



# Realtek Bluetooth MP UI User Guide





<b>A. Electrical Characteristics</b>	
<b>Working Frequency</b>	2.4GHz~2.5GHz 4.9GHz~5.85GHz
<b>S.W.R.</b>	2.4GHz~2.5GHz <2.0 4.9GHz~5.85GHz <2.0
<b>Antenna Gain</b>	Main port:2dBi Aux port:2dBi
<b>Antenna Type</b>	PCB
<b>Efficiency</b>	2.4GHz~2.5GHz >70% 4.9GHz~5.85GHz >75%
<b>Impedance</b>	50 Ohm
<b>Polarization / Azimuth</b>	Linear / Omni-directional
<b>B. Mechanical Dimension</b>	
<b>Cable Length Of Main Ant</b>	L:340mm(BLACK)
<b>Cable Length Of Aux Ant</b>	
<b>C. Material</b>	
<b>Stamping Metal</b>	Copper antenna
<b>Coaxial Cable</b>	50 Ohm / O.D.1.13mm
<b>Mini Coaxial Connector</b>	IPEX PLUG
<b>D. Environmental</b>	
<b>Operation Temperature</b>	-40°C~ +85°C
<b>Storage Temperature</b>	-40°C~ +85°C



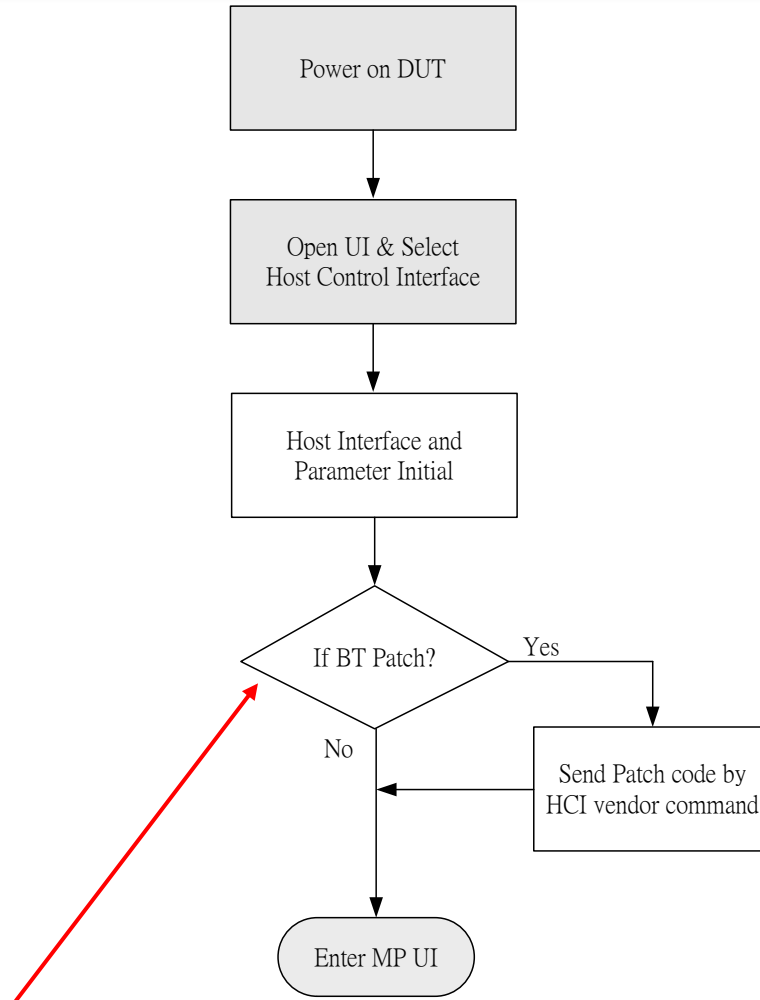


# Bluetooth MP Operation Flow





# Host Interface: BT USB/UART/PCIe

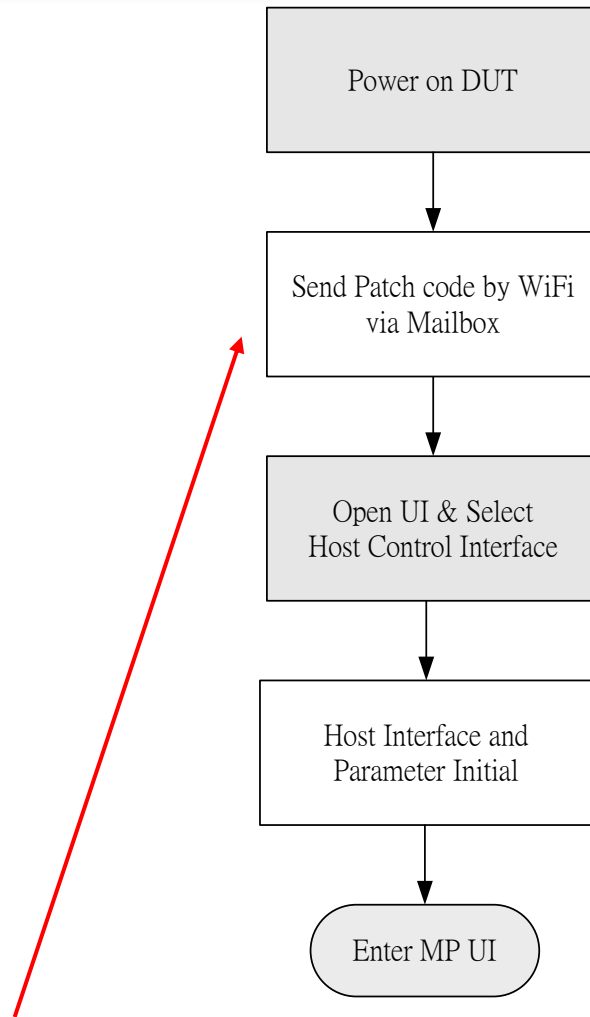


**Set "IsFirmwarePatchAtInit" in the HCISetup.ini, 0→Skip Patch, 1→Patch  
The patch file is "patch.bin" (located the same directory with RTK\_BT\_MP.exe)**





# Host Interface: WiFi USB/UART/PCIe (Windows Platform)



**The WiFi driver must download BT patch while DUT power on.**





# Host Interface: Linux Platform

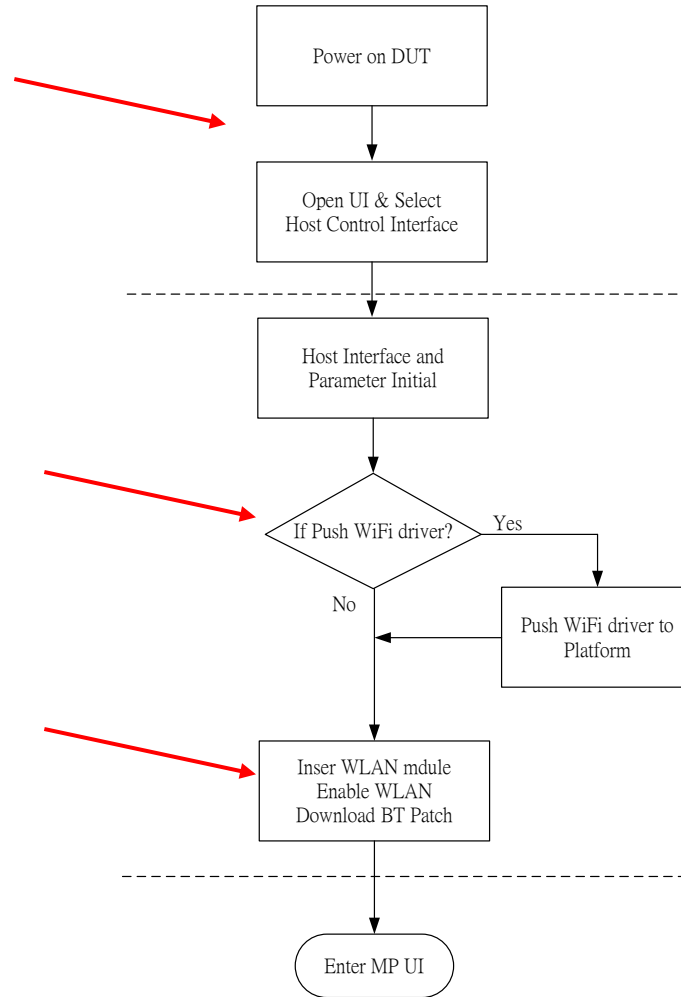
The WiFi in the DUT UI must be turned off after Power on. (no WLAN module exit in the system)

“IsPushMPDriver” in the HCISetup.ini defines: 0→ skip push, 1→push.

The MP driver filename is specified in the “ADBMPDriverFilename” of the HCISetup.ini It must place in the same directory with RTK\_BT\_MP.exe.

The push destination is defined in the “ADBMPDriverRoute” of the HCISetup.ini .

The insert WiFi module is specified by the “ADBMPDriverRoute” + “ADBMPDriverFilename” in the HCISetup.ini .





