Use Instructions And Test Guidance

HF-BL500 Module Operation Guide

This document applies to the following series of products.

	HF-BL500

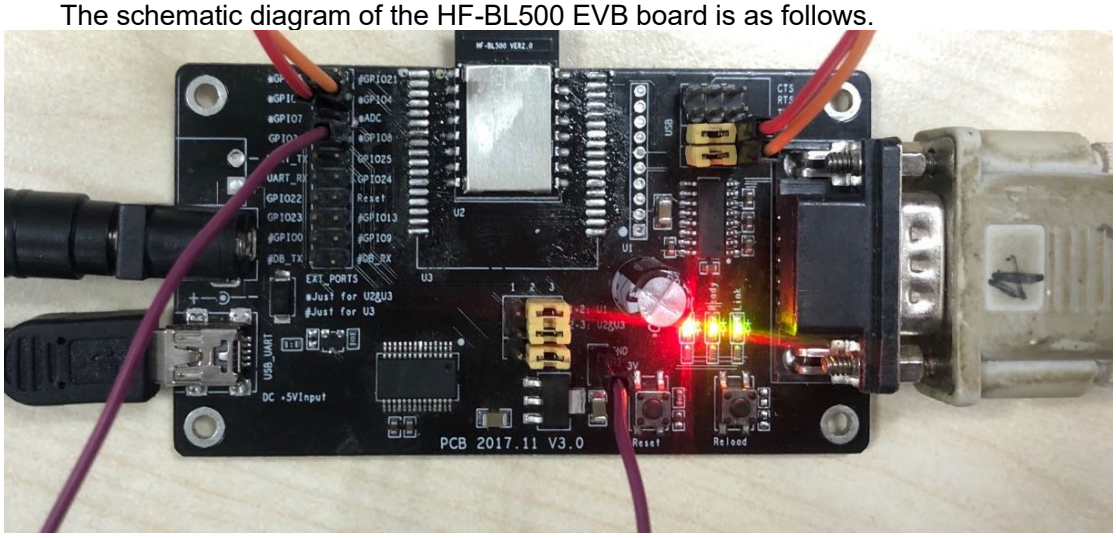
Table Of Contents

1. HF-BL500 MODULE INTRODUCTION

This document introduces the HF-BL500-1 EVB.

1.1. HF-BL500 EVK Connection

The schematic diagram of the HF-BL500 EVB board is as follows.



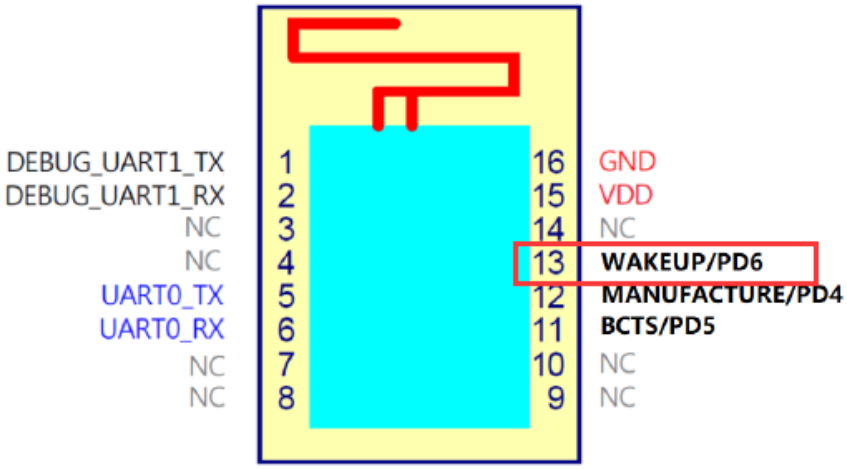
Connect the development board with a USB cable to power the board and do communication tests.

Module PIN13 (development board silkscreen GPIO8) is the dormant pin. If you need to send serial data to the module, you need to pull down this pin, or directly short this pin to GND to disable the dormant function.

Module PIN1 (development board silkscreen GPIO12) and PIN2 (development board silkscreen GPIO4) are serial debugging information and programming pins.

As shown in the figure above, the wiring of the development board means that the left USB serial port is used for communication testing, and the right RS232 serial port is used for debugging information output. At the same time, GPIO8 is connected to GND to close the sleep function.

Note: The module has no reset pin, so the reset button of the development board is invalid.



Each pin of the module corresponds to the silk screen on the EVK development board as follows:

DEBUG_UART1_TX：GPIO12　　DEBUG_UART1_RX：GPIO4

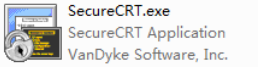
BCTS：GPIO24　　MANUFACTURE：GPIO25

WAKEUP：GPIO8

2. SERIAL PORT SOFTWARE INTRODUCTION

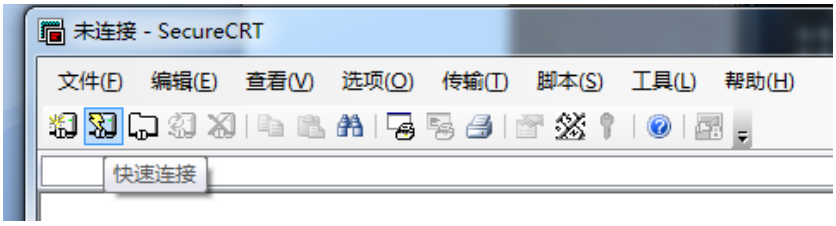
2.1. Serial Port Tool SecureCRT

Download Link:
http://www.hi-flying.com/download-center-1/applications-1/download-item-securecrt

Unzip the folder, open it to find the SecureCRT 

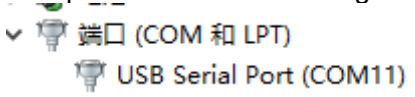
, executable program, and click Open.

Click the quick connect button  , create a connection.



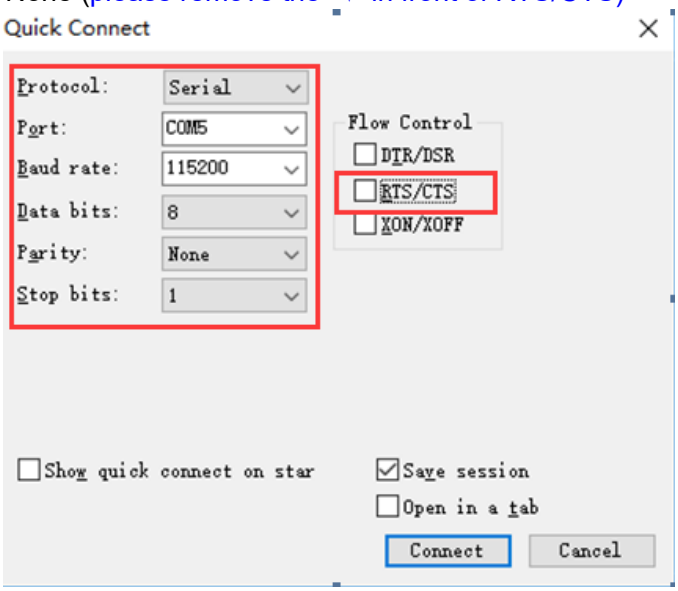
2.2. Set Serial Port Parameters

Protocol: Serial
Port: The port that the computer is actually connected to (it can be viewed through "My Computer" -> "Device Manager" -> "Port (COM and LPT)", as shown in the figure.)



)

Baud Rate: 115200
Data Bits: 8
Parity: None
Stop Bit: 1
Flow Control: None (please remove the "√" in front of RTS/CTS)



Note: The default serial port data of the module is as shown in the figure above

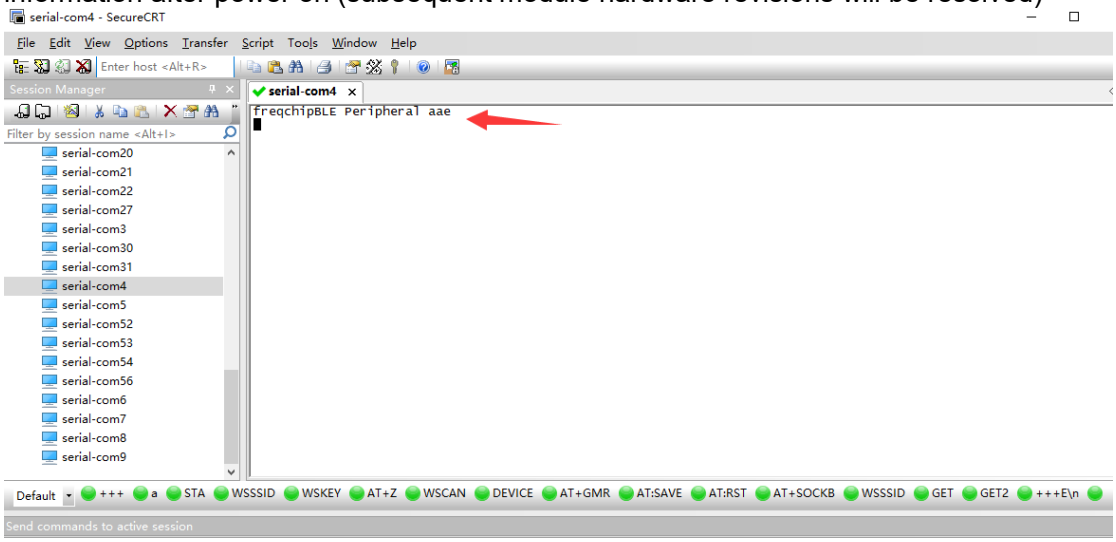
3. HF-BL500 MODULE TEST

3.1. AT Command

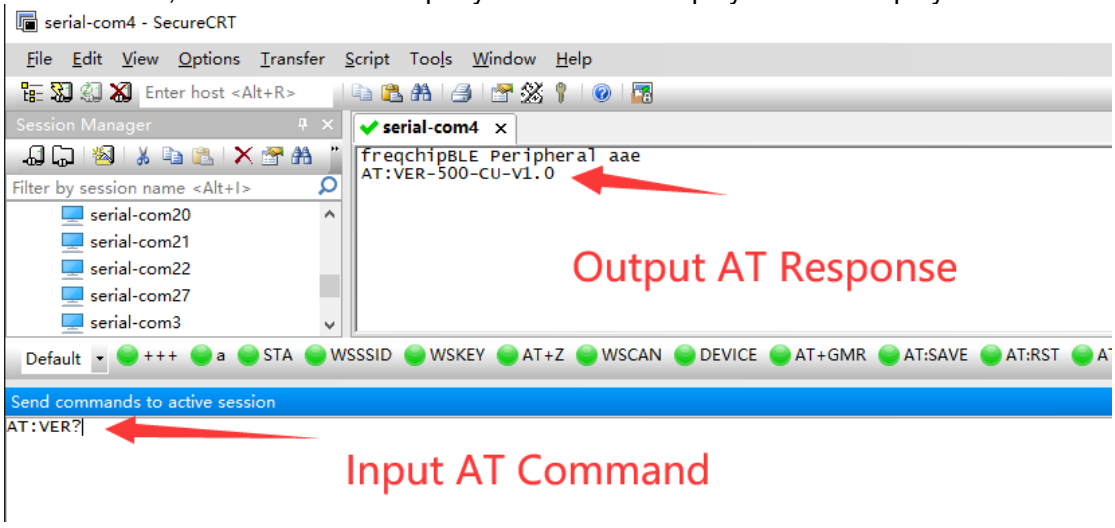
Step1: Connect the product to the PC via USB, open the device manager to view the connected com port, the driver can be downloaded from the website

http://www.hi-flying.com/download-center-1/applications-1/driver-ft232r

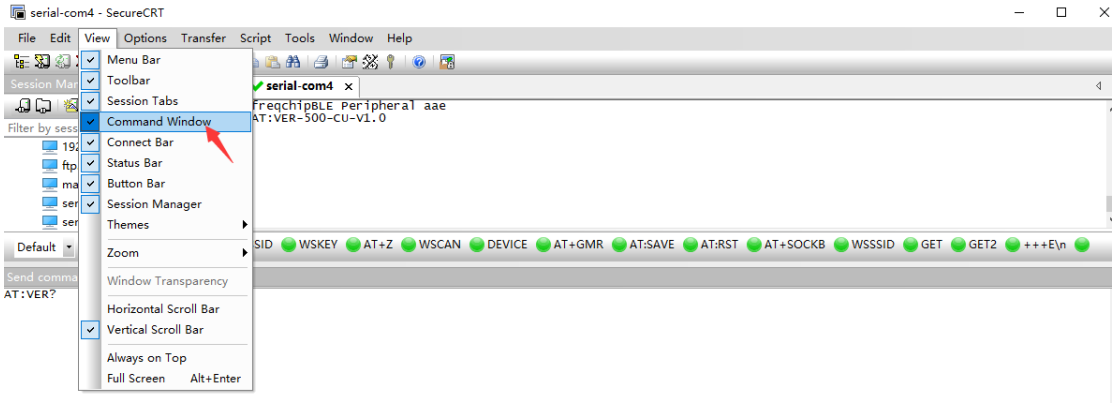
Step 2: Open SecureCRT, set the tool serial port parameters, the module will have startup information after power on (subsequent module hardware revisions will be resolved)



Step 3: Input the AT command at the bottom of the interface and press Enter to send the AT command, and the command query result will be displayed in the display area.



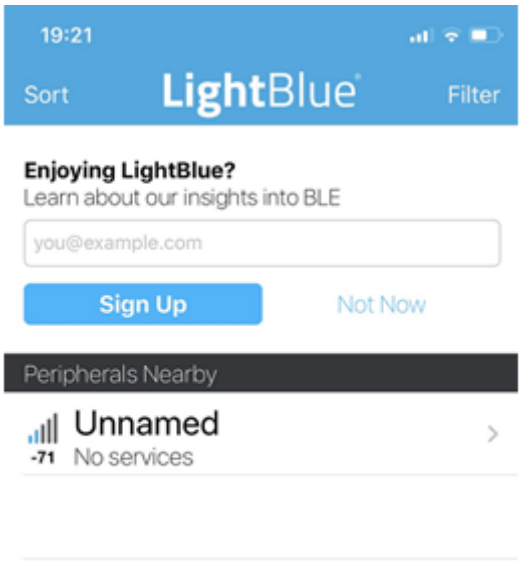
The command interaction bar needs to be opened manually.



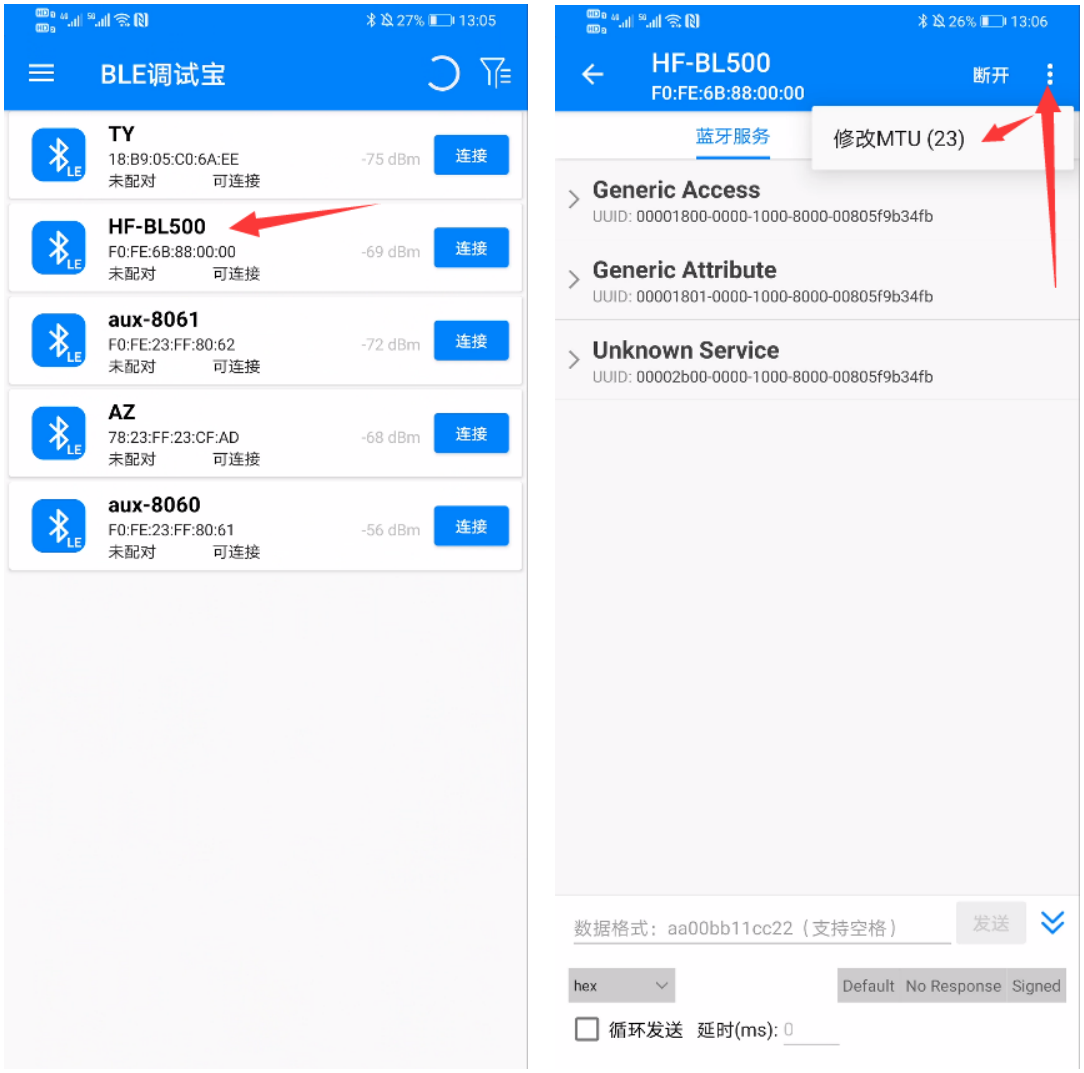
3.2. Transparent Transmission Test

IOS system can download LightBlue APP for testing, the following only uses Android APP as an example.

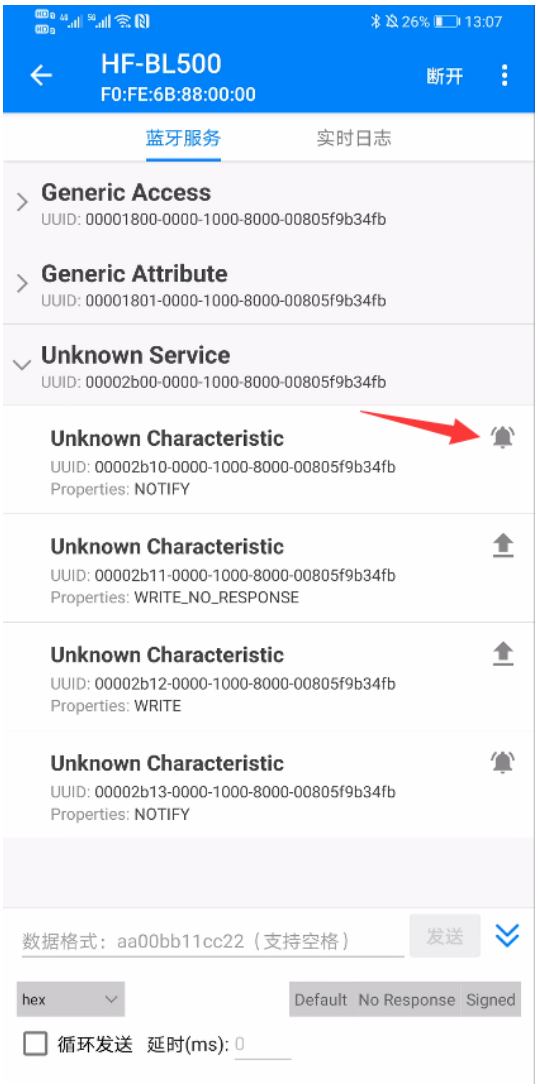
Android system download 【BLE Utility】 for data sending and receiving test.



Open BLE Utility and click Connect HF-LPT270.



Modify MTU to 240 (BLE 5.0 version module supports long packets)

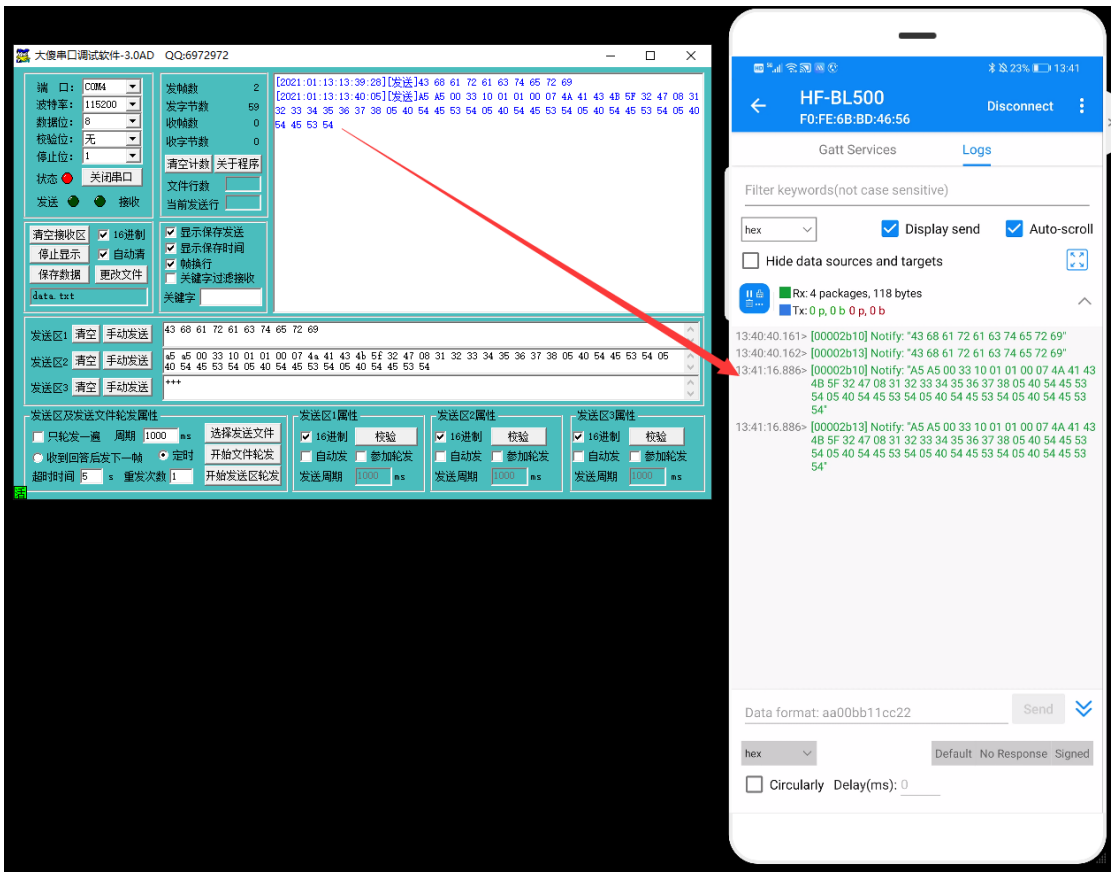


When reading serial port data, click the ringing icon of the following channel UUID: 2B10 to enable the notification read channel, and the uplink serial port data can be displayed in the real-time log interface.

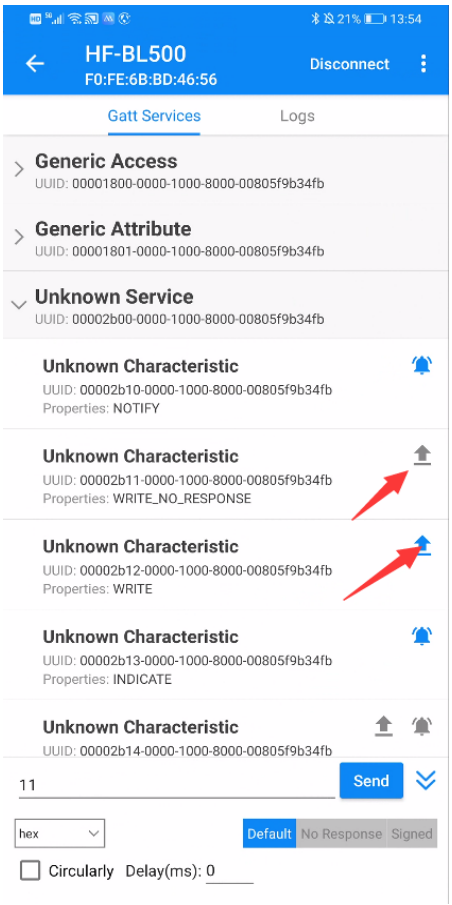
The serial port sends the following test data, and the APP can view the corresponding data in the real-time log. Note that one frame of serial port data does not exceed the MTU (240 characters):

a5 a5 00 33 10 01 01 00 07 4a 41 43 4b 5f 32 47 08 31 32 33 34 35 36 37 38 05 40 54 45 53 54 05 40 54 45 53 54 05 40 54 45 53 54 05 40 54 45 53 54

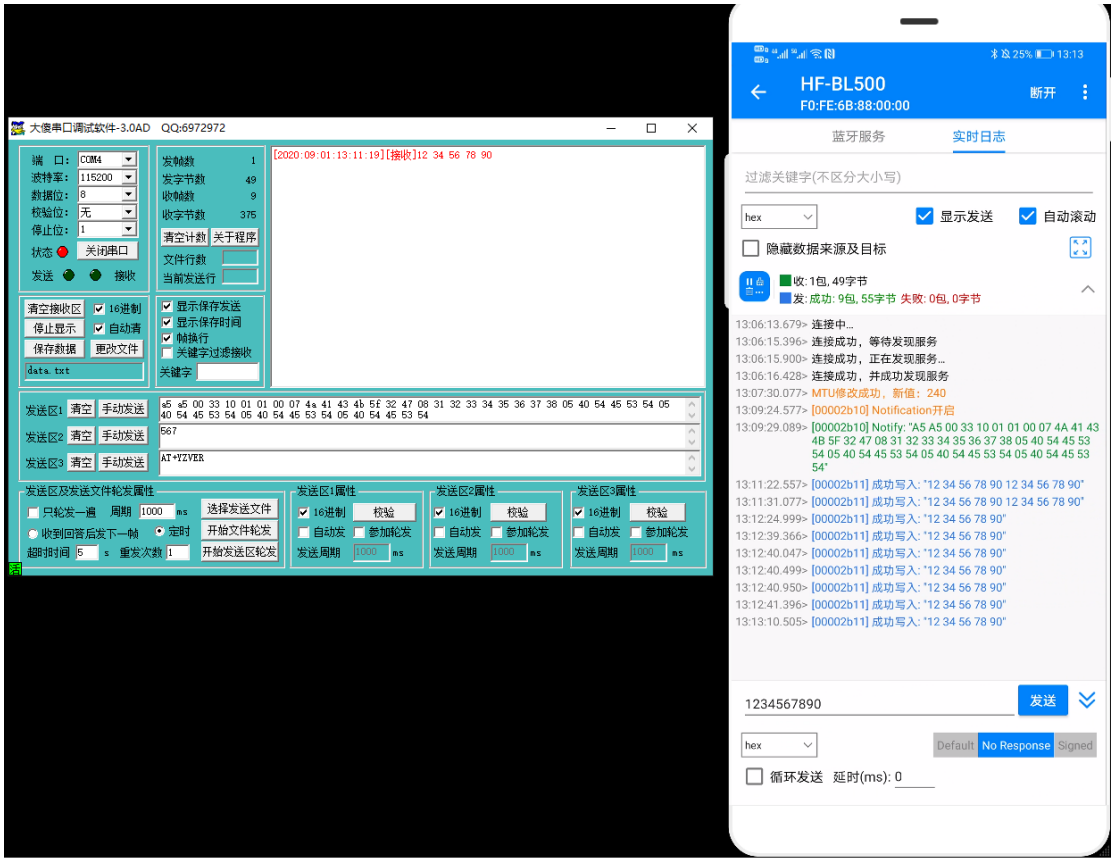
The serial port will send the packet to both 2B10(notification read channel) and the 2B13(indication read channel):



Click either the following 2B11(notification write channel) or 2B12(indicationwrite channel) uuid to send data in the APP.



APP sends data, the serial port outputs the following data, you can choose Hex or ASCII format:



If you want to modify the BLE name, the UUID service can be modified using AT commands, and restart after modification to take effect, for example:

AT:REN //Modify the broadcast name.
AT:UIDS //Modify BLE service uuid channel, default is 0x2B00
AT:UIDIR //Modify BLE receive indication uuid, default is 0x2B13
AT:UIDIW //Modify BLE write indication uuid, default is 0x2B12
AT:UIDNR //Modify BLE receive indication uuid, default is 0x2B10
AT:UIDNW //Modify BLE write indication uuid, default is 0x2B11
Indication: slave(module) sends packet to master(phone), master need to confirm, so packet won't lost
Notification: slave(module) sends packet to master(phone), master don't need confirm, packet may be lost.

3.3. APP Send AT Command

Choose the 2B14 Channel to send AT command, the packet format is as following.

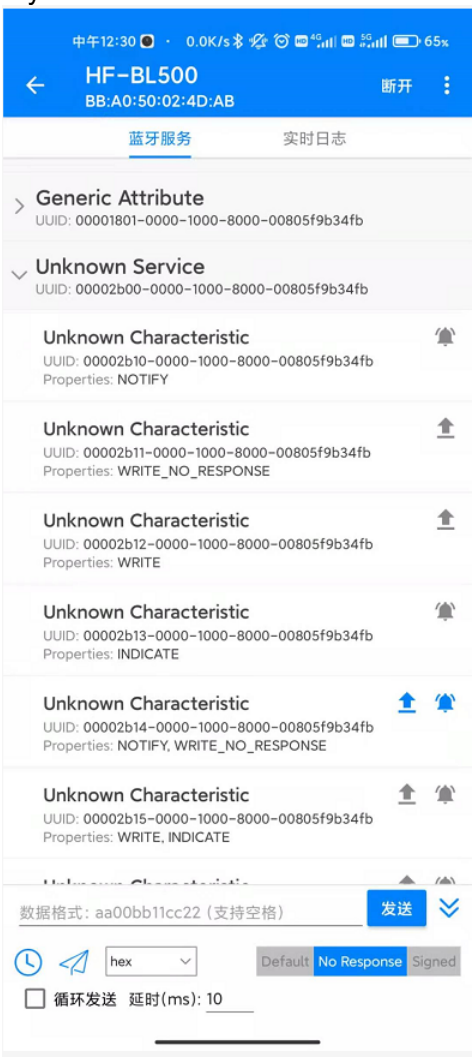
Byte length	Data[0]	1 byte	Include all byte of command type and command content
Command type	Data[1]	1 byte	0x0E: almost 18 bytes in one group AT command 0x0F: send verify code
Command content	Data[2]~data[19]	18 bytes	Details refer to command list (command type)

The following send "05 0E 56 45 52 3F" packet.

05: packet length including command type and content.

0E: AT command identifier.

56 45 52 3F：AT command name(VER?), there is no need to add prefix AT:, just leave the key command.

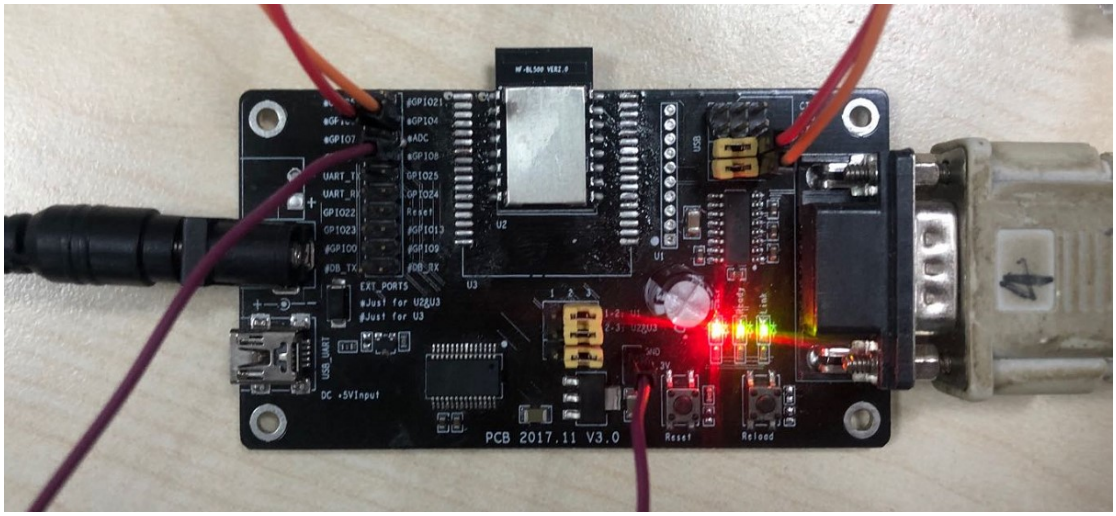


3.4. Rewrite Bluetooth MAC Address

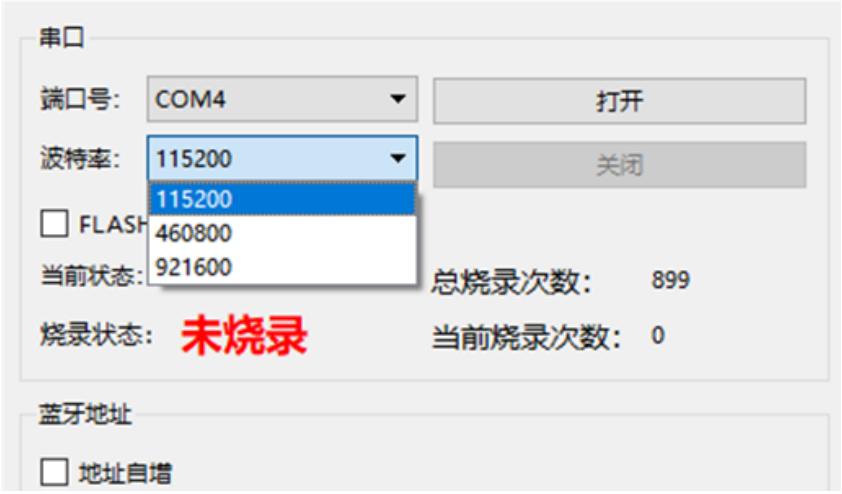
The following command can rewrite the Bluetooth MAC. If the Bluetooth MAC is FFFFFFFFFFFF, it is an illegal value and needs to be written manually. The factory default is written into High Flying's MAC.
AT:WAC-ACCF23200000
AT:SAVE
AT:RST

3.5. Serial Port Mode Firmware Burning

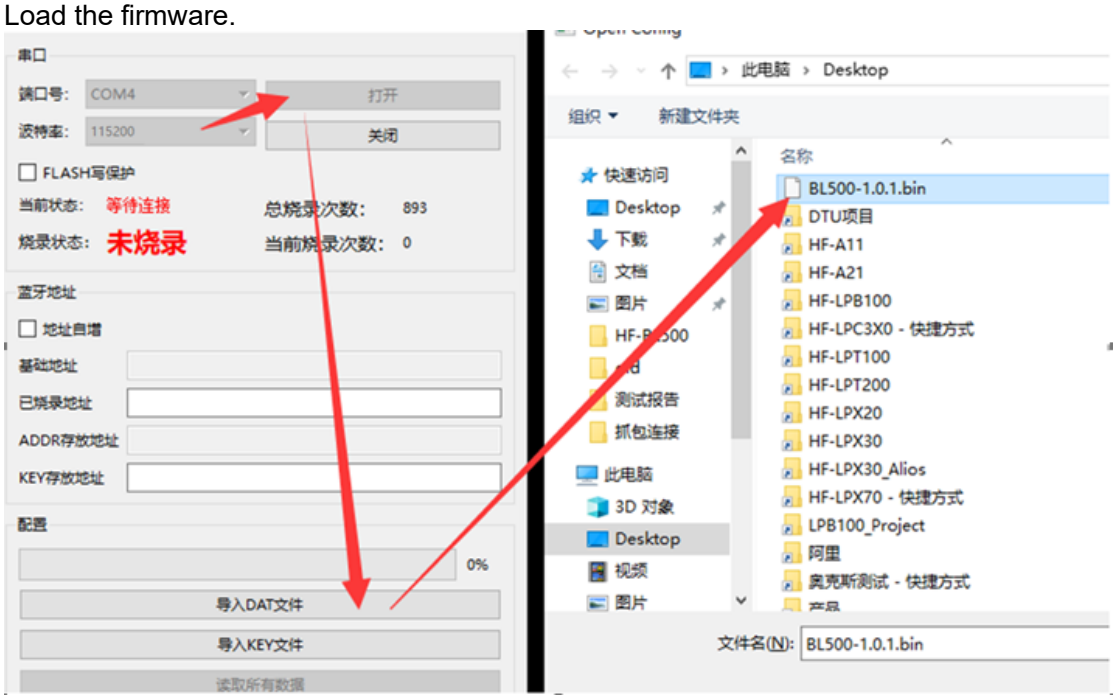
Firmware burning uses serial ports PORTA2 (PIN2, DEBUG_UART1_RX) and PORTA3 (PIN1, DEBUