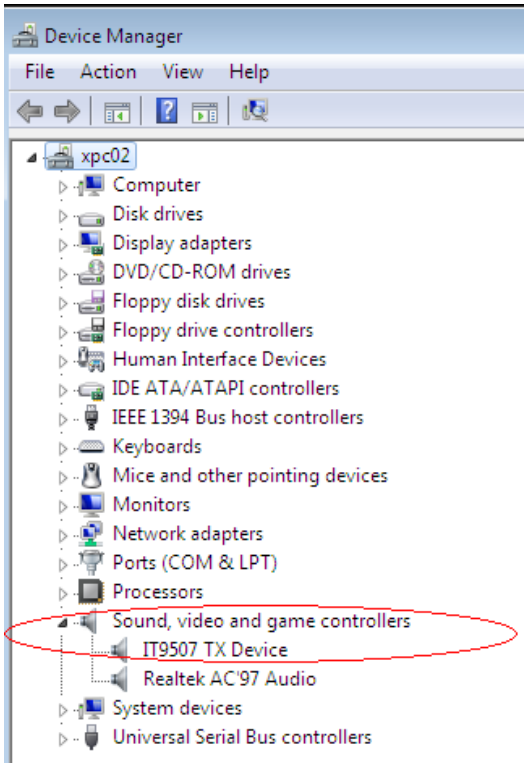
BDAViewer Plus User Guide

1. Introduction

This document is applicable to BDAViewer+ v2.4.9.0 or later.
HiDes BDA Viewer Plus is a DVB-T/ISDB-T player for Windows. It supports UT-100A/B/D, UT-120/130/160, UT-200A/J and Hides DVB-T/ISDB-T USB dongle receivers. You can scan, play the DVB-T/ISDB-T programs or record the transport streams for selected channels.

2. Quick Start Guide

1. Following receiver dongle QIG to install device and driver.
   Please double check if the driver is installed well,
   "Control Panel" -> "Device Manager", there should be a device corresponding to the receiver dongle in "Sound, video and game controllers" category.
   For example, "IT9507 TX Device" is shown if it's UT-100, as shown below,



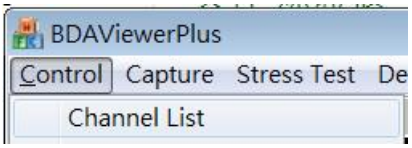
2. Copy the folder "\BdaViewer+" on the CD to your local hard disk, say C:, D:, E: or F:…
   The following instructions assume F: drive is used.
3. Make sure to connect the USB receiver dongle (UT-100/UT-120/UT-130…) with the

antenna or coaxial cable first.

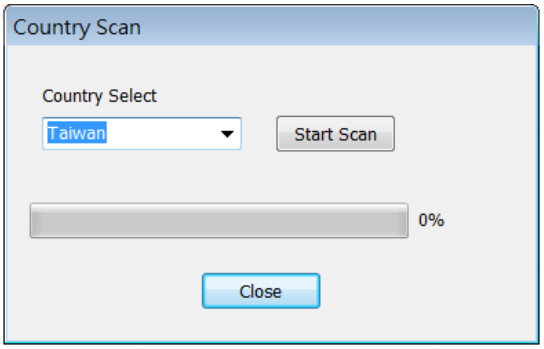
4. **Double click on “Install_Filter.bat” in F:\BdaViewer+ \ to install required filters to run BDA Viewer.**
5. Double click on “BDAViewerPlus.exe” in BdaViewer+ folder.
   When you run the first time, it may prompt a dialog box as shown below to install a virtual com driver.
   Please click on “Install” button to continue the driver install.

   Virtual com port is used to demux UART data in received TS.
   Refer to Chapter 3.1.6 UART Demux

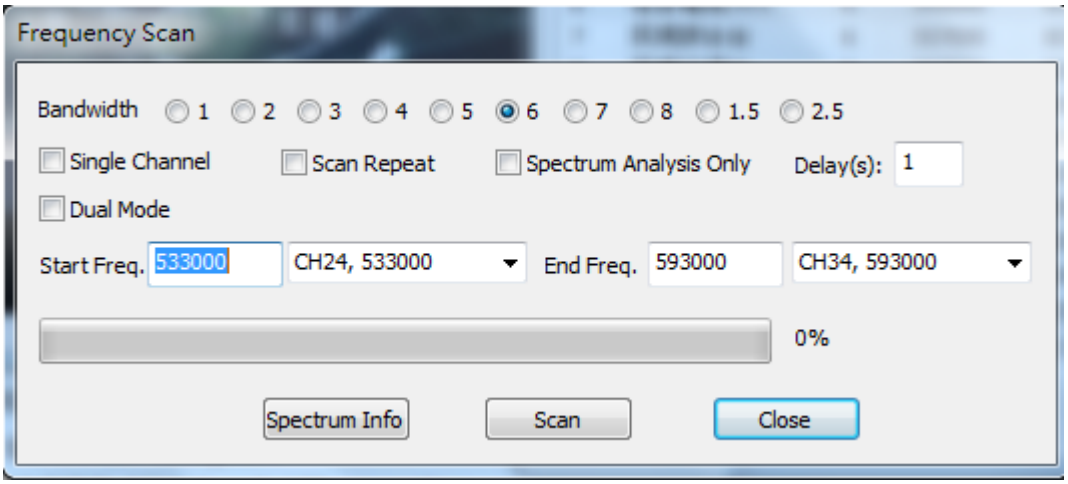
6. Click on “Control-> Channel List” to launch the scan window.



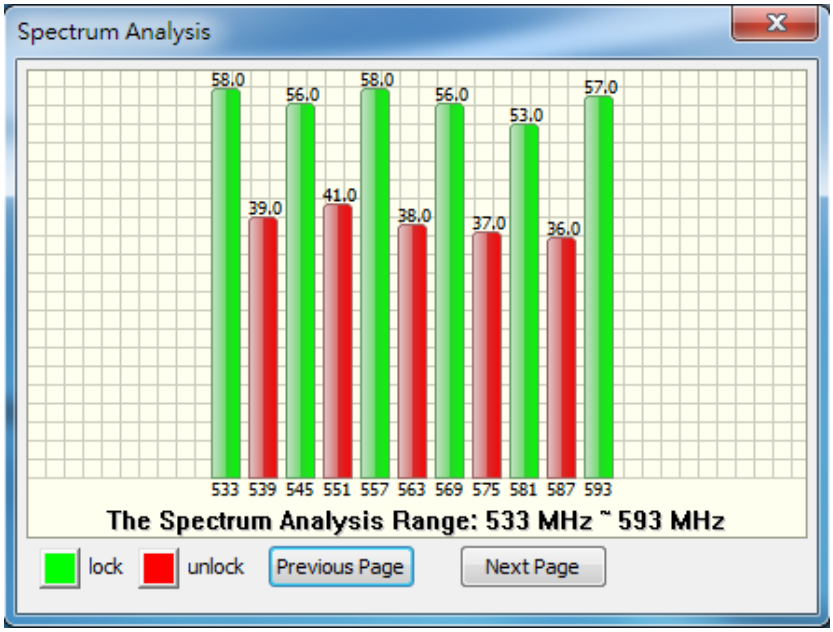
7. Click on “Country Scan-> Start Scan” to scan channels by country.



8. Or you can click on “Frequency Scan” to specify the frequency range to scan.



- Bandwidth: select the bandwidth to scan.
  - UT-100A supports only 5/6/7/8 MHz bandwidth reception
  - UT-100B/D supports only 2/2.5/3/4 MHz bandwidth reception
  - UT-100C is transmitter only and does not support receiver feature.
  - UT-120 diversity dongle supports only 5/6/7/8 MHz bandwidth reception
  - UT-130 supports only 2/2.5/3/4/5/6/7/8 MHz bandwidth reception
  - UT-160 Dibcom diversity supports 1/1.5/2/2.5/3/4/5/6/7/8 MHz bandwidth reception
  - UT-200AJ ISDB-T supports 5/6/7/8 MHz bandwidth reception
- Scan options
  - Single channel: Scan the frequency in “Start Freq.” only.
  - Scan Repeat: Scan repeatedly.
  - Spectrum Analysis Only: Display the scanned spectrum chart.

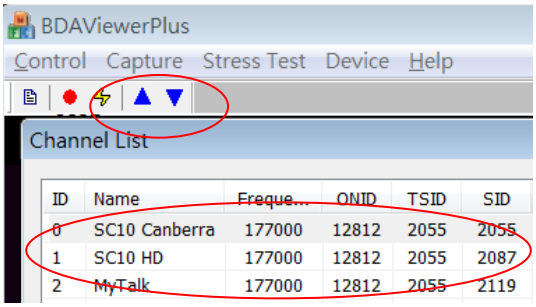


  - Delay: reserved, unused now.
  - DUAL Mode: scan DUAL Tx (Digital Uncompressed Audio Link) transmitted

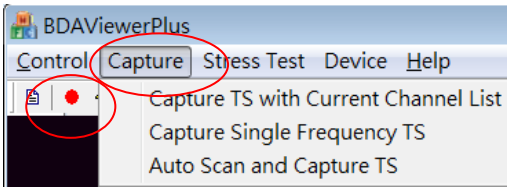
channels.

- Note: this is a special test mode for DUAL audio channel, so it should **NOT** be checked for regular DTV channel scan.

9. You may switch channel by clicking on program name in the channel list or clicking on the up/down buttons.



10. You may click on the record button or the “Capture” menu to capture (record) the channel TS files.



3. Operation Guide

BDA Viewer Plus User's Interface

3.1. Tool Bar-Dashboard

- Pop up channel list
- Capture (Record) TS
- PCR re-stamp analyzer for HV-20x/HV-3xx
- Channel up/down
- RF Decryption Key 0x 00000000 Enable RF decryption

*Only UT-100/ UT-130/UT-200 support RF decryption. The check box will be grayed if RF decryption is not supported with current receiver dongle.

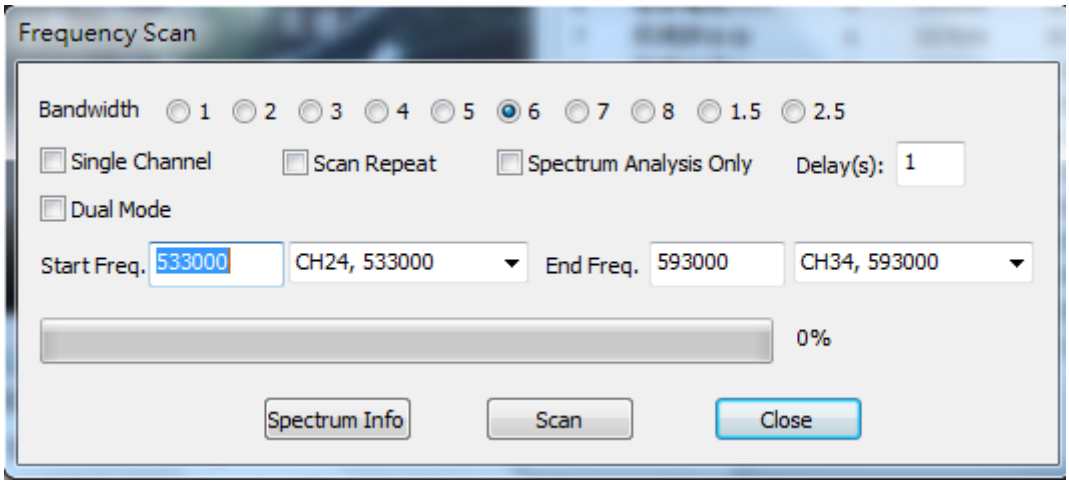
*UT-200/UT-210/PT-200/HV-20x/HV-3xx/DC-105 support RF encryption

3.2. Control Menu

3.1.1 Channel List

You may click on the program name to switch channel.

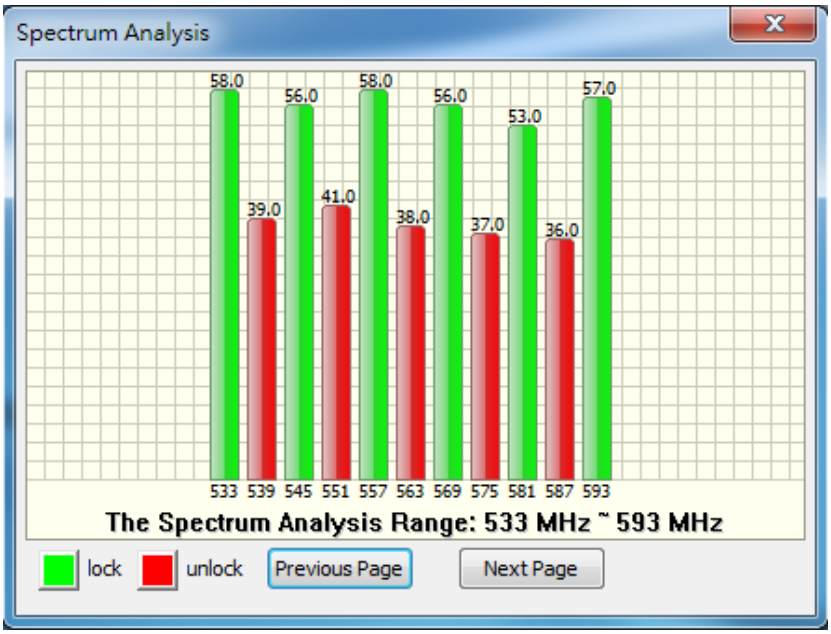
- **Freq Scan**



- Bandwidth: select the bandwidth to scan.
  - UT-100A supports only 5/6/7/8 MHz bandwidth reception
  - UT-100B/D supports only 2/2.5/3/4 MHz bandwidth reception
  - UT-100C is transmitter only and does not support receiver feature.

- UT-120 diversity dongle supports only 5/6/7/8 MHz bandwidth reception
- UT-130 supports only 2/2.5/3/4/5/6/7/8 MHz bandwidth reception
- UT-160 Dibcom diversity supports 1/1.5/2/2.5/3/4/5/6/7/8 MHz bandwidth reception
- UT-200AJ ISDB-T supports 5/6/7/8 MHz bandwidth reception

- Scan options
  - Single channel: Scan the frequency in “Start Freq.” only.
  - Scan Repeat: Scan repeatedly.
  - Spectrum Analysis Only: Display the scanned spectrum chart.

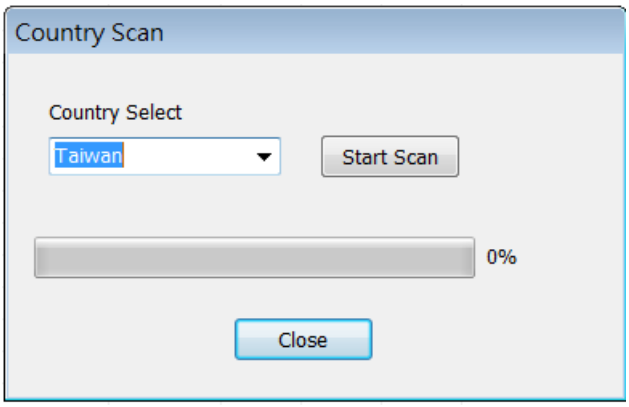


Note:the number shown is in dBm, but the number should be subtracted by 100.

For example, the signal strength for 533MHz channel is 58-100= -42dBm.

  - Delay: reserved, unused now.
  - DUAL Mode: scan DUAL Tx (Digital Uncompressed Audio Link) transmitted channels

- **Country Scan**



- Country Select: Select your country from the list.
- Start Scan: Clink this button to start scan.
- Close: Close the “Country Scan” window.

- **Load Taiwan CH List:** Load default channel list in Taiwan. It’s for your reference. If you want to know available channels in your area, please scan it in “Frequency Scan”.

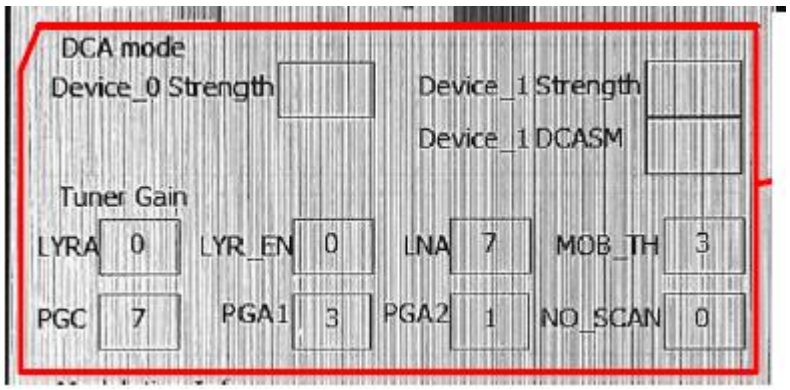
3.1.2 PID Filter: Enable / Disable the PID filter function. If it’s enabled, only PID’s for current channel can pass through.

3.1.3PIP Mode: It shows two display windows when using two USB receiver devices. Each viewer has its own signal statistics.

3.1.4Signal Statistics

- : Signal is locked.
- : Signal is unlocked.
- Reset: Reset the packet loss count.

If you are testing UT-120 diversity dongle, you may read the individual received signal strength as shown below.



DCA mode :

Device_0 Strength, Device_1 Strength, Device_1 DCASM, the 3 values are used for diversity design.

When diversity design, we will use two IT9135 chips to enhance RF performance, especially mobility RF performance.

Device_0 Strength indicates the RF power of IT9135 chip1 detected.

Device_1 Strength indicates the RF power of IT9135 chip2 detected.

Device_1 DCASM indicates internal diversity state machine status of IT9135 chip2.

If only use single chip in design, the 3 values will not be used.

Tuner Gain :

Some RF design, we will use external LNA chip IT9102 to enlarge received RF power.

LYRA, LYR_EN, the 2 values are used to check external LNA chip IT9102 control status.

If IT9102 chip is not used in design, the 2 values will not be used.

IT9135 has two level internal amplifier : RF band (LNA + PGC) and base band(PGA1 + PGA2)

LNA, PGC, PGA1, PGA2, the 4 value are IT9135 internal amplifier level, we use to check IT9135 auto gain control status.

IT9135 has two auto gain control mode : normal mode and mobility mode.

When RF signal changes too fast like mobility, we will use slow and smooth way for auto gain control.

MOB_TH is the detect threshold to determine which auto gain control mode is used.

Some application, we used IT9135 chip to scan RF power of some fixed frequency in UHF band.

It will help to make sure RF power status in UHF band, and help IT9135 auto gain control.

But not all versions of IT9135 firmware support this function.

If NO_SCAN value is 1, it will bypass this function.

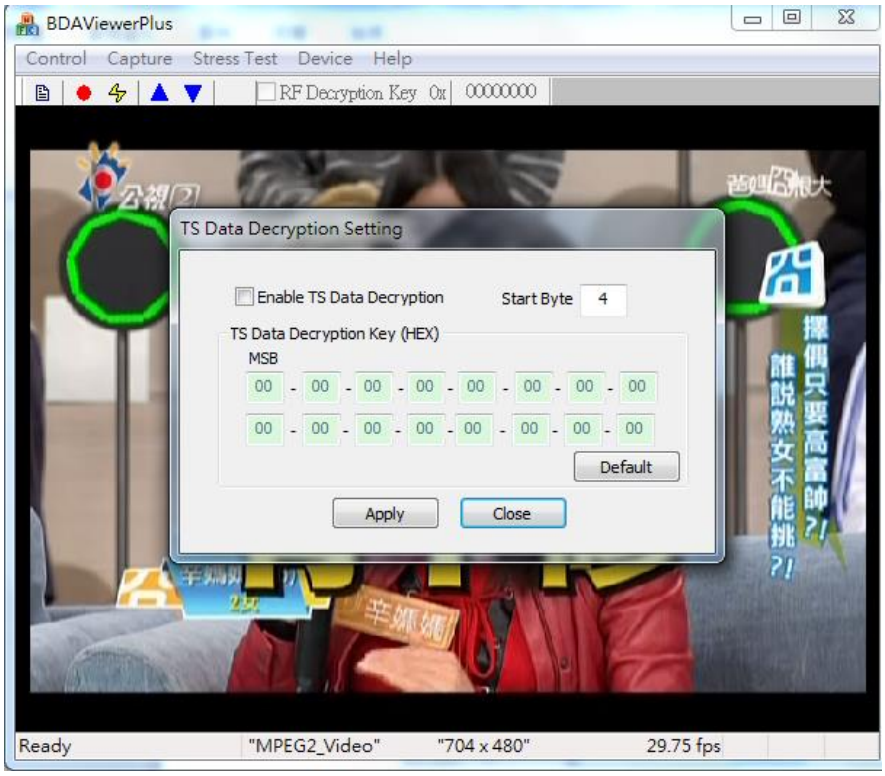
If you are using UT-160 Dibcom diversity receiver, the following picture show the statistics.

Each Dibcom receiver's statistics info is shown in a separate column.

3.1.5TS Data Decrypt

TS data decryption feature is supported.

If the transmitter is UT-10x/UT-20x/HV-10x/HV-20x/HV-3xx/DC-099/DC-105, and the transmitted TS data is encrypted, you should enabled decryption feature and provide the 16-byte decryption key.

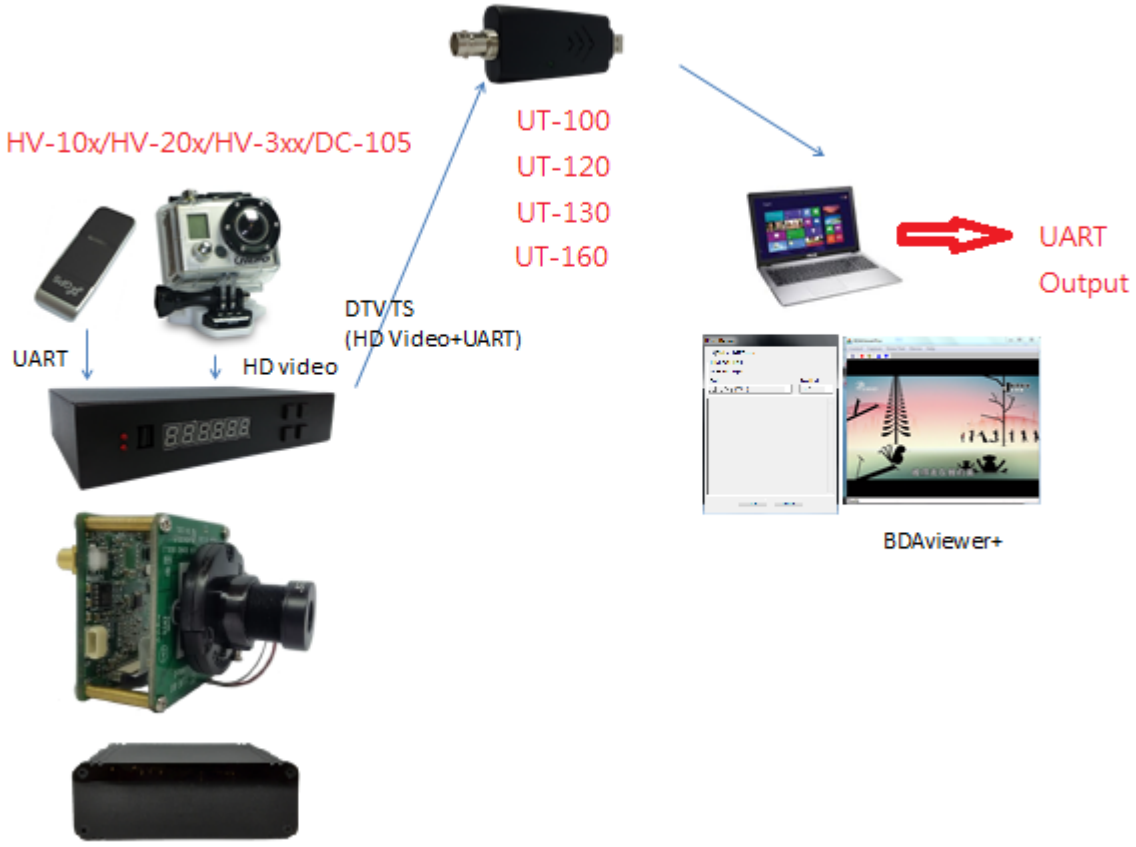


3.1.6 UART Demux

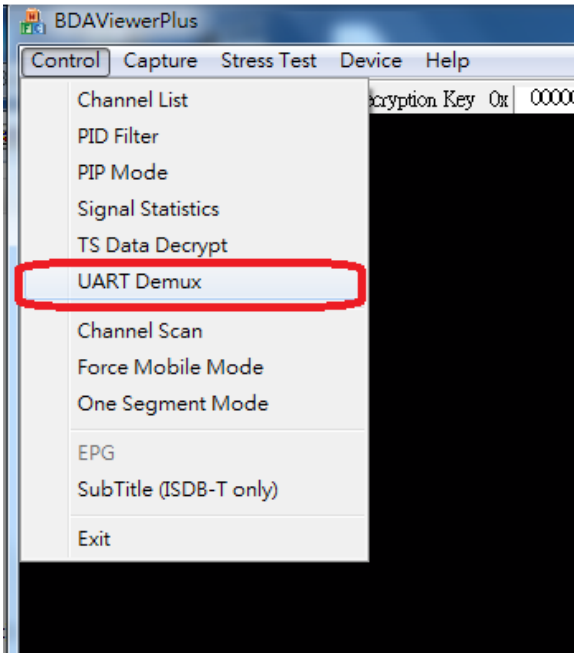
Latest BDAViewer+ (V2_3_8_0 or later) can decode (demux) the multiplexed UART data in the received the stream with a DVB-T receiver dongle (UT-100A/B/D, UT-120, UT-130 and UT-160).

Note: HV-10x/HV-20x/HV-3x0/DC-105 can support UART data mux.

The decoded UART data can be either shown in a text window or output thru a physical UART port of the laptop PC.

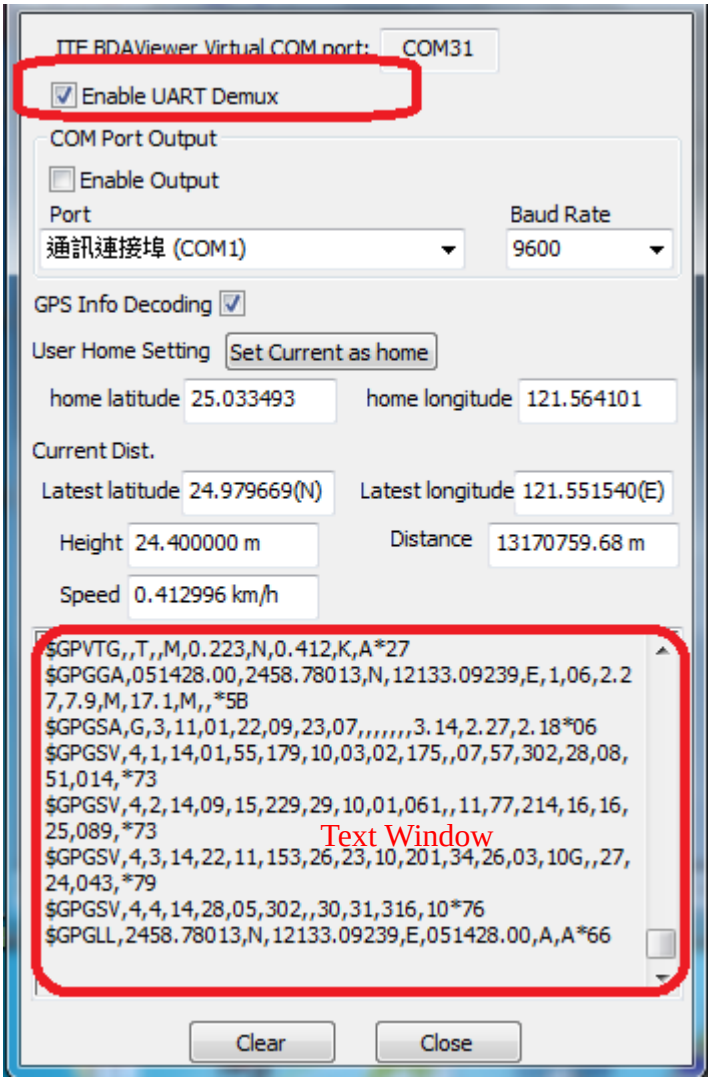


You may tune the channel with BDAviewer+. Open the “UART demux” window.

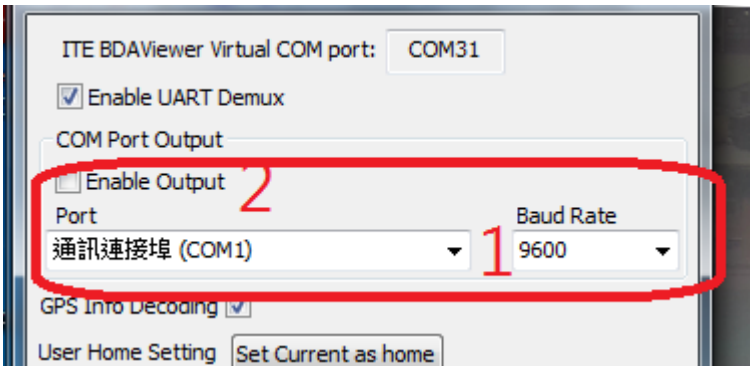


Check “Enable UART Demux”.

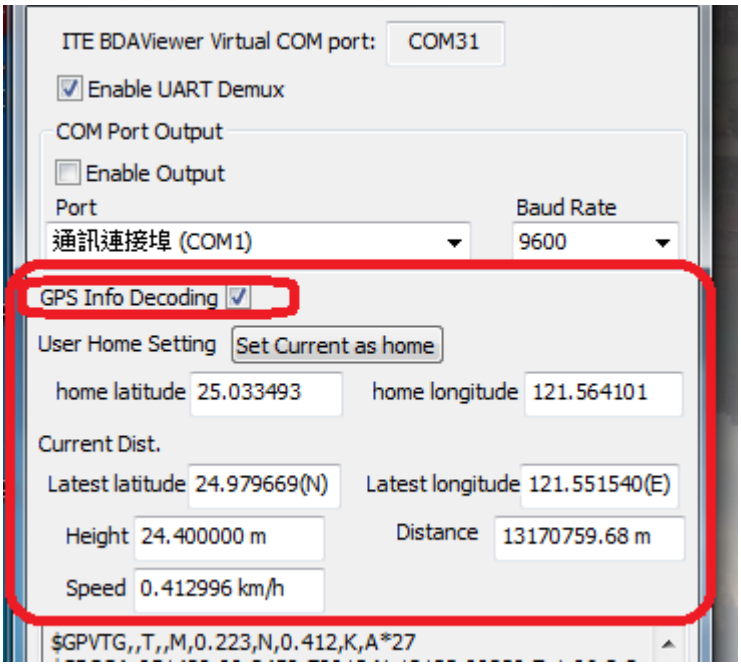
If the received the stream containing UART data, it will be shown in the text window.



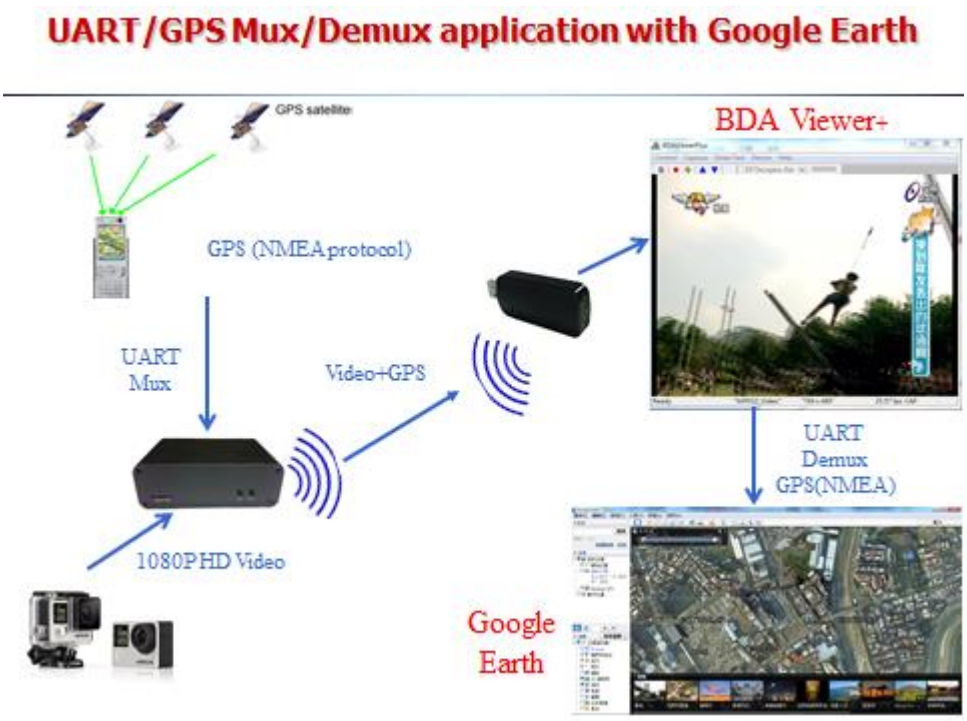
Furthermore, you may specify a physical UART port of the laptop PC, and output the received UART data thru thus port.



If the mux'ed info is NMEA GPS info, you may enable GPS decoder to interpret the received NMEA GPS data.

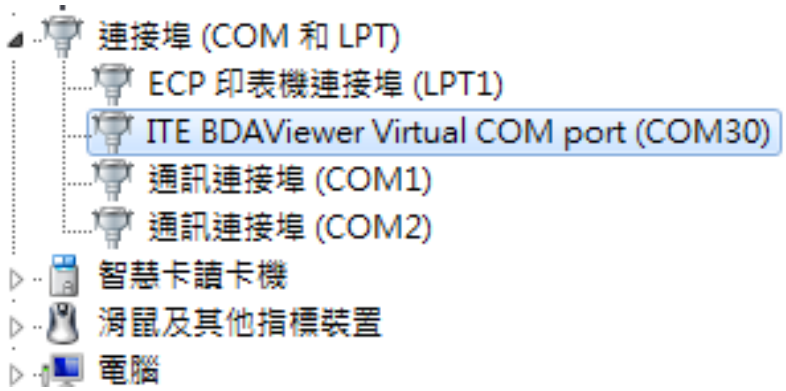


A typical application is to provide NMEA GPS info in the transmitted stream, and feed the demux'ed NMEA GPS to Google earth to track the UAV.



From v2.4.7.0 on, a virtual com port is created. The demux'ed UART data will also be output through this virtual com port.

When BDAViewer+ is run the first time, a virtual com port is installed. You may check it in the device manager as shown below.



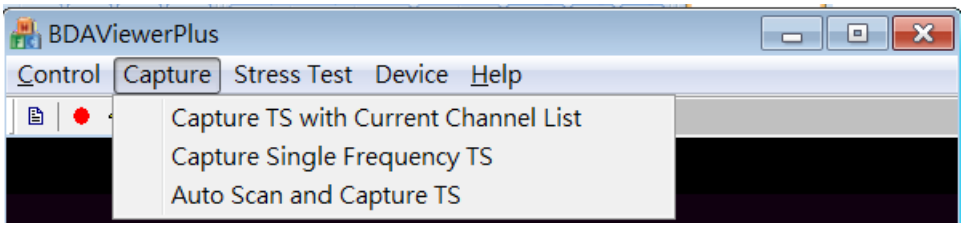
Google Earth or any other GPS navigation software running on the same PC/Laptop can open this virtual com port to access the GPS info.

3.1.7Channel Scan: Launch the Frequency Scan window.

3.1.8Force Mobile Mode: Enable the mobile mode to improve the receiving quality under some conditions.

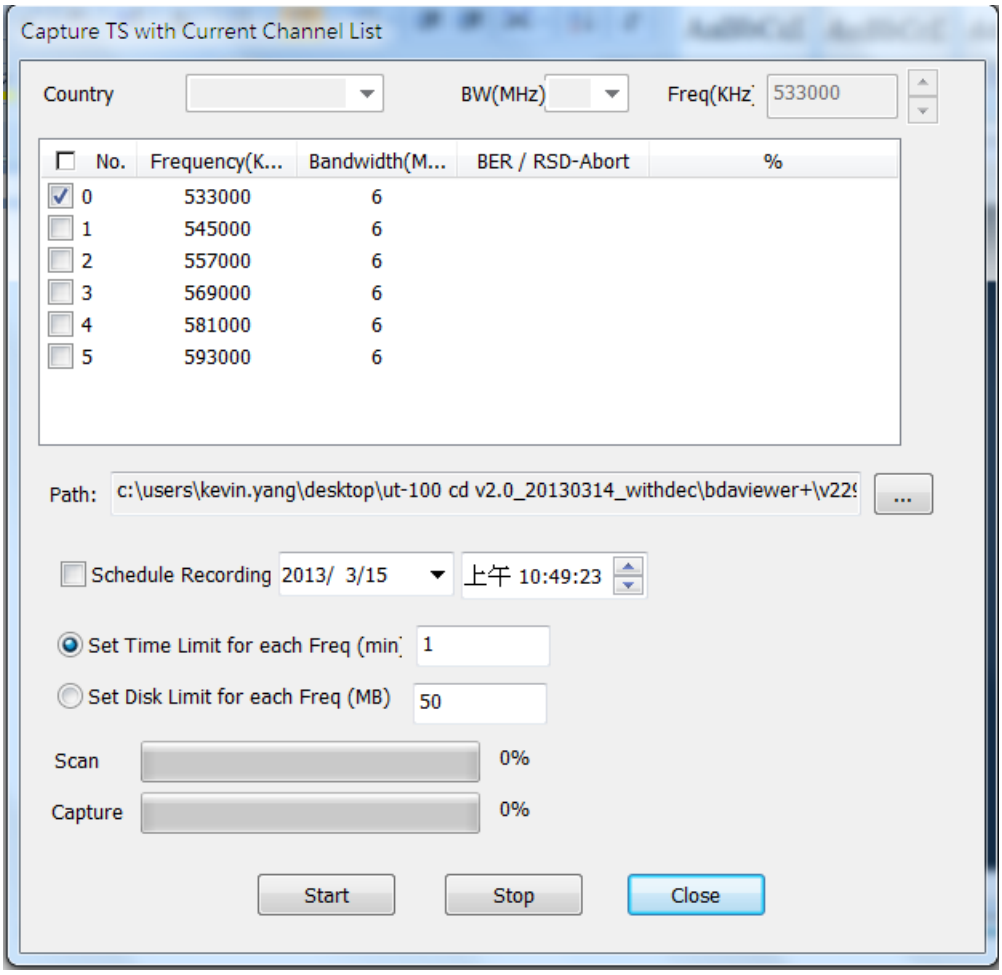
3.1.9One-segment mode: Filter out non layer-A (1-seg) PID's.

3.2 Capture



3.2.1 Capture TS with Current Channel List

You can select the channels to capture in current channel list.

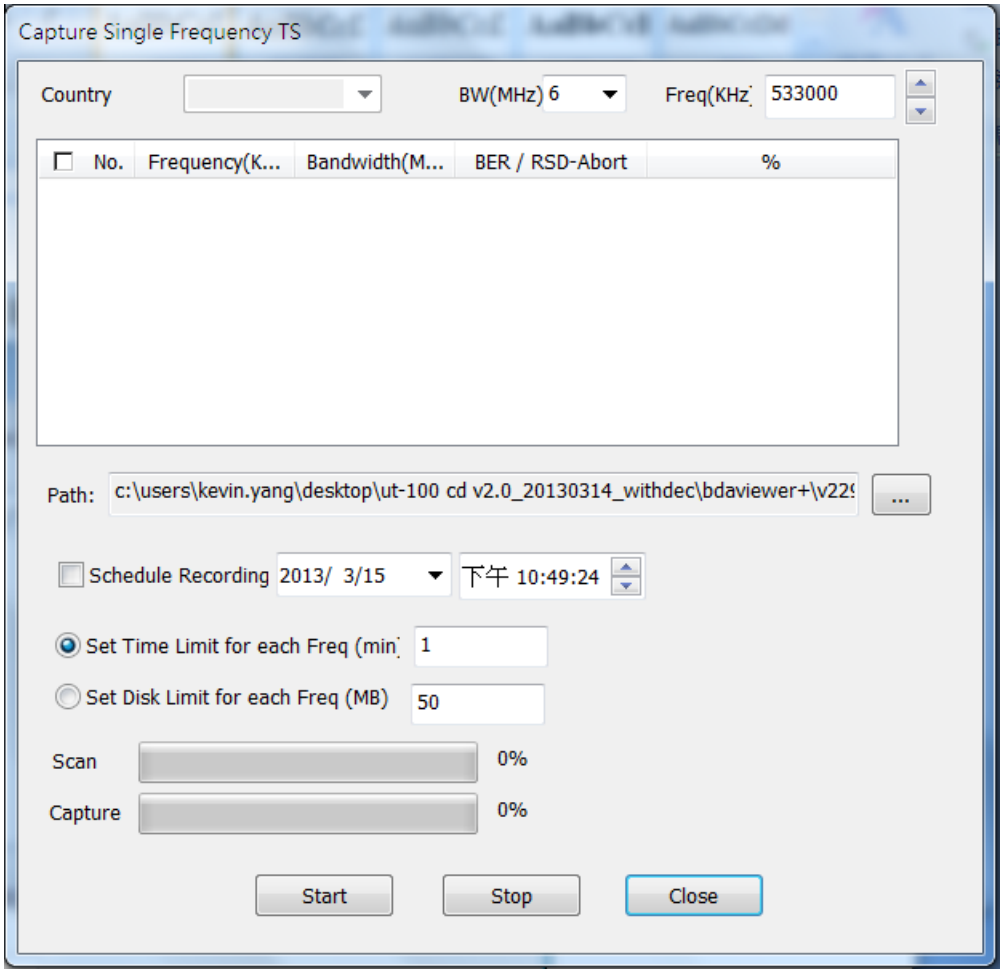


- Path: Click on ... and select the local path to save the transport stream.
- Schedule Recoding: Specify the date and time to start capture.
- Set Time Limit for each Freq (min): Select this item and enter how many minutes to capture for each channel.
- Set Disk Limit for each Freq (MB): Select this item and enter the file size to capture for each channel.

- Start: Start to capture transport stream for select channel
- Stop: Stop capturing.
- Close: Close this window.

3.2.2 Capture Single Frequency Ts

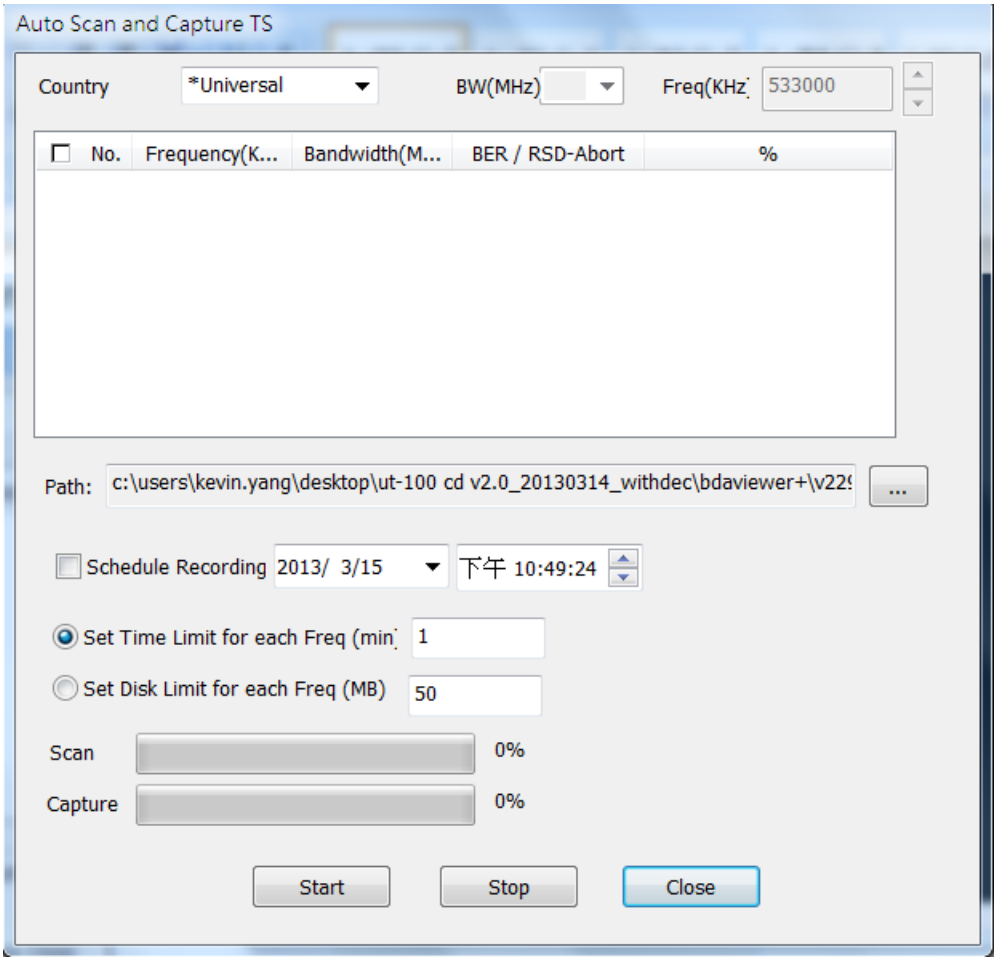
You can set one Frequency and the bandwidth to capture.



- BW(MHz): Select the bandwidth to capture
- Freq (KHz): Select or enter the frequency to capture.
- Schedule Recoding: Specify the date and time to start capture.
- Set Time Limit for each Freq (min): Select this item and enter how many minutes to capture.
- Set Disk Limit for each Freq (MB): Select this item and enter the file size to capture.
- Start: Start to capture transport stream for specific channel.
- Stop: Stop capturing.
- Close: Close this window.

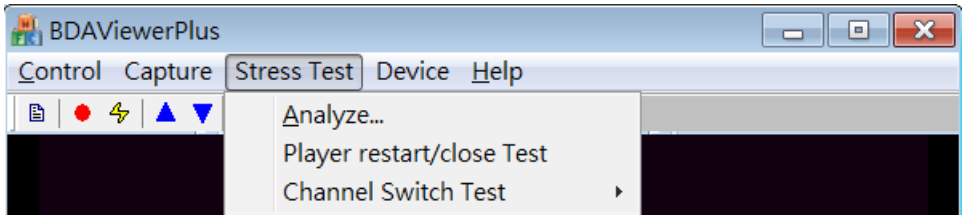
3.2.3 Auto Scan and Capture TS

You can select the country to capture the TS for channels being scanned.



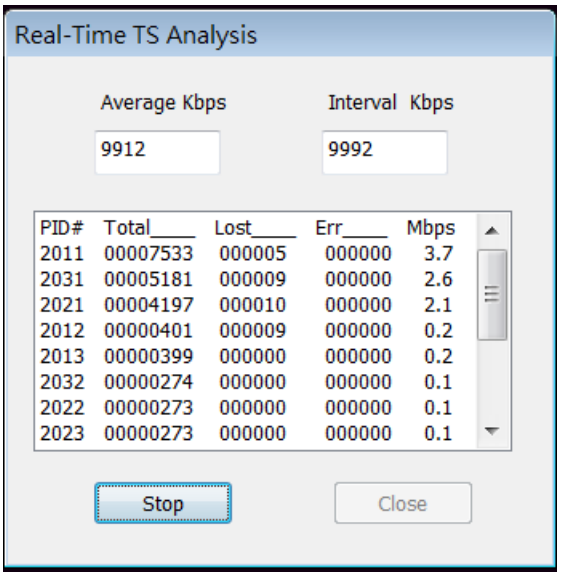
- Country: Select the country to scan and capture the TS for available channels.
- Schedule Recoding: Specify the date and time to start capture.
- Set Time Limit for each Freq (min): Select this item and enter how many minutes to capture for each channel.
- Set Disk Limit for each Freq (MB): Select this item and enter the file size to capture for each channel.
- Start: Start to scan and capture for available channels.
- Stop: Stop capturing.
- Close: Close this window.

3.3 Stress Test



3.3.1 Analyze

It can analyze Average / Interval bit rate (Kbps), Total packet, Lost / Error packet and the bit rate for each PID.



- Start: Click  button to analyze TS for current channel.

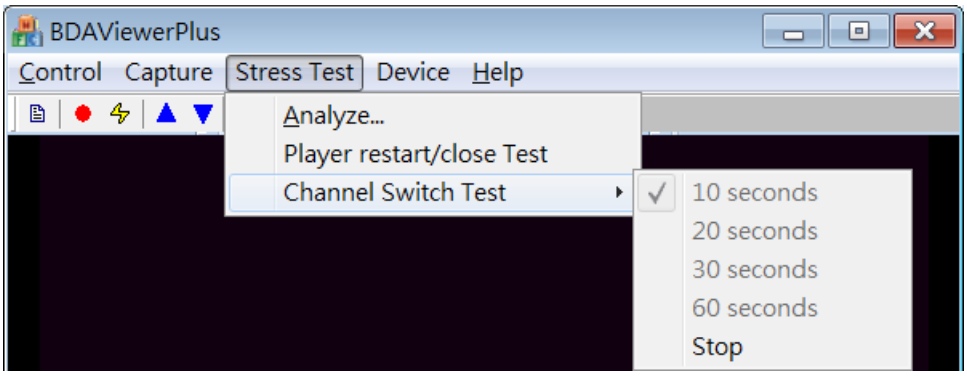
- Stop: Click  button to stop analyzing.

3.3.2 Player restart/close test

BDA Viewer Plus can perform restart/ close test when you enable this item.

3.3.3 Channel Switch Test

You can select the time interval (10/20/30/60 seconds) to start the channel switch test for current channel list. Select stop to stop testing.



3.4 Device

It shows the device being detected for UT-100A/B.