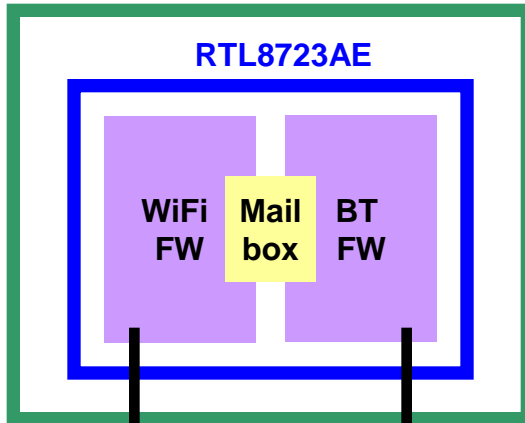
# Bluetooth MP UI Initial





# Host Interface: BT USB Port (8723AE,8723AE-VAU)

DUT



PCIE

PC

USB

CPU

WinXP/Win7

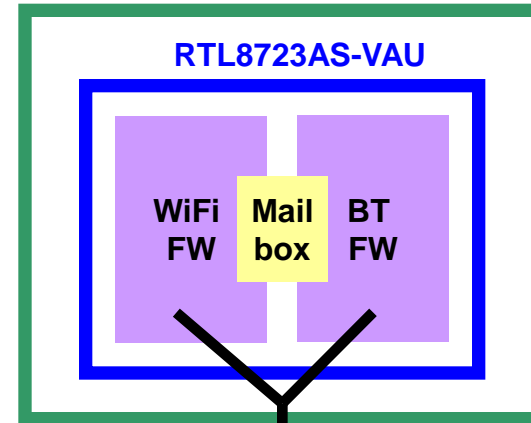
8723AE WiFi MP driver

RTK BT MP Driver

RTK WiFi MP UI

RTK BT MP UI

DUT



PC

USB

CPU

WinXP/Win7

8723AS-VAU WiFi MP driver

RTK BT MP Driver

RTK WiFi MP UI

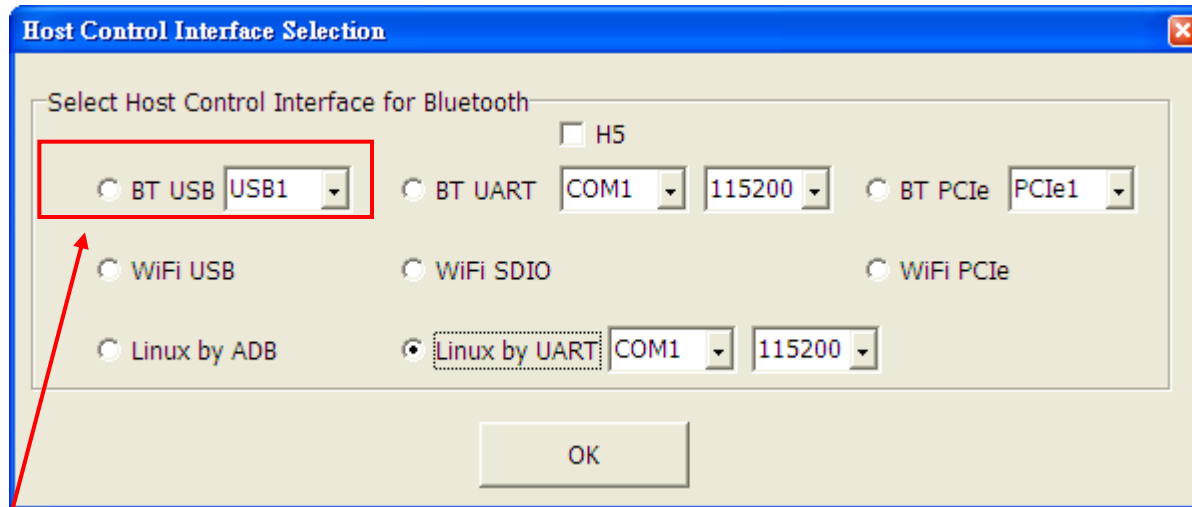
RTK BT MP UI







# Host Interface: BT USB Port (8723AE,8723AE-VAU)



The dialog box titled "Host Control Interface Selection" contains the following options:

- BT USB **USB1** (highlighted with a red box and a red arrow pointing to it)
- BT UART COM1 115200
- BT PCIe PCIe1
- WiFi USB
- WiFi SDIO
- WiFi PCIe
- Linux by ADB
- Linux by UART COM1 115200

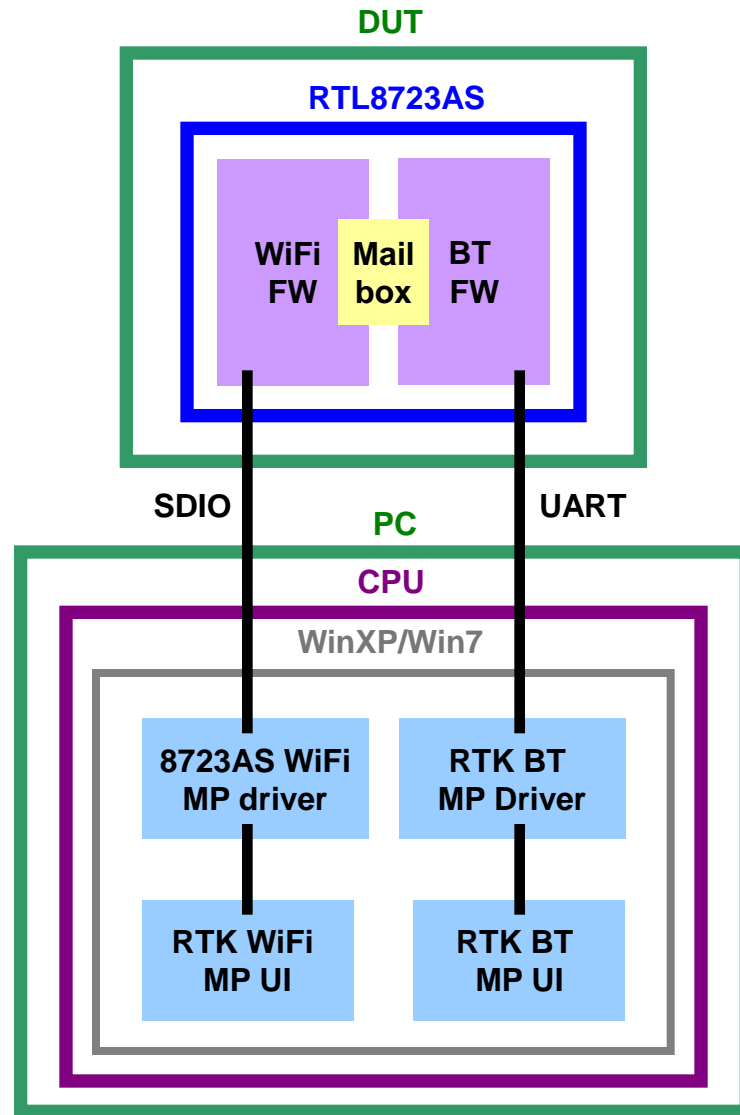
An "OK" button is located at the bottom center of the dialog box.

Select "BT USB" , Choose USB port number, and Press "OK" button to start the MP.



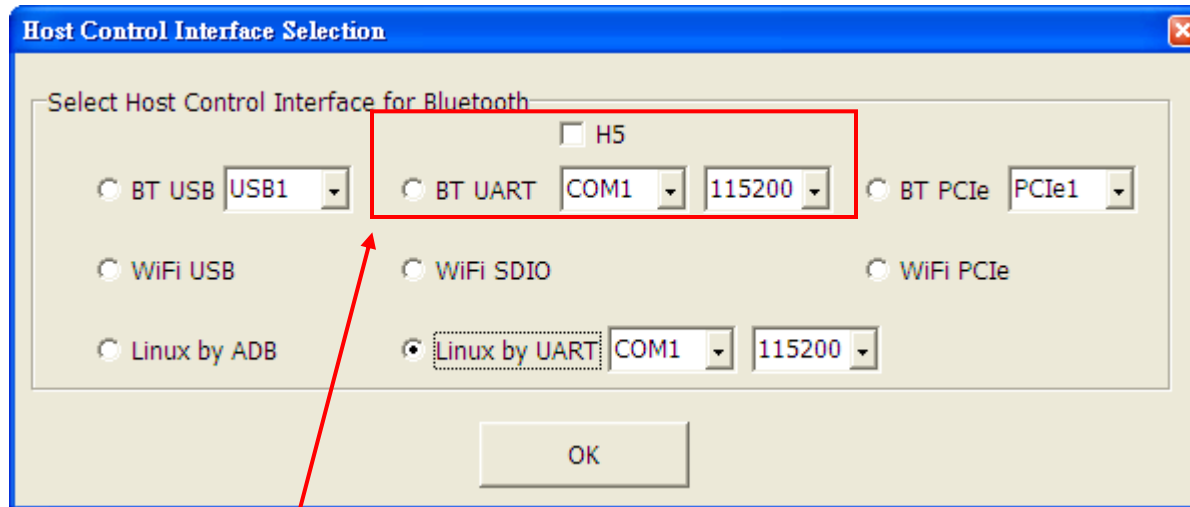


# Host Interface: BT UART Port (8723AS)





# Host Interface: BT UART Port (8723AS)

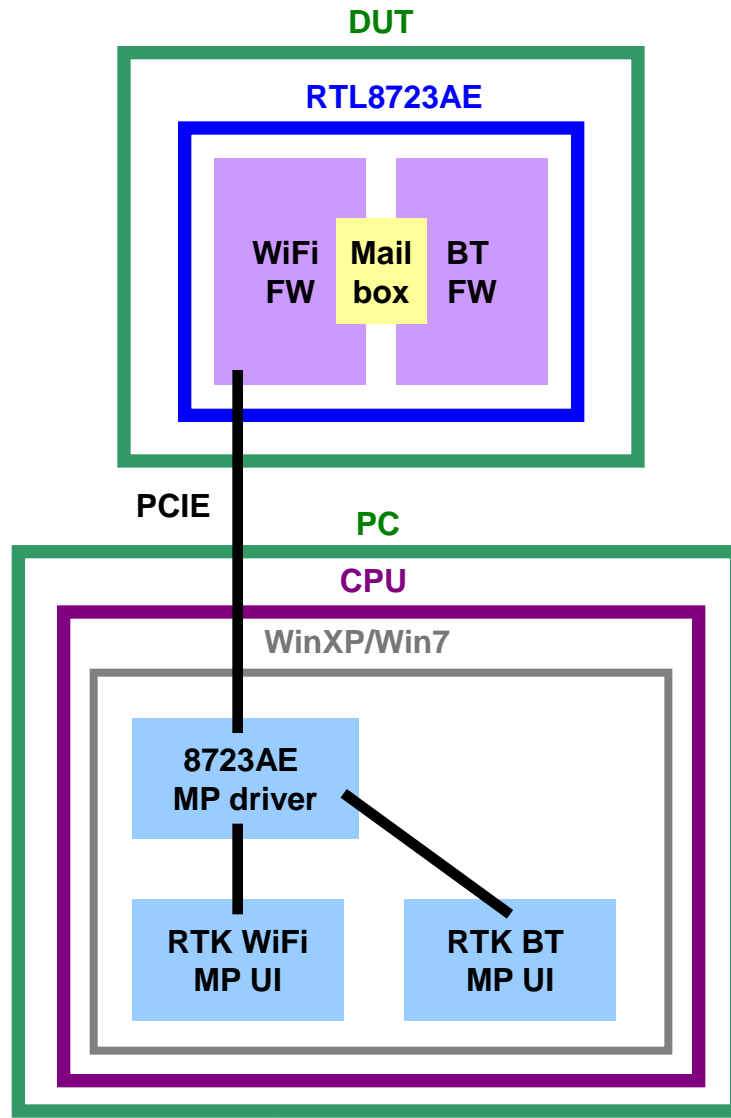


Select "BT UART" , Choose COM port number and baud rate (default: 115200), and Press "OK" button to start the MP.





