ATS282X

RF Testing Guide

Latest Version: *3.0*

2016-03-25

1 Declaration

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2 Content

3 Introduction

3.1 Revision History

Date	Version	Description	Author
2015-10-10	1.0	First edition	CZG
2016-01-05	2.0	Add illustration on LE and BR/EDR measurement	CZG
2016-03-24	3.0	Update frequency-fixed tools and FT_MODE macro definition location according to new SDK	CZG

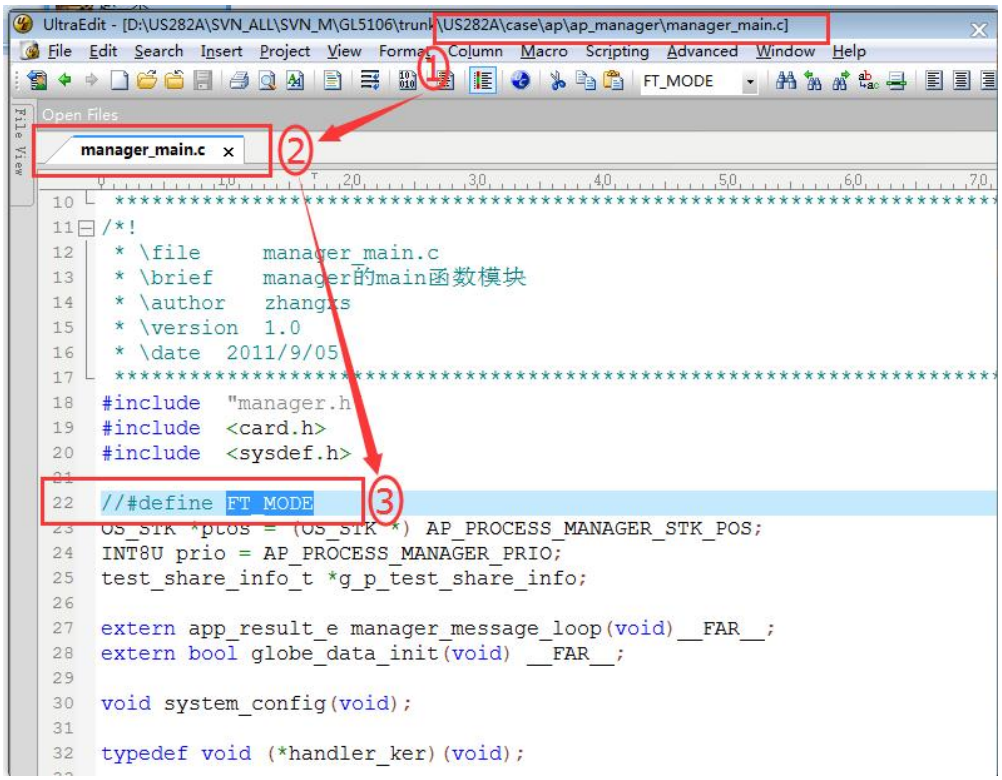
3.2 Intentions of this guide

This guide is an introduction of fixed-frequency measurement methods on chip and analog modules, applicable to ATS282X series, such as ATS2823, ATS2823B, ATS2825, ATS2829 and etc.

4 Testing preparation

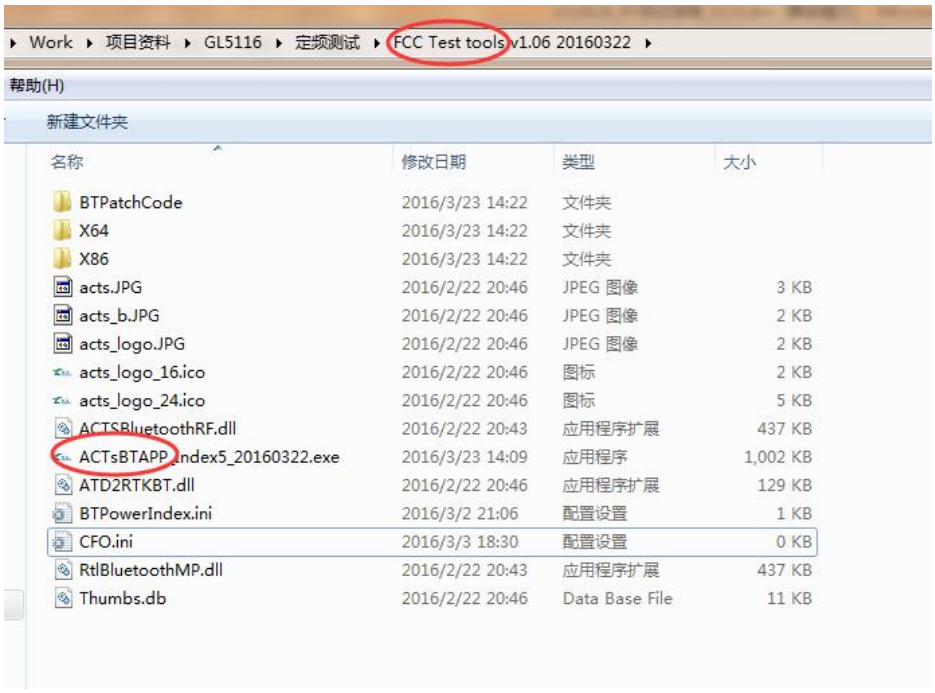
1. Hardware wiring in FCC test：
   ATS282X GPIOA21: connects to serial port tool RX on PC port
   ATS282X GPIOA22: connects to serial port tool TX on PC port
   GNDs: connect together
   VCC: if the serial port tool on PC port is RS232, VCC should connect to system VCC for power; if the serial port tool on PC port is USB, VCC should not be connected.

2. The device under test (DUT) can enter testing mode after recording the fixed-frequency testing firmware, which should be recompiled from *case\ap\ap_manager\manager_main.c* by enabling the "#define FT_MODE" macro.

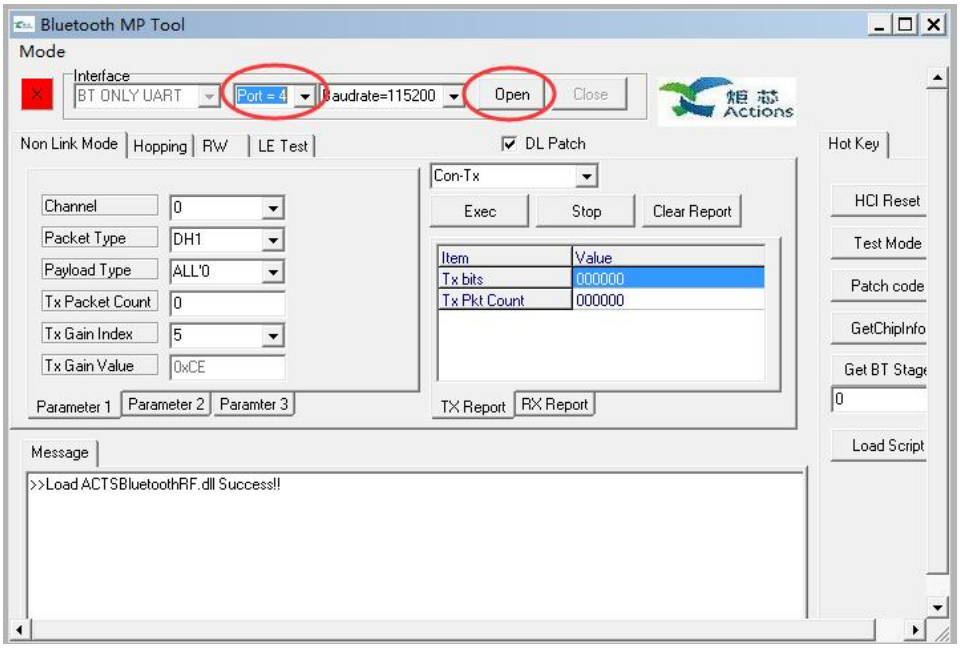


3. Power up the DUT firstly, before plug the serial port tool in PC port. Operate in this order to prevent abnormal DUT powering up that may lead by serial port tool.

