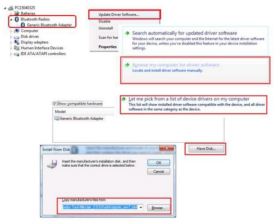
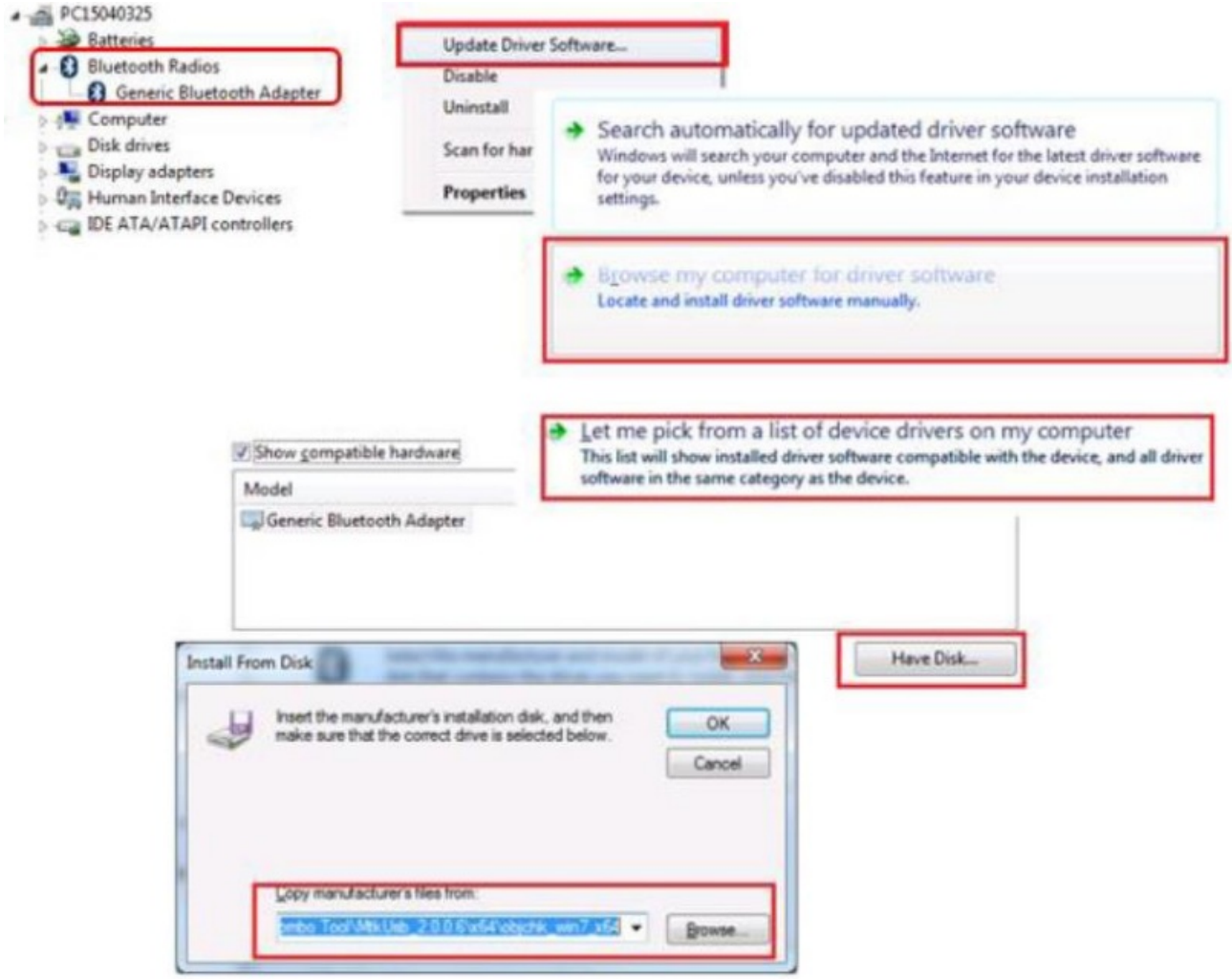


Acer MT7663 Test Mode Software Application Owner's Manual

Contents

Acer MT7663 Test Mode Software Application



Product Description

The MT7663 chip is a highly integrated single chip that has built-in 2×2 dual-band wireless LAN and Bluetooth combo radio. It can be configured in test-mode for performance validation, production testing, and regulatory certification.

1. System Overview

The MT7663 SW Tool Application
Note: Part II provides instructions on how to install and use Combo-Tool, one of two software tools responsible for evaluating WIFI and Bluetooth signal and performance testing.

1.1 General Description

There are two software tools, QA-Tool, and Combo-Tool. This document introduces how to install and use Combo-Tool.

2. Combo-Tool

Combo-Tool installation package includes two major software:

1. BT driver
2. Combo-Tool Windows installation package

2.1 How to Install Combo-Tool

Users should follow the procedure below to install
Combo-Tool:

1. **Install BT driver:** BT driver is necessary for
   Combo-Tool. Follow the steps below to install the BT driver:
   1. In Window Device Manager, select the BT driver in the folder and update the driver software.
2. **Install Combo-Tool:** Follow the steps below to install Combo-Tool:
   1. Check computer system type by right-clicking Computer icon and selecting Properties to know OS type.
   2. MTK strongly recommends using Windows7 64-bit operating system.
   3. Set Windows7 64-bit OS under test mode according to the following steps:
   4. Right-click Command Prompt in Accessories and select Run as administrator.
   5. After command window pops out, enter the command bcdedit /set testsigning on to enable test mode.

System Overview

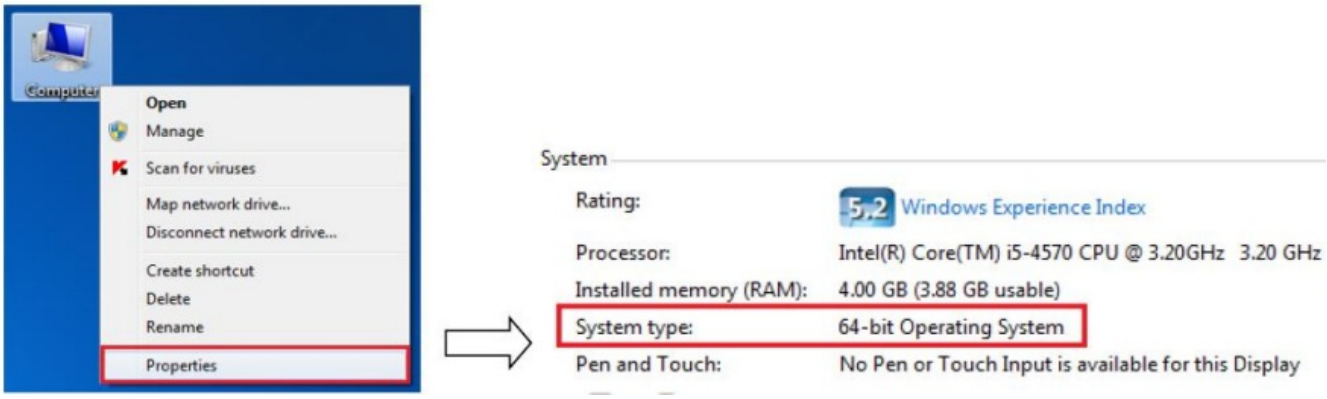
General Description

MT7663 chip is highly integrated single chip which have built in 2×2 dual-band wireless LAN and Bluetooth combo radio. It can be configured in test-mode for performance validation, production testing and regulatory certification. There are two software tools, QA-Tool and Combo-Tool responsible for evaluating WIFI and Bluetooth signal and performance testing. This document is introducing how to install and use Combo-Tool.

Combo-Tool

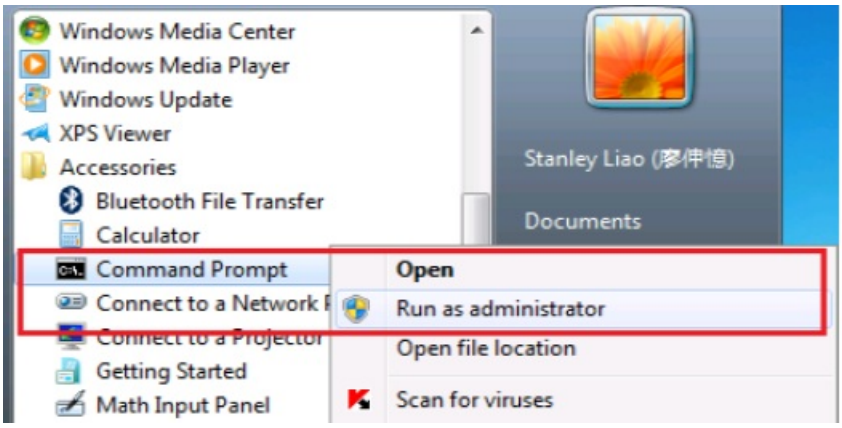
The combo-Tool installation package includes 2 major software:

- BT driver
- Combo-Tool Windows installation package
- Before doing an installation, users should check the computer system type by right-clicking the Computer icon and selecting Properties to know the OS type as following figures.

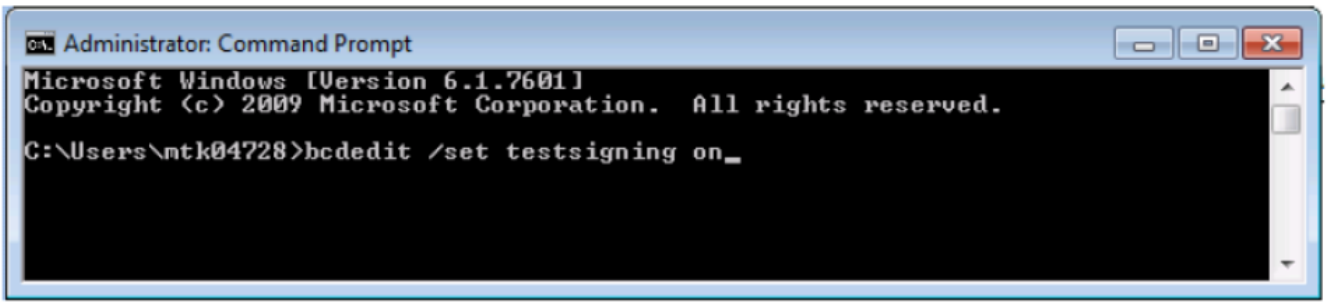


- The OS type MTK strongly recommends use Windows7 64-bit operating system. Users should set Windows7 64-bit OS under test mode according to following steps:

1. Right-click “Command Prompt” in Accessories and select “Run as administrator.”



2. After command window pops out, entering command “bcdedit /set testsigning on” to enable test mode as following figure.