# Host Interface: WiFi PCIe Port (8723AE)





# Host Interface: WiFi PCIe Port (8723AE)

**Host Control Interface Selection**

Select Host Control Interface for Bluetooth

H5

BT USB   BT UART    BT PCIe

WiFi USB  WiFi SDIO  WiFi PCIe

Linux by ADB  Linux by UART

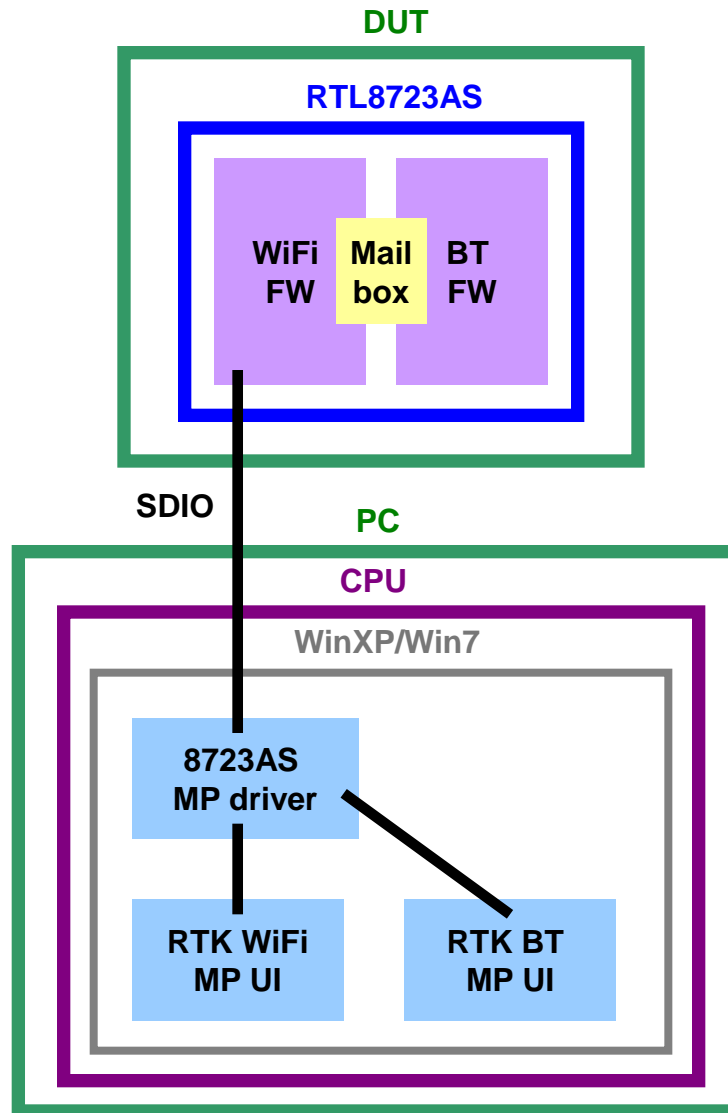
OK

Select "WiFi PCIe" , and Press "OK" button to start the MP.





# Host Interface: WiFi SDIO Port (8723AS)





# Host Interface: WiFi SDIO Port (8723AS)

**Host Control Interface Selection**

Select Host Control Interface for Bluetooth

H5

BT USB   BT UART    BT PCIe

WiFi USB  **WiFi SDIO**  WiFi PCIe

Linux by ADB  Linux by UART

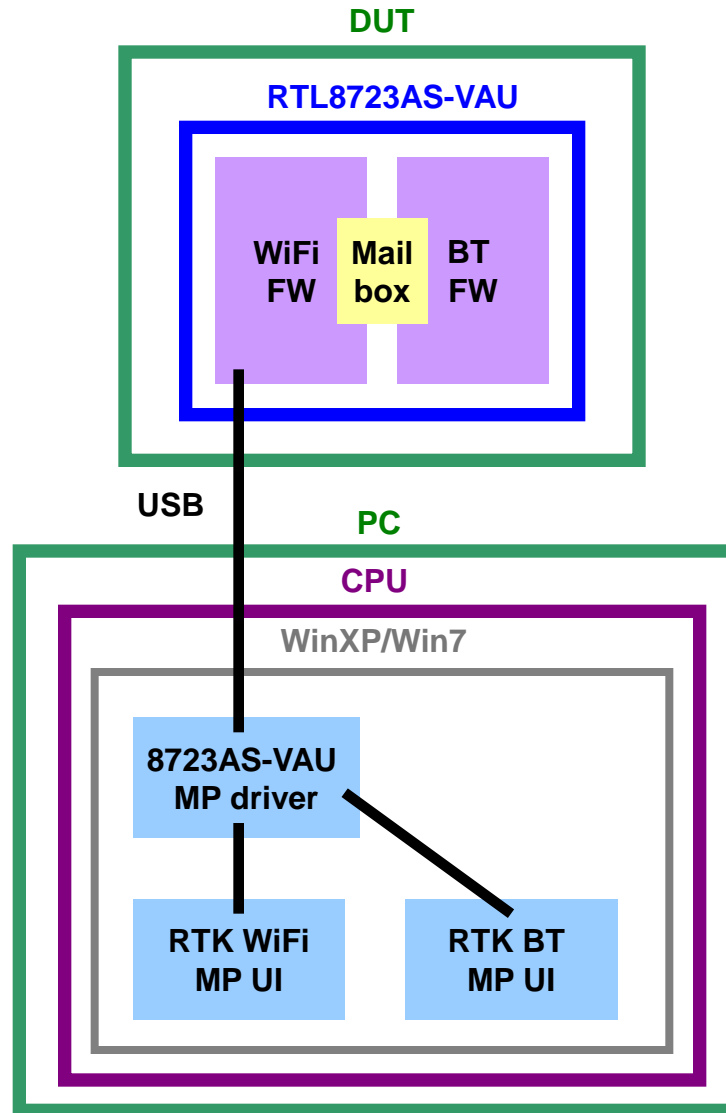
OK

Select "WiFi SDIO" , and Press "OK" button to start the MP.





# Host Interface: WiFi USB Port (8723AS-VAU)







# Host Interface: WiFi USB Port (8723AS-VAU)

**Host Control Interface Selection**

Select Host Control Interface for Bluetooth

H5

BT USB   BT UART    BT PCIe

WiFi USB  WiFi SDIO  WiFi PCIe

Linux by ADB  Linux by UART

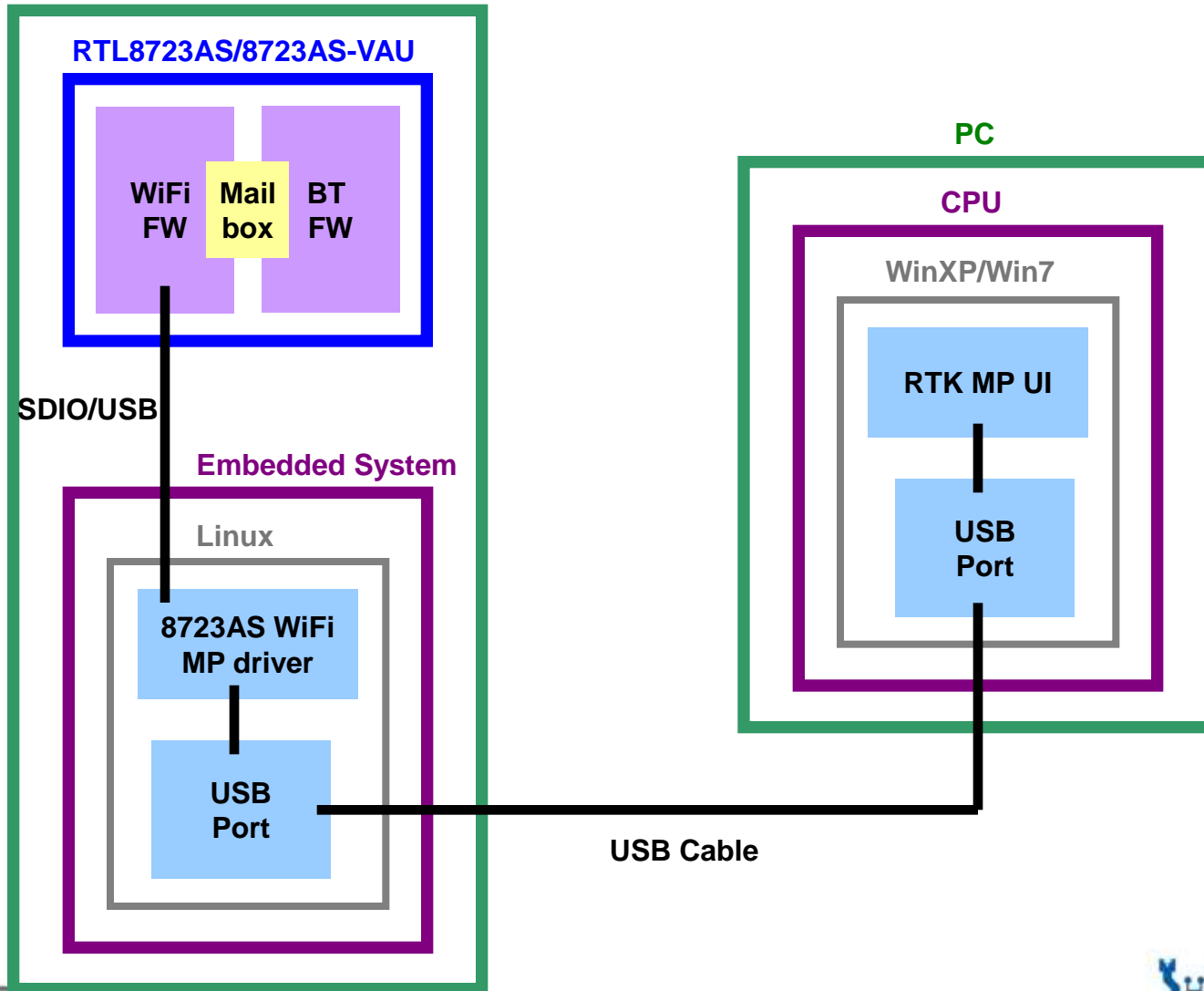
OK

Select "WiFi USB" , and Press "OK" button to start the MP.