4. Find “FCC Tool” in “Tool” folder in the released kit, open “ACTsBTAPP.exe” procedure and run. Please use the latest released software tool.



5. In the software interface, select the device's port that connected with the PC port, click "open", then the connection will be established. Baudrate is 115200 by default.

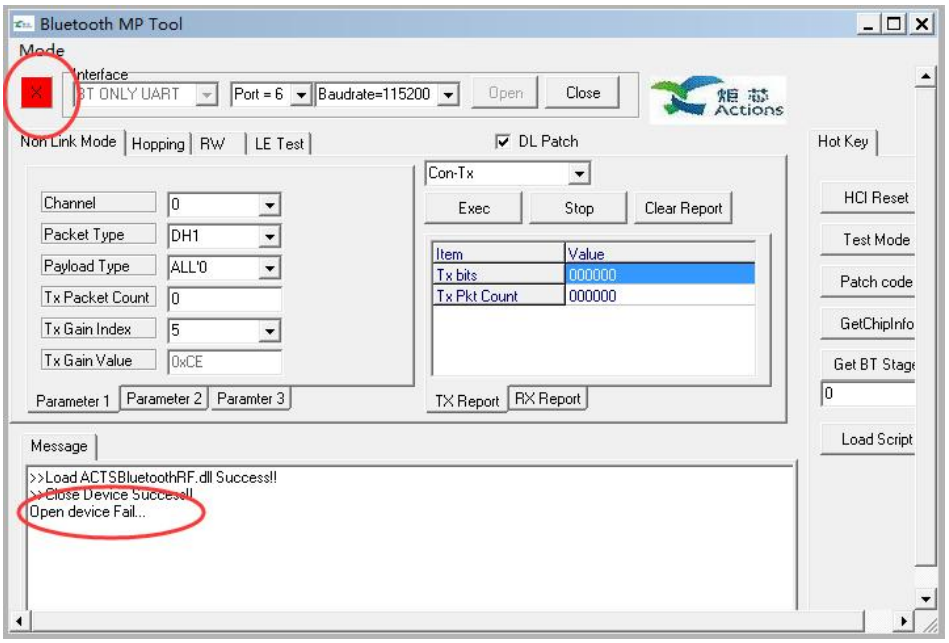


6. If error occurs in message window, and the "red X" still exists, please check as the follows:
   a) Check whether or not the device port is correctly selected, the serial port tool and DUT connection is right.
   b) Check whether or not the DUT is working normally, the recorded firmware is correct,

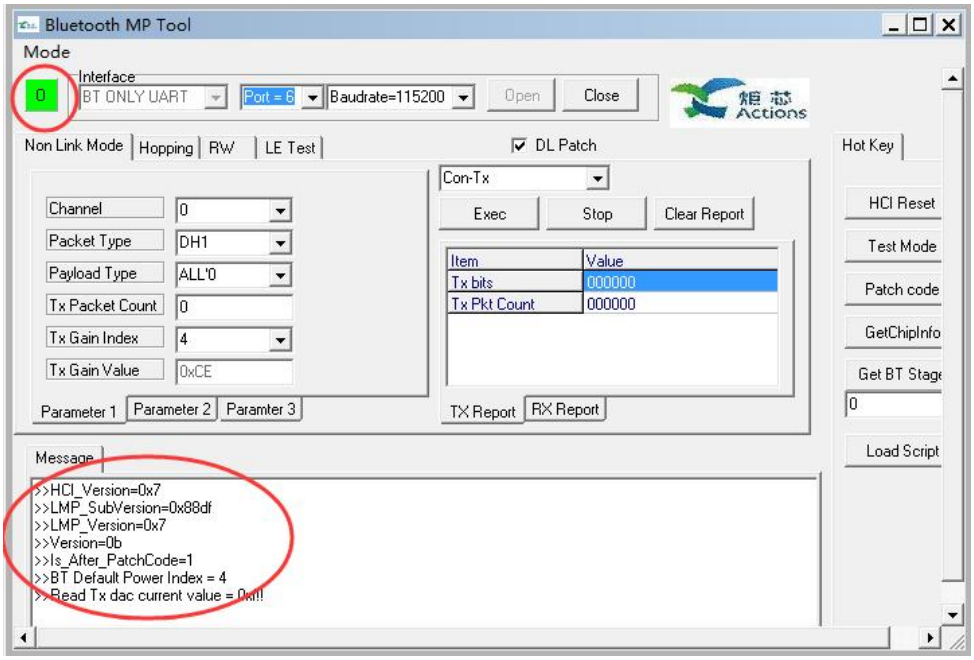
and also the voltage of BTVCC is right.