How to install Combo-Tool

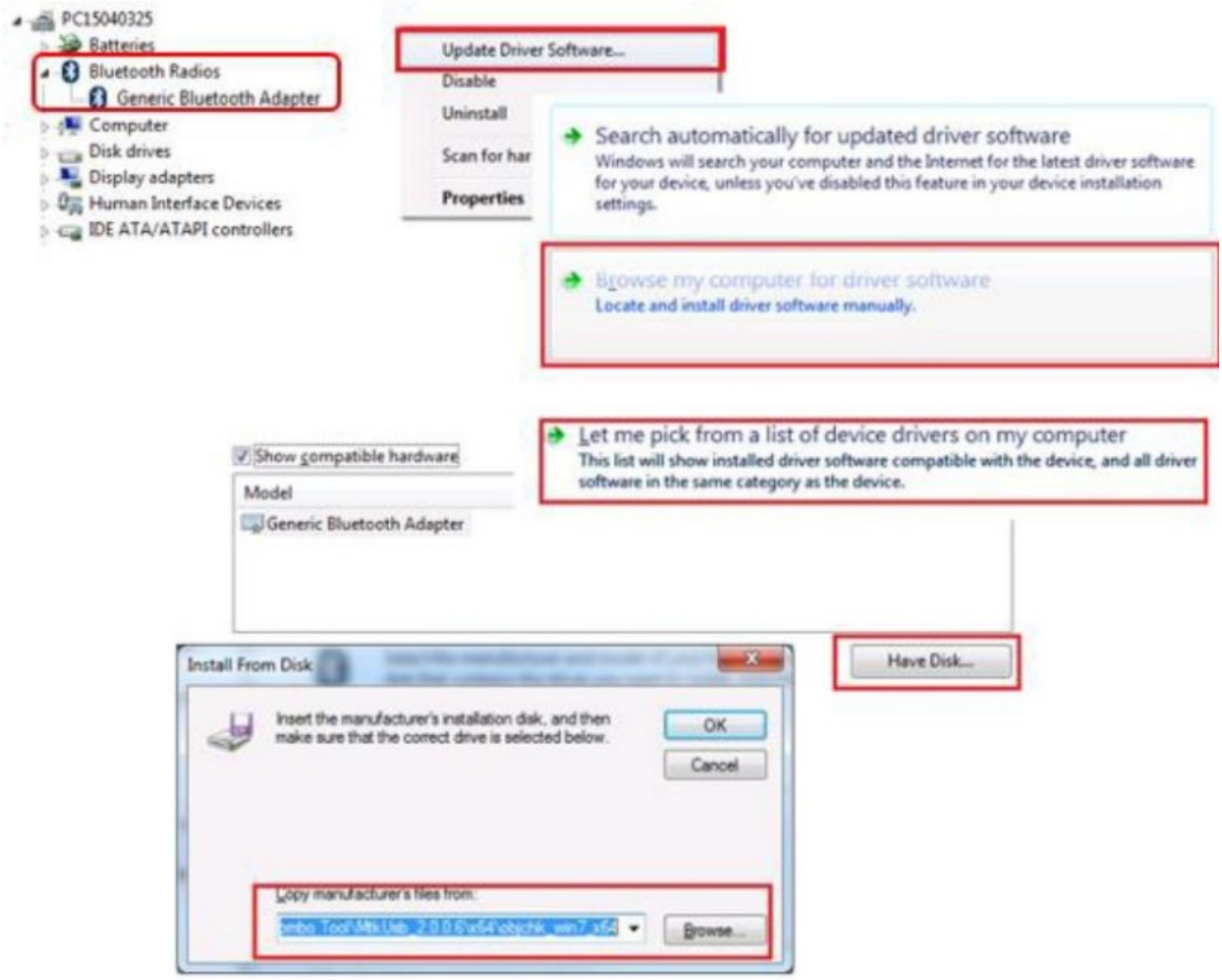
- Users should follow the procedure listed in below to install Combo-Tool
- **1st step:** Install BT driver
- **2nd step:** Install Combo-Tool

Install BT driver

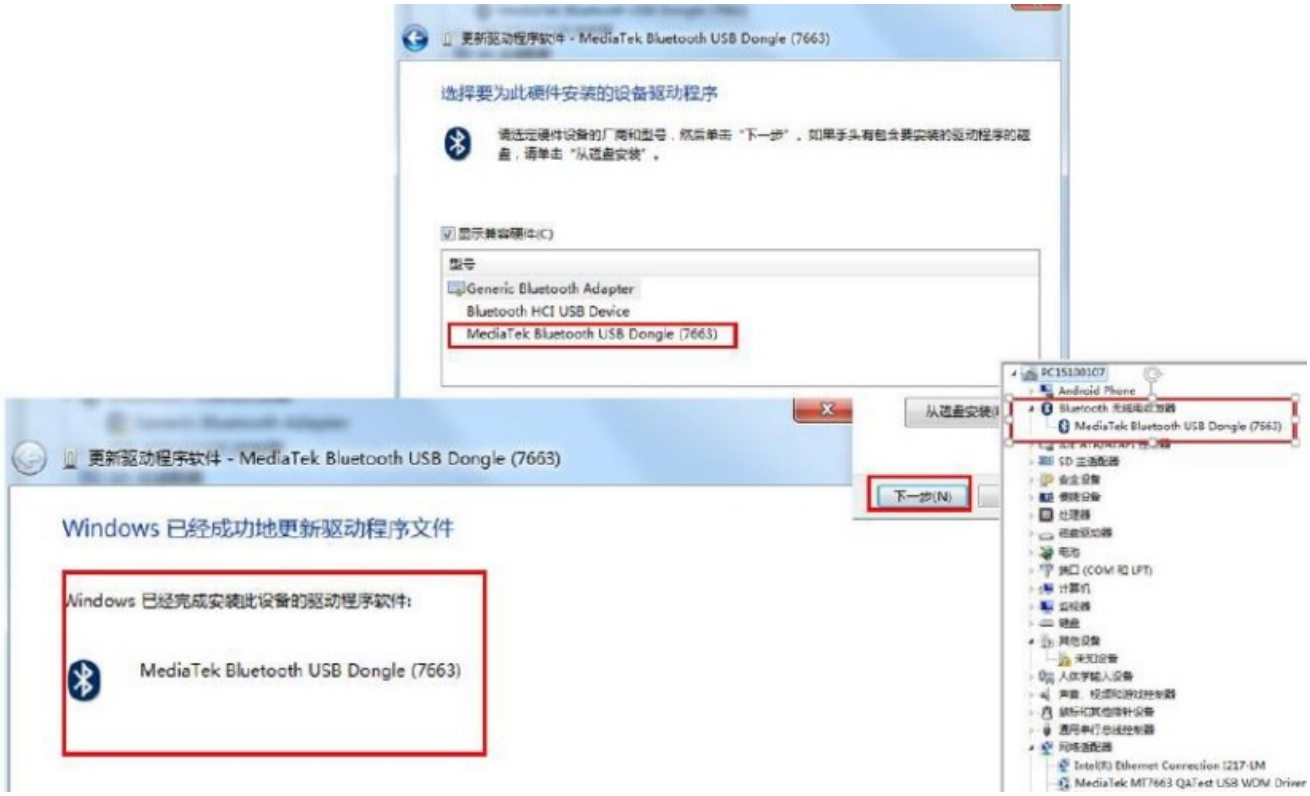
- BT driver is necessary for Combo-Tool. This driver should be well installed to make Bluetooth device and Combo-Tool working smoothly. Users can refer to following steps to install this driver.

USB Interface:

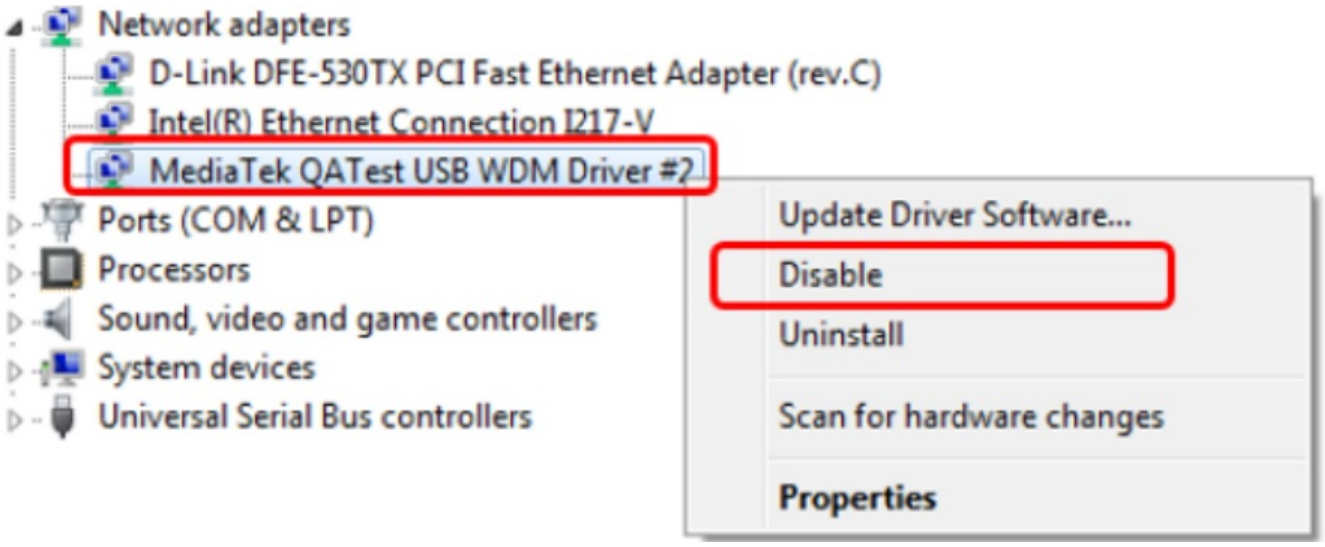
1. In Window Device Manager, users can update driver software and select BT driver in the folder ..\Driver\USB



2. Select model “Mediatek Bluetooth USB Dongle (7663)” and click Install. Device Manager will also show a device “Mediatek Bluetooth USB Dongle (7663)” in Bluetooth Radios if installation is completed.



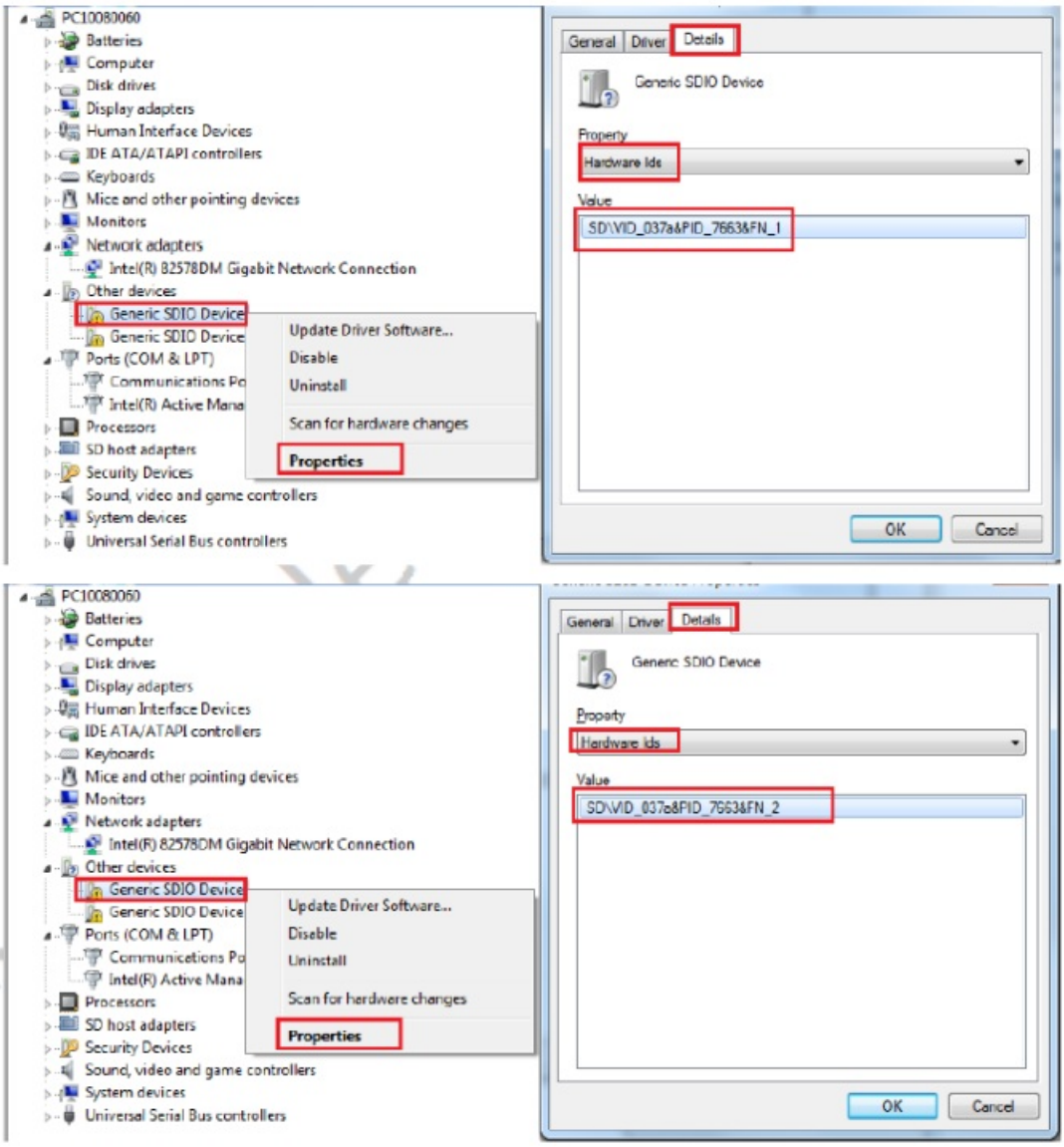
3. Right-click “MediaTek QA Test USB WDM Driver” (WiFi device) and select disable. User should plug-out and plug-in DUT again after this step.



