on "Apply settings". (see 4.2 d)

4.4 IP Tool C-Band Africa Configuration

a) Run the IP Tool software

Double Click and run

Note: After the double-click, you may get a security warning, which you should accept.
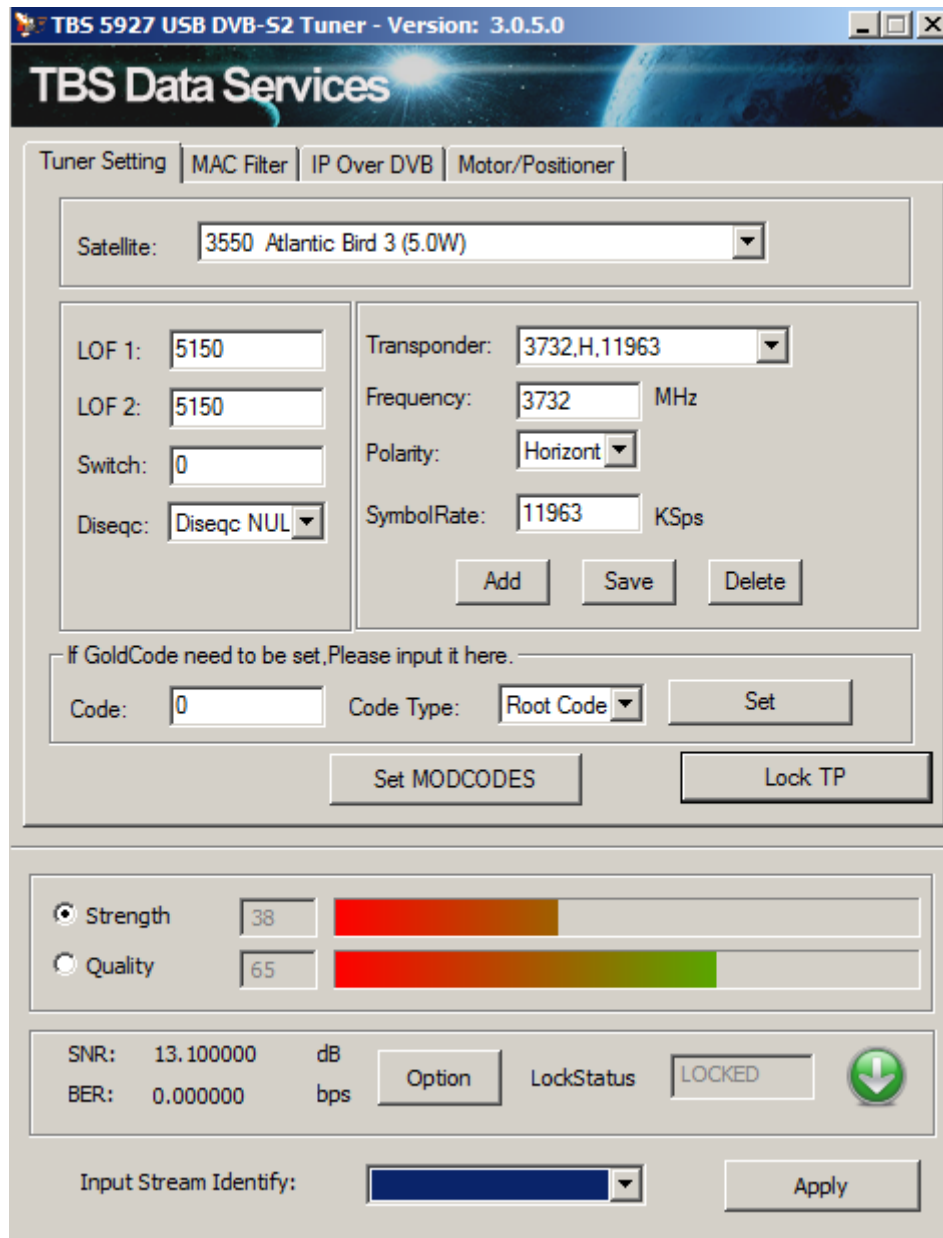
b) Select the used DVB Device and "OK"
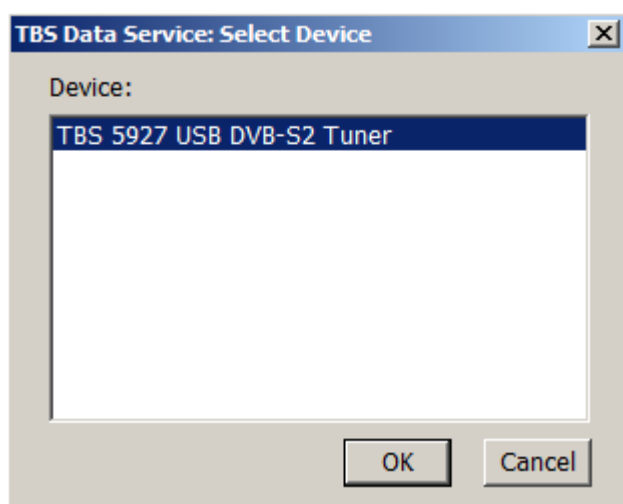
c) Input the correct parameters into *Tuner Setting*, and select *Lock TP*. When you have a signal lock the device LOCK LED lights green.

The following settings should be entered:

- select Atlantic Bird 3 (5.0W) Satellite
- Frequency 3732 MHz
- Polarity: Horizontal
- Symbol rate: 11963 KSps
- press "Add"
- press: "Save"
- Code : 0, Code Type : Root Code and then press "Set"

Figure 6 IPTOOL EUMETCast Africa C-Band

- Now press "Lock TP" to lock the signal.

d) Click the *Set MODCODs* button, and then select the MODCOD QPSK_2/3.
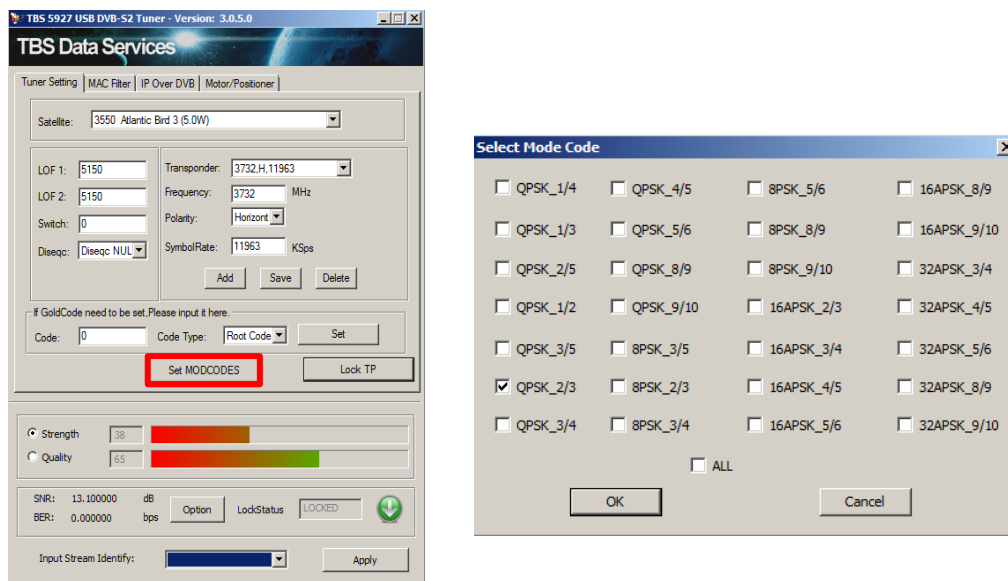
e) After setting the MODCOD filter, press "Lock TP" to lock the signal again and then click on the IP Over DVB. Add the selected PIDs :
-   Ensure the Hex box is unchecked.
-   Enter a PID value starting with 100 in the PID value box, and press the Insert PID button. It should appear in the Selected PIDs list.
-   Repeat this for all the remaining PIDs you need, typically: 300, 301, 511 & 600 (600 for the HVS-1).
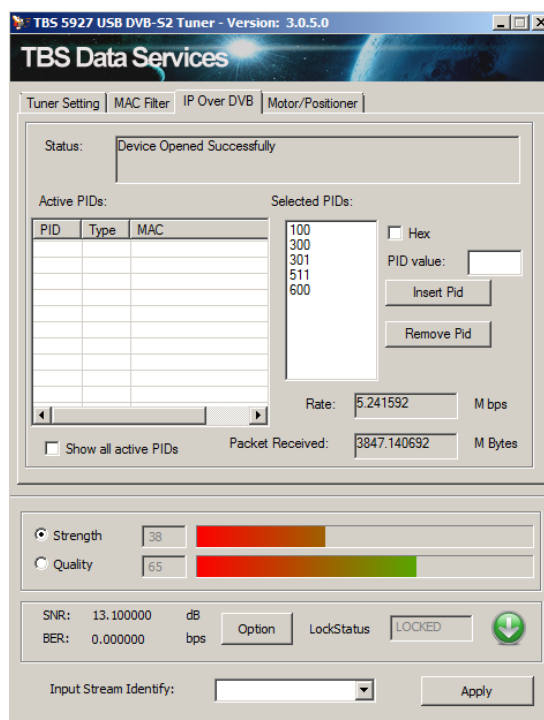
Figure 7 IPTOOL EUMETCast Africa C-Band PIDs

f) Virtual MPE Decoder Adapter Configuration.
We now need to define the network address of the virtual network card presented by the software so that TelliCast knows where to find its data
Open "Network & sharing Center" . Go to "Change adapter Settings" . Double Click on the "Virtual MPE Decoder Adapter" and select properties.

Local Area Connection 6
Unidentified network
Virtual MPE Decoder Adapter

Double Click
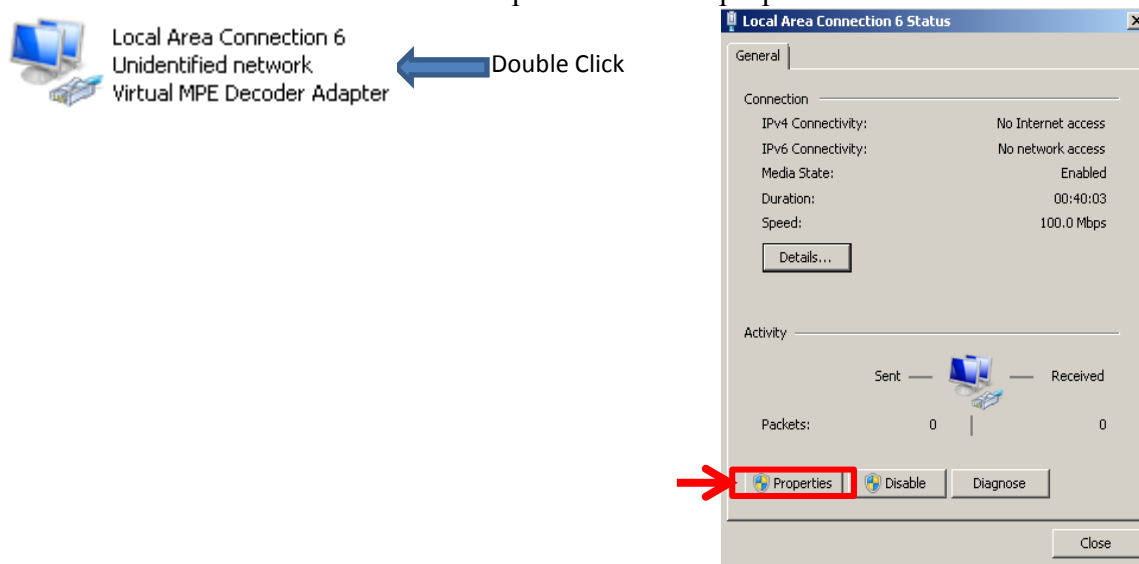
g) Change the IP address to 192.168.238.238 and the subnet mask to 255.255.255.0

Note : It is suggested to uncheck all the items in the items list, except Internet Protocol Version 4 (TCP/IPv4). This may reduce the load on the network "card".

5 CHANNEL TUNING USING BDADATAEX

As an alternative to the TBS IP Tool, a generic IP tool made by CrazyCat can be used. It works with many DVB devices. The choice is up to the users.

5.1 BDADataEx installation

You can find the latest BDADataEx software at the CrazyCat BDADataEx web site:

http://crazycat69.narod.ru/sattelite/DVBDataEx/BDADataEx-setup.zip

The version used for EUMETSAT testing was v.1.1.4.9

  a) Download / unzip BDADataEx-setup.zip on your disk
  b) Install BDADataEx-setup.exe
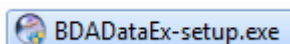
  c) Click on Next> to select the needed components (select all) and then Next
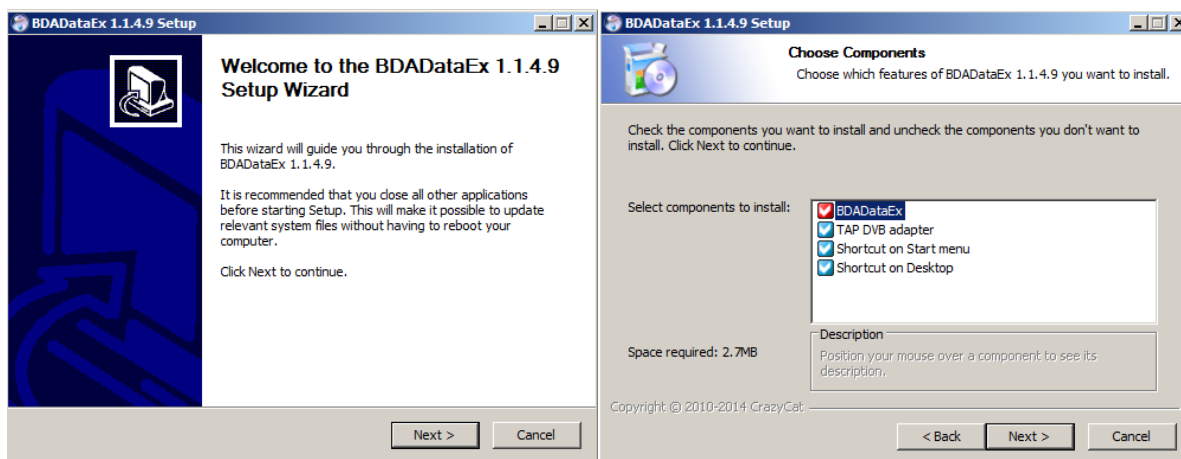
d) Click on Next> to select the installation path and then Finish to comlete the installation
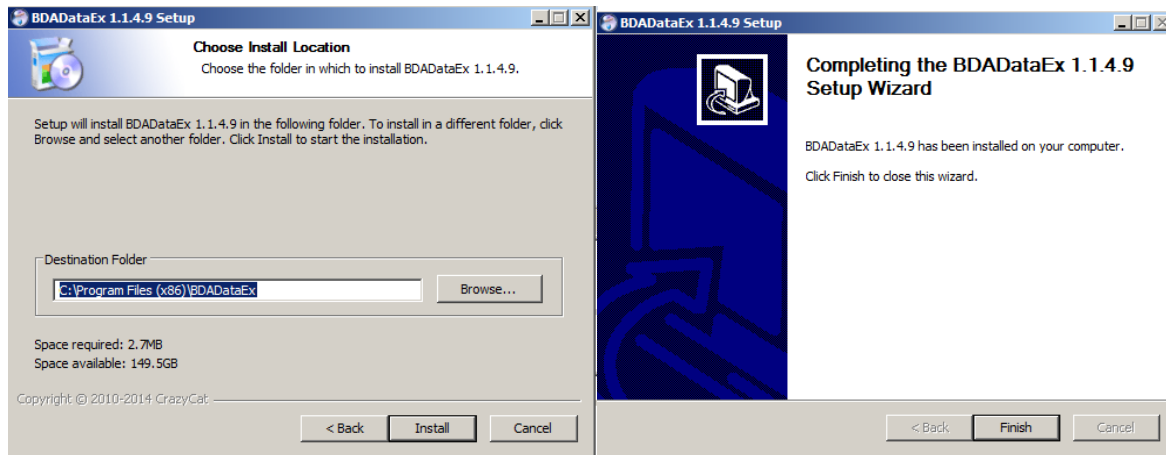
5.2 Windows Emulated Network Adapter Configuration

a) Open Network & Sharing Center & select "Change adapter settings"
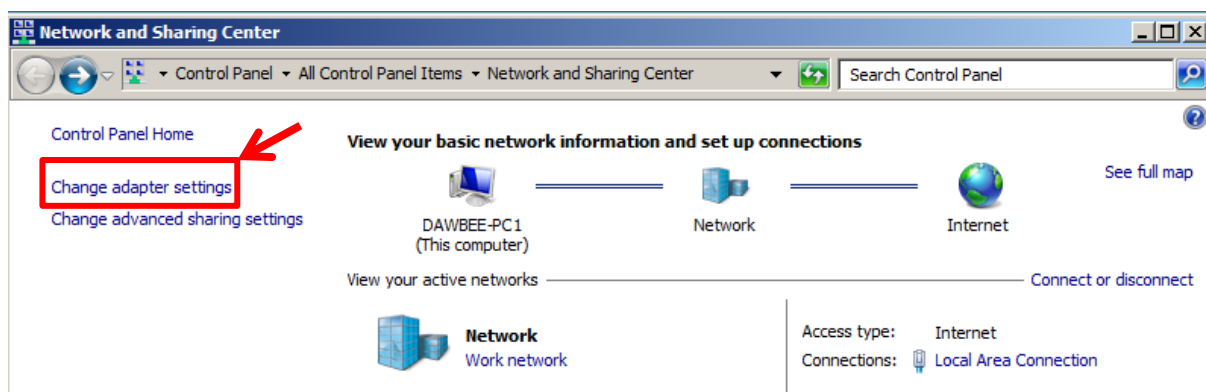
b) Double click on TAP Network Connection. We will define the network address of the virtual network card presented by the software so that TelliCast knows where to find its data.
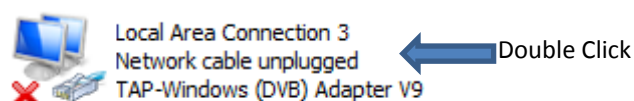
c) Double click on the "TCP/IPv4"
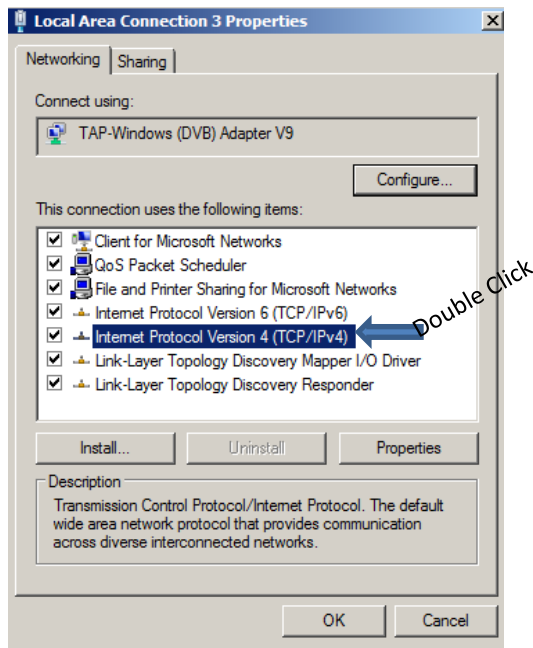
d) Use 192.168.238.238 for IP address & Subnet Mask 255.255.255.0 and click OK. Close the main Local Area Connection Properties window by clicking on "OK"
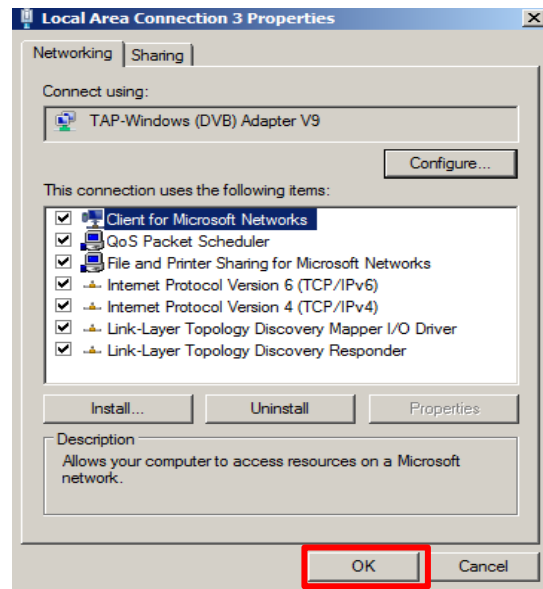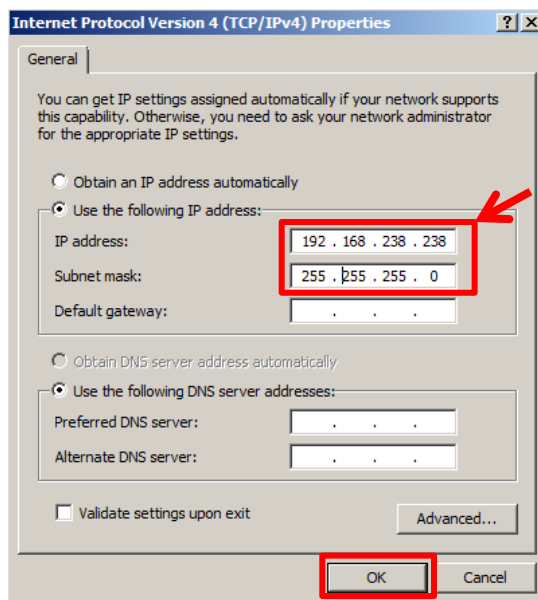
5.3   BDADataEx Configuration

5.3.1   Automatic Configuration

a) Download the BDAData-EUMETCast.reg file from the EUMETSAT ftp site :

ftp://ftp.eumetsat.int/pub/OPS/out/user/EUMETCast_Support/EUMETCast_Licence_cd/Windows/DVB_devices/TOOLS/

b) Double click on the BDAData-EUMETCast_v2.0.reg.
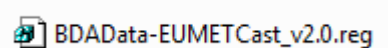
c) If you see any security message just click "Run" and "Yes"
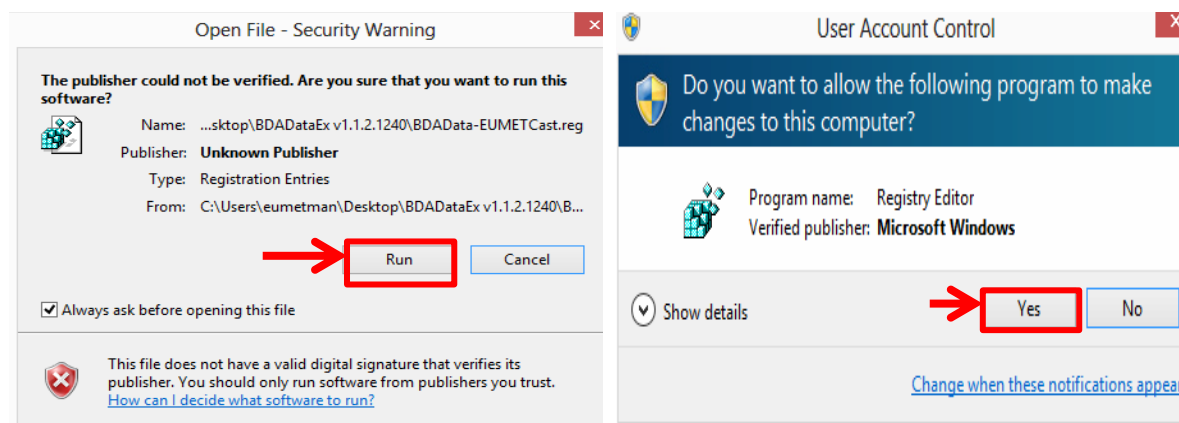
d) On the "Registry Editor" Window click on "YES"
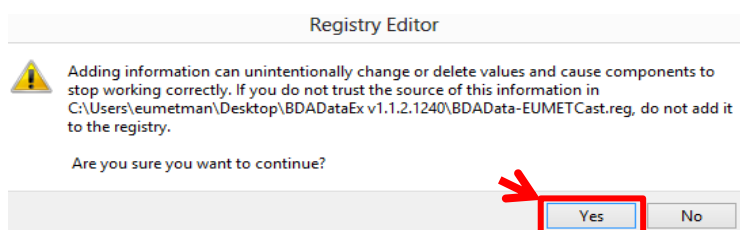
e) If settings successfully added to the registry, you get the following message. Click then on "OK".

f) Start the BDADataEx program

 Double Click and run
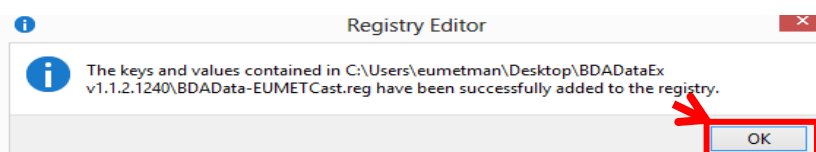
g) In the pop up window and in the first TAB "Status/Tuner" select the needed Service. (EUMETCast Europe DVB-S2 T1, EUMETCast Europe DVB-S2 T2, EUMETCast Africa DVB-S).

If everything is OK the "Tuner-Status" should be green, if not check your reception (antenna pointing, optimization, cabling etc) :
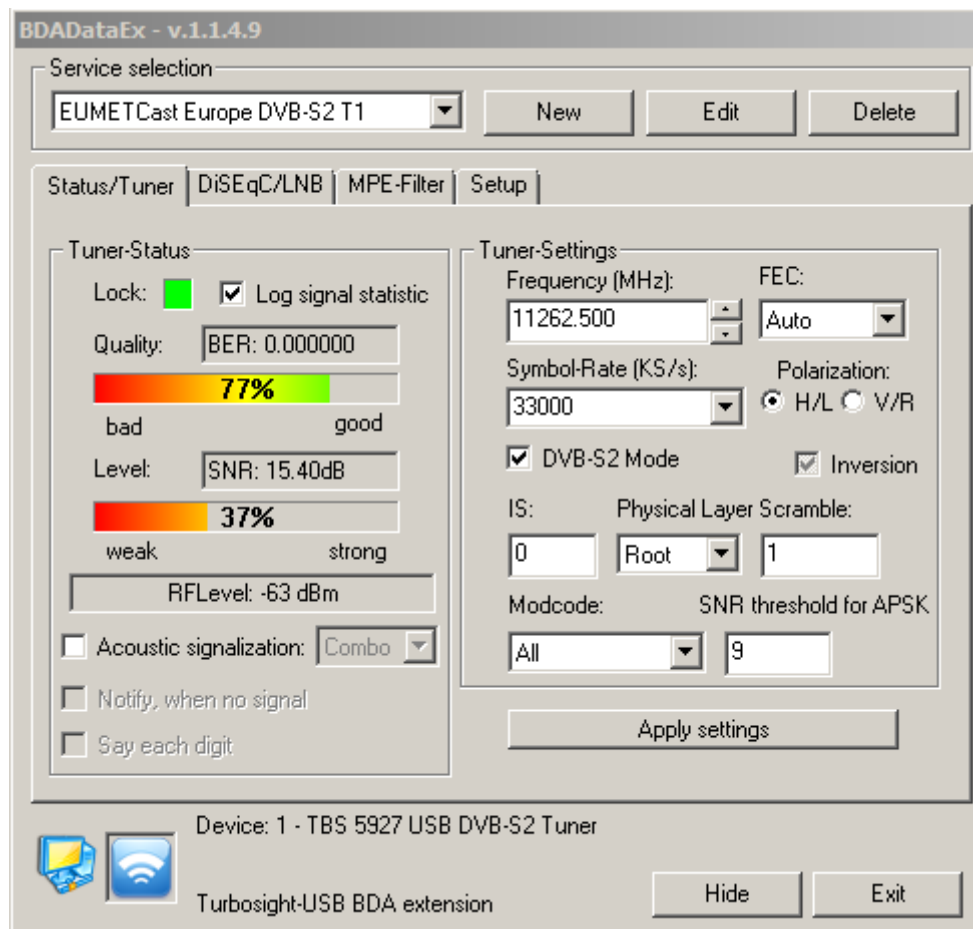
Figure 8: BDADataEx - EUMETCast Europe Ku-Band T1
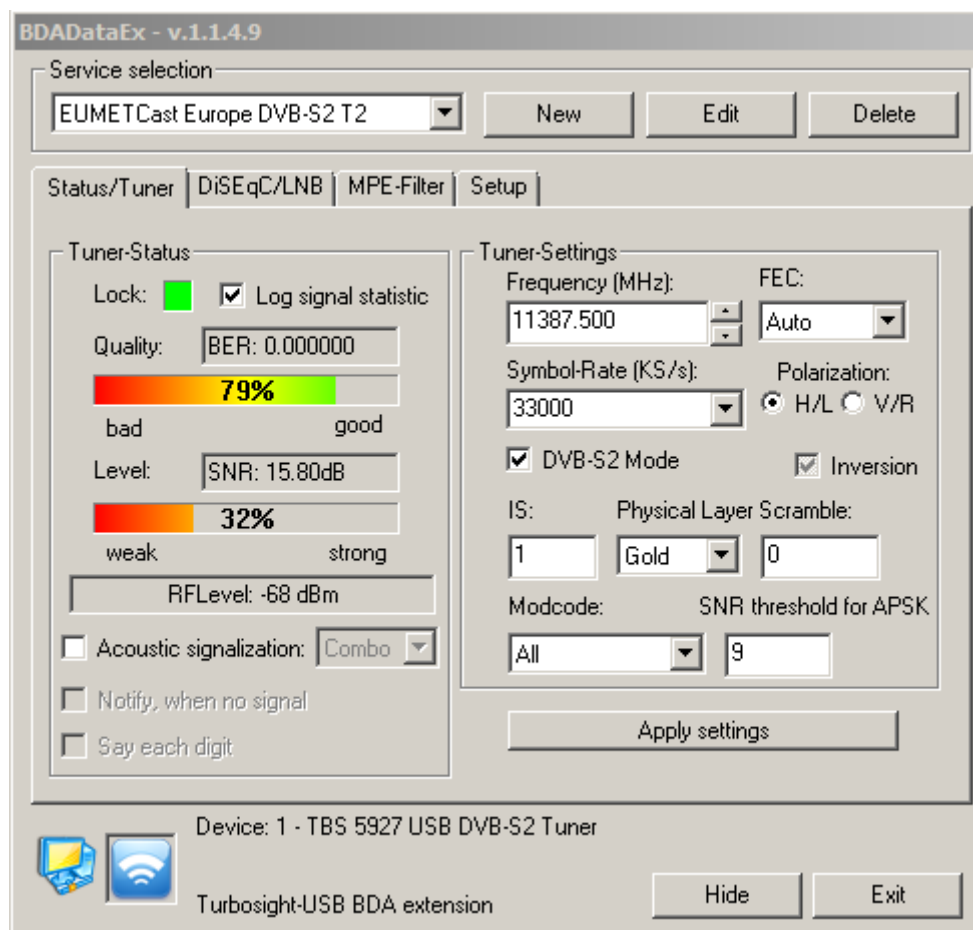
Figure 9: BDADataEx - EUMETCast Europe Ku-Band T2
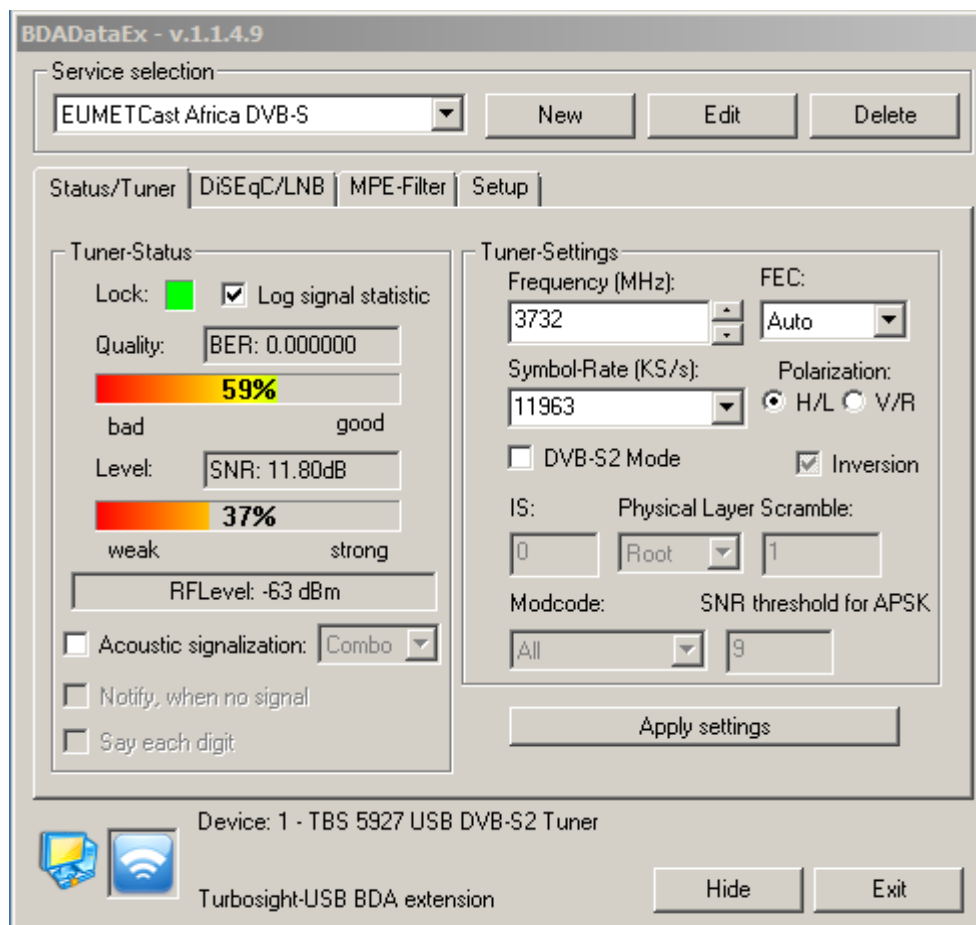
Figure 10: BDADataEx - EUMETCast Africa C-Band

5.3.2 Disabling the High Volume Service 1 on EUMETCast Europe T1

To disable the High Volume Service (HVS-1) on EUMETCast Europe T1 and receive only the Basic Service (BS) change the FEC from "All" → "3/5" , "Modcode" from "All" → "8PSK,3/5" and click on "Apply settings".
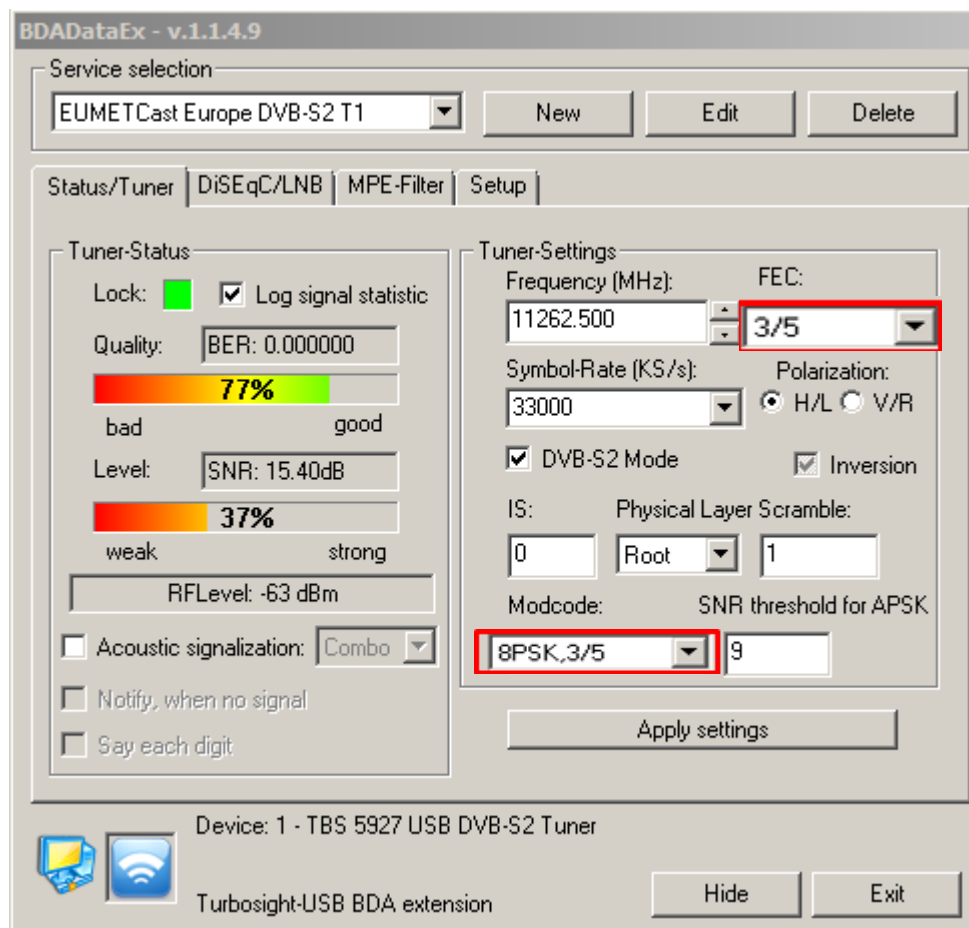
Figure 11: BDADataEx - EUMETCast Europe Ku-Band T1 (Only BS)

6 TELLICAST AND SYSTEM CONFIGURATION SETUP

6.1 Tellicast Setup

After the steps above have been completed, the Tellicast application must be given the fixed IP from which the data can be taken:

Into the configuration file cast-client_xxx.ini the "*interface_address*" must be set to the reception host local IP Address:

interface_address=192.168.238.<nnn>

e.g.
interface_address=192.168.238.238

N-B: The interface_address parameter can be commented or deleted from cast-client_xxx.ini and the Tellicast application will search the multicast data on all the interfaces available on the host; that is not recommended when the reception host is used to receive another data flow, the Tellicast client application is not able to distinguish between the flows a priori!

6.2 Firewall

Make sure the firewall allows traffic from the interface address in 6.1!

6.3 Windows Routing Table

If the TelliCast fails to work, being either stuck in the yellow T-icon state or, if the network cable is connected after the system was working, the icon alternates between the "pink" and "red" states.

This may be related to the default multicast entries in the TCP/IP routing table.

To solve this problem, you need to tell Windows that the addresses handled by Tellicast must always be reached through the interface_address which you set up in cast-client_xxx.ini file (192.168.238.nnn).

In the Start menu, All Programs, Accessories menu, you will find an item named Command Prompt.

Right-click on this item, and select Run as administrator. Enter the following command (replace IP_address with the local IP address of 6.1) :

route delete 224.0.0.0 (Please note that this might disable services which use multicast as protocol e.g. streaming services.

route -p ADD 224.0.0.0 mask 240.0.0.0 *IP_address* metric 1

e.g., if *IP_adress* = 192.168.238.238
route delete 224.0.0.0
route -p ADD 224.0.0.0 mask 240.0.0.0 192.168.238.238 metric 1

Then restart the computer

APPENDIX A   LIST OF ACRONYMS, TERMS & ABBREVIATIONS

Acronyms, Terms & Abbreviations	
BS	Basic Service
DVB-S, DVB-S2	Digital Video Broadcast, a broadcast standard
EUMETCast	EUMETSAT multicast based broadcast system
EUMETSAT	European Meteorological Satellite Organisation
HVS	High Volume Service
ISI	Input Stream Identifier
LNB	low-noise block downconverter
MODCOD	Modulation & Coding
PID	Packet IDentification