c) Check whether or not the serial port tool is functioning well and has good compatibility.

d) Check whether or not the PC software tool is running normally, may be you can try on another PC.



7. Once successfully connected, “greed O” is shown, and related connection information will be printed in the “message” window.

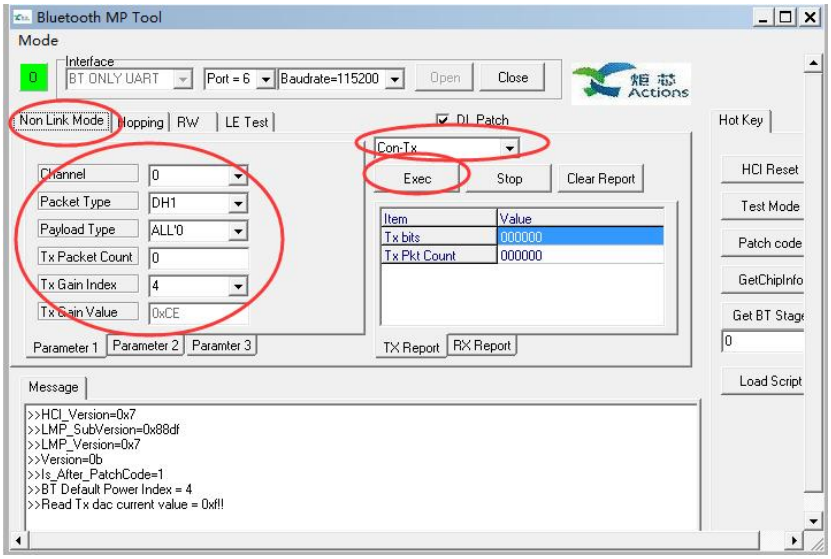


8. Enter “Non Link Mode”, “LE”, and “Hopping” measurement.

5 Fixed-frequency Test

Non Link Mode:

It's the default mode after opening the software, in this mode, BE/EDR RF performance is measured manually. Set the related parameters according to testing requirement, then click “Exec” to get the results.



Channel: transmit channel, 0-->2402MHZ，39-->2441MHZ,78-->2480MHZ, etc.

Packet Type: including DH1/DH3/DH5/2DH1/2DH3/2DH5/3DH1/3DH3/3DH5

PayLoad Type: content of sent information, including All‘0’, and All‘1’, 0101, 1010, 0x0~0xF, 00001111, 11110000, PRBS9, among which PRBS9 represents for random code.

TX Packet Count: package transmitted number, 0 means infinity.

TX Gain Index: transmit success rate control, parameters are 0~7, step is 3dB, default value is 5 (1dBm). Adjusting method: right-click-->Debug-->Enable BT Tx Power Index.

TX Gain Value: default value is fixed, cannot be modified.