SDIO interface:

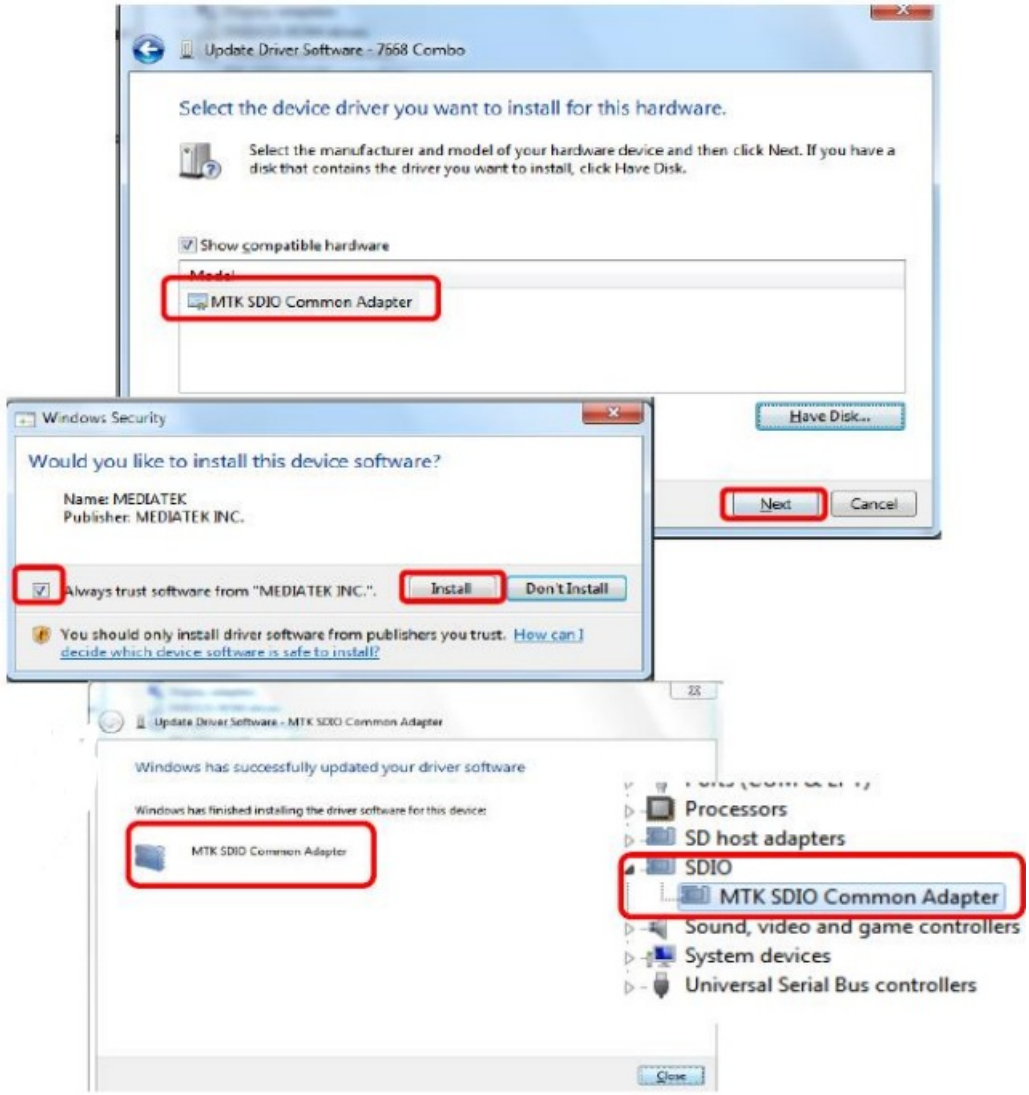
1. Connect DUT to PC/NB and check Windows Device Manager.
2. Window Device Manager would discover DUT shows two “Generic SDIO Device”. User should check DUT VID and PID from “Hardware Ids” of Device Manager to know WiFi and BT device. Please refer to following figure and table to identify WIFI and BT devices:

Hardware Ids	**Feature**
SD\VID_037a&PID_7663&FN_1	MT7663S-WiFi
SD\VID_037a&PID_7663&FN_2	MT7663S-BT

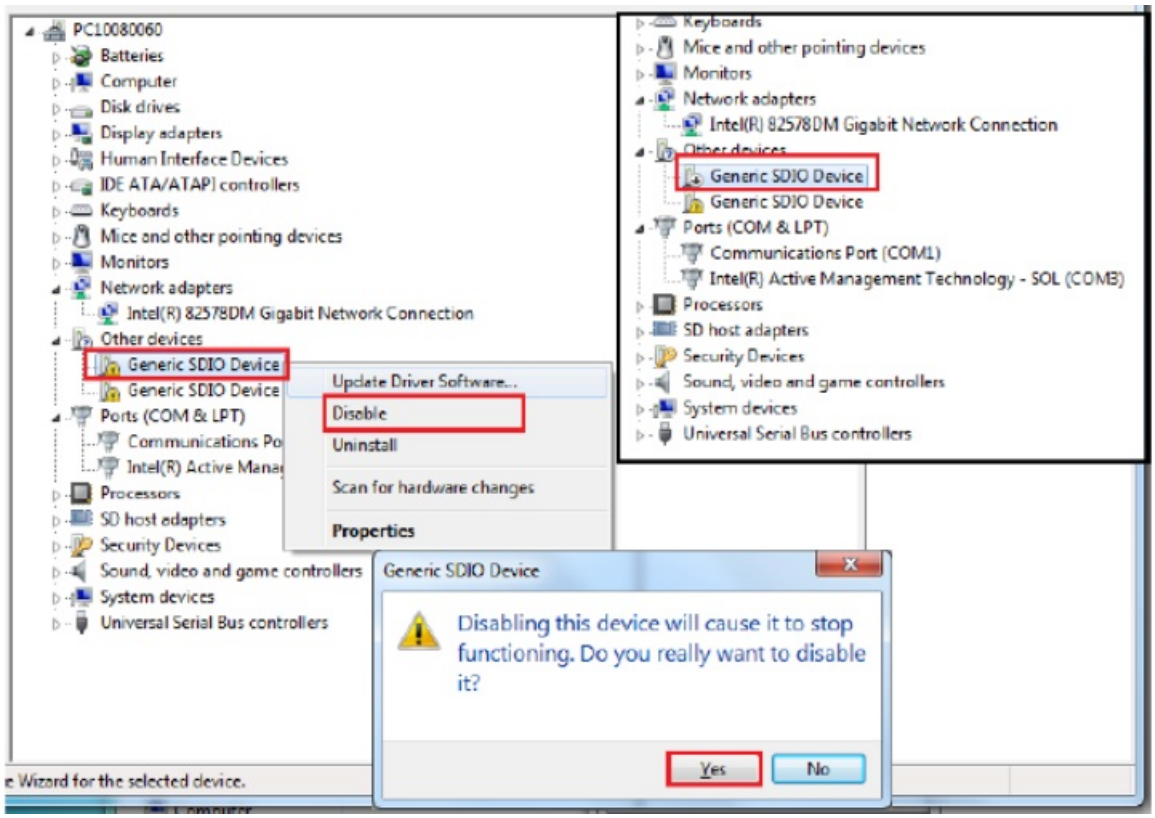


1. Right-click on “7663 Combo” BT device (SD\VID_037a&PID_7663&FN_2) and Update Driver Software.

2. Select model “MTK SDIO Common Adapter” and click Install. Device Manager will also show a device “MTK SDIO Common Adapter” in SDIO if installation is completed.

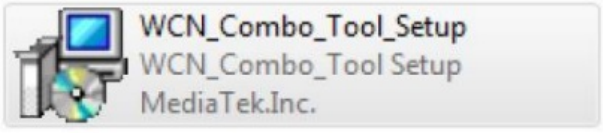


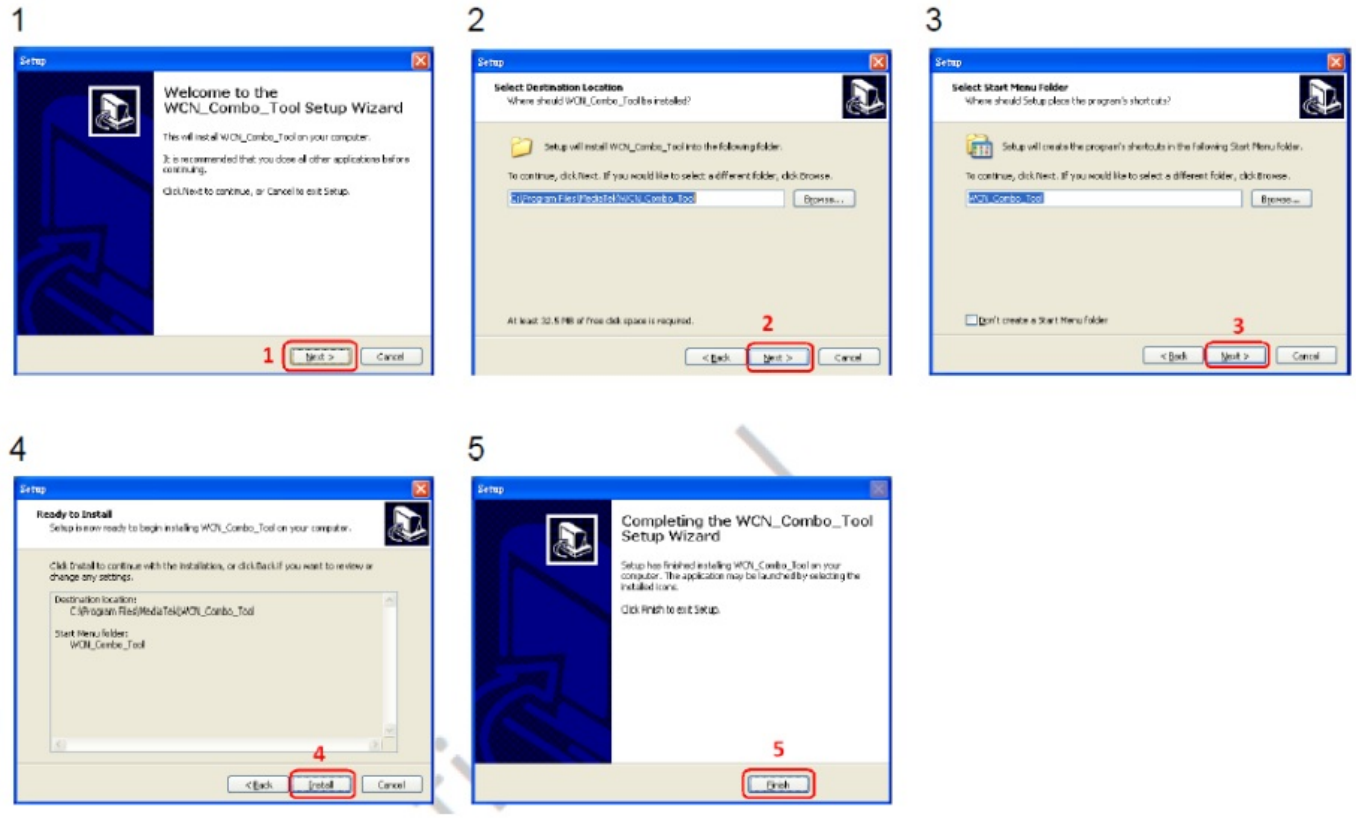
3. Right click the “7663 Combo” WIFI device (SD\VID_037a&PID_7663&FN_1) and select disable as follows.User should plug-out and plug-in DUT again after this step.



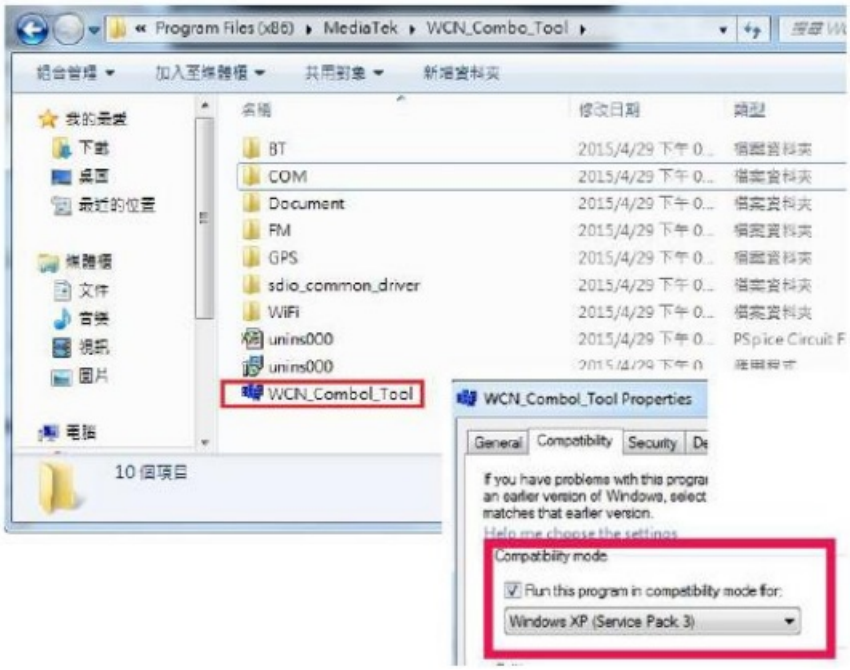
Install Combo-Tool

Double-click the WCN_Combo_Tool_Setup icon in "..\Combo_Tool\" and follow the below steps to install Combo-Tool.





