

WIFI+BT Module

IEEE 802.11b/g/n/a 2T/2R +Bluetooth

Model Number: WT39M2011

Product Description

TCL WT39M2011 is a high-gain and low power consumption wifi module . It fully complies with IEEE 802.11n and IEEE 802.11b/g/a feature rich wireless connectivity at high standards, delivers reliable, cost-effective, throughput from an extended distance. When 5V, USB bus and GND were connected, This module is working. The Bluetooth part supports latest 4.0+HS operation.

Product Features

- ◆ Complies with IEEE 802.11g; 802.11b; 802.11n ; 802.11a standard for 2.4GHz and 5GHz Wireless LAN.
- ◆ TWO Transmit and TWO Receive path(2T2R)
- ◆ Supports Ad-Hoc/Infrastructure modes
- ◆ Works with all existing network infrastructure.
- ◆ Capable of up to 128-Bit WEP Encryption.
- ◆ Freedom to roam while staying connected.
- ◆ UP to 300 Mbps High-Speed Transfer Rate in 802.11n mode of operation.
- ◆ Operating Systems: Windows XP 32/64, 2000, Windows 7, Vista 32/64, Linux, Macintosh
- ◆ Low power consumption.
- ◆ Easy to install and configure.
- ◆ Bluetooth v4.1 Low Energy(LE);
- ◆ Bluetooth specification v2.1+EDR;

Product Specification

Model	WT39M2011
Product Name	WIFI+BT Module
Standard	802.11b/g/n /a
Interface	12pin Interface
Data Transfer Rate	1, 2, 5, 5.5, 6, 11, 12, 18, 22, 24, 30, 36, 48, 54, 60, 90, 120 and maximum of 300Mbps
Modulation Method	QPSK , BPSK , CCK(802.11b) QPSK , BPSK , 16QAM , 64QAM with OFDM (802.11g) BPSK , QPSK , 16QAM , 64QAM with OFDM(802.11n) QPSK , BPSK , 16QAM , 64QAM with OFDM (802.11a)
Frequency Band	2.4GHz: CH 1~CH11 for FCC 5GHz: 5150~5250MHz, 5725~5850MHz Bluetooth: 2402~2480 MHz
Transmit Power	< 18dBm
Operation Mode	Ad hoc, Infrastructure
Operation Range	Up to 300 meters in open space
OS Support	Windows XP 32/64, 2000, Windows 7, Vista 32/64, Linux, Macintosh
Security	WEP, TKIP, AES, WPA, WPA2
Operating Voltage	5V±10%
Operating Temperature	-10 ~ 70°C ambient temperature
Storage Temperature	-55 ~ 125°C ambient temperature
Humidity	5 to 90 % maximum (non-condensing)

FCC Important Notes:**(1)****FCC Statement**

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. Modular could be only used in mobile or fix device, and could not be used in any portable device.

Caution!

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user authority to operate the equipment.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

This device and its antennas(s) must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with FCC multi-transmitter product procedures.

(2)**Co-location Warning:**

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

(3)**OEM integration instructions:**

This device is intended only for OEM integrators under the following conditions:

The transmitter module may not be co-located with any other transmitter or antenna. The module shall be only used with the integral antenna(s) that has been originally tested and certified with this module.

As long as 3 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

(4)**Validity of using the module certification:**

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

(5)**End product labeling:**

The final end product must be labeled in a visible area with the following:

“Contains Transmitter Module FCC ID: 2AC23-WT39M2011”.

(6)**Information that must be placed in the end user manual:**

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.



FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IEEE 802.11b or 802.11g operation of this product in the USA is firmware-limited to channels 1 through 11.

The device for the band 5150-5250 MHz is only for indoor usage to reduce the potential for harmful interference to co-channel mobile satellite systems.

IC Statement

- English: "

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device."

The final end product must be labeled in a visible area with the following:

"Contains Transmitter Module IC: 12290A-WT39M2011".

- French:"

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement."

WIFI 安装说明：（BT 安装见另一份文件）

WIFI Installation instructions:(BT Installation see another file)

1, 双击 目录:

Double-click the folder:

MT7662U_QA_Tool_V1.0.3.0。



2, 插入 wifi 模组

Insert the wifi module

3, 如果遇到查找驱动, 请选择上面安装的测试软件的目录。(BT 硬件安装直接跳过, 否则会出现蓝屏。BT 和 WIFI 驱动最好分开安装)

If there is any driver needed, please choose the folder mentioned by step1.(Skip the BT Hardware Installation, otherwise there will be blue screen. The BT driver and WIFI driver should better be installed separately.)

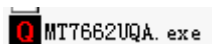
4, 安装完成。The Installation is complete.

测试软件使用如下:

Test software for use:

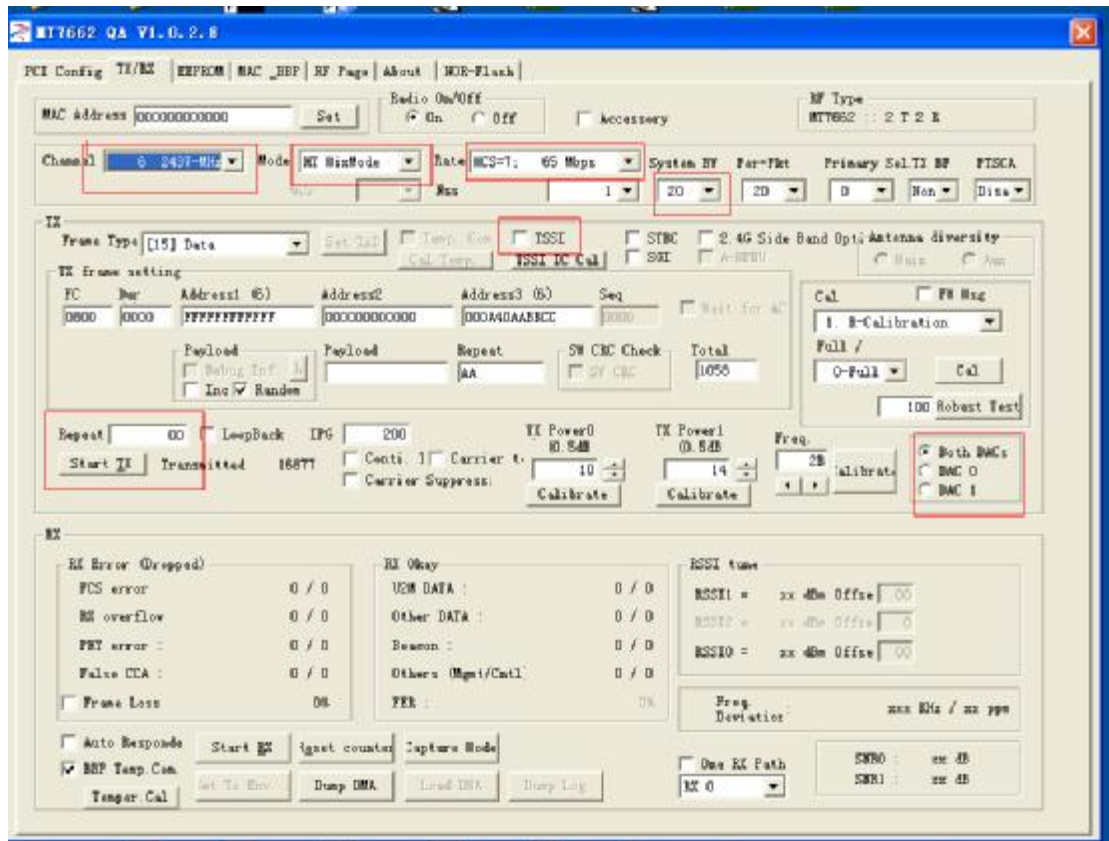
1, 点击图标

Click the icon

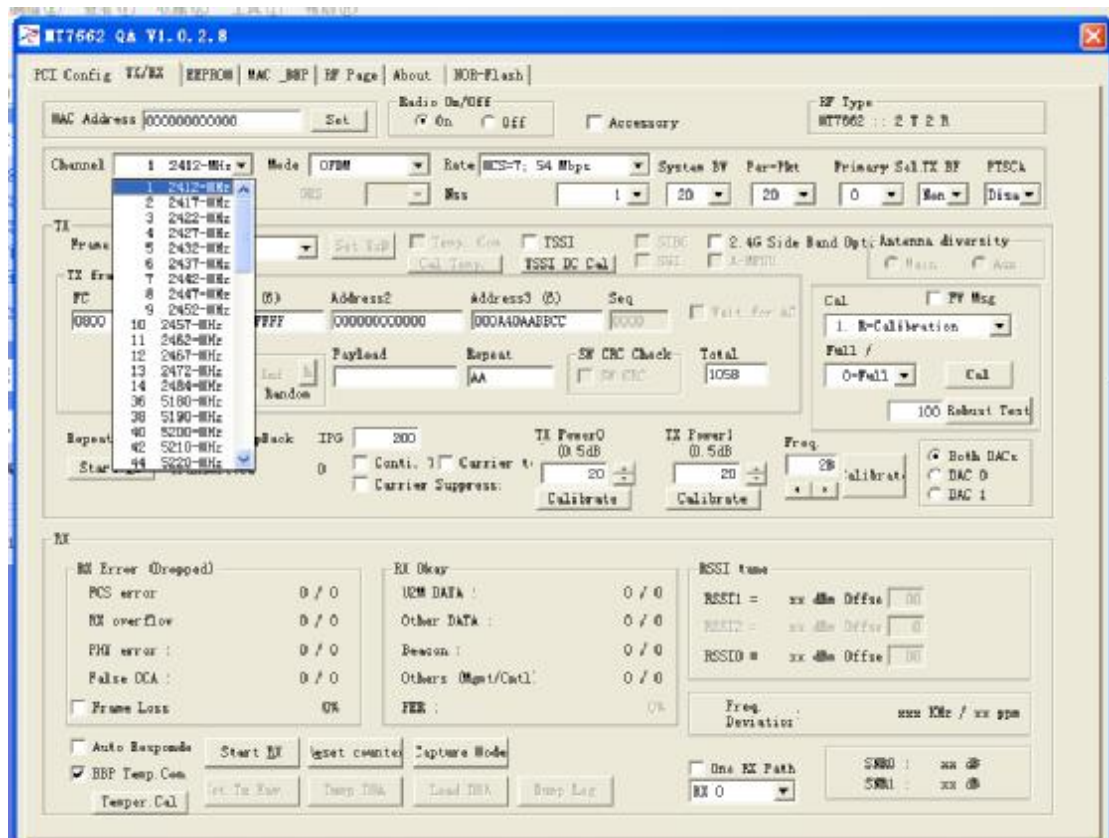


2, 进入如下界面

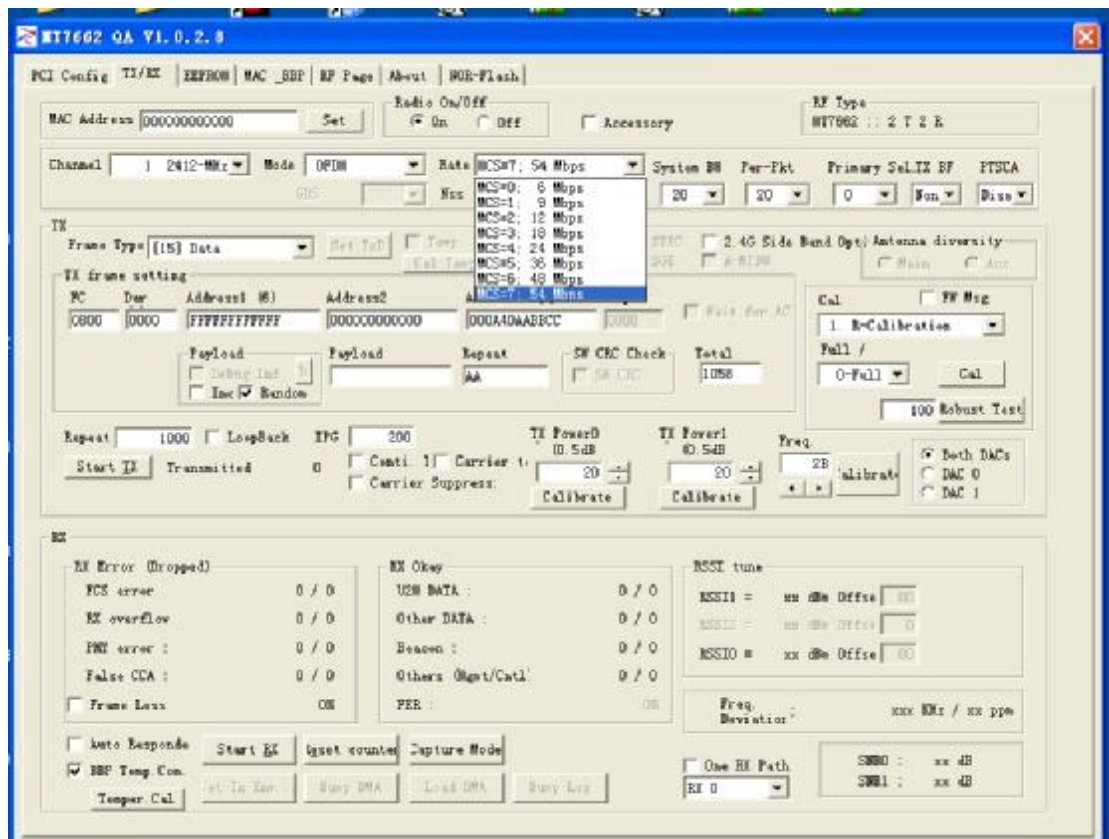
Enter the following interface



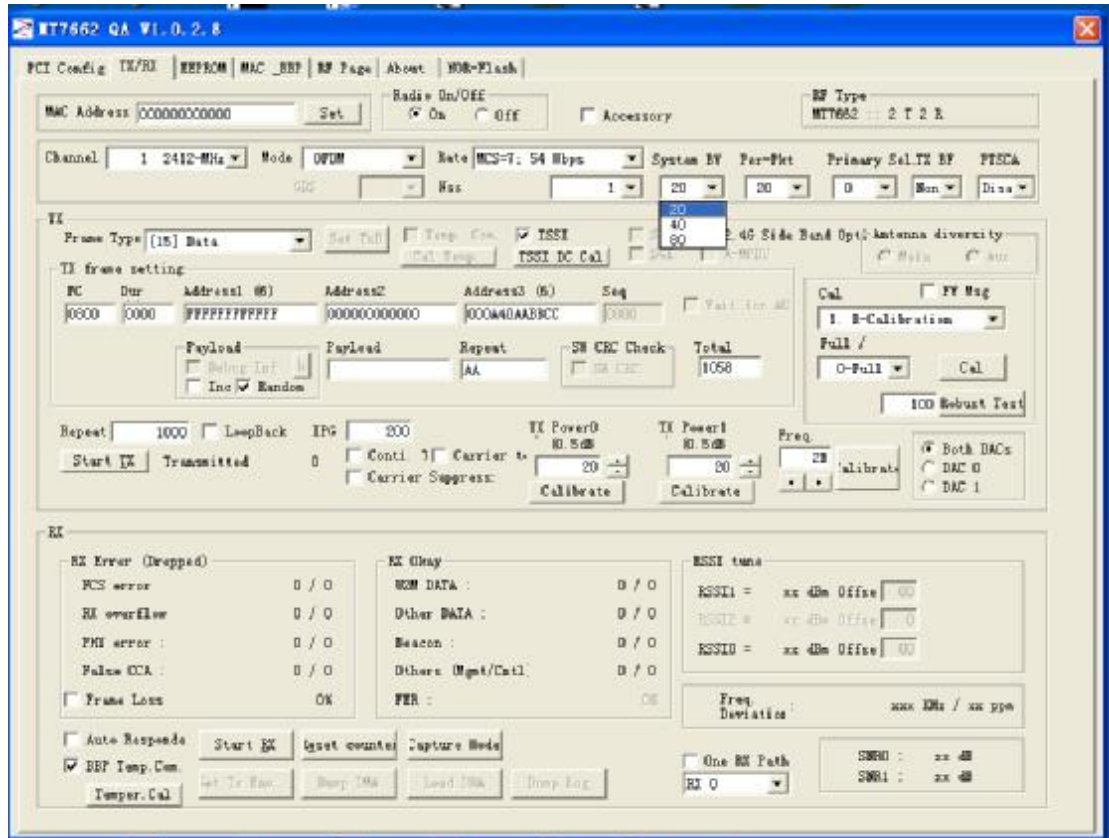
- 3, 选择频道
Select the Channel



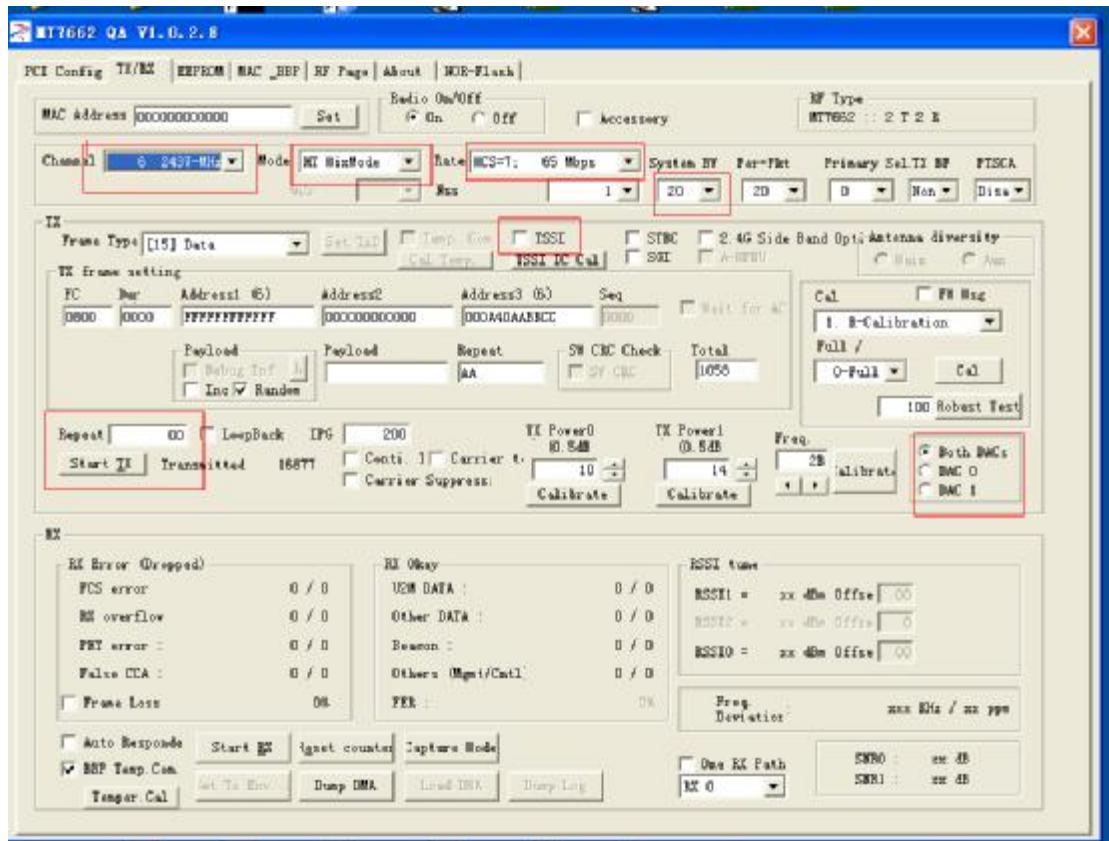
- 4, 选择数率
Select the Rate



- 5, 选择带宽
Select the Bandwidth



6. 按照红色提示框设置完后，点击 start testing
According to the setup outlined in red, click the Start TX

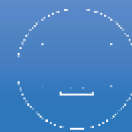


7. 开始测试
Start Testing



MT7662 BT Tool User Manual

V0.1



History

Version	Date	Author	Description
V0.0	2013/07/18	William	Create the file.
V0.1	2013/08/07	William	Update Real com relay SOP.

Agenda

- SOP- How to install USB BT Tool and Driver
 - **Update USB driver:**
 - Update USB driver_Method_A
 - Update USB driver_Method_B
 - **BT Tool in WCN Combo Tool:**
 - COM and Download patch
- SOP - How to use BT Tool
 - BT Tool:
 1. **Setting** page for Bluetooth Test-Mode
 2. **RF Test** page for BR & EDR TX-Mode
 3. **BLE Test mode** page for LE TX/RX-Mode
 4. **Non-signaling RX Test** page for BR & EDR RX-Mode
 5. **TX tone Test** page for BR/EDR/LE continuous TX-Mode

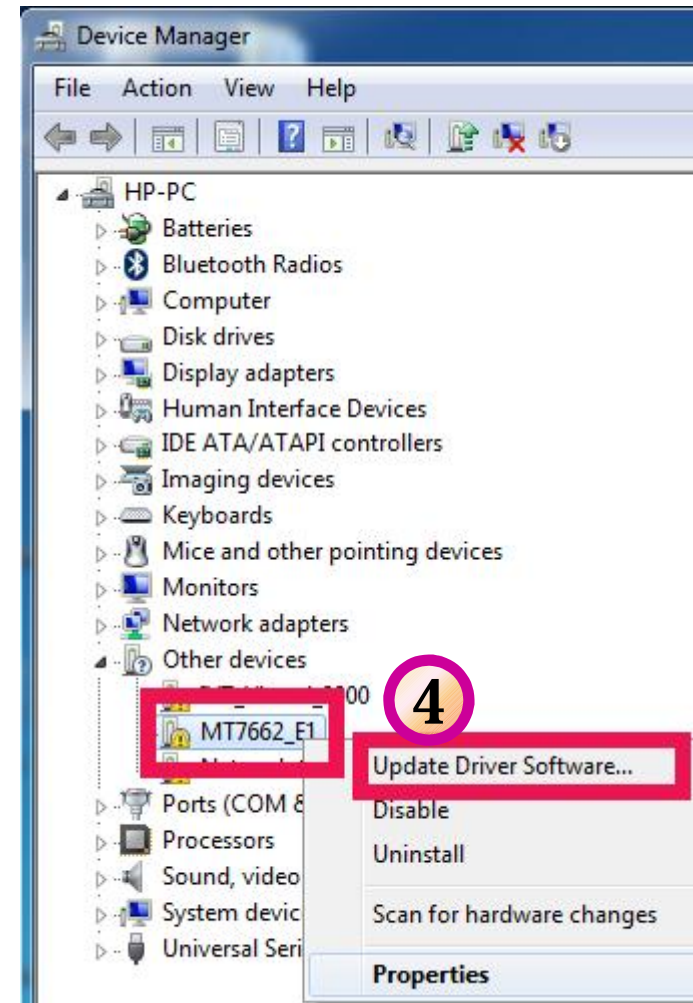
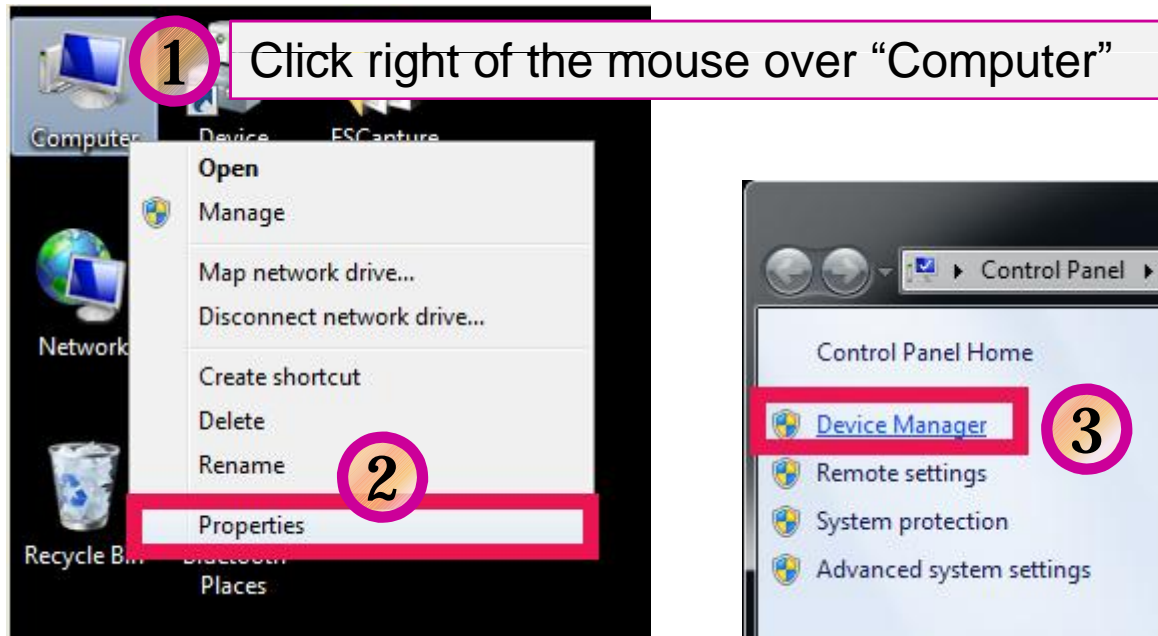


SOP- How to install USB BT Tool and Driver

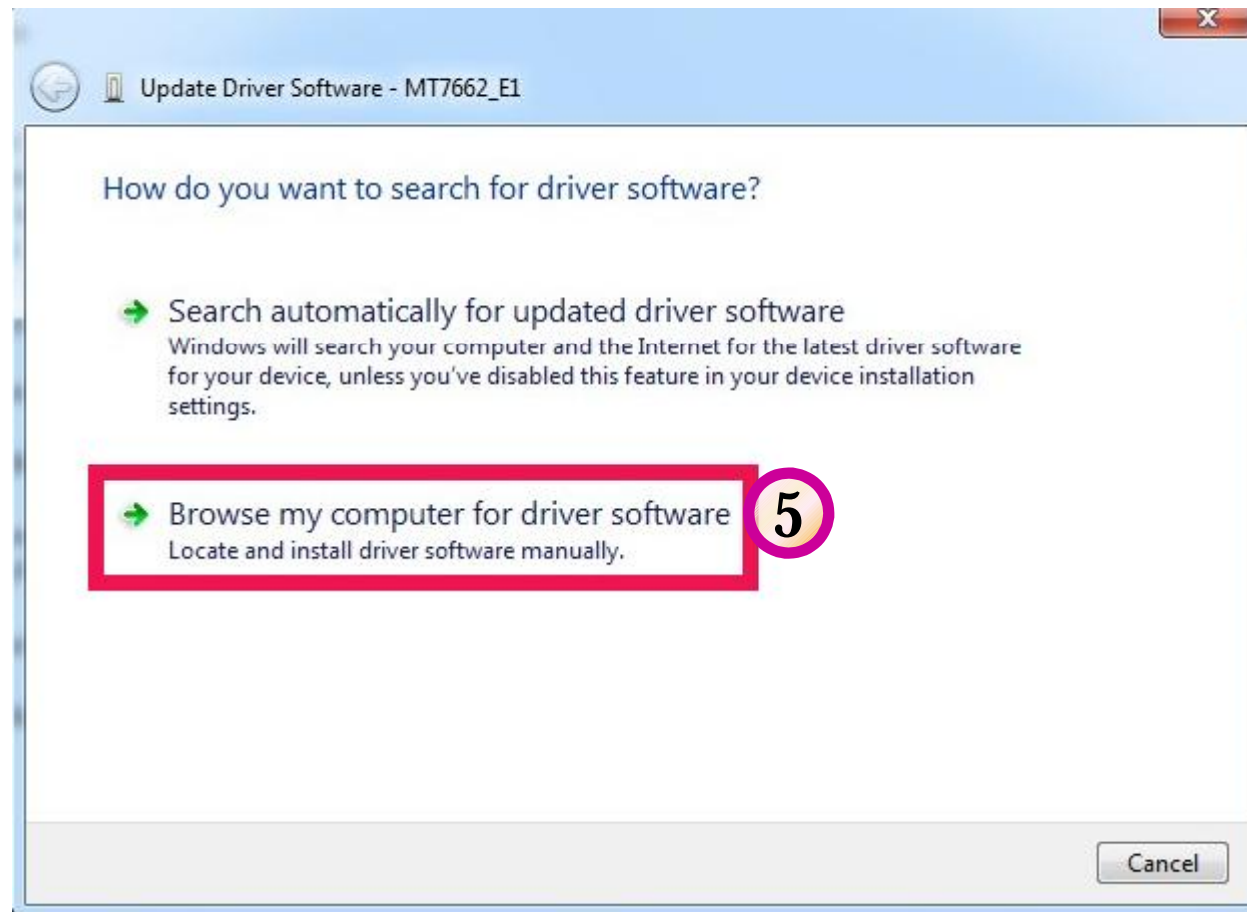


Update USB driver

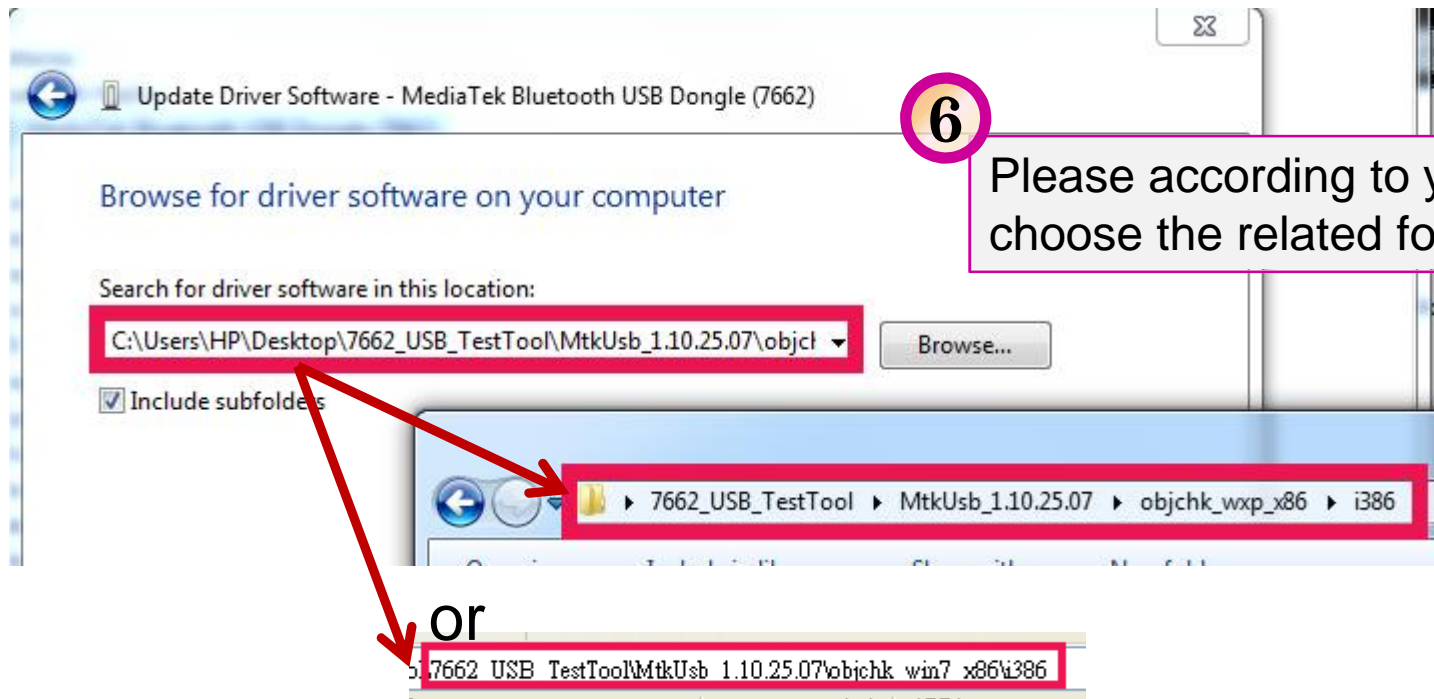
1. Plug in the USB DUT
2. Go to the “Device Manager”
3. Select “BT” device to install BT driver.



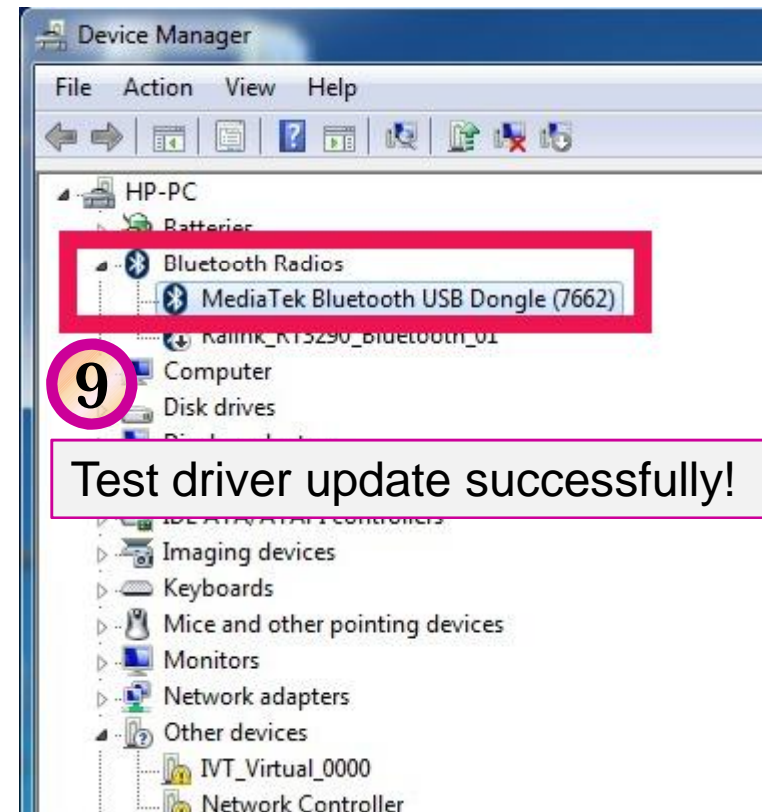
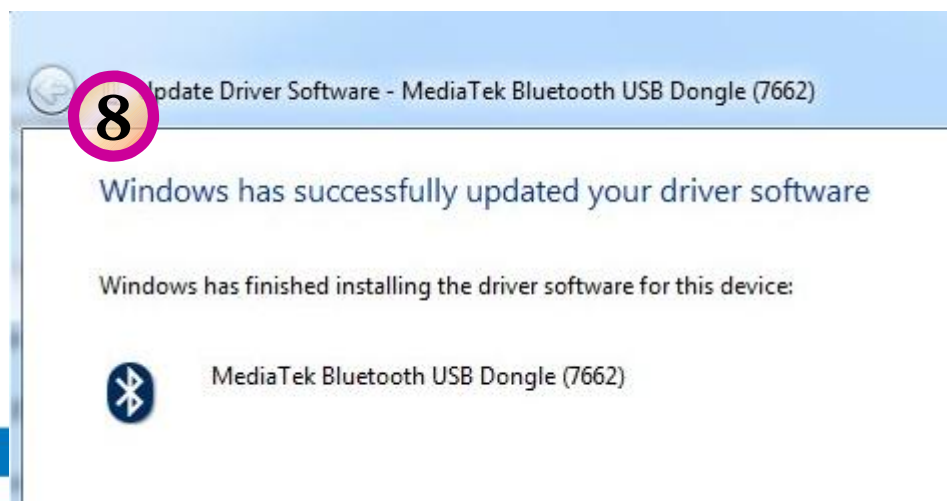
Update USB driver (Cont.)



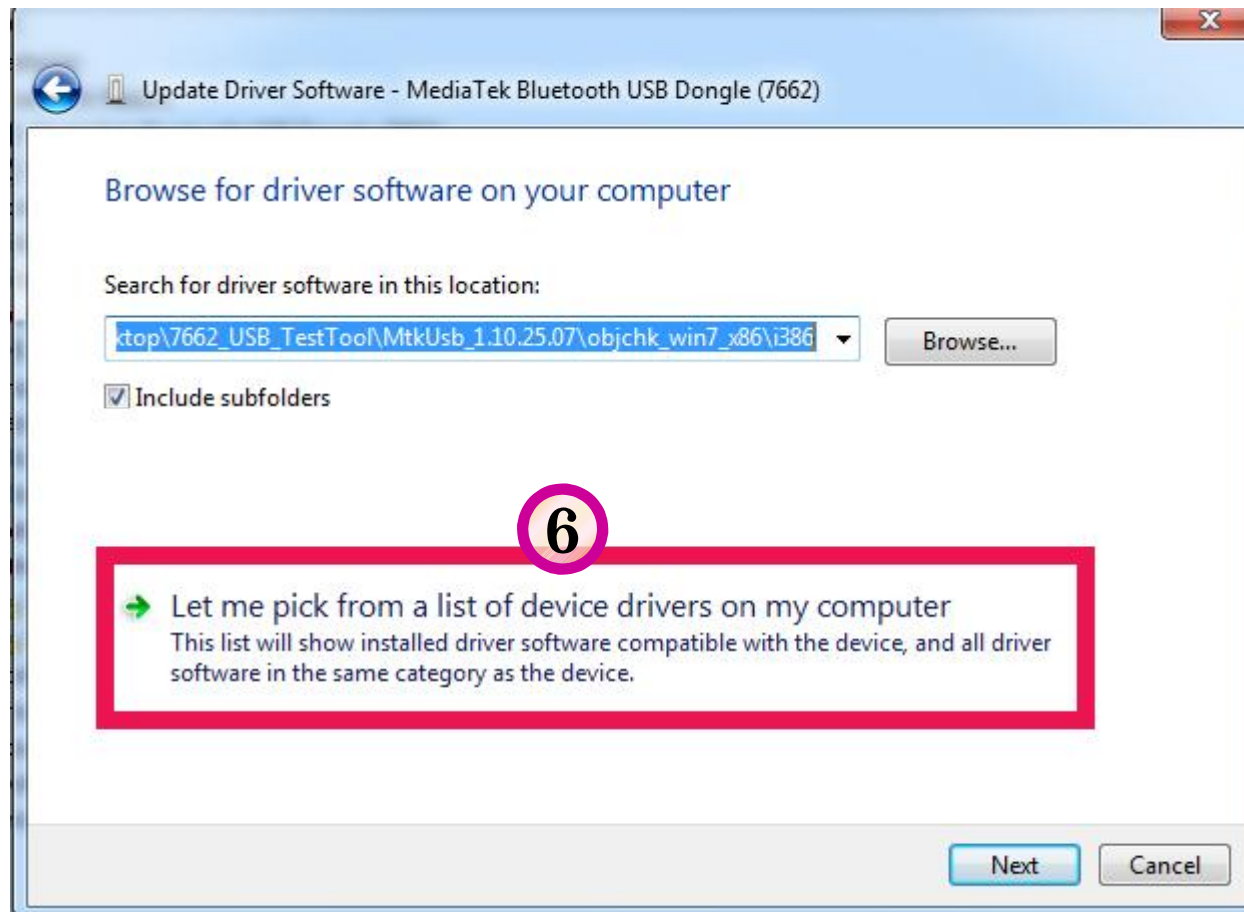
Update USB driver_Method_A



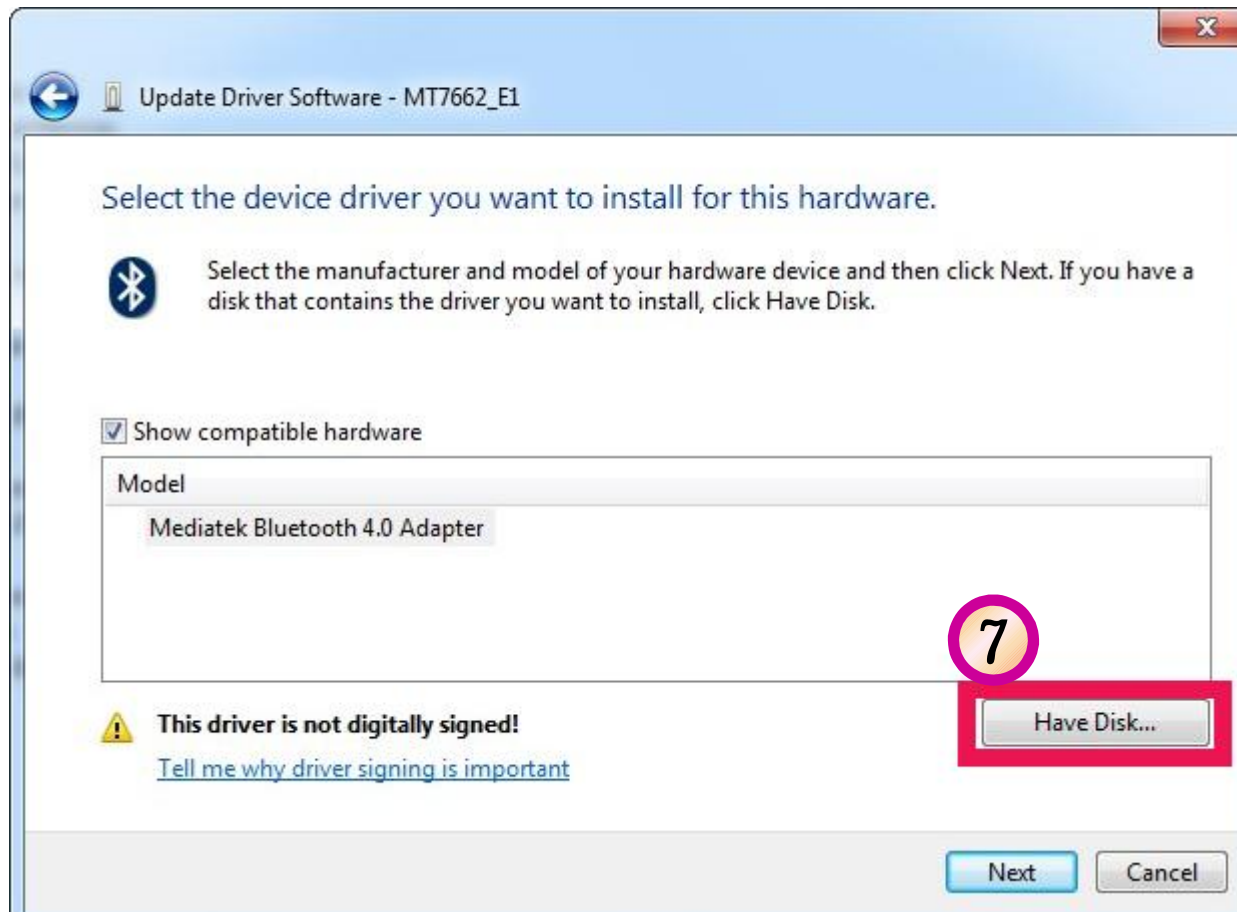
Update USB driver_Method_A (cont.)



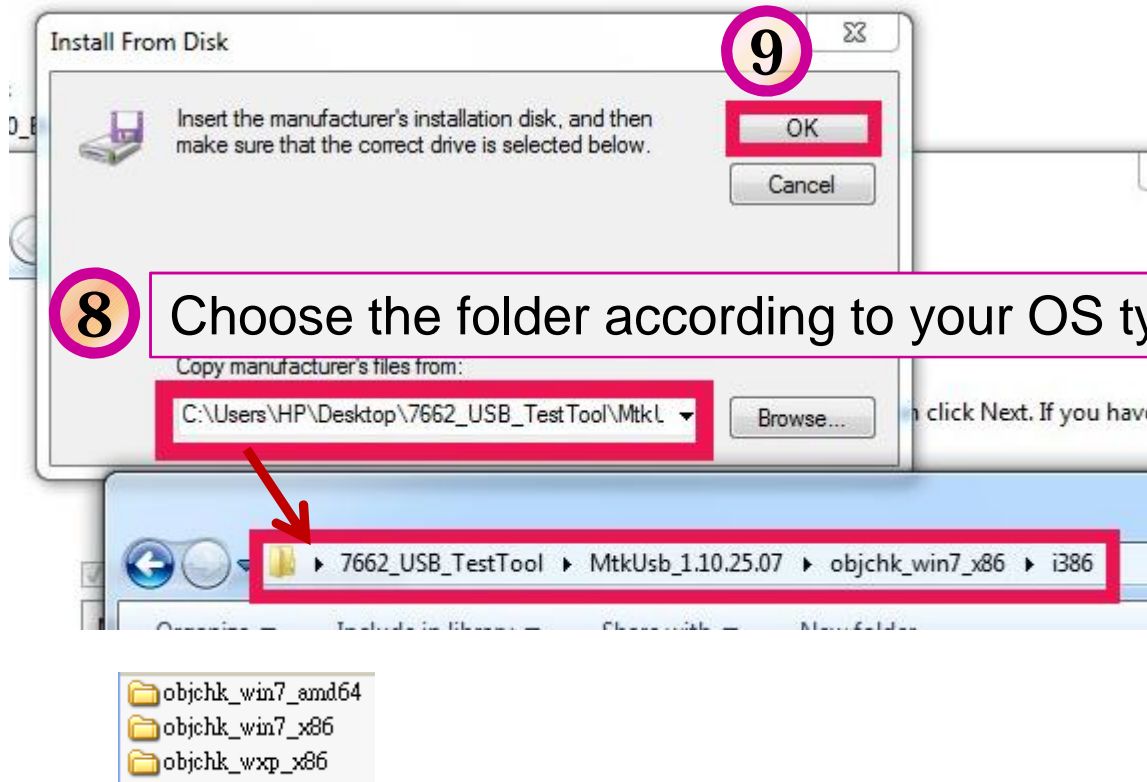
Update USB driver_Method_B



Update USB driver_Method_B (Cont.)



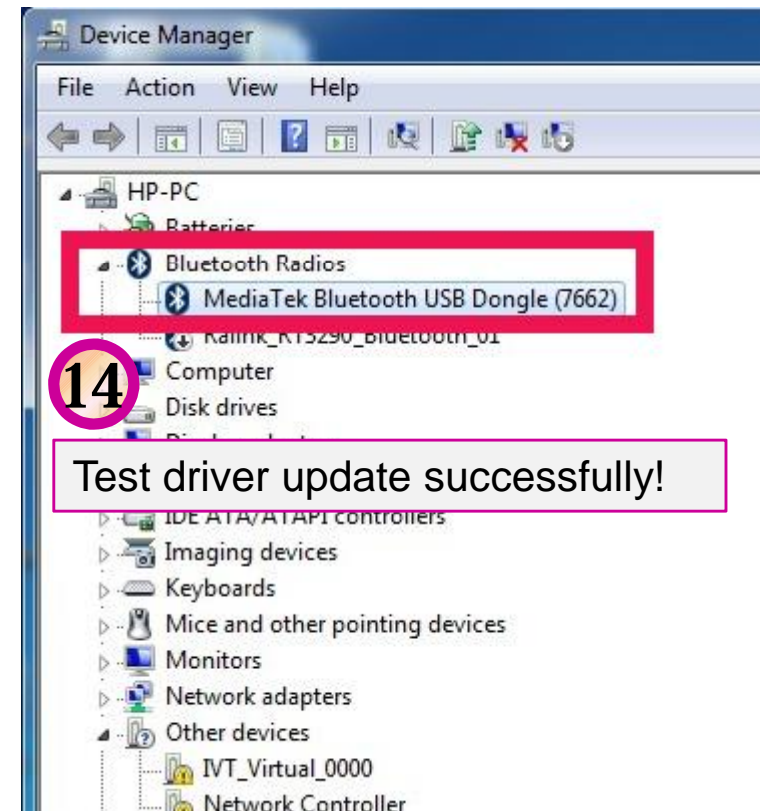
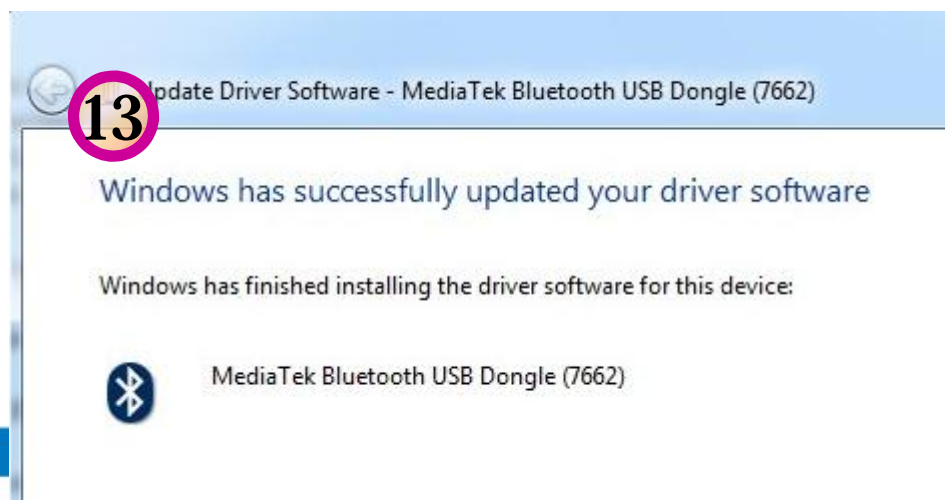
Update USB driver_Method_B (Cont.)



Update USB driver_Method_B (Cont.)

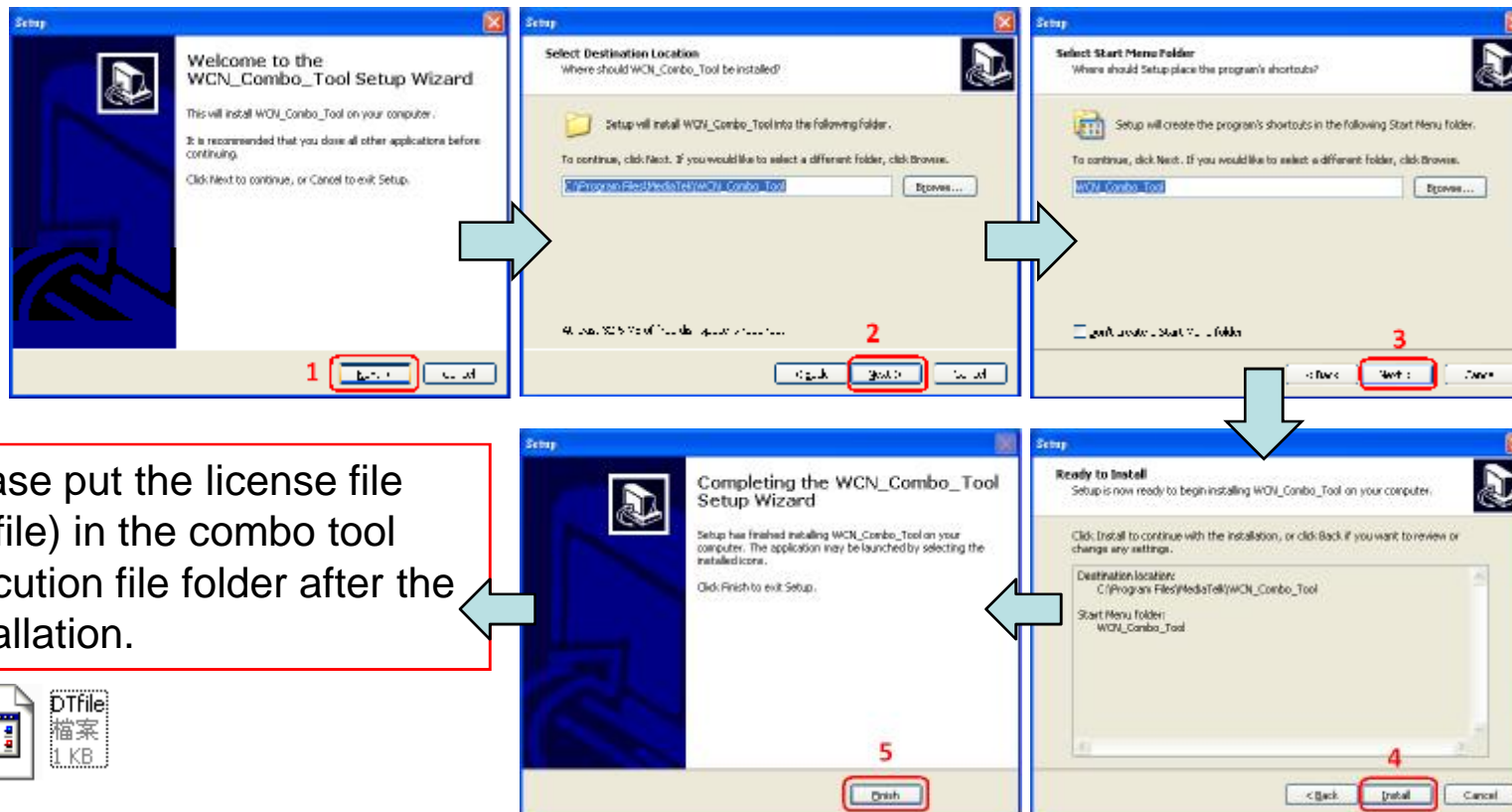


Update USB driver_Method_B (Cont.)

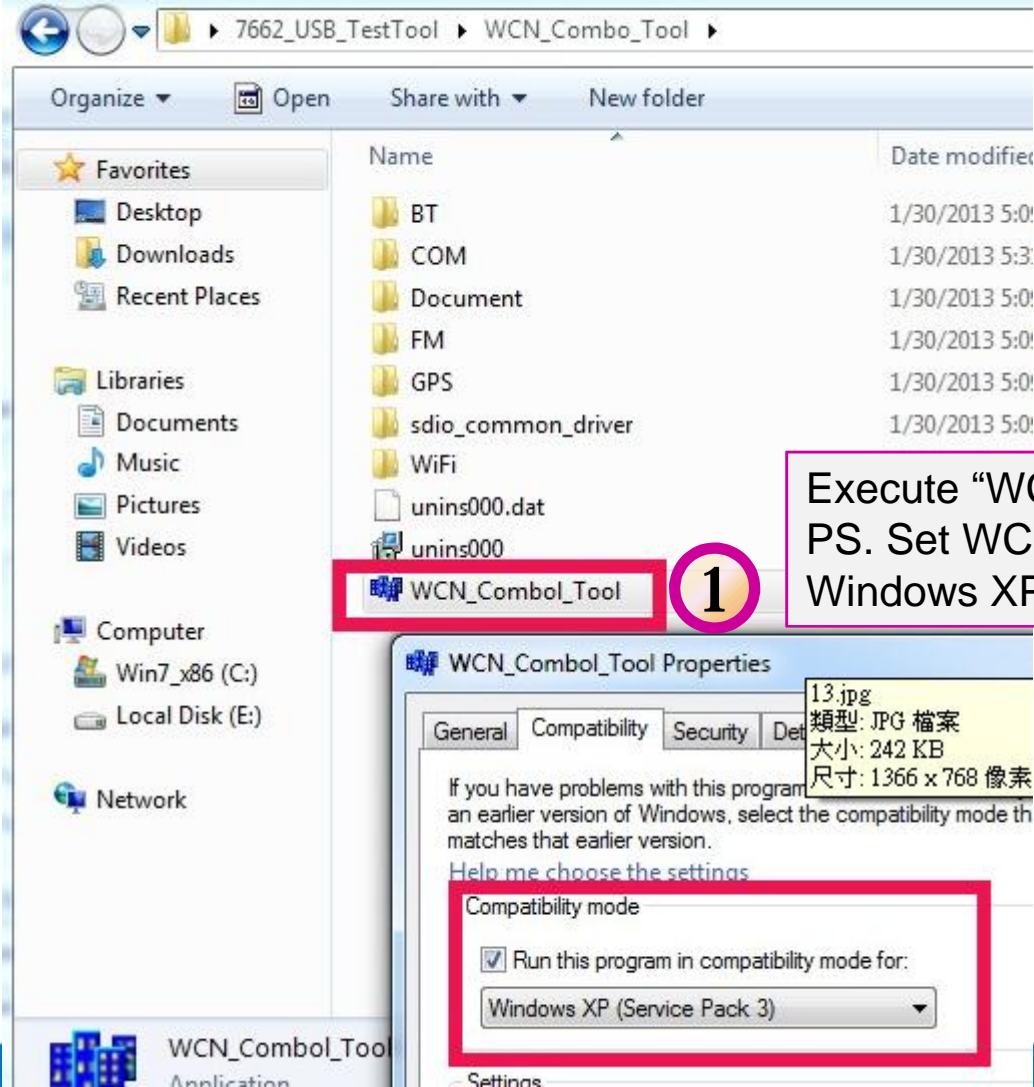


WCN Combo Tool

- Install BT tool: WCN_Combo_Tool_Setup.exe



BT Tool in WCN Combo Tool



The screenshot shows a Windows Explorer window with the address bar set to `7662_USB_TestTool > WCN_Combol_Tool`. The file list includes folders like BT, COM, Document, FM, GPS, sdio_common_driver, and WiFi, along with files `unins000.dat` and `unins000`. The `WCN_Combol_Tool` file is highlighted with a red box and a circled '1'. A text box next to it provides instructions: "Execute 'WCN_Combol_Tool' PS. Set WCN_Combol_Tool Compatible to Windows XP if your OS is WIN7 or WIN8". Below this, the 'WCN_Combol_Tool Properties' dialog is open to the 'Compatibility' tab. The 'Run this program in compatibility mode for:' checkbox is checked, and the dropdown menu is set to 'Windows XP (Service Pack 3)'. A tooltip for '13.jpg' is also visible over the dialog.

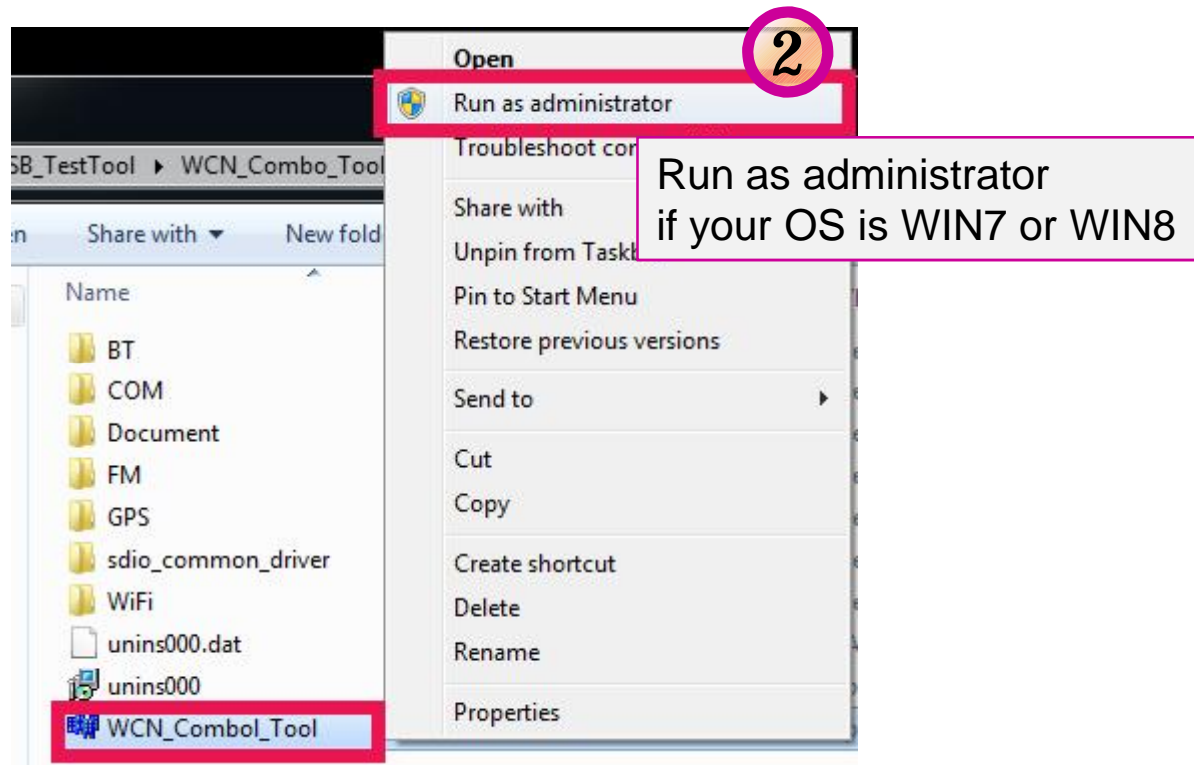
Execute "WCN_Combol_Tool"
PS. Set WCN_Combol_Tool Compatible to Windows XP if your OS is WIN7 or WIN8

13.jpg
類型: JPG 檔案
大小: 242 KB
尺寸: 1366 x 768 像素

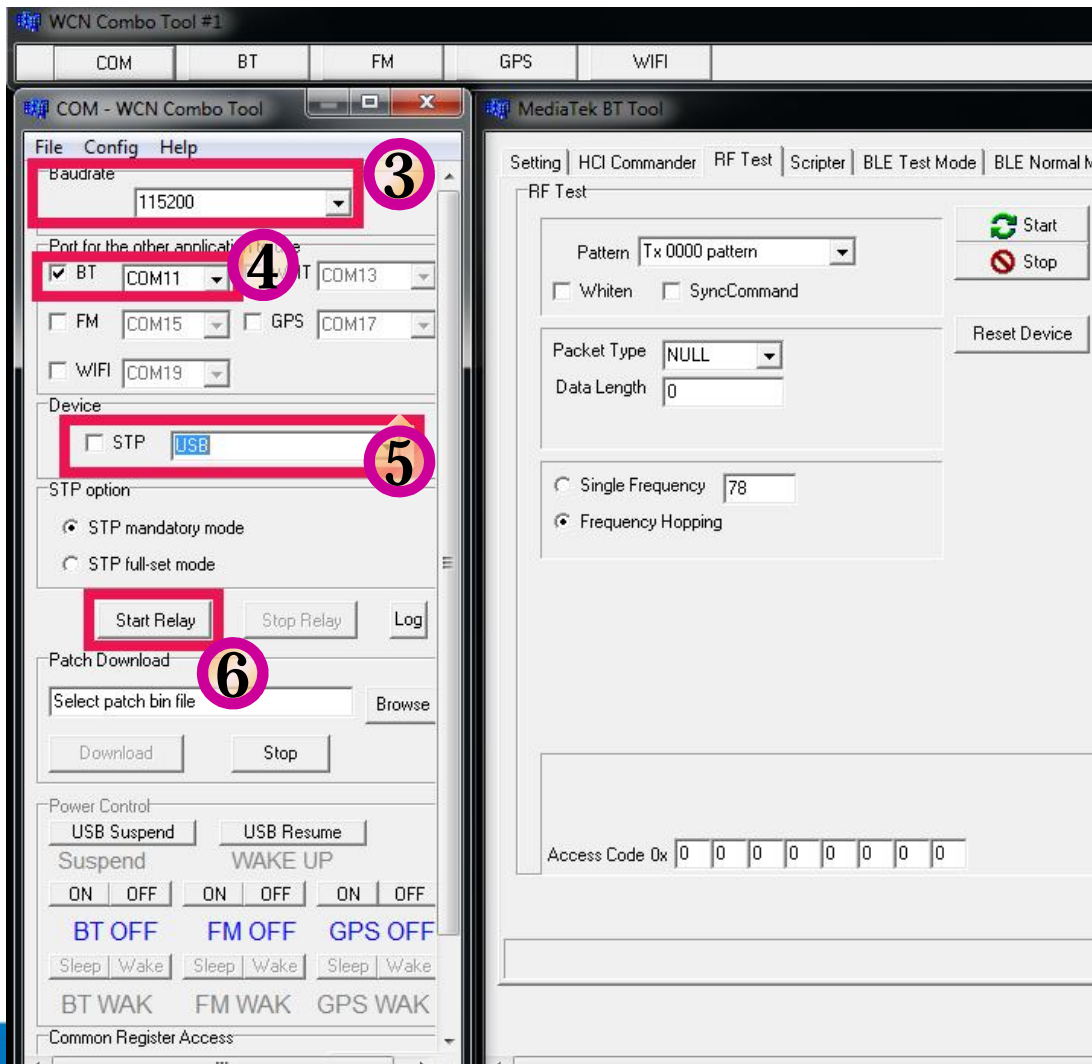
WCN_Combol_Tool
Application

MEDIA TEK

BT Tool in WCN Combo Tool (cont.)

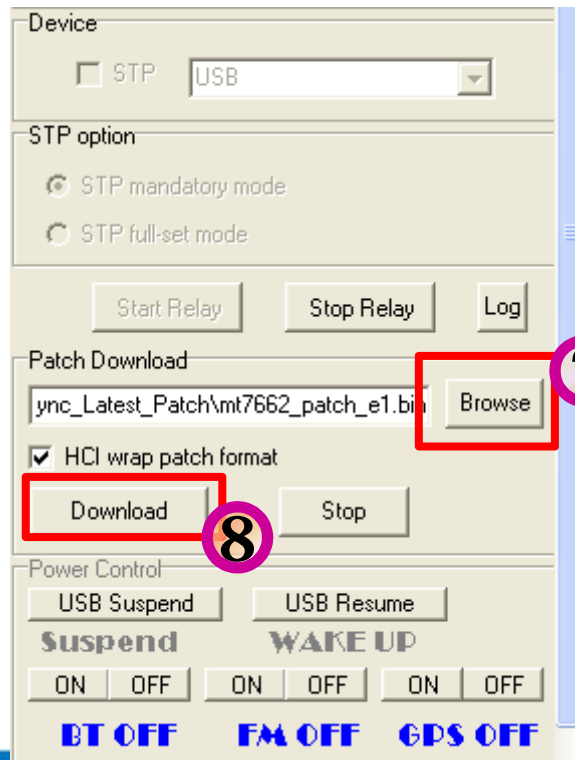


BT Tool in WCN Combo Tool (Cont.)



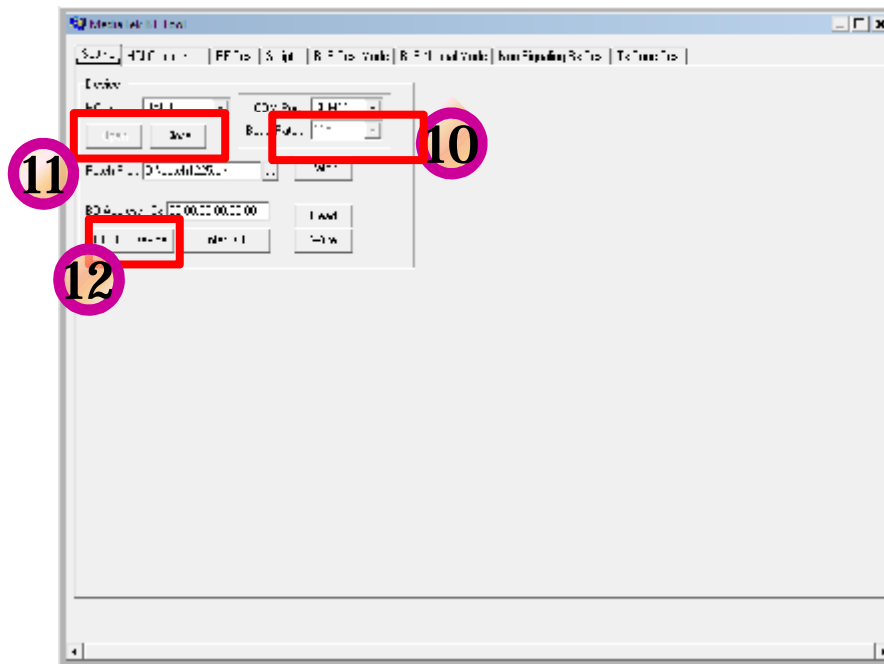
BT Tool in WCN Combo Tool (Cont.)

- Click “Browse” button to choose suitable patch file.
- Click “Download” button to download patch.
- A dialog window will pop up to inform the result of download procedure.



BT Tool in WCN Combo Tool (Cont.)

- Select this specific COM port number first.
 - this specific COM port number is the same as step4 in previous pages.
- Click “Open” to open BT COM port ; click “Close” to close BT COM port.
- **Remember to click “RESET Device” after BT COM port is opened.**



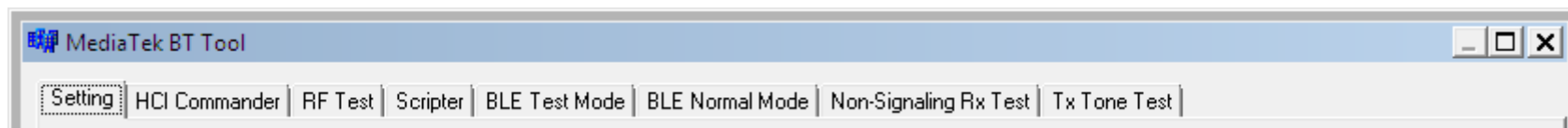


SOP - How to use BT Tool



BT Tool in WCN Combo Tool


- BT Tool:
 1. **Setting** page for Bluetooth Test-Mode
 2. **RF Test** page for BR & EDR TX-Mode
 3. **BLE Test mode** page for LE TX/RX-Mode
 4. **Non-signaling RX Test** page for BR & EDR RX-Mode
 5. **TX tone Test** page for BR/EDR/LE continuous TX-Mode

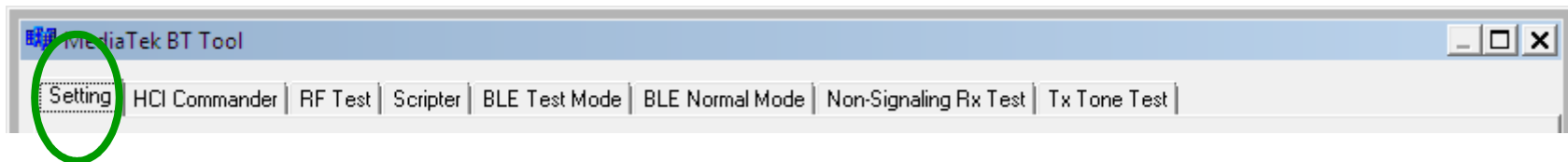


How to use BT Tool

- BT Tool:

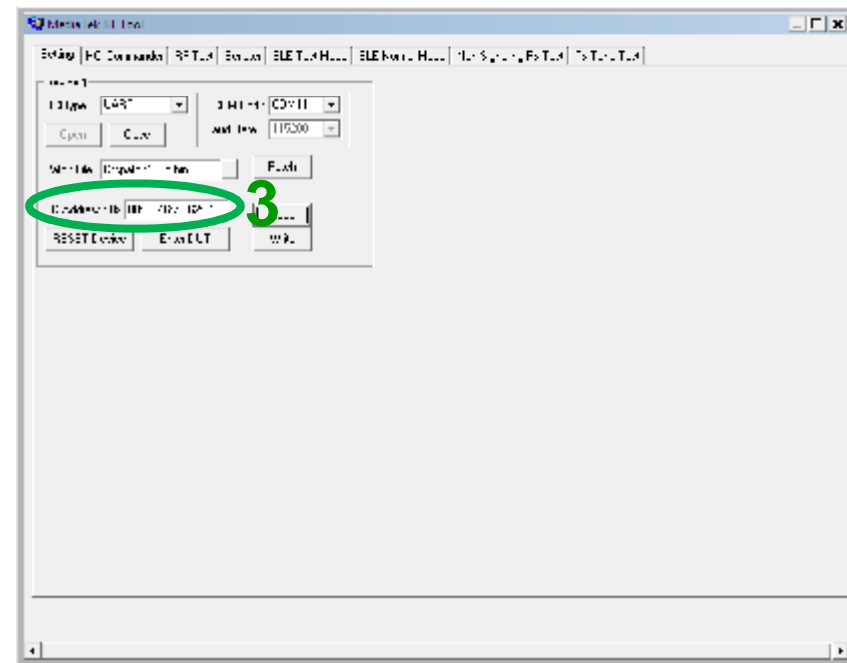
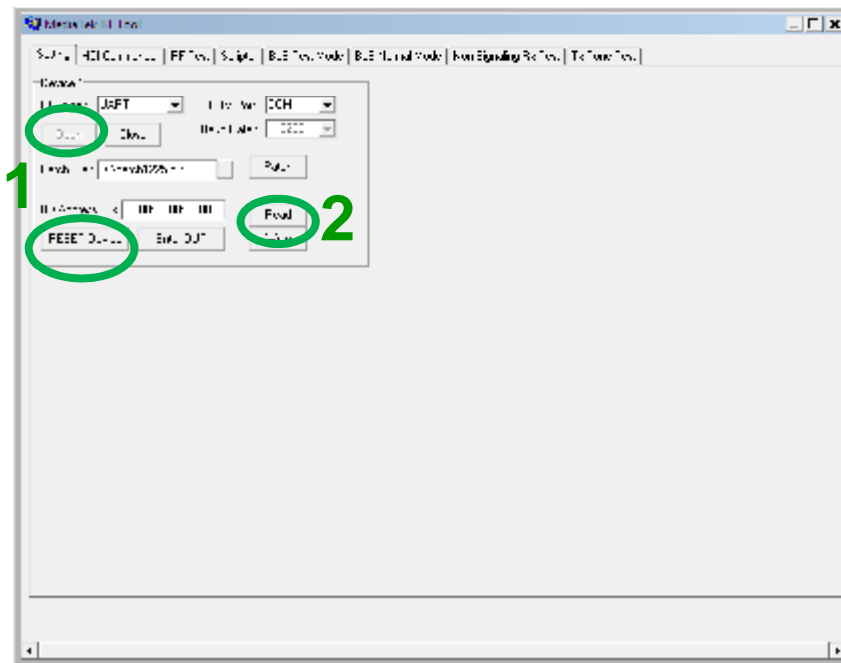
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5. TX tone Test page for BR/EDR/LE continuous TX-Mode

- 
- Open / Close COM
 - Read BD Address
 - **Enter Test Mode**



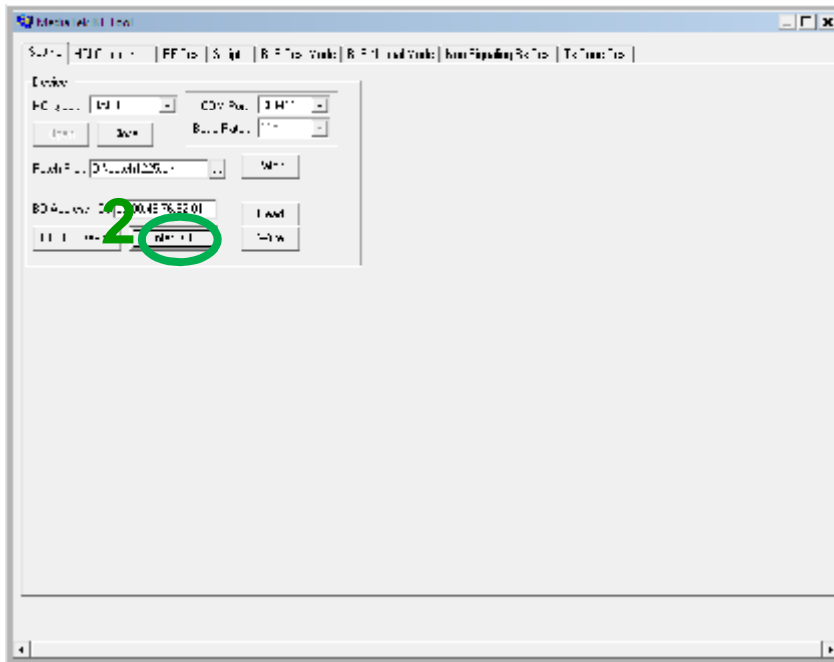
Read BD Address

1. Ensure BT COM port is opened and “RESET Device” button is clicked.
2. Click “Read” button.
3. BD Address is updated



Enter Test Mode

1. Ensure BT COM port is opened and “RESET Device” button is clicked.
2. Click “**Enter DUT**” button to allow DUT to enter test mode.
3. The connection between DUT and test set (ex: CBT) could be established under test mode.

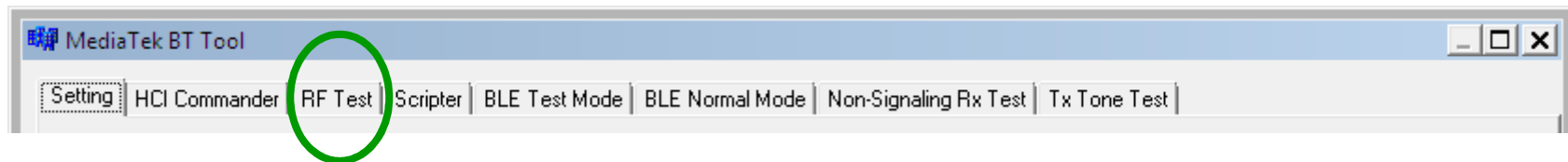


Agenda

- BT Tool:

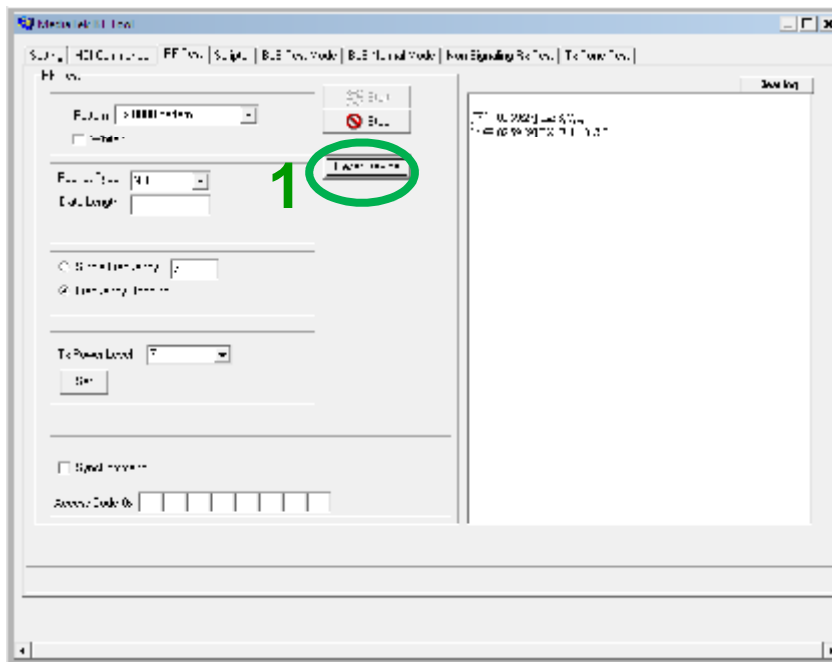
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5. **TX tone Test** page for BR/EDR/LE continuous TX-mode

- Reset Device
- BR & EDR TX Mode
- Tx Power Control
- Hopping/Single Frequency



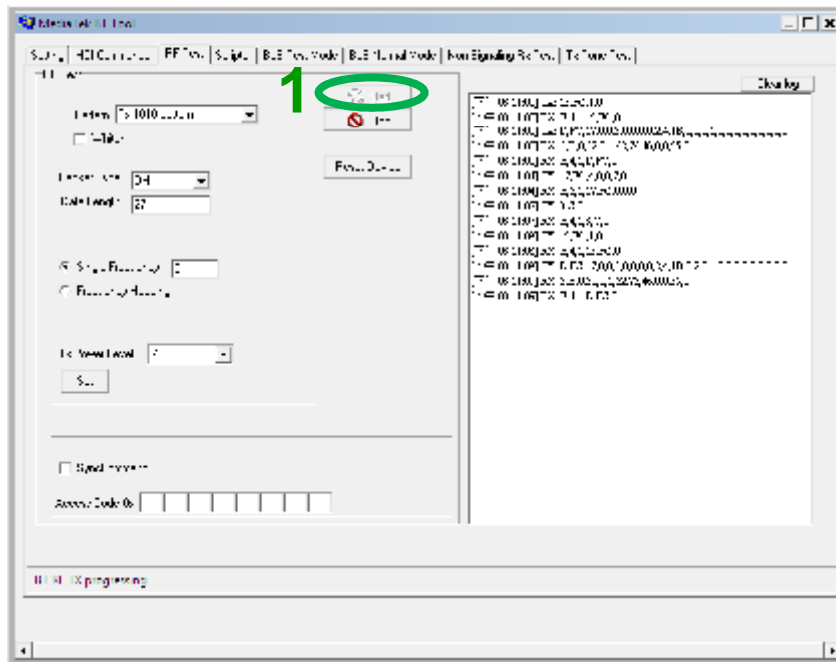
Reset Device

1. Ensure BT COM port is opened and “RESET Device” button is clicked.
2. Click “Reset Device” button to Reset DUT.
3. HCI RX event is responded (RX: 0E 04 01 03 0C 00)



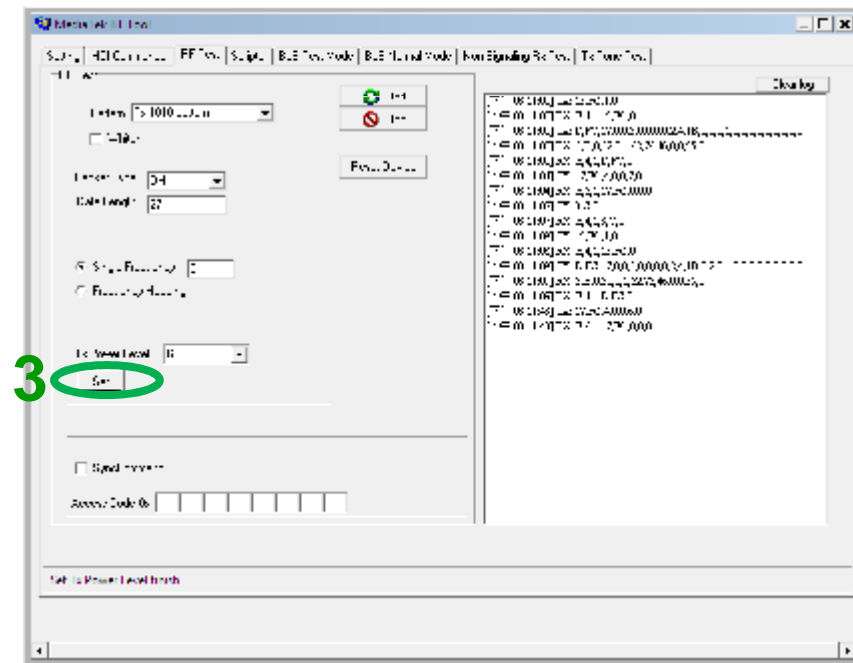
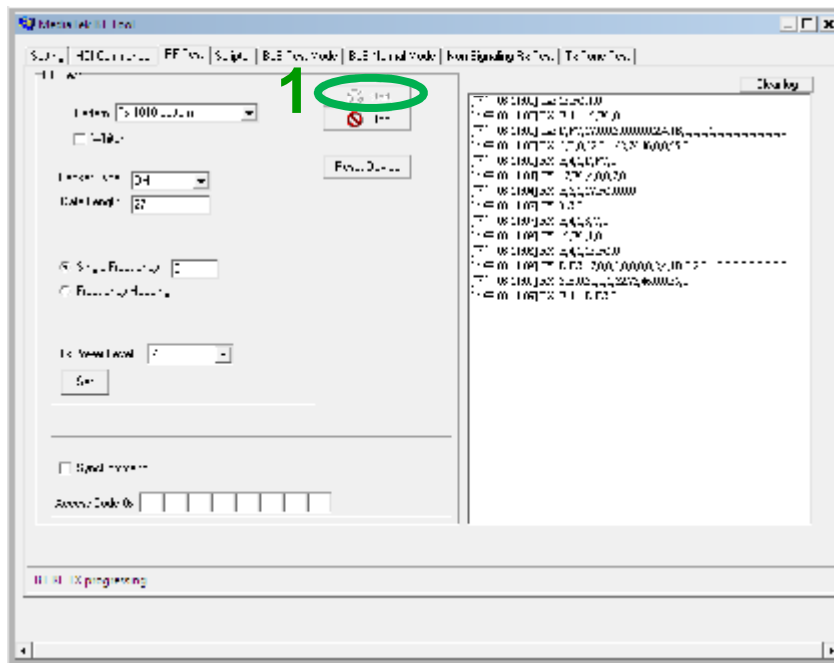
BR & EDR TX Mode

1. Ensure BT COM port is opened and “RESET Device” button is clicked.
2. Set pattern type, packet type, and signal Frequency. And then Click “**Start**” button.
3. Check Tx power of DUT by test set (ex: CBT).
4. Click “**Stop**” button to end test.



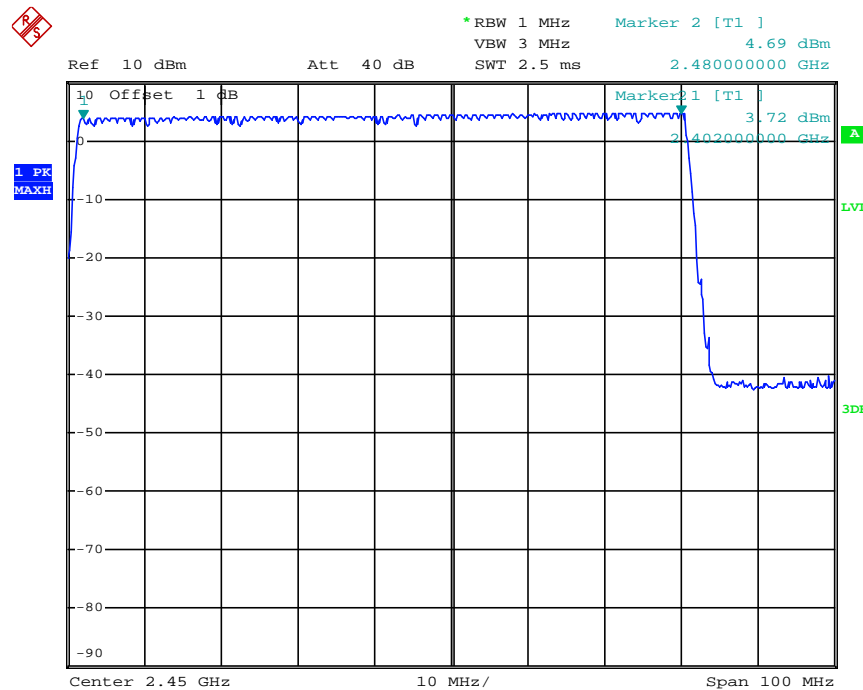
Tx Power Control

1. Ensure BT COM port is opened and “RESET Device” button is clicked.
2. Set pattern type, packet type, and signal Frequency. And then Click “Start” button.
3. Check Tx power of DUT by BT test set (ex: CBT).
4. Select “Tx Power Level” to 6~0, and then see if TX power is correspondly changed.



Hopping

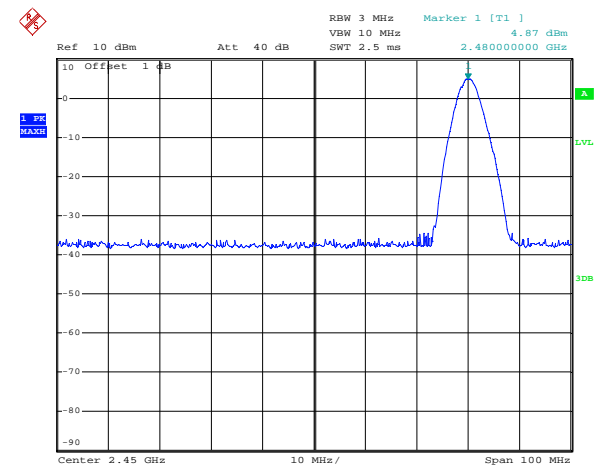
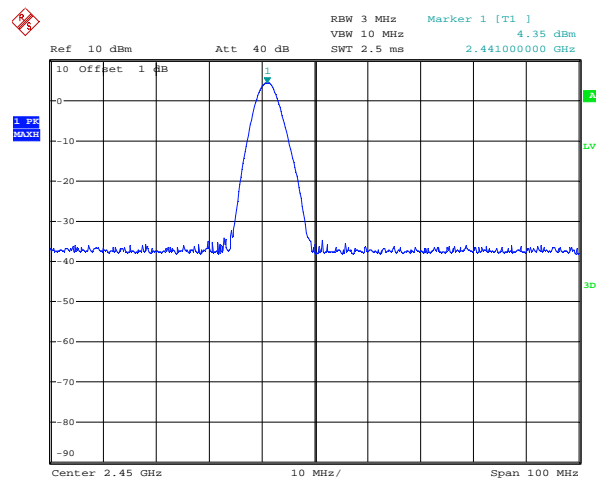
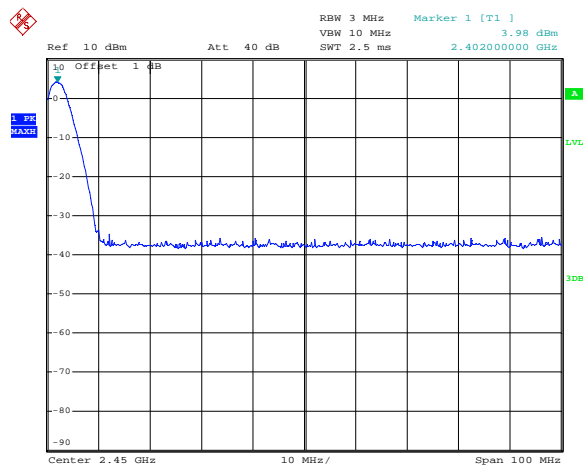
- Select “**Frequency Hopping**”, and then see if TX signal is present on spectrum analyzer correctly.



Frequency Hopping

Single Frequency

Select “**Single Frequency**”, and then change the channel number (00~78), TX signal is present on spectrum analyzer correspondingly.

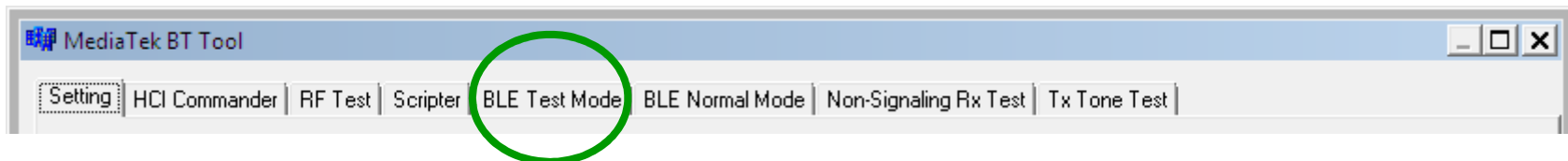


Agenda

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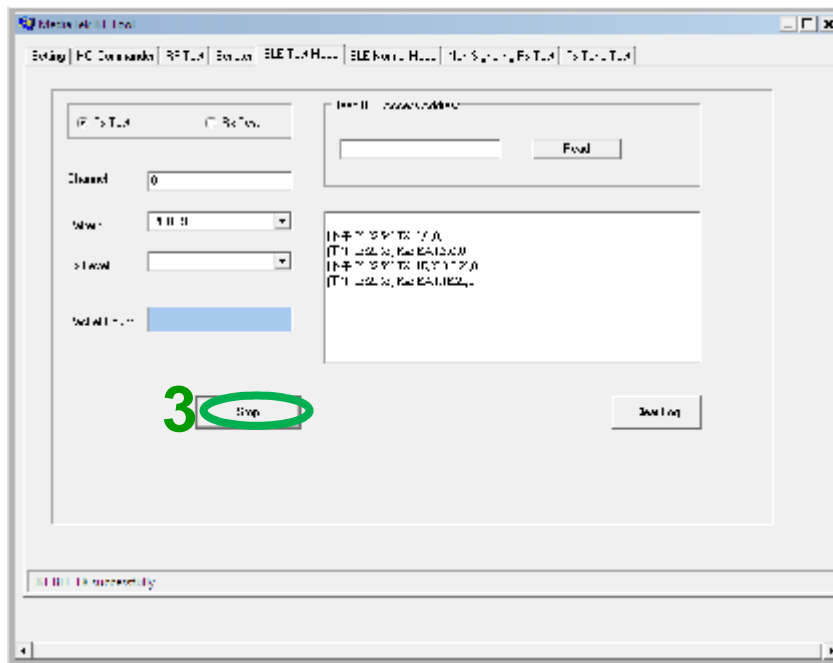
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- BLE Test Mode – TX
- BLE Test Mode – RX



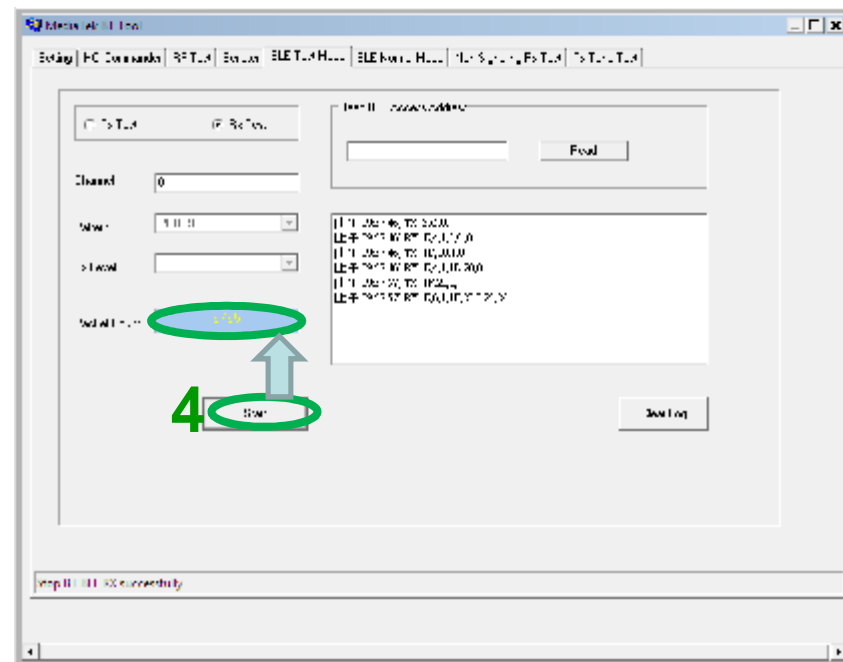
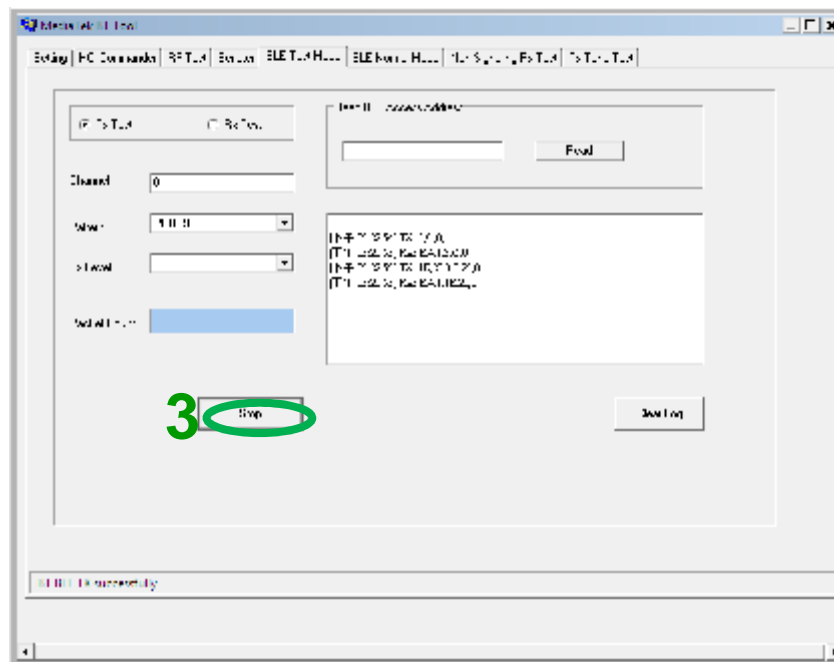
BLE Test Mode - TX

1. Ensure BT COM port is opened and “RESET Device” button is clicked.
2. Set RF channel and Pattern type on CBT to analyze DUT TX performance.
3. Select TX frequency (00~39) and Tx pattern. Then click “**Start**” button.
4. TX signal is present on CBT correspondingly.
5. Click “**Stop**” button to end LE TX test.



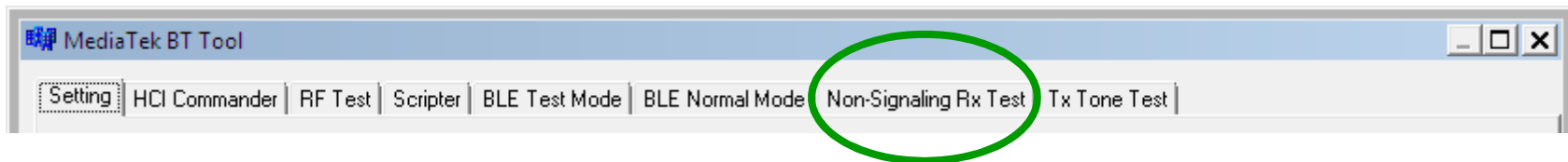
BLE Test Mode - RX

1. Ensure BT COM port is opened and “RESET Device” button is clicked.
2. Set Rx Level, RF channel, and Pattern Type on CBT. Then Turn on generator.
3. Select RX frequency (00~39) and Rx pattern. Then click “**Start**” button.
4. Click “**Stop**” button. **PER result are shown in below.**



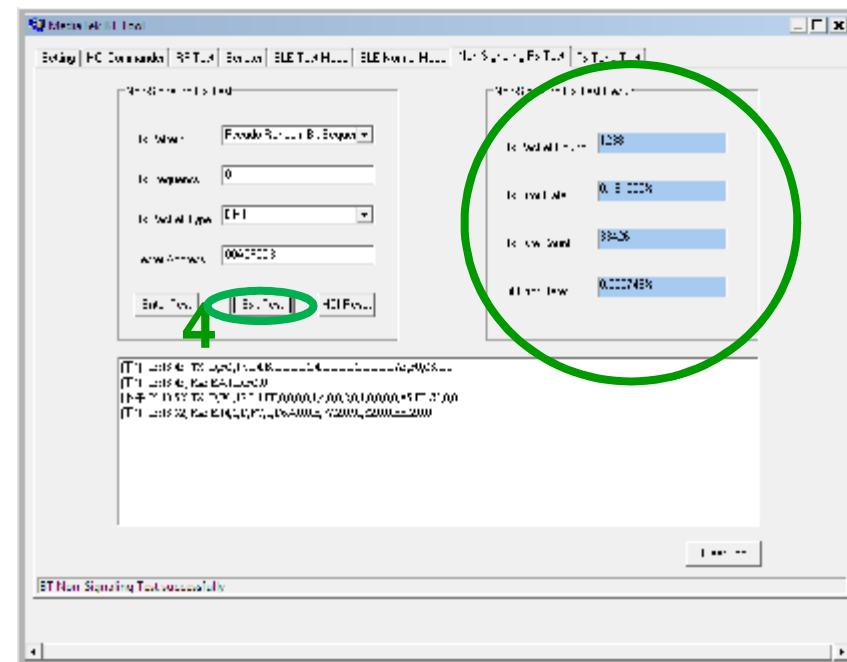
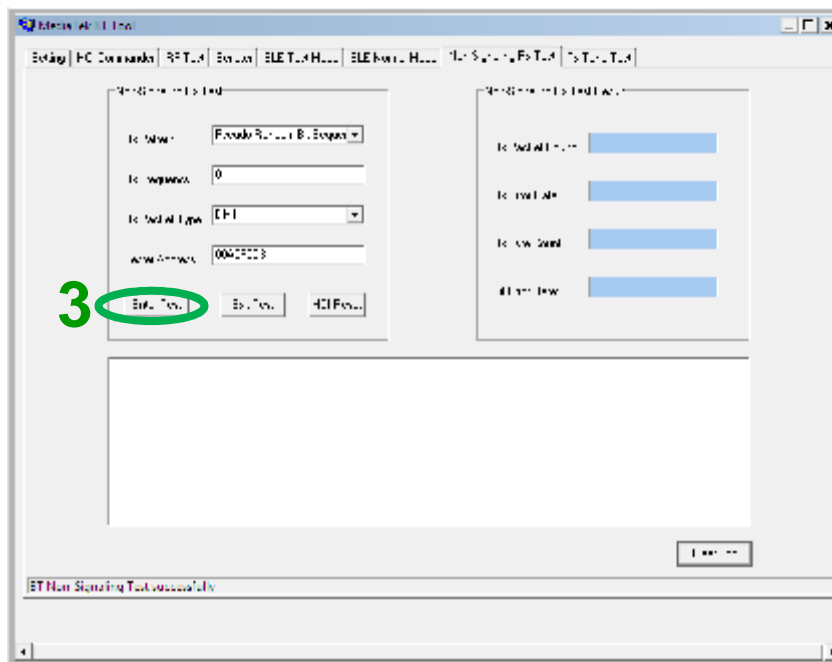
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Non-Signaling RX Test

1. Ensure BT COM port is opened and “RESET Device” button is clicked.
2. Set Rx Level, RF channel, Packet Type, and BD address (ex: 000000A5F0C3) on CBT. **Then Turn on generator.**
3. Select Rx pattern, RX frequency (00~78), Packet Type, and Tester Address (ex: 000000A5F0C3, please fill “00A5F0C3”). Then click “**Enter Test**” button.
4. Click “**End Test**” button. **PER/BER result are shown in right side.**

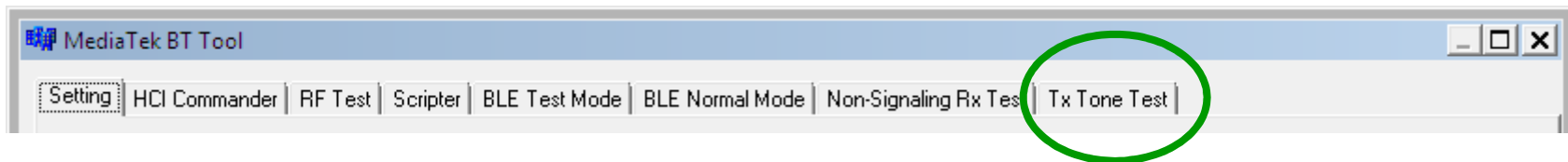


Agenda

- BT Tool:

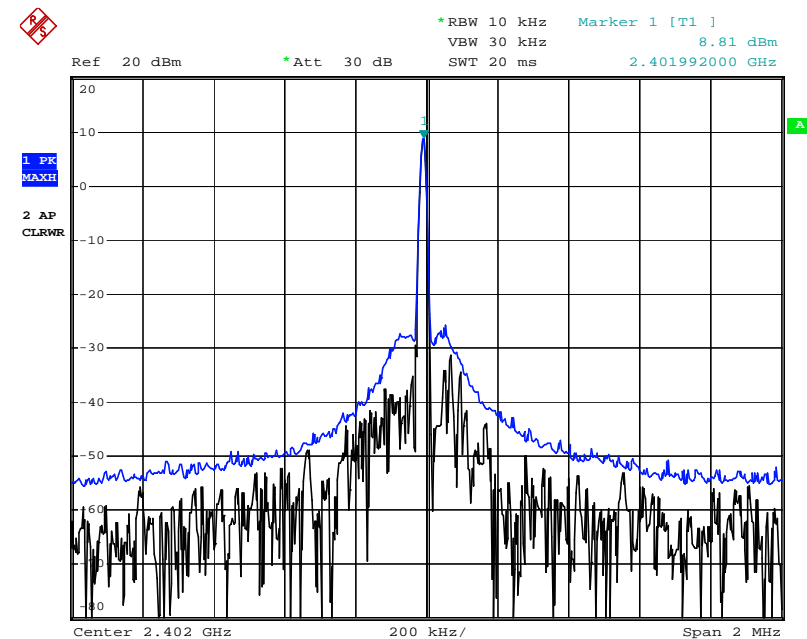
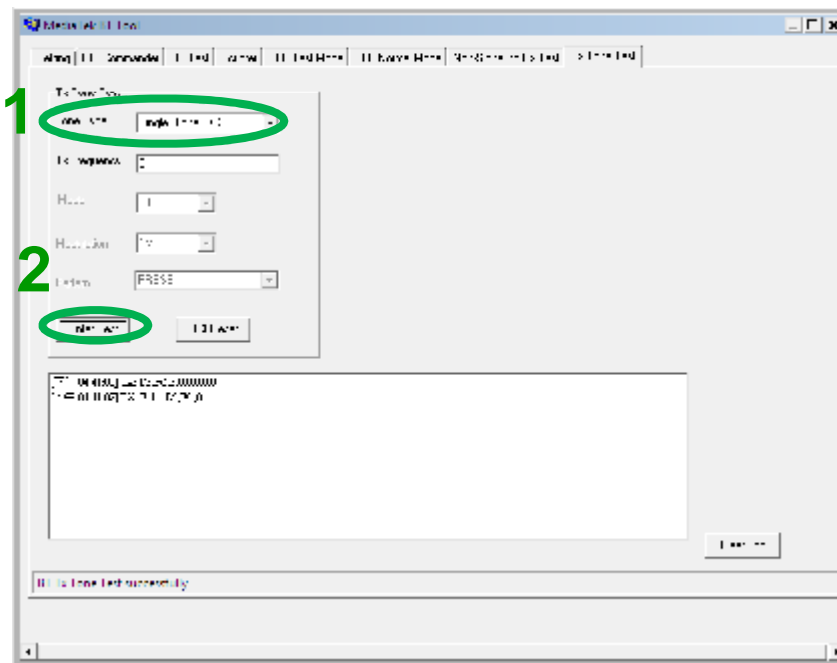
1. **Setting** page for Bluetooth Test-Mode
2. **RF Test** page for BR & EDR TX-Mode
3. **BLE Test mode** page for LE TX/RX-Mode
4. **Non-signaling RX Test** page for BR & EDR RX-Mode
5. **TX tone Test** page for BR/EDR/LE continuous TX-Mode

- Single Tone (CW mode TX)
- Modulation Tone (Continuous mode TX)



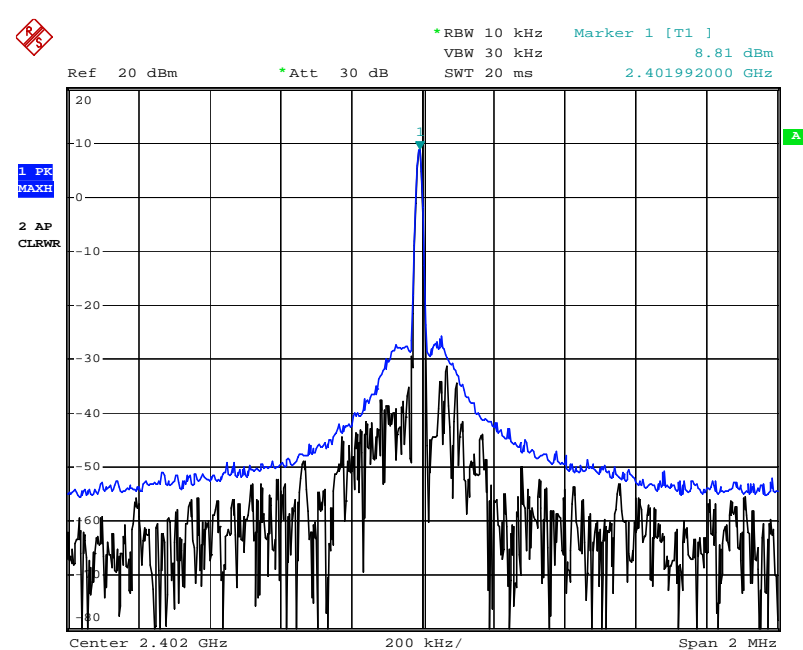
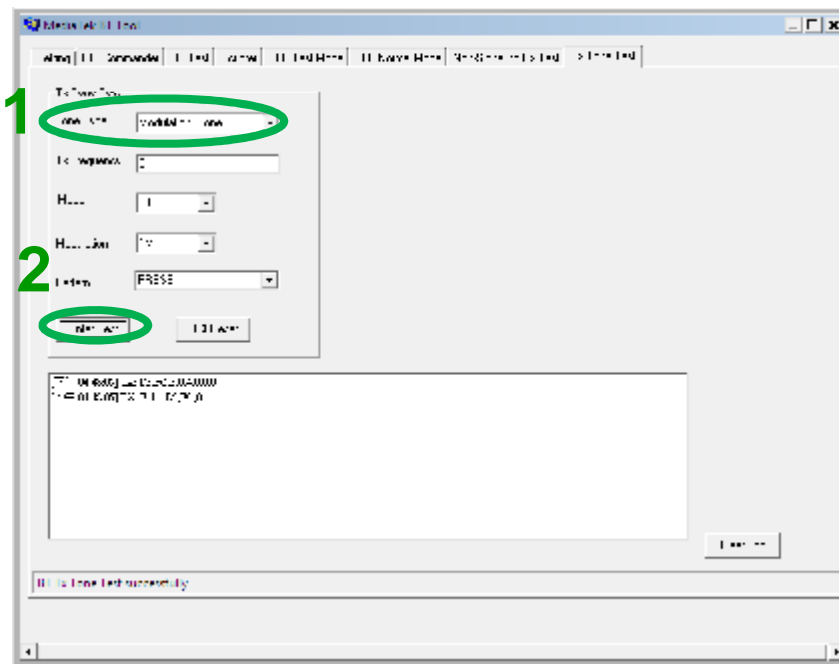
Single Tone – CW tone TX (No modulated signal)

1. Ensure BT COM port is opened and “RESET Device” button is clicked.
2. Select Tone Type (ex: Single_Tone_DC), and then change the channel number (00~78)
3. Click “Enter Test” button. TX signal is present on spectrum analyzer correspondingly.
4. Click “HCI Reset” button to end test.



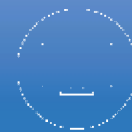
Modulation Tone – Continuous mode TX

1. Ensure BT COM port is opened and “RESET Device” button is clicked.
2. Select “Modulation_Tone”, and then change the channel number (00~78). Choose mode (BT-GFSK/EDR or LE) and Modulation rate (1M/2M/3M)
3. Click “Enter Test” button. TX signal is present on spectrum analyzer correspondingly.
4. Click “HCI Reset” button to end test.



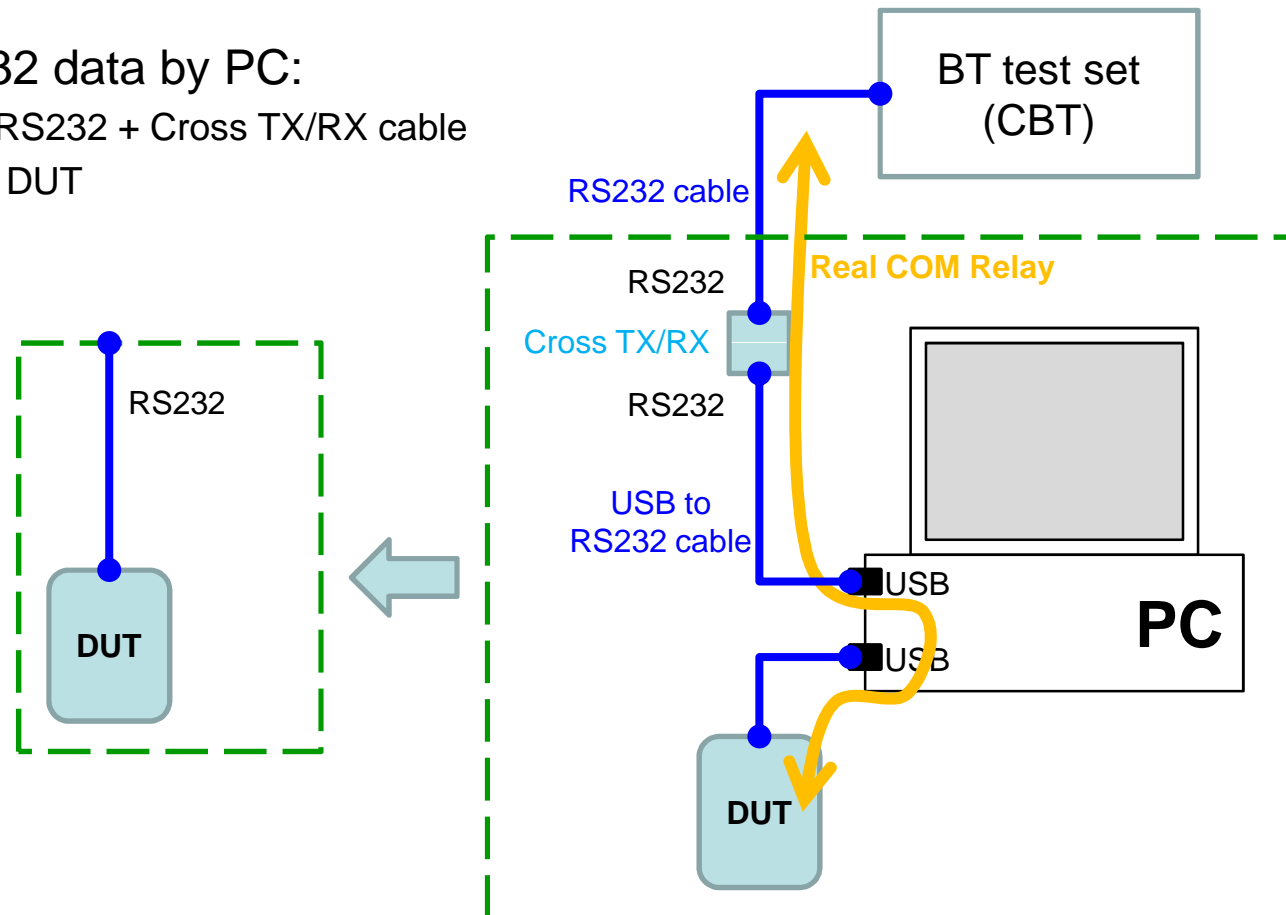


Real COM Relay



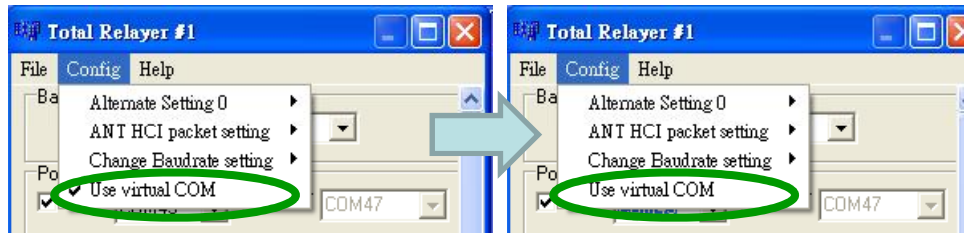
Real COM Relay (1/3)

- Test setup:
 - Relay RS232 data by PC:
 1. USB to RS232 + Cross TX/RX cable
 2. USB for DUT

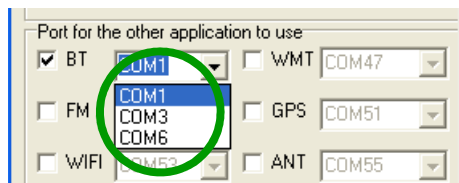


Real COM Relay (2/3)

1. Ensure BT COM port is opened and “RESET Device” button is clicked.
2. Click “**Enter DUT**” button to allow DUT to enter test mode.
3. Close BT COM port. Click “Stop Relay”.
4. Click “Config à Use virtual COM”



5. Select COM port of “USB to RS232 cable”
for example: COM 1 for “USB to RS232 cable”, please choose “COM1”



Real COM Relay (3/3)

1. Click “Start Relay” button for Real COM relay.



MEDIA TEK