Con-Tx: transmit continuously mode

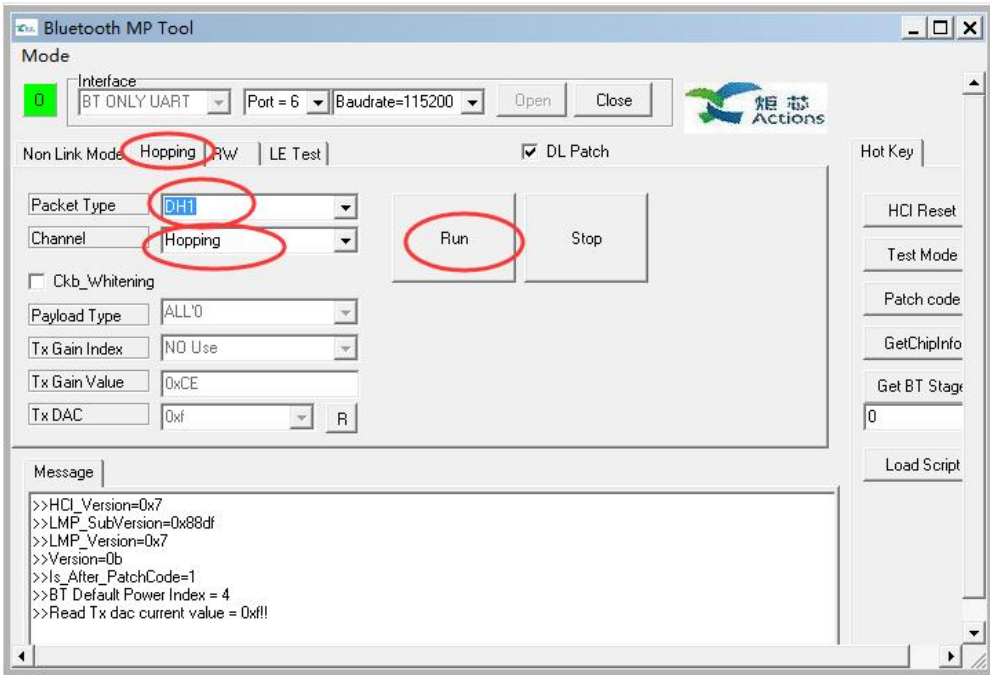
Pkt-Tx: package transmit mode

Pkt-RX: package receive mode

Single Tone: pure carrier test mode

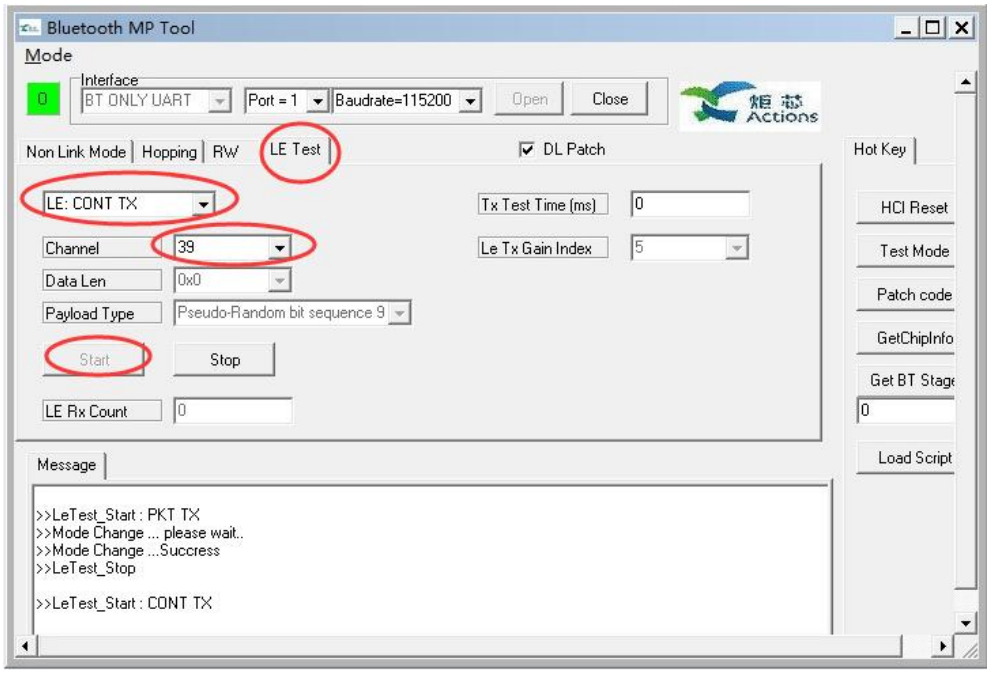
6 Frequency-hopping Test

Hopping test: set packet type and channel and then click “Run” to start test, please note that the “packet type” must not be NULL。



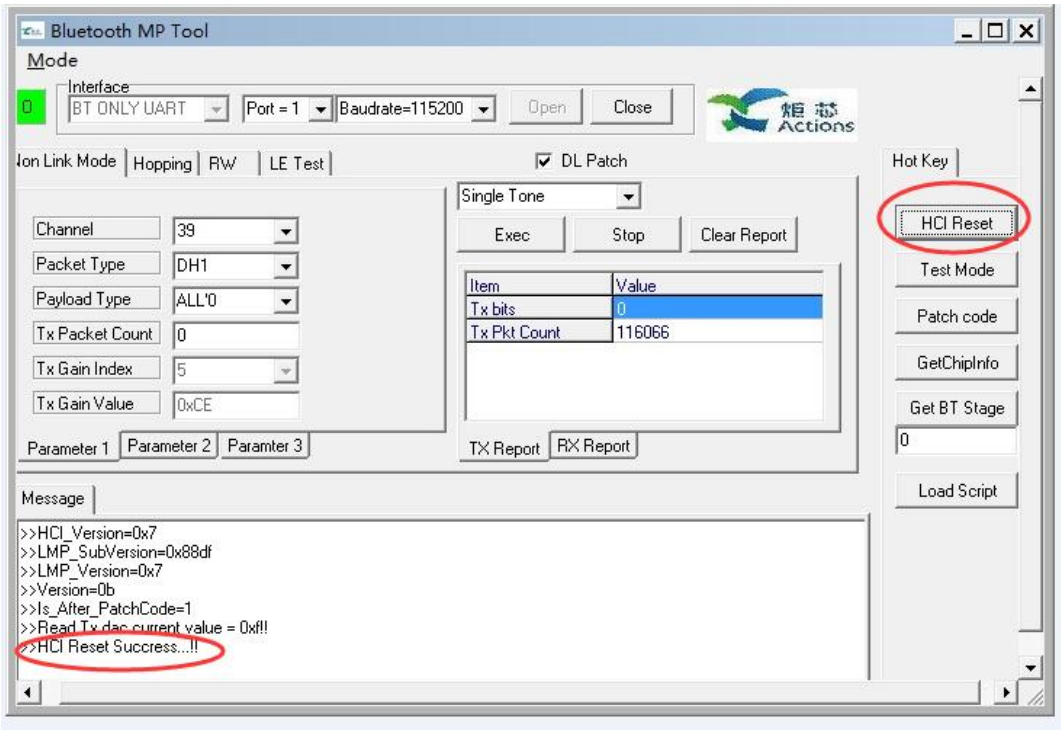
7 LE Test

1) In manual test, please set the parameters according to the test requirement and then click “Start”.



2) In auto test on Bluetooth Analyzer, click “HCI Reset” to initialize, then switch the serial port

to Bluetooth Analyzer. Note that the baudrate of Bluetooth Analyzer serial port should be set to 115200.



8 BR/EDR Test

In BR/EDR test using Bluetooth Analyzer, click "**Test Mode**", then the analyzer will check the connection and test.

Note: use "TX Mode" in TX test items, "Loopback" should not be used.

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