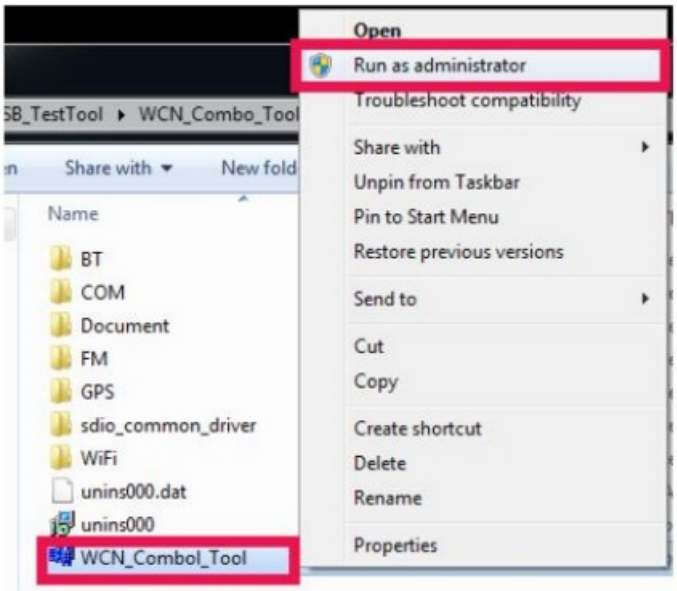
After installation is completed, users can right-click the icon to set "Run this program in compatibility mode for: Windows XP" in the installed path C:\Program Files (x86)\MediaTek\WCN_Combo_Tool

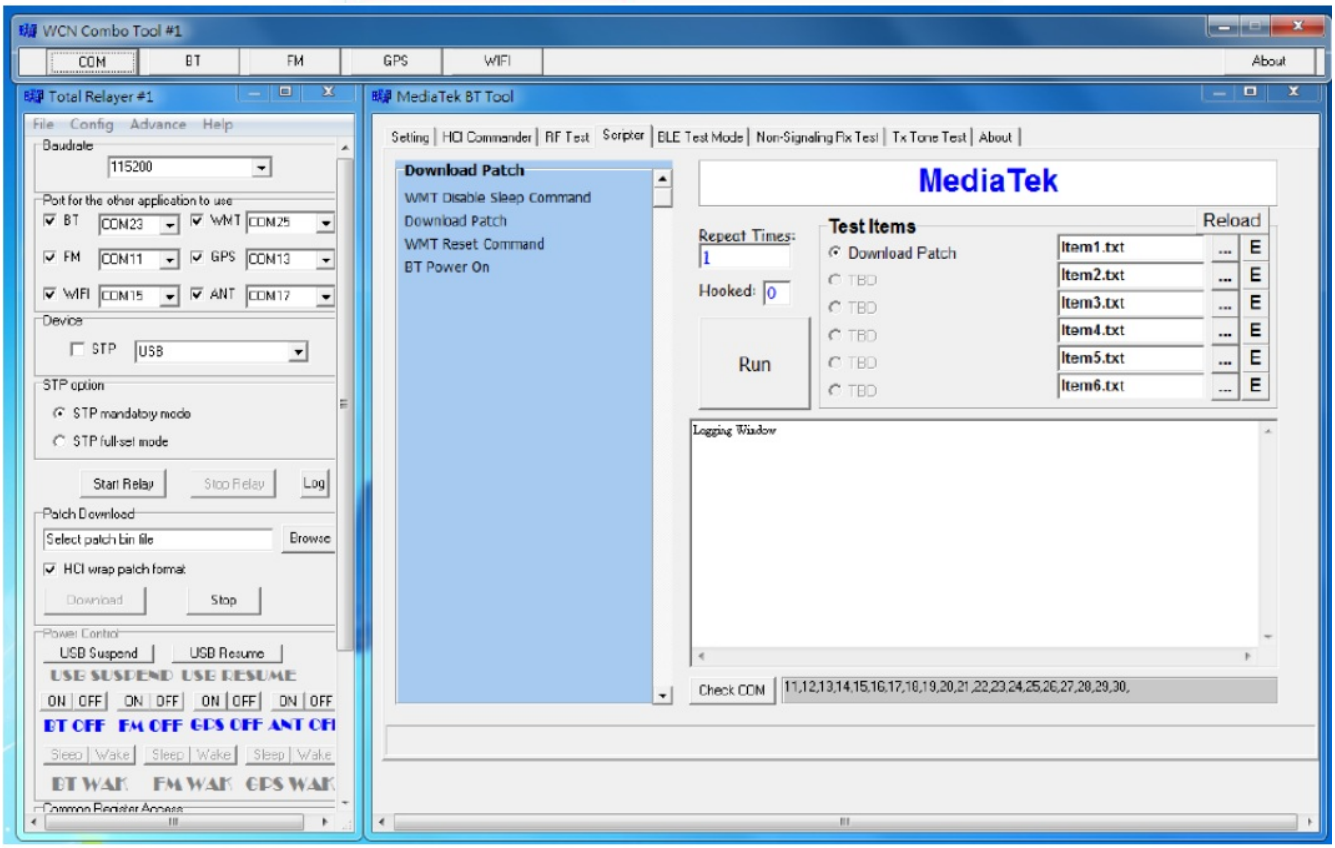


How to use Combo-Tool

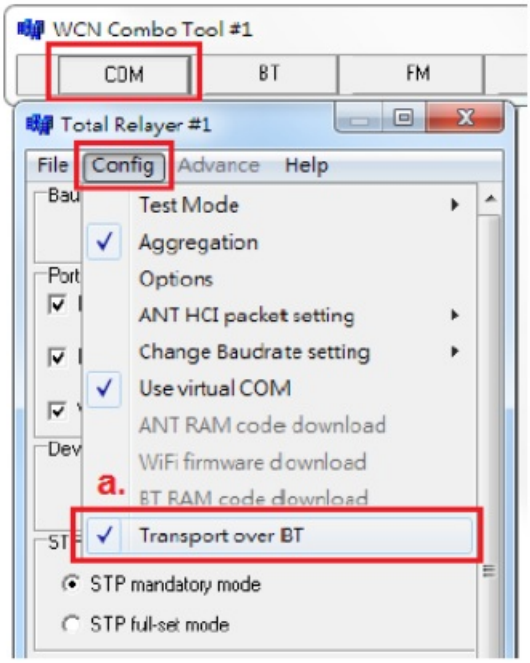
Users should follow the procedure listed in below to initiate DUT by Combo-Tool

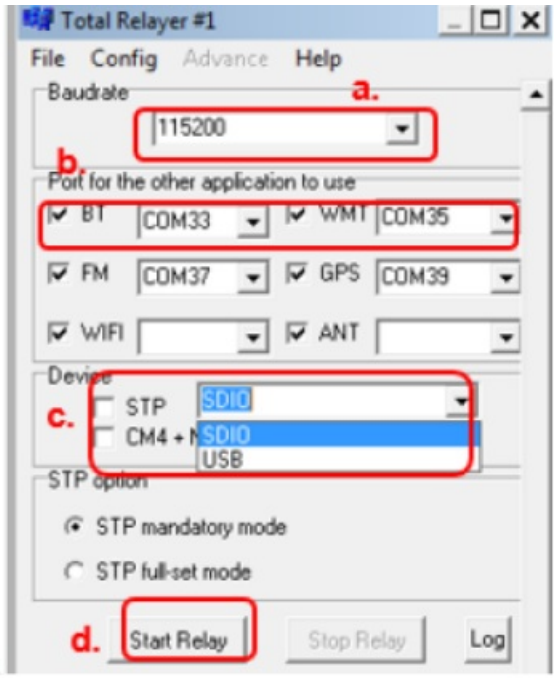
1. Running WCN_Combo_Tool as administrator and the UI will pop out.



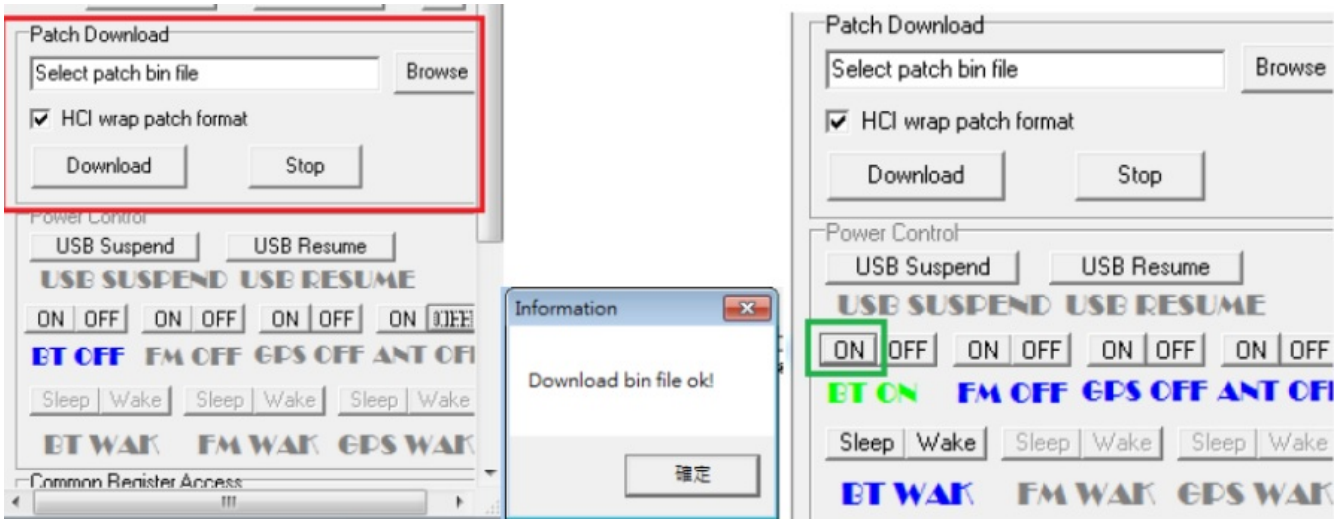


2. **a.** Select COM➔Config ➔Enable “Transport over BT”
   - **b.** Set Baudrate = 115200.
   - **c.** Select BT port number, uncheck “STP” and set device type (SDIO/USB).
   - **d.** Click “ Start Relay ”

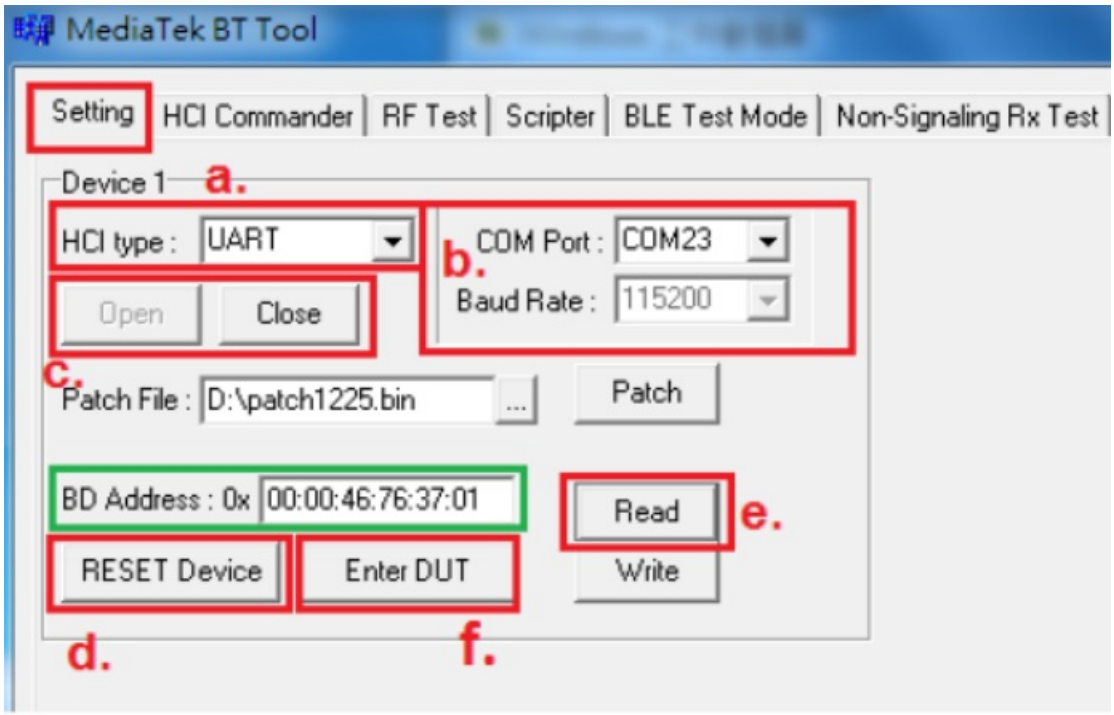




3. Click “Browse” and “Download” buttons to load patch in this step.
4. After patch download pops out “Download bin file ok!”, click “ ON ” button to set BT ON as following figure.



5. **On Setting page:**
   - **a**.Select HCI type : UART
   - **b**.Select COM Port and Baud Rate identical to step-2
   - **c.**Click “ Open ” button to open BT COM port; (“ Close ” button can also close BT COM port.)
   - **d**.Click “ RESET Device ” after Open is clicked.
   - **e.**Click “ Read ” button. If users can get BD address, your DUT initiation is successful.
   - **f.**Click “ Enter DUT “ button, the device is entering Bluetooth test mode (signaling mode).



BDR/EDR Signaling Test Mode

If uses can read BD Address successful on Setting page, the DUT is entering Bluetooth signaling test mode automatically. Users can use R&S® CBT Bluetooth Tester to create connection with DUT directly and perform testing. Users could have detailed information of this Bluetooth tester from this URL:
https://www.rohde-schwarz.com/en/product/cbt_cbt32-productstartpage_63493-7927.html

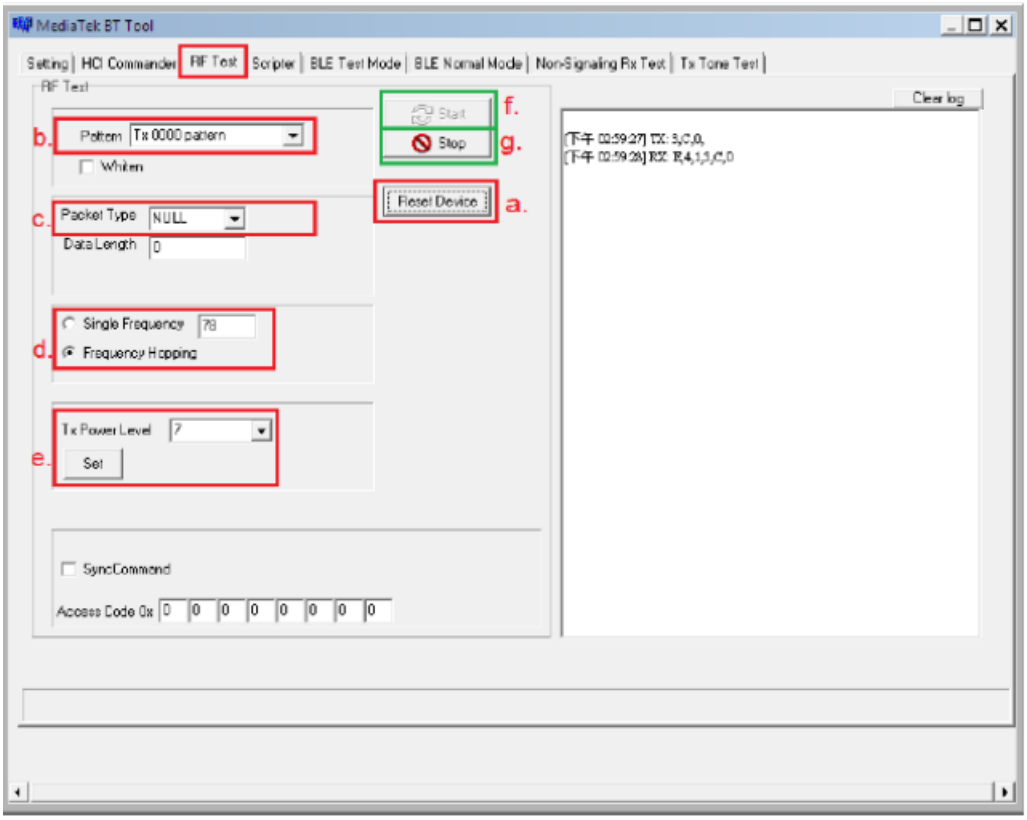
BDR/EDR Non-signaling TX Setting

Ensuring Device is opened and “ RESET Device ” button is clicked on “Setting” page. After that, change the page to “RF Test”

TX Setting

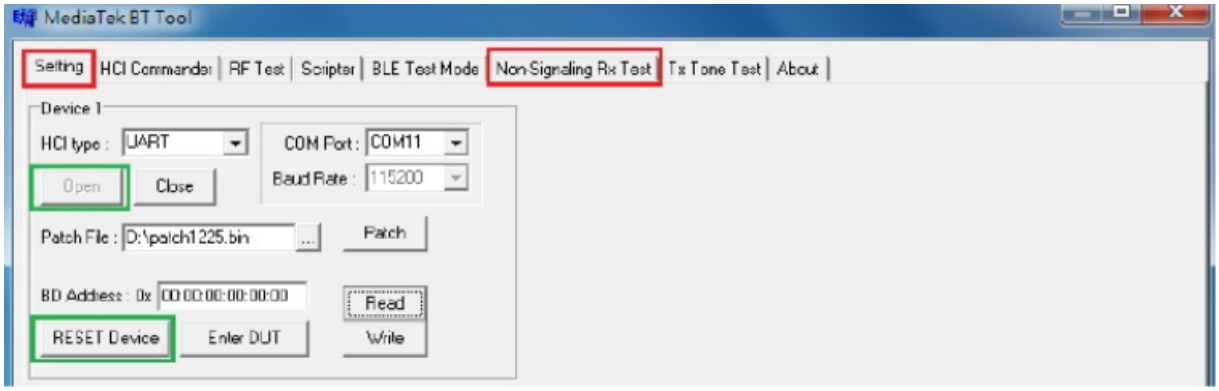
- **a.**Click “ RESET Device ” button to reset DUT again. HCI event would respond RX: E, 4, 1, 3, C, 0.
- **b**.Select Pattern type

- **c**.Select Packet type
- **d**.Set channel number (0~78) or frequency hopping
- **e**.Set Tx Power Level for power control (Option)
- **f**.Click “ Start ” button to start transmitting
- **g**.Click “ Stop ” button to stop transmitting.
- **Note:** If BT tester is CBT, user should configure BD address = 000000A5F0C3 on it.
- Repeat a~g if Tx pattern, packet type, channel or power level are changed.
- **Note:** 7663 Tx power Level 7 = effuse 0x137 setting MAX power



BDR/EDR Non-signaling RX Setting

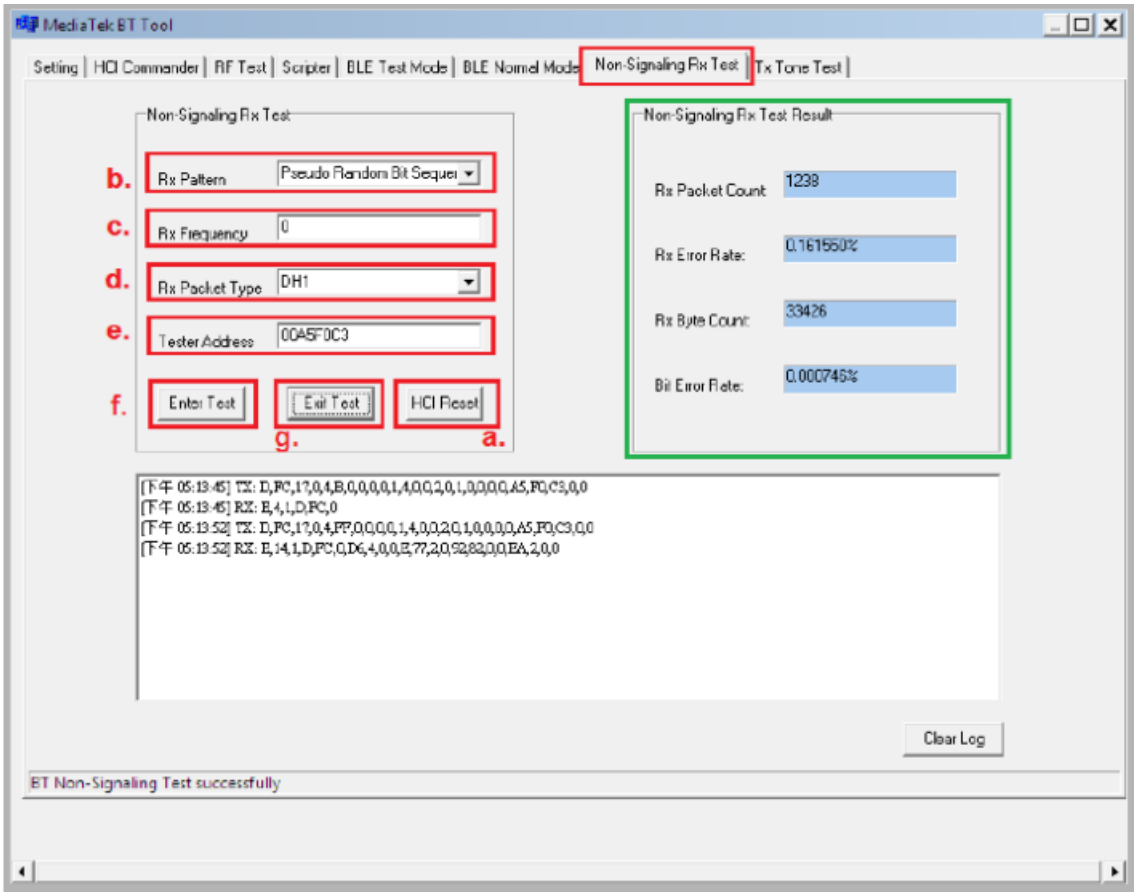
- Ensuring Device is opened and “ RESET Device ” button is clicked on “Setting” page. After that, change the page to “Non-Signaling Rx Test”



RX Setting

- **a**.Click “ HCI Reset ” button at first.
- **b**.Select Rx Pattern type.

- **c**.Set Rx channel number (0~78)
- **d**.Select Rx Packet type.
- **e**.Set BD address identical to CBT tester
- Setup TX parameters on CBT test and turn on transmitting.
- **f**.Click “ Enter Test ” button to start receiving
- **g**.Click “ Exit Test ” button to stop receiving. RX test results are shown on right-side.
- Repeat a~g if Rx pattern, packet type or channel are changed.

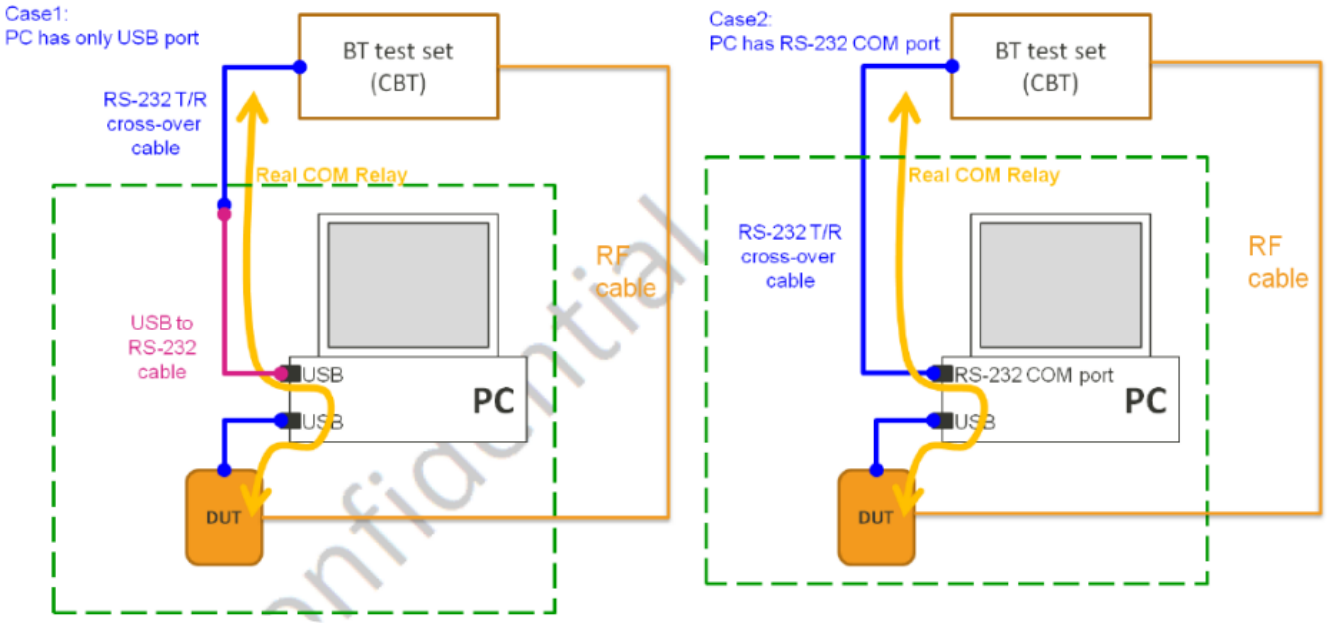


BLE Signaling Test Mode

- The picture below shows the setup for BLE signaling test mode. The PC serves as a relay station. Then, the DUT and the CBT can transmit commands with each other.

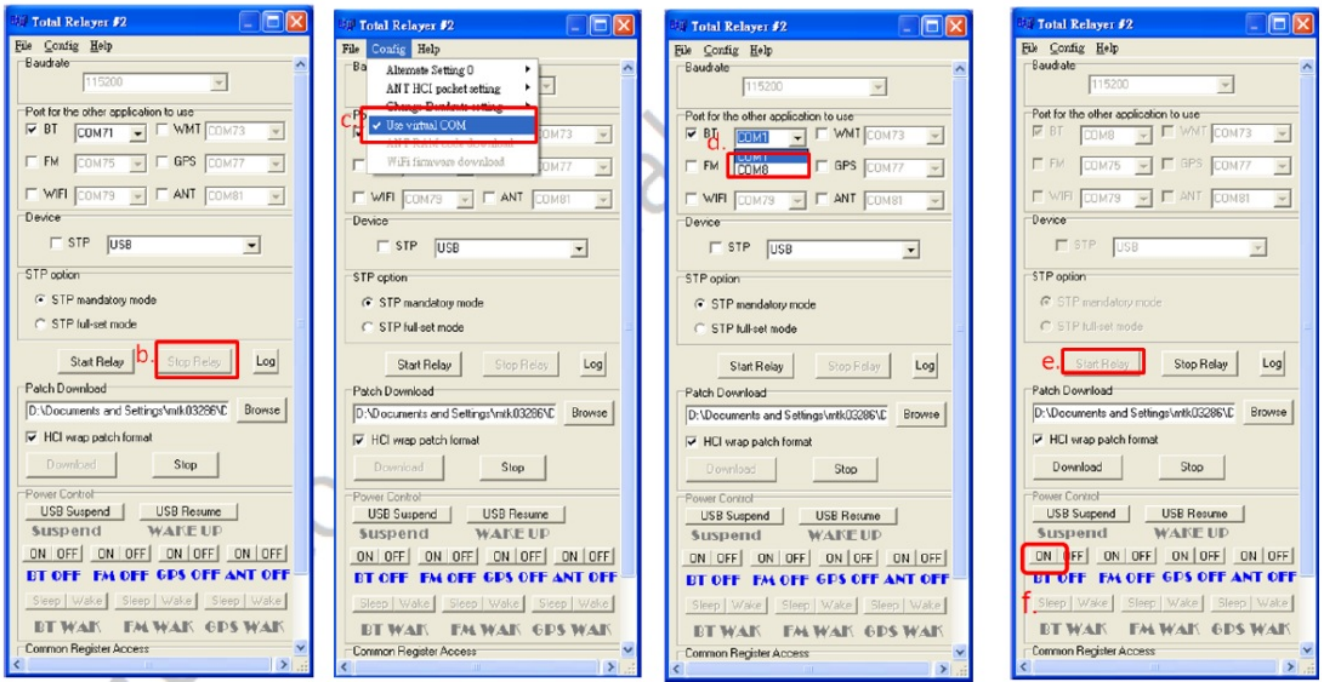
Accessories:

- 1 USB cable
- 1 USB-to-RS232 cable (Option if PC has no RS232 COM-port)
- 1 RS232 TX/RX cross-over cable.

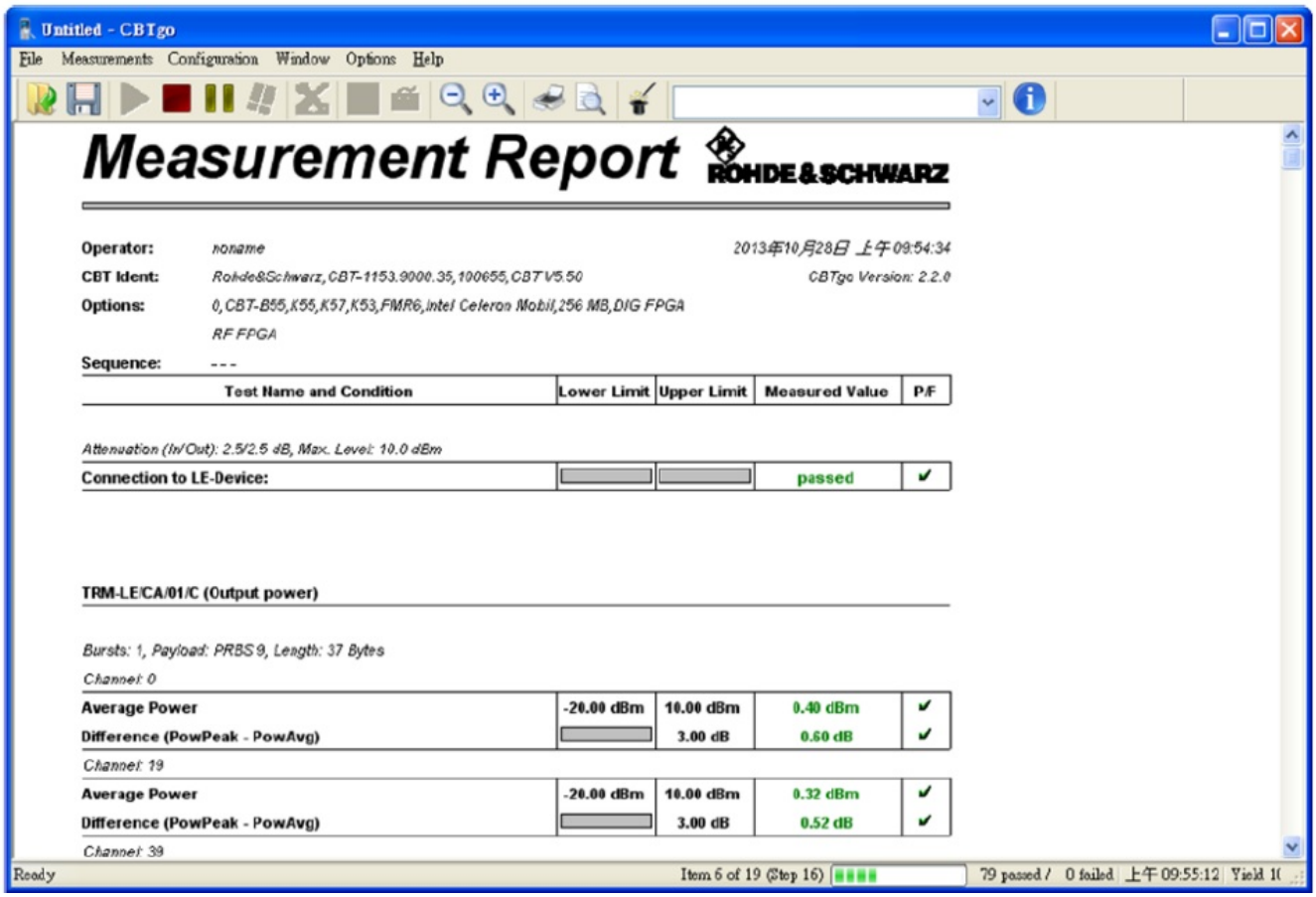


Combo-Tool Setting for Signaling Test Mode (Real COM Relay)

- After inserting the DUT through the USB cable, please follow the steps to set the real COM relay correctly.
- **a**.Follow the step 1~4 in the beginning of Section 2.2 (Page 9 to 11) to download patch.
- **b**.Click “Stop Relay ” to close BT COM port.
- **c**.Click “Config ”, then unselect “Use virtual COM”
- **d**.Select COM port of “USB to UART cable”. For example: COM8 for “USB to UART cable”, please choose “COM8”
- **e**.Press “Start Relay ” for Real COM Relay.
- **f**.click “ ON ” button to set BT turn on.

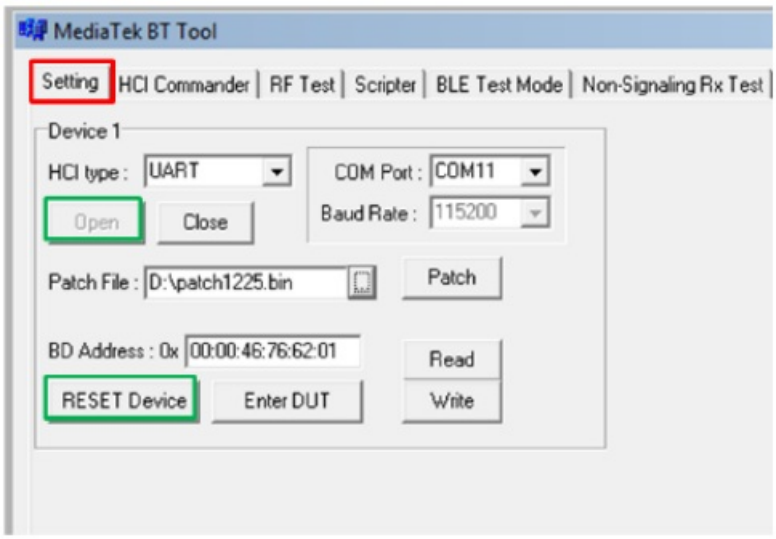


- **g**.Click “Run” Button to run “BT LE test script” by CBTgo.



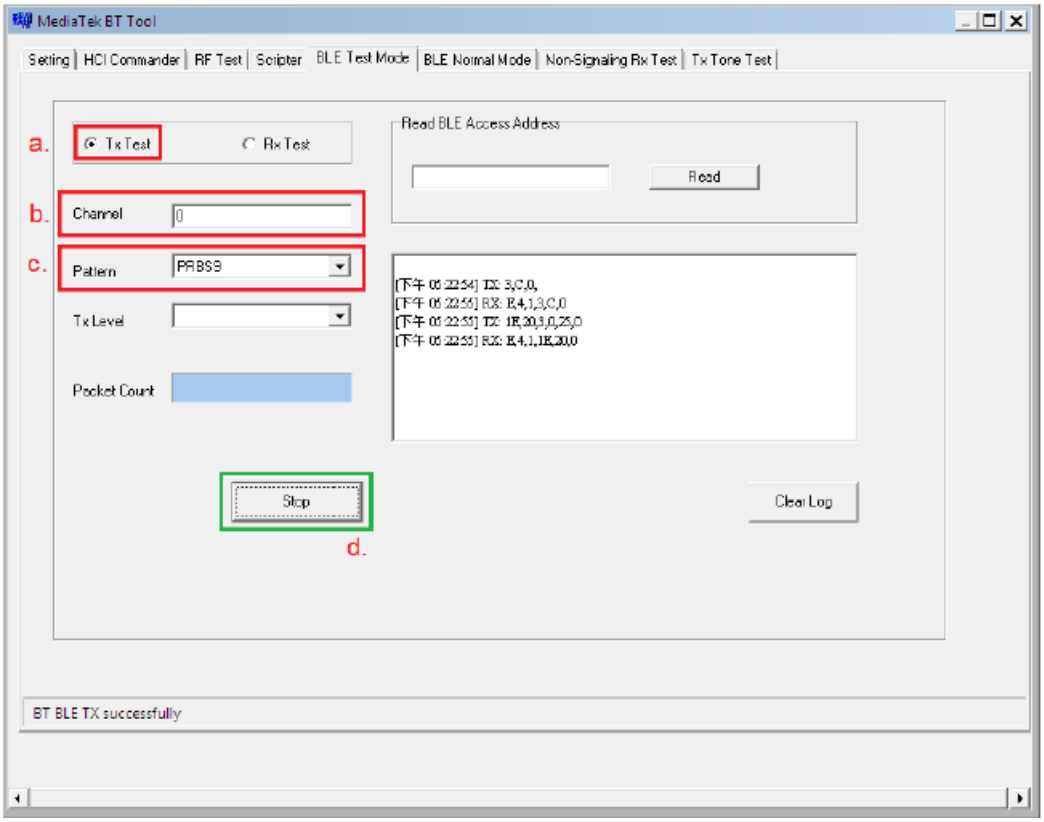
BLE Non-Signaling TX Test Mode

- On “Setting” page, ensure Device is opened and “ RESET Device ” button is clicked



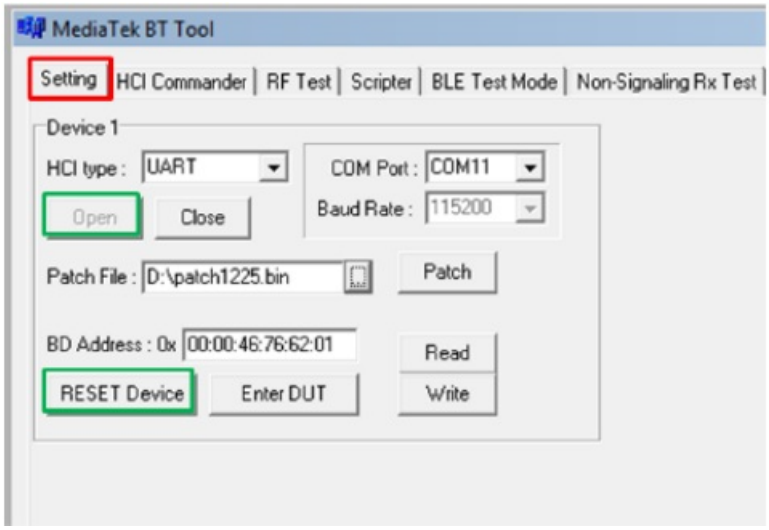
BLE Test Mode – TX

- **a.**Select TX Test
- **b.**Select Channel number
- **c**.Select Pattern type
- **d**.Click Start button and TX signal is present on CBT accordingly. Click Stop to stop transmitting.
- Users can repeat a ~ d to change channel number and pattern type.



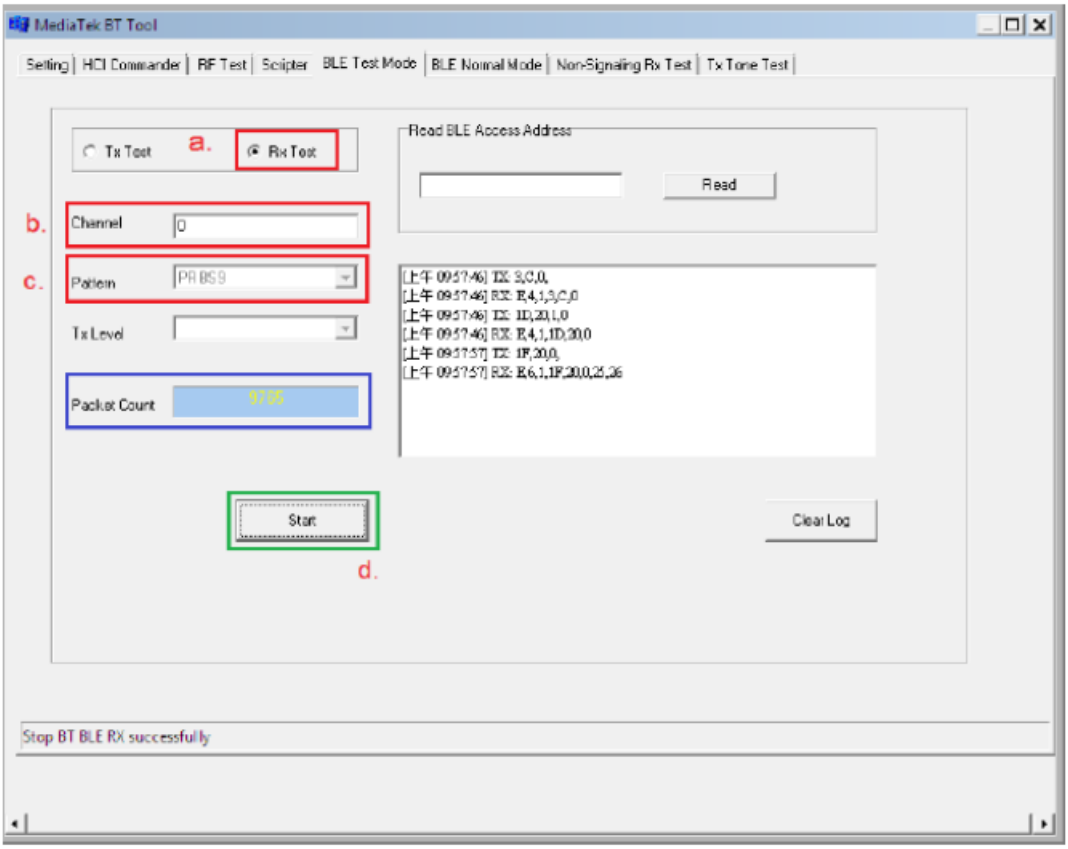
BLE Non-Signaling RX Test Mode

- On “Setting” page, ensure Device is opened and “ RESET Device ” button is clicked



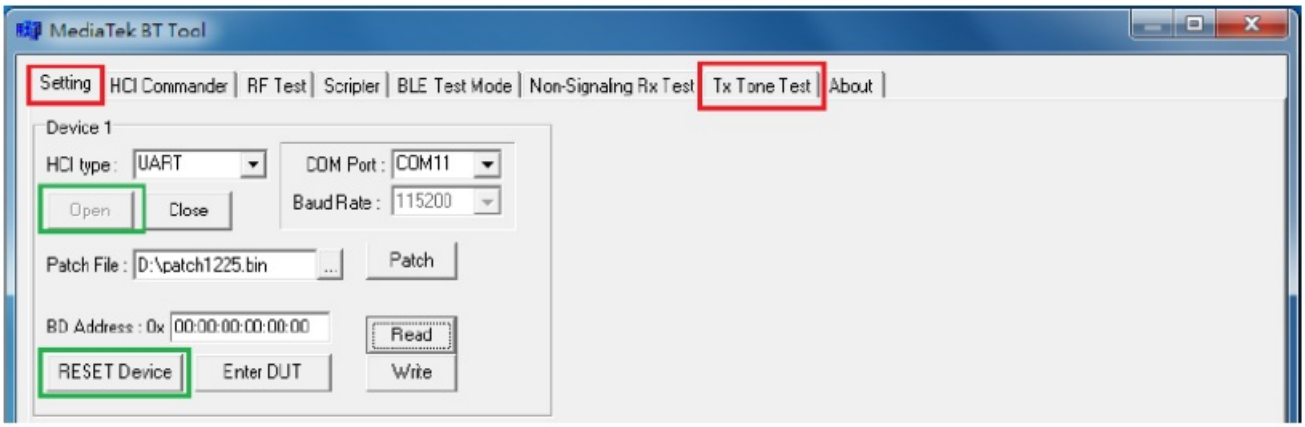
BLE Test Mode – RX

- **a**.Select RX Test
- **b**.Select Channel number
- **c.**Pattern type is default in PRBS9
- Turn on CBT packet generator.
- **d**.Click “ Start ” button ➔Click Stop button again. RX results are shown in Packet Count.
- Users can repeat a ~ d to change channel number and pattern type.



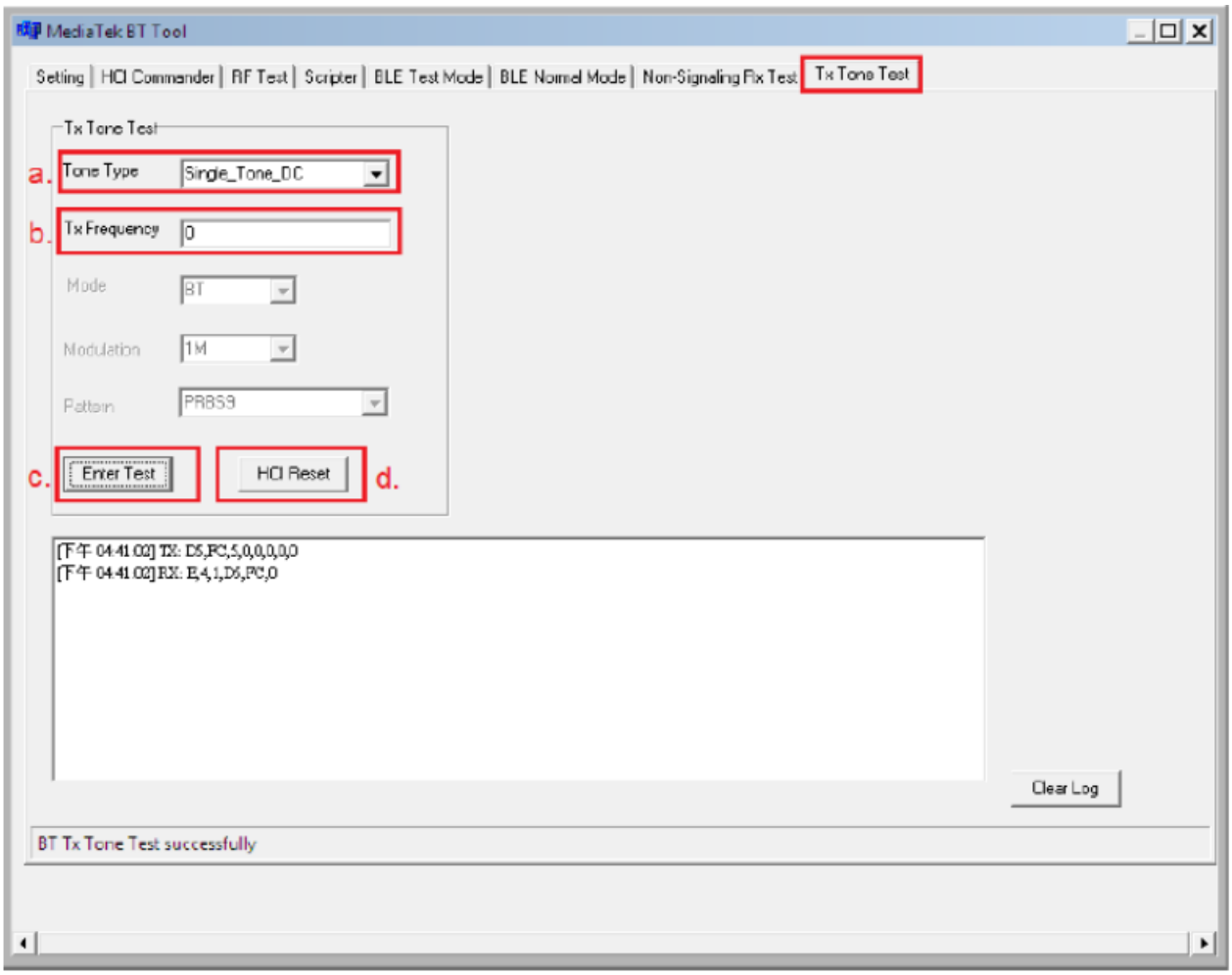
CW-tone TX Setting

- Ensuring Device is opened and “ RESET Device ” button is clicked on “Setting” page. After that, change page to “Tx Tone Test”



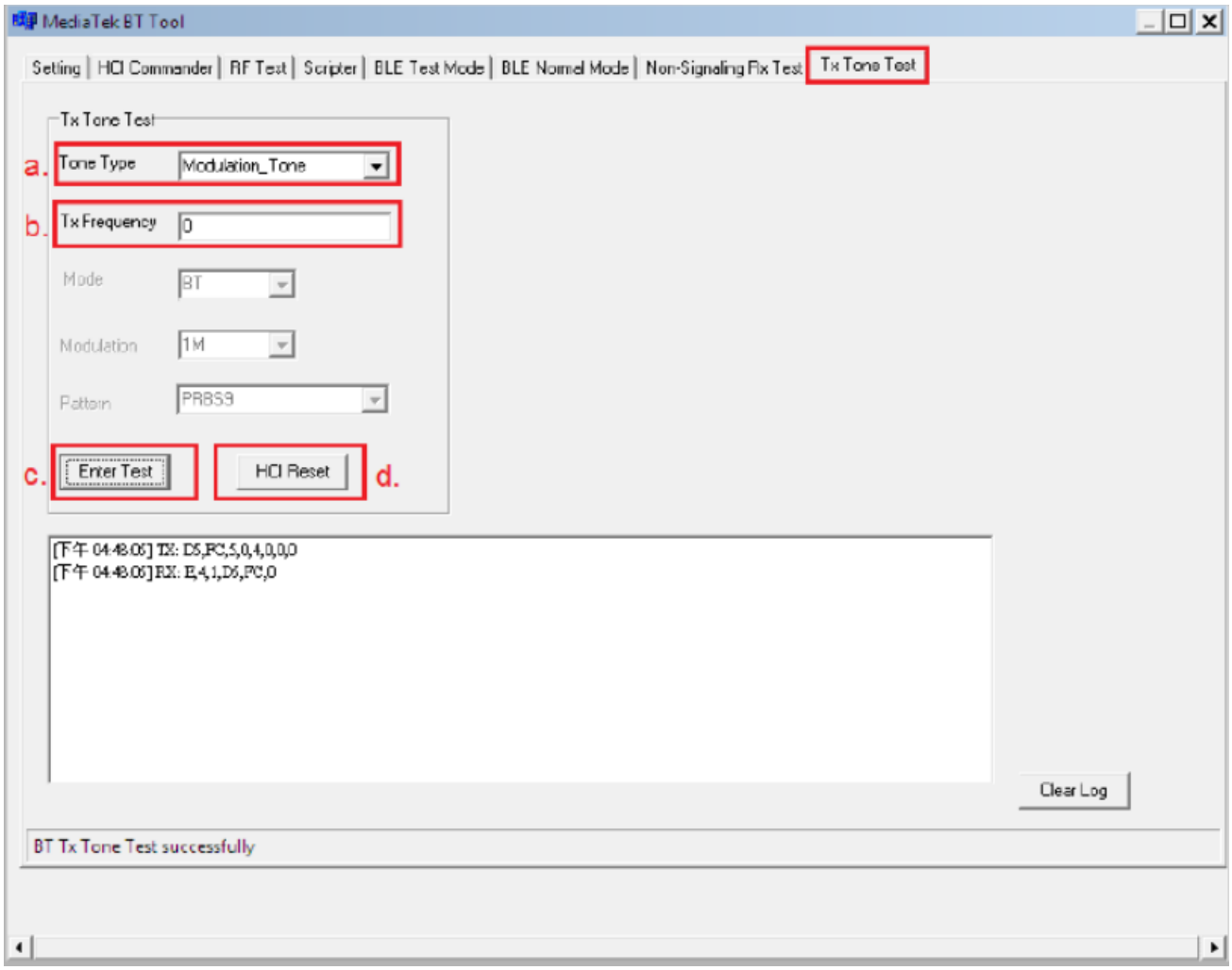
Non-modulated signal

- **a.**Select Tone Type: Single_Tone_DC
- **b.**Select Tx Frequency (channel) number: 0 ~ 78
- **c.**Click “ Enter Test ” button to start signal transmitting.
- **d.**Click “ HCI Reset ” button to stop signal transmitting
- Repeat a ~ d if Tx channel is changed.



Modulated signal

- **a.**Select Tone Type: Modulation_Tone
- **b**.Select Tx Frequency (channel) number: 0 ~ 78
- **c**.Click “ Enter Test ” button to start signal transmitting.
- **d**.Click “ HCI Reset ” button to stop signal transmitting
- Repeat a ~ d if Tx channel is changed.



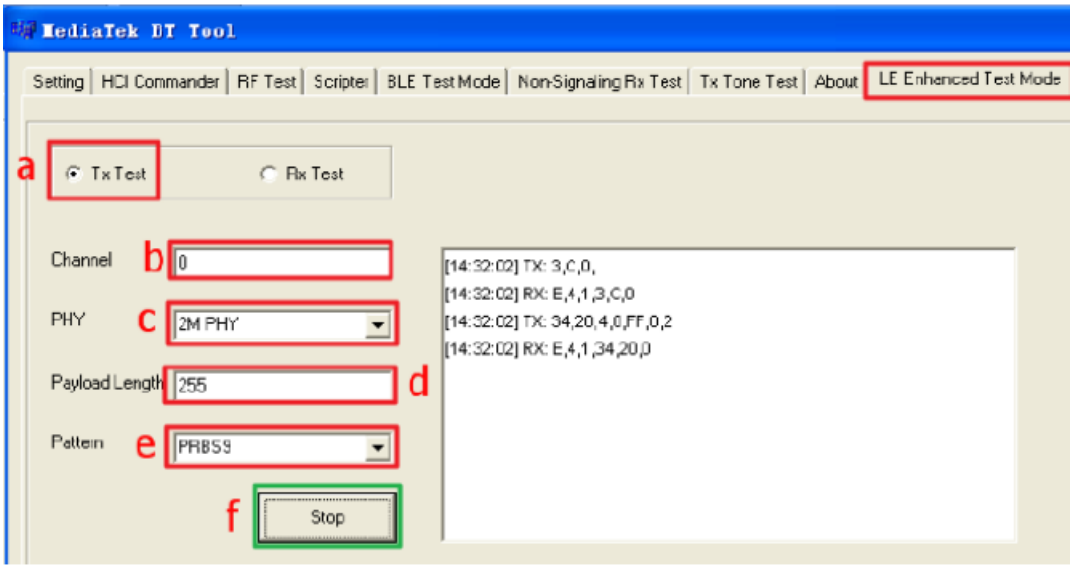
BLE Enhanced TX Test Mode

- “LE Enhanced Test Mode” support part of BT5 LE feature test.
- This BT5.0 testing can be executed with equipment likes R&S® CMW270/500 which support BT5.0 feature.
- As CMW270/500, users could have detailed information of this Bluetooth tester from this URL:
- **https://www.rohde-schwarz.com/product/cmw270-productstartpage_63493-9552.html**

- Ensuring Device is opened and “ RESET Device ” button is clicked on “Setting” page. After that, change the page to “LE Enhanced Test Mode

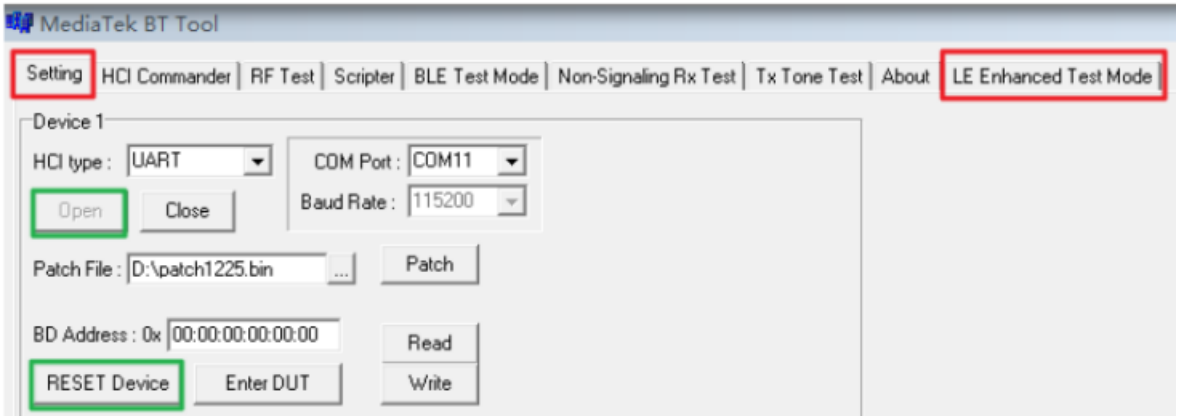
TX Setting

- **a.**Select Tx test
- **b.**Set channel number (0~78)
- **c.**Select PHY type (1M, 2M PHY……)
- **d**.Set Payload Length (0~255)
- **e**.Select Pattern type
- **f**.Click “ Start ” button to start transmitting. Click “ Stop ” button to stop transmitting.
- Repeat a~f if Tx pattern, channel, PHY type or Payload Length are changed.



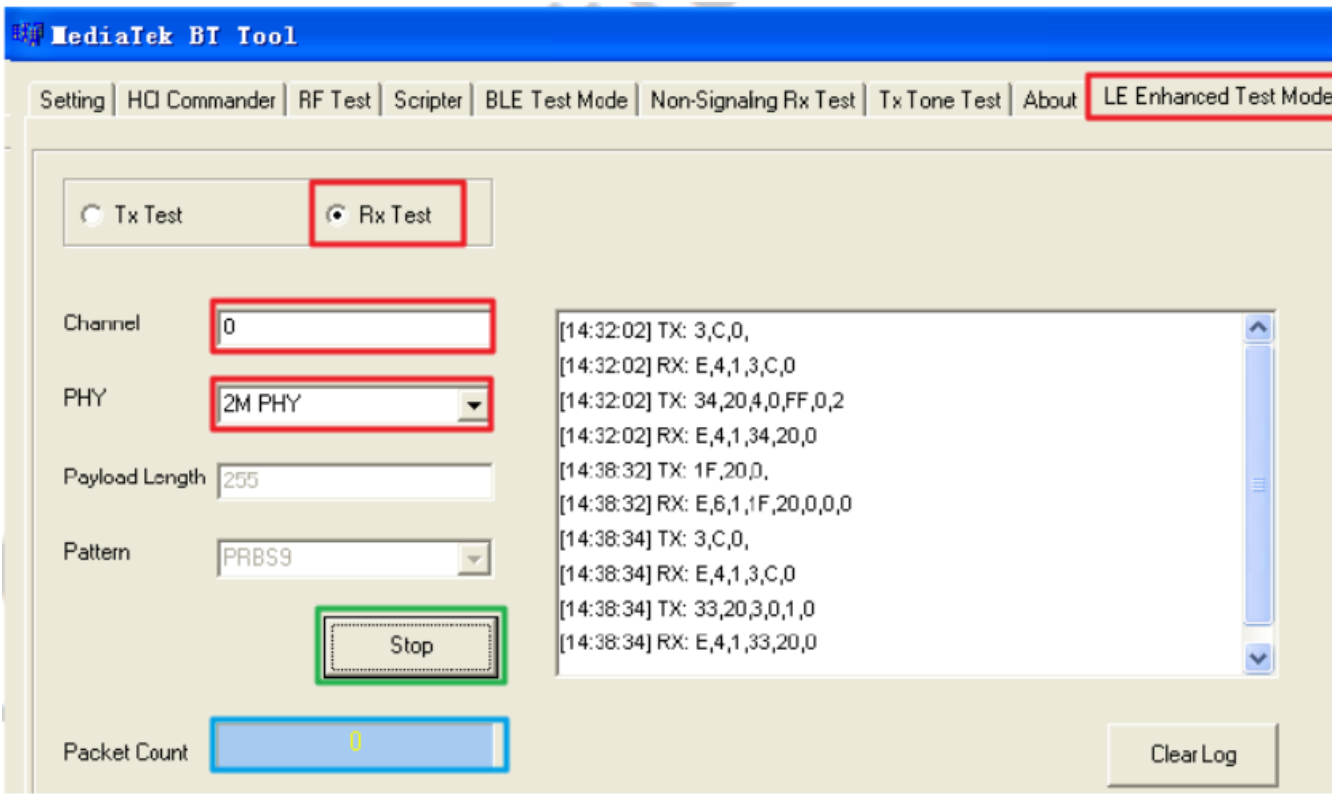
BLE Enhanced RX Test Mode

- Ensuring Device is opened and “ RESET Device ” button is clicked on “Setting” page. After that, change the page to “LE Enhanced Test Mode”



RX Setting

- **a.**Select Rx test
- b.Set channel number (0~78)
- **c**.Select PHY type (1M, 2M PHY……)
- **d**.Click Start button, Click Stop button again. RX results are shown in Packet Count.
- Repeat a~d if Rx channel or PHY type are changed.



Document Revision History

Version	Date	Author	Change List
V1.0	2019/03/06	Xingqi	Initial Released.
V1.1	2019/05/05	Xingqi	Modify typo.

Documents / Resources

	Acer MT7663 Test Mode Software Application [pdf] Owner's Manual MT7663, HLZMT7663, HLZMT7663, mt7663, MT7663 Test-Mode Software Application, Test Mode Software Application, Software Application

References

- R&S®CMW270 wireless connectivity tester | Rohde & Schwarz
- R&S®CMW270 wireless connectivity tester | Rohde & Schwarz