# Host Interface: Linux USB Port (8723AS,8723AS-VAU)





# Host Interface: Linux USB Port (8723AS,8723AS-VAU)

**Host Control Interface Selection**

Select Host Control Interface for Bluetooth

H5

BT USB   BT UART    BT PCIe

WiFi USB  WiFi SDIO  WiFi PCIe

Linux by ADB  Linux by UART

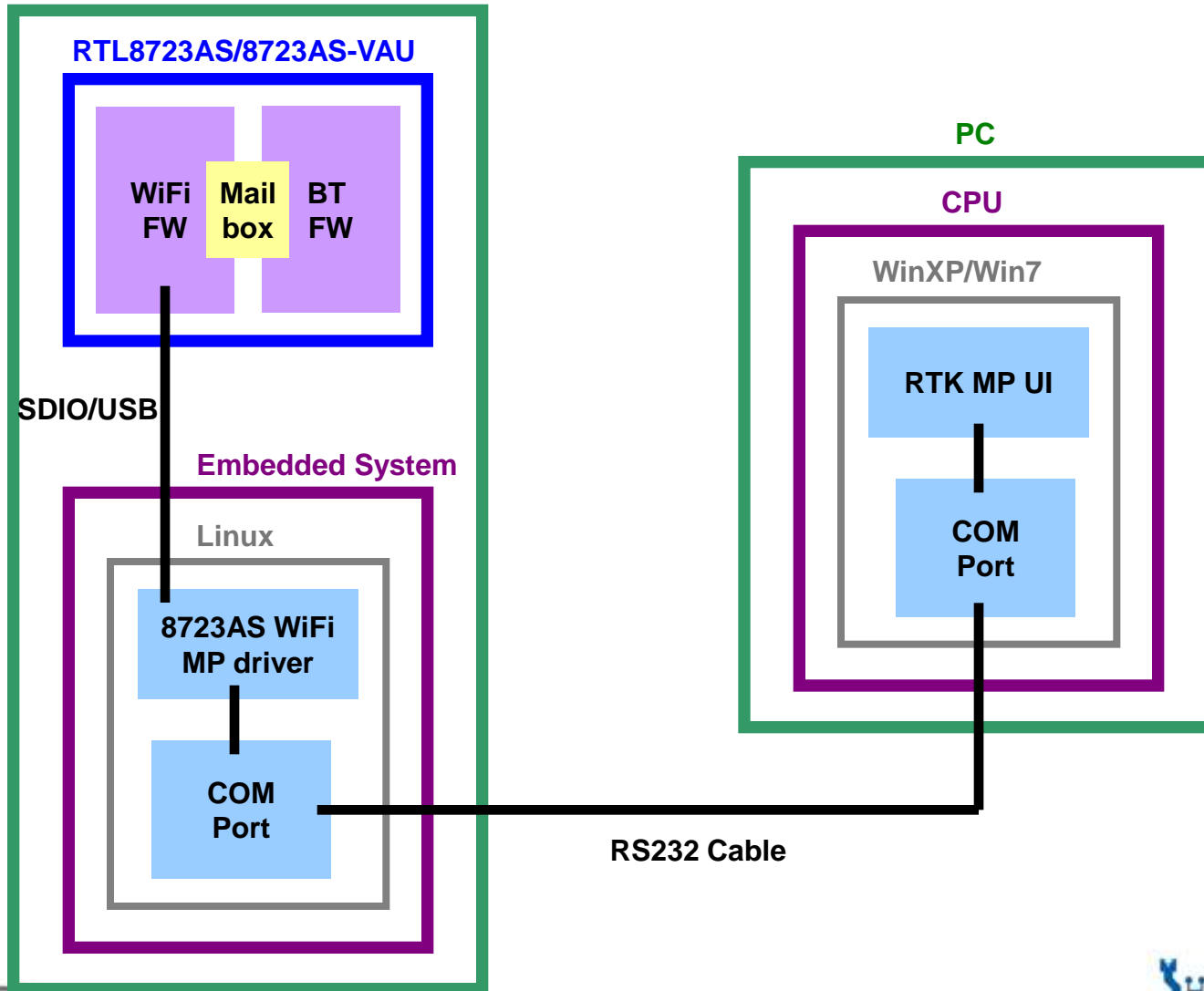
OK

Select "Linux by ADB" , and Press "OK" button to start the MP.



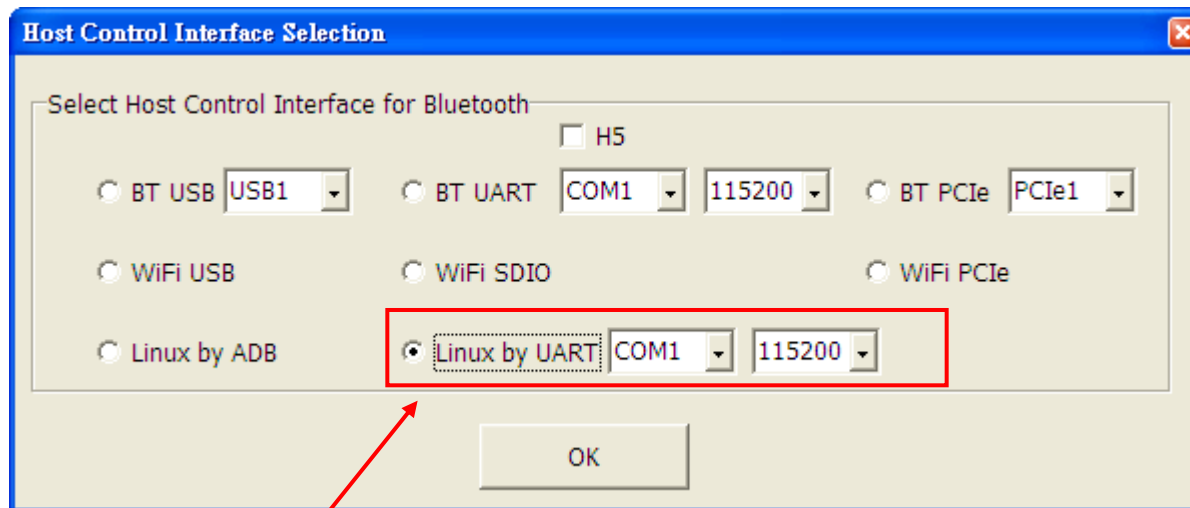


# Host Interface: Linux COM Port (8723AS,8723AS-VAU)





# Select Host Control Interface



Select "Linux by UART" , Choose COM port number and baud rate (default: 115200), and Press "OK" button to start the MP.

**Note:** It is recommended to press the "OK" button after the system boot completely.





# The Main UI (BT Host type)

Realtek Bluetooth MP v2.81 --- RTL8723a (BD Address = 0x00E04C887232)

Action Item: Please select Action... [Start] [Pause] [Clear]

Rx Packets: 0 Error Bits: 0 BER (%): 0 [Update Rep]

Test Setup

Data Rate: 1M Payload Type: 010101 Test Mode: Normal Test

RF Channel: 0 Payload bits: 2712 Hit Target: 0x0000009e8b33

Tx Gain Index: 7 Packet Header: 0x3fff  LE connect Initiator

Tx Packet Count: 0  Whitening Coeff: 0x7f Tx DAC Current: 4

2012/12/6 03:25:37

```
USB Initialize successful!!
-----
Bluetooth Device Address: 0x00E04C887232
Bluetooth Device Name: RTK_BT_4.0
HCI_Version: 0x06
HCI_Revision: 0x801F
LMP_Version: 0x06
Manufacturer_Name: Realtek Semiconductor Corporation
LMP_Subversion: 0x9b79
Supported Feature(0~7): 0xFF 0xFB 0xFF 0xFE 0xDB 0xFF 0x7B 0x87
-----
```

[Clear Log]

If initial ok, memo show as below







# The Main UI (WiFi Host type)

If initial ok, memo show as below

If initial fail, Check those:

- a. RS232/USB cable
- b. UART setup /USB port
- c. BT Module
- d. BT MP driver

**Note:** If initial fail (ex: enable WLAN adapter fail), it may result from the boot is not completed during MP UI start. You can press "Host Re-Init" button or reopen the MP UI.





# Bluetooth DUT Test Mode Setup & Test Procedure

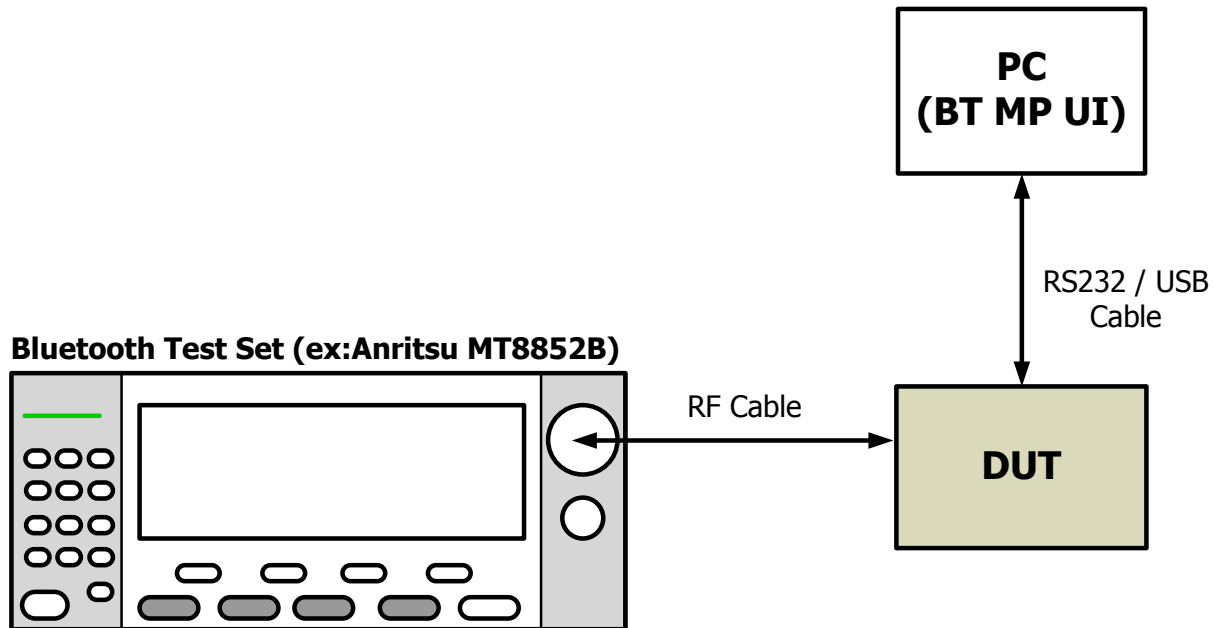






# BT DUT Test Mode Test Topology

The BT MP sends BT HCI command to DUT. The DUT enable Inqrr/Page scan and enter DUT test mode. The Bluetooth tester established a link with the DUT over the RF channel using the normal Bluetooth protocol.





# UI Setup Step-1: Enter DUT Test Mode

Realtek Bluetooth MP v2.7 --- RTL8723a (Control by Linux Console)

Action Item:

Tx Packets:  Error Bits:  BER (%):

Test Setup

Data Rate:  Payload Type:  Test Mode:

RF Channel:  Payload bits:  Hit Target:

Tx Gain Index:  Packet Header:   LE connect

Tx Packet Count:   Whitening Coeff:  Tx DAC Current:

```
Enter MP mode ok!!
Download BT firmware ok!!
BT is controlled by WiFi now!!
=====
BT is ready!!
BT Firmware version: 0x9a4d
BT Firmware logic version: 0x9a
BT BD Address: 0x00e04c842713
=====

>> HCI Reset successful!!

>> Enter DUT Test mode ok!!
```

Press "Test Mode" button  
To enter BT DUT test mode.





# After UI Setup Step-1

After Bluetooth test set creates a connection with DUT, the BT MP UI will show message as below. The RF test can kick off.

```
>> [HCI Para] -> Connection_Handle = 0x002B
>> [HCI Para] -> BD_ADDR = 0x000272D199C1
>> [HCI Para] -> Link_Type = ACL
>> [HCI Para] -> Encryption = disabled

>> Write Link Policy to 0xf (All On) OK!!

>> Write_Automatic_Flush_Timeout (value = 0x3FF) command succeeded!!

>> Connect results listing....
```

ID	BD_ADDR	Handle	Link_Type	Encryption	Mode
1	0x000272D199C1	0x002B	ACL	Disable	Active





# UI Setup Step-2: Exit DUT Test Mode (if required)

The connection can be disconnected by either BT test set or DUT. For DUT end, the connection will lost because of supervision timeout after HCI reset is executed.

The screenshot shows the Realtek Bluetooth MP v2.7 control interface. The window title is "Realtek Bluetooth MP v2.7 --- RTL8723a (Control by Linux Console)". The interface includes a control panel with buttons for "Start", "Pause", and "Clear". Below these are status indicators for "Tx Packets: 0", "Error Bits: 0", and "BER (%): 0". The "Test Setup" section contains various configuration options: "Data Rate" (1M), "Payload Type" (All 0's), "Test Mode" (RTK Test), "RF Channel" (0), "Payload bits" (2712), "Hit Target" (0x000009e8b33), "Tx Gain Index" (7), "Packet Header" (0x3fff), "LE connect" (Initiator), "Tx Packet Count" (0), "Whitening Coeff" (0x7f), and "Tx DAC Current" (5). A red box highlights the "HCI Reset" button, with a red arrow pointing to it from the text on the right. The terminal window at the bottom shows the following output:

```
Enter MP mode ok!!
Download BT firmware ok!!
BT is controlled by WiFi now!!
=====
BT is ready!!
BT Firmware version: 0x9a4d
BT Firmware logic version: 0x9a
BT BD Address: 0x00e04c842713
=====
>> HCI Reset successful!!
>> HCI Reset successFu1!!
```

Press "HCI Reset" button  
To exit BT DUT test mode.





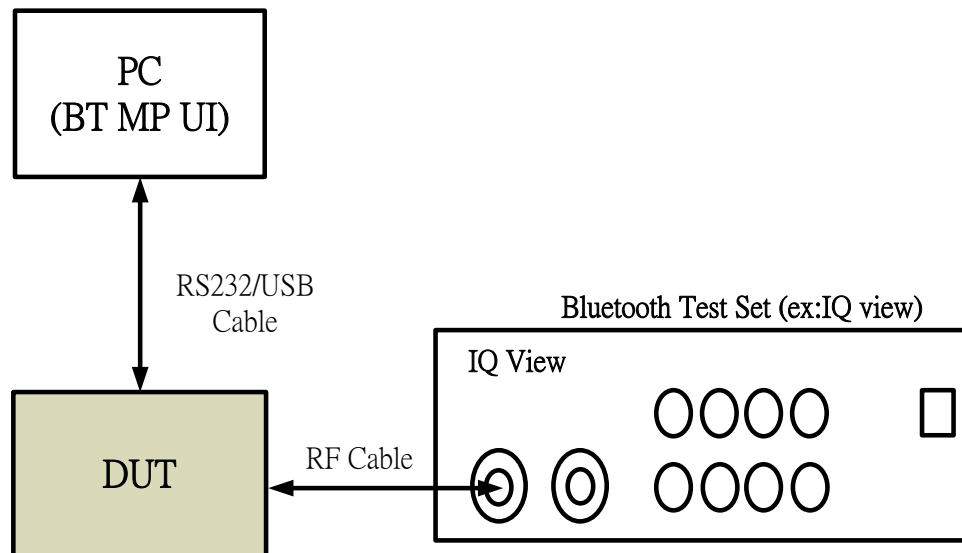
# Bluetooth Non-Link Mode Setup & Test Procedure





# Non-Link Mode Test Topology

For non-link mode test, the tester communicates with DUT over a cable via HCI with the DUT in a special test. The tester doesn't have to establish a protocol link with the DUT. The non-link mode of the 8723 series chip support "Packet-Tx", "Continue-Tx", and "Packet-Rx" for various RF performance test.







# Packet-Tx Setup

Press "Start" button

Select "Packet-Tx"



2

Select "Data Rate", "RF Channel", "Tx Gain Index", "Payload Type", "Payload bits", "Whitening Coeff"



3



Realtek Bluetooth MP v2.81 --- RTL8723a (Control by Linux Console)

Action Item: Packet Tx [Start] [Pause] [Clear]

Tx Packets: 0 Error Bits: 0 BER (%): 0.0000

Test Setup

Data Rate: 1M Payload Type: Normal Test Mode: Normal Test

RF Channel: 0 Payload bits: 8168 Hit Target: 0x00004c123456

Tx Gain Index: 7 Packet Header: 0x3ffff LE connect: Initiator

Tx Packet Count: 0 Whitening Coeff: 0x7f Tx DAC Current: 5

Buttons: HCI Reset, Test Mode, Reg RW, Host Re-Init, Clear Log.

Select Slot Length

DH1  DH3  DH5

[OK]

```

>> BT Status: RF Tx
>> Stop Test ok !!
>> BT Status: RF Tx
>> Enter TxRx Test
>> TxPacket Count =
>> Write TxRx Conf
>> Start Packet-Tx
>> BT Status: RF TxRx Test Mode + under Packet Tx test
>> Stop Test ok !!
>> BT Status: RF TxRx Test Mode + idle
  
```





# Packet-Tx Run

Realtek Bluetooth MP v2.81 --- RTL8723a (Control by Linux Console)

Action Item: Packet Tx [Start] **Pause** [Clear]

Tx Packets: 0 Error Bits: 0 BER (%): 0.0000

Test Setup

Data Rate: 1M Payload Type: Normal Test Mode: Normal Test

RF Channel: 0 Payload bits: 2712 Hit Target: 0x00004c123456

Tx Gain Index: 7 Packet Header: 0x3fff  LE connect Initiator

Tx Packet Count: 0  Whitening Coeff: 0x7f Tx DAC Current: 5

[HCI Reset] [Test Mode] [Reg RW] [Host Re-Init]

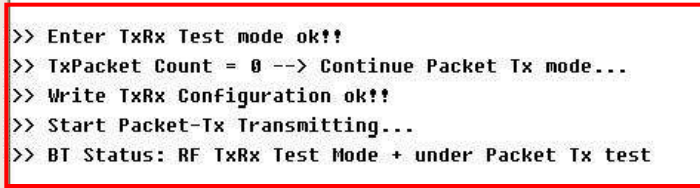
```
>> TxPacket Count = 0 --> Continue Packet Tx mode...
>> Write TxRx Configuration ok!!
>> Start Packet-Tx Transmitting...
>> BT Status: RF TxRx Test Mode + under Packet Tx test

>> Stop Test ok !!
>> BT Status: RF TxRx Test Mode + idle

>> Enter TxRx Test mode ok!!
>> TxPacket Count = 0 --> Continue Packet Tx mode...
>> Write TxRx Configuration ok!!
>> Start Packet-Tx Transmitting...
>> BT Status: RF TxRx Test Mode + under Packet Tx test
```

[Clear Log]

if "Packet-Tx" ok, the message is shown as memo  
"Packet-Tx" will stop after press "Pause" button

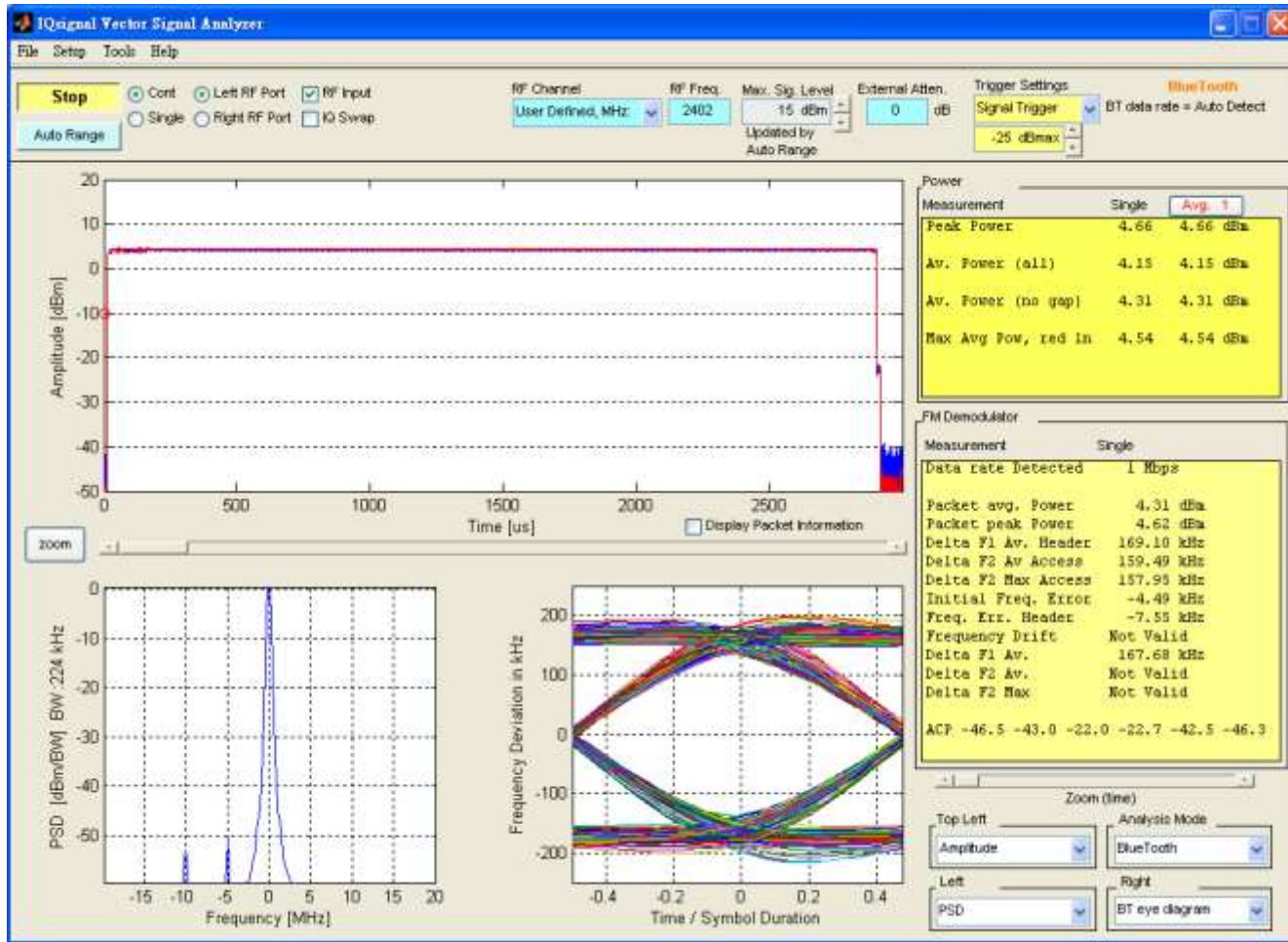






# Packet-Tx Measurement form IQ view

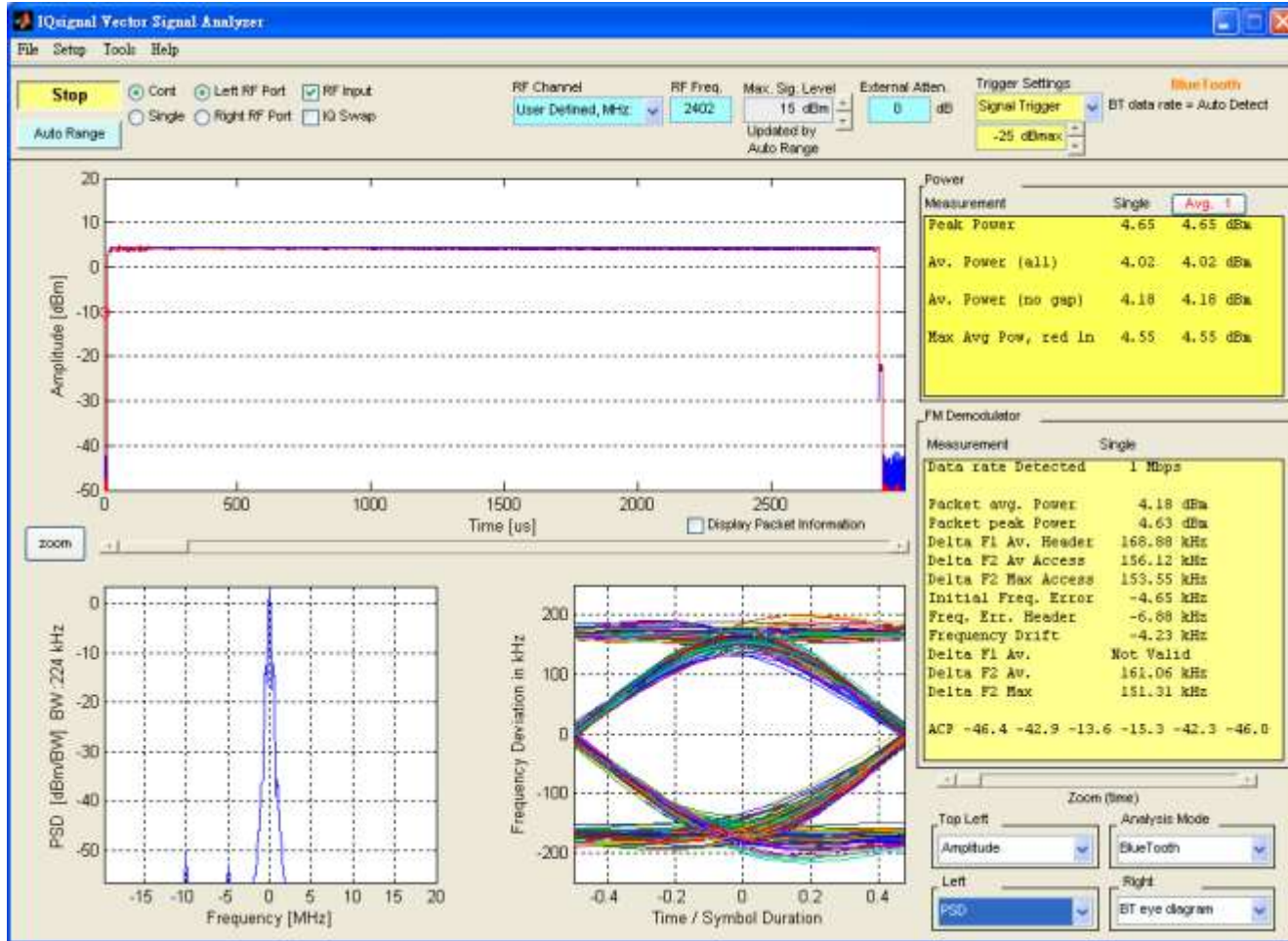
Date Rate: 1M/DH5, RF Channel: 0, Payload Length:2712 bits, Payload Type: 11110000, Whitening: Off





# Packet-Tx Measurement form IQ view

Date Rate: 1M/DH5, RF Channel: 0, Payload Length:2712 bits, Payload Type: 10101010, Whitening: Off

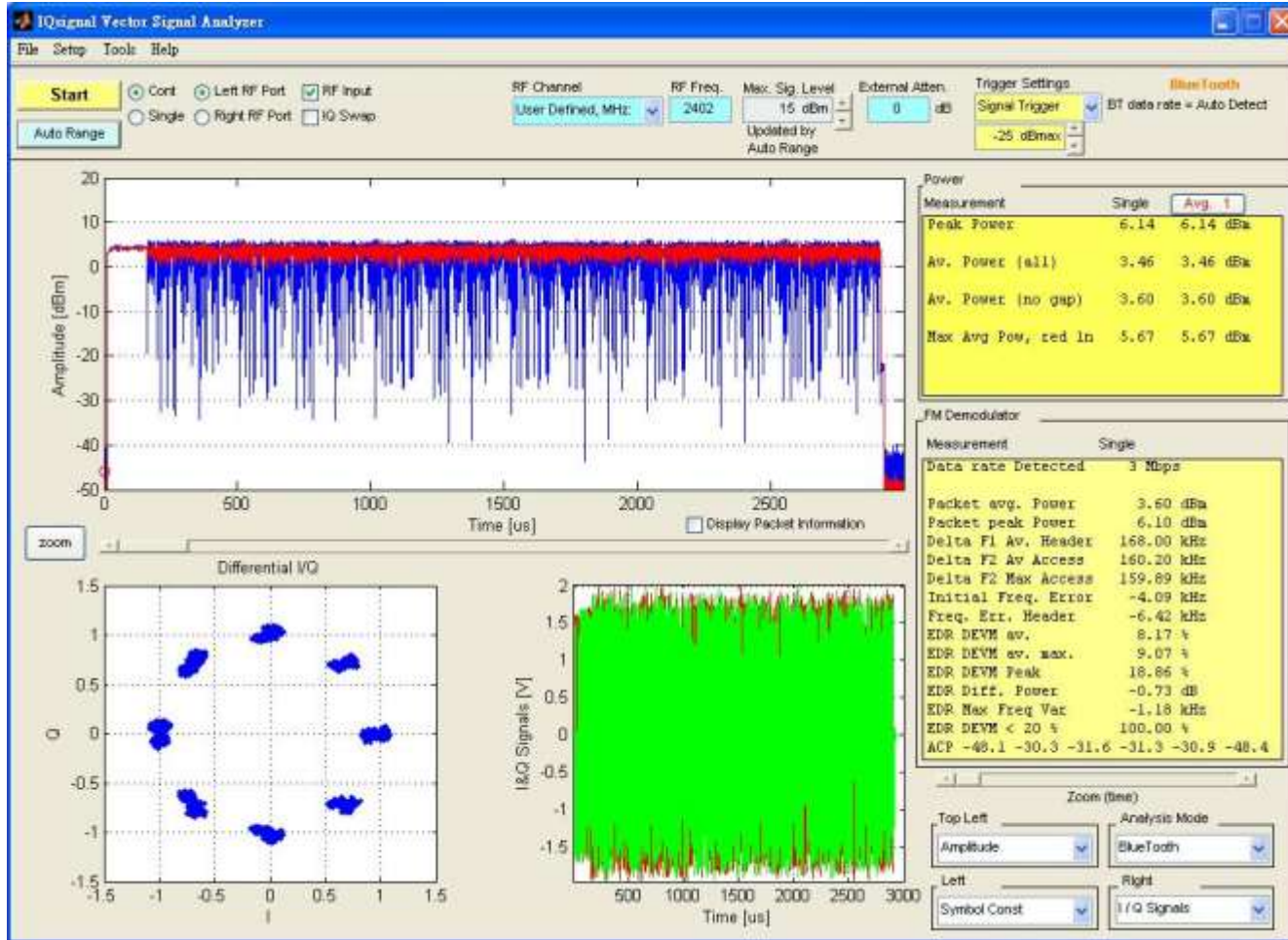






# Packet-Tx Measurement form IQ view

Date Rate: 3M/3DH5, RF Channel: 0, Payload Length:8168 bits, Payload Type: Normal, Whitening: On





# Continue-Tx Setup

Press "Start" button

Select "Continue-Tx"



Select "Data Rate", "RF Channel", "Tx Gain Index", "Payload Type"



Realtek Bluetooth MP v2.81 --- RTL8723a (Control by Linux Console)

Action Item: **Continue Tx**    **Start**    Pause    Clear

Tx Packets: 0    Error Bits: 0    BER (%): 0.0000

Test Setup

Data Rate: 1M    Payload Type: 1010    Test Mode: RTK Test

RF Channel: 0    Payload bits: 2712    Hit Target: 0x00004c123456

Tx Gain Index: 7    Packet Header: 0x3fff    LE connect: Initiator

Tx Packet Count: 0    Whitering Coeff: 0x7f    Tx DAC Current: 5

HCI Reset

Test Mode

Reg RW

Host Re-Init

```

>> Start Packet-Tx Transmitting...
>> BT Status: RF TxRx Test Mode + under Packet Tx test

>> Stop Test ok !!
>> BT Status: RF TxRx Test Mode + idle

>> Enter TxRx Test mode ok!!
>> Write TxRx Configuration ok!!
>> Start Continue-Tx Transmitting...
>> BT Status: RF TxRx Test Mode + under Continue Tx test

>> Stop Test ok !!
>> BT Status: RF TxRx Test Mode + idle

```

Clear Log.





# Continue-Tx Run

Realtek Bluetooth MP v2.81 --- RTL8723a (Control by Linux Console)

Action Item:  Start **Pause** Clear

Tx Packets:  Error Bits:  BER (%):

Test Setup

Data Rate:  Payload Type:  Test Mode:

RF Channel:  Payload bits:  Hit Target:

Tx Gain Index:  Packet Header:   LE connect Initiator

Tx Packet Count:   Whitening Coeff:  Tx DAC Current:

HCI Reset  
Test Mode  
Reg RW  
Host Re-Init

```
>> Enter TxRx Test mode ok!!
>> Write TxRx Configuration ok!!
>> Start Continue-Tx Transmitting...
>> BT Status: RF TxRx Test Mode + under Continue Tx test

>> Stop Test ok !!
>> BT Status: RF TxRx Test Mode + idle

>> Enter TxRx Test mode ok!!
>> Write TxRx Configuration ok!!
>> Start Continue-Tx Transmitting...
>> BT Status: RF TxRx Test Mode + under Continue Tx test
```

Clear Log.

if "Continue-Tx" ok, the message is shown as memo  
"Continue-Tx" will stop after press "Pause" button

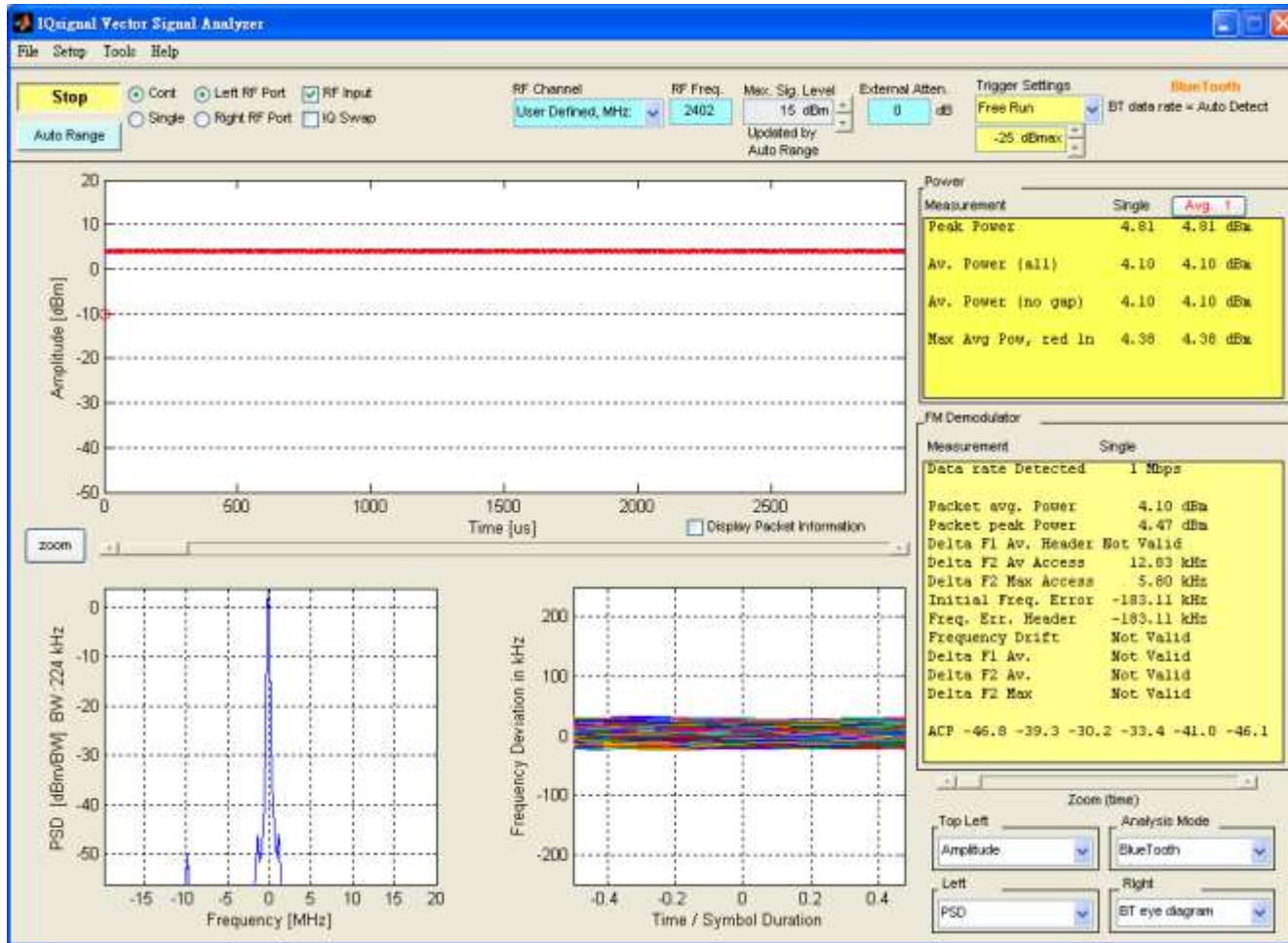






# Continue-Tx Measurement form IQ view

“Continue-Tx” is used for Tx power measurement.





# Packet-Rx Setup

Press "Start" button

Select "Packet-Rx"



Realtek Bluetooth MP v2.81 --- RTL8723a (Control by Linux Console)

Action Item: Packet Rx [Start] [Pause] [Clear]

Rx Bits: 0 Error Bits: 0 BER (%): 0

Test Setup

Data Rate: 3M Payload Type: 0x0~0x Test Mode: RTK Test

RF Channel: 0 Payload bits: 8168 Hit Target: 0x00004c123456

Tx Gain Index: 7 Packet Header: 0x3fff

Tx Packet Count: 0 Whitening Coeff: 0x7f Tx DAC Current: 5

BT is ready!!  
 BT Firmware version:  
 BT Firmware logic ver  
 BT BD Address: 0x00e6  
 =====  
 >> HCI Reset successf  
 >> Translate BD Address: 00004c123456 to Access Code  
 >> Write Modem 0x1c AccessCode[52:67] as 0x120d  
 >> Write Modem 0x1e AccessCode[36:51] as 0x5a8b  
 >> Write Modem 0x20 AccessCode[20:35] as 0x61a6  
 >> Write Modem 0x22 AccessCode[4:19] as 0x03e4

Select "Data Rate", "RF Channel", "Tx Gain Index", "Payload Type", "Payload bits", "Whitening Coeff", "Hit Target"



"Hit Target" is BD address that the BT tester used it to generate the access code of the test pattern.

These parameters must meet with the BT tester's pattern.





# Packet-Rx Run

"Packet-Rx" test result

The screenshot shows the Realtek Bluetooth MP v2.81 software interface. At the top, the title bar reads "Realtek Bluetooth MP v2.81 --- RTL8723a (Control by Linux Console)". Below the title bar, there is a section for "Action Item" with a dropdown menu set to "Packet Rx". To the right of this are three buttons: "Start", "Pause", and "Clear". The "Pause" button is highlighted with a red box. Below this, a summary of test results is displayed: "Rx Bits: 1870472", "Error Bits: 0", and "BER (%): 0.0000". This summary is also enclosed in a red box. Below the summary is the "Test Setup" section, which contains various configuration options such as "Data Rate" (3M), "Payload Type" (0x0~0x), "Test Mode" (RTK Test), "RF Channel" (0), "Payload bits" (8168), "Hit Target" (0x00004c123456), "Tx Gain Index" (7), "Packet Header" (0x3fff), "LE connect" (Initiator), "Tx Packet Count" (0), "Whitening Coeff" (0x7f), and "Tx DAC Current" (5). To the right of the "Test Setup" section are four buttons: "HCI Reset", "Test Mode", "Reg RW", and "Host Re-Init". At the bottom of the interface is a log window showing the following text: 

```
>> HCI Reset successful!!  
>> Translate BD Address: 00004c123456 to Access Code  
>> Write Modem 0x1c AccessCode[52:67] as 0x120d  
>> Write Modem 0x1e AccessCode[36:51] as 0x5a8b  
>> Write Modem 0x20 AccessCode[20:35] as 0x61a6  
>> Write Modem 0x22 AccessCode[4:19] as 0x03e4  
>> Enter TxRx Test mode ok!!  
>> Write TxRx Configuration ok!!  
>> Start Packet-Rx Receiving...  
>> BT Status: RF TxRx Test Mode + under Rx test
```

 The last four lines of the log are enclosed in a red box. To the right of the log window is a "Clear Log" button.

if "Packet-Rx" ok, the message is shown as memo  
"Packet-Rx" will stop after press "Pause" button

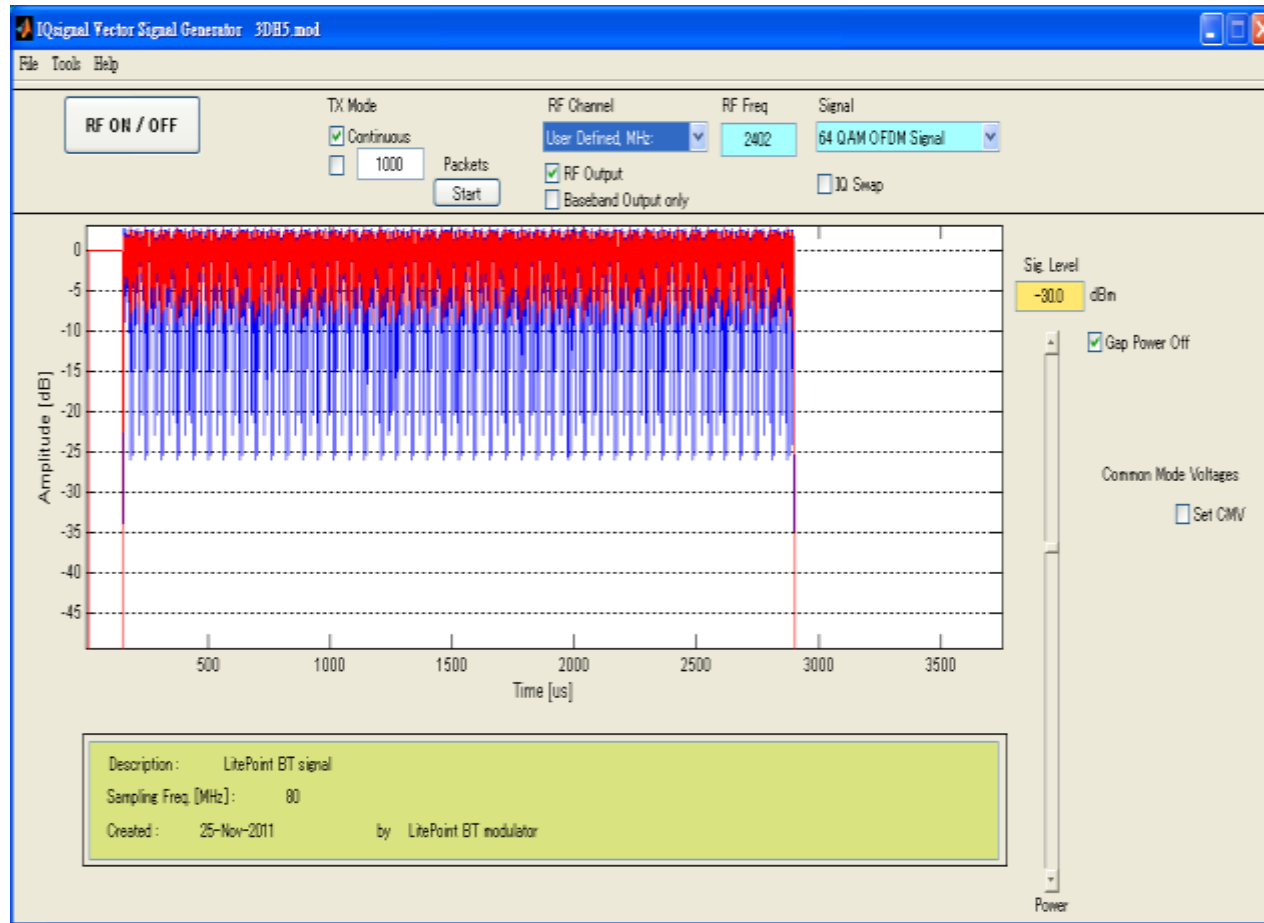






# IQ view Vector Signal Generator

Used the IQ view Vector Signal Generator to generate test pattern (\*.mod)





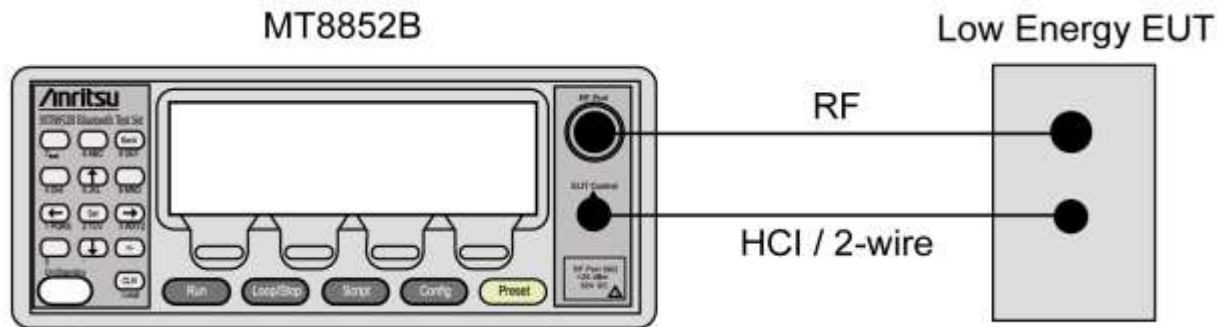
# Bluetooth BT 4.0 LE Direct Test Mode Setup For RF/PHY Testing





Most BT testers support host control port (USB,UART) that can be as a "upper tester" defined in the direct test mode of BT specifications. The diagram shown as below is the MT8852B test configuration for LE RF/PHY test.

The BT MP also supports Tx and Rx test when the BT tester can not be a "upper tester" (no host control port, ex: IQ view).





# Tx Test Setup:

Press "Start" to start Tx and BT tester can start measurement.

Press "Stop" to stop Tx.

Select "Packet-Tx"



Realtek Bluetooth MP v2.81 --- RTL8723a (BD Address = 0x00E04C887232)

Action Item:

Tx Packets:  Error Bits:  BER (%):

Test Setup

Data Rate:  Payload Type:  Test Mode:

RF Channel:  Payload bytes:  Hit Target:

Tx Gain Index:  Packet Header:   LE connect

Tx Packet Count:   Whittening Coeff:  Tx DAC Current:

Bluetooth Device Name: RTK\_BT\_4.0  
 HCI\_Version: 0x06  
 HCI\_Revision: 0x801f  
 LMP\_Version: 0x06  
 Manufacturer\_Name: Realtek Semiconductor Corporation  
 LMP\_Subversion: 0x9b79  
 Supported Feature(0~7): 0xFF 0xFB 0xFF 0xFE 0xDB 0xFF 0x7B 0x87  
 =====  
 >> HCI Reset successful!!  
 >> Start Transmitting...  
 >> Stop Transmitting!!



Select "Data Rate", "RF Channel", "Tx Gain Index", "Payload Type", "Payload bytes"



"Data Rate" = [LE]





# Rx Test Setup:

Press "Start" to start Rx and BT tester can start sending packet.

Press "Stop" to stop Rx.

Select "Packet-Rx"



Select "Data Rate", "RF Channel", "Payload Type", "Payload bytes"



"Date Rate" = [LE]





# BT 4.0 LE Setup For FCC AFH Measurement







# Step 1: Create LE connection (Initiator)

1. Checked [LE connect] and select "Initiator".
2. Key in the Target BD Address in the [Hit Target] and press "Enter" key
3. In the Action Items, select "Page + Create ACL connection"
4. press [Start] button

The screenshot shows the Realtek Bluetooth MP v2.82 software interface. The title bar reads "Realtek Bluetooth MP v2.82 --- RTL8723a (Control by WiFi PCIe Host)".

At the top, the "Action Item" dropdown is set to "Page + Create ACL Connection" (marked with a red box and '3'). The "Start" button is highlighted with a red box and '4'. Below this, the "Rx Bits", "Error Bits", and "BER (%)" are all set to 0. There is a checkbox for "Inverse Ant SW" which is unchecked.

The "Test Setup" section contains several fields: "Data Rate" is 1M, "Payload Type" is 010101, "Test Mode" is Normal Test, "RF Channel" is 0, "Connect Handle" is 2712, "Hit Target" is 0x00e04c335588 (marked with a red box and '1'), "Tx Gain Index" is 7, "Packet Header" is 0x3fff, "LE connect" is checked (marked with a red box and '2'), and "Initiator" is selected in the dropdown. "Tx Packet Count" is 0, "Whitening Coeff" is 0x7f, and "Tx DAC Current" is 5. On the right side, there are buttons for "HCI Reset", "Test Mode", "Reg RW", and "Host Re-Init".

The log window at the bottom shows the following commands and responses:

```
>> Write Modem 0x20 AccessCode[20:35] as 0x58cc
>> Write Modem 0x22 AccessCode[4:19] as 0x475c

>> Translate BD Address: 00e04c335588 to Access Code
>> Write Modem 0x1c AccessCode[52:67] as 0xb30d
>> Write Modem 0x1e AccessCode[36:51] as 0x046a
>> Write Modem 0x20 AccessCode[20:35] as 0xdee1
>> Write Modem 0x22 AccessCode[4:19] as 0x199c

>> Enter Connect Test mode ok!!
>> Set Connet Target ok!!
>> Start LE Connect Test (initiator, target = 0x00e04c335588) ok!!
>> BT Status: Connect Test Mode + under waiting connection
```

The log window also has a "Clear Log." button at the bottom right.







# Step 2: Create LE connection (Advertiser)

1. Checked [LE connect] and select "Advertiser".
2. In the Action Items, select "Page + Create ACL connection"
3. press [Start] button

Realtek Bluetooth MP v2.82 --- RTL8723a (Control by WiFi PCIe Host)

Action Item: Page + Create ACL Connection Start Pause Clear

Rx Bits: 0 Error Bits: 0 BER (%): 0  Inverse Ant SW

Test Setup

Data Rate: 1M Payload Type: 010101 Test Mode: Normal Test HCI Reset

RF Channel: 0 Connect Handle: 2712 Hit Target: 0x00e04c335588 Test Mode

Tx Gain Index: 7 Packet Header: 0x3fff  LE connect: Advertiser Reg RW

Tx Packet Count: 0  Whitening Coeff: 0x7f Tx DAC Current: 5 Host Re-Init

```
-----
BT is ready!!
BT Firmware version: 0x9b79
BT Firmware logic version: 0x00
BT BD Address: 0x446d5731c5ff
-----
>> HCI Reset successful!!
>> Enter Connect Test mode ok!!
>> Set Connet Target ok!!
>> Start LE Connect Test (advertiser) ok...
>> BT Status: Connect Test Mode + under waiting connection
-----
```

Clear Log.



# Step 3: Create LE connection

Initiator will create LE connection with Advertiser and AFH start running.

```
>> Set LE Event Mask OK!!  
>> Set LE Adv Parameters OK!!  
>> Set LE Adv Enable OK!!  
  
>> [HCI Event] -> LE Connection Complete  
>> [HCI Para] -> LE Connection completed successfully  
>> [HCI Para] -> LE Connection_Handle = 0x0010  
>> [HCI Para] -> BD_ADDR = 0x00E04C232218  
  
>> HCI Reset successful!!
```





# Setup Antenna Switch (support after v2.82)

Realtek Bluetooth MP v2.82 --- RTL8723a (Control by Linux Console)

Action Item: Please select Action.... Start Pause Clear

Tx Packets: 0 Error Bits: 0 BER (%): 0  Inverse Ant SW

Test Setup

Data Rate: 1M Payload Type: All 0's Test Mode: RTK Test HCI Reset

RF Channel: 0 Payload bits: 2712 Hit Target: 0x0000009e8b33 Test Mode

Tx Gain Index: 7 Packet Header: 0x3fff  LE connect Initiator Reg RW

Tx Packet Count: 0  Whitening Coeff: 0x7f Tx DAC Current: 5 Host Re-Init

2013/1/2 10:57:18

Start Linux Console ok!!  
No MP driver exists!!  
Insert MP driver ok!!  
Enable WLAN Adapter ok!!  
Enter MP mode ok!!  
Download BT firmware ok!!  
BT is controlled by WiFi now!!  
-----  
BT is ready!!  
BT Firmware version: 0x9a4d  
BT Firmware logic version: 0x9a  
BT BD Address: 0x00e04c842713

Clear Log.

If Checked: Main → WiFi  
else Main → BT





## FCC Warning Statement

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This module is intended for OEM integrator. The OEM integrator is still responsible for the FCC compliance requirement of the end product which integrates this module.

The final end product must be labeled in a visible area with the following "Contains TX FCC ID: 2AC23-WT4XR1210".

The FCC part 15.19 statement below has to also be available on the label: This device complies with Part 15 of 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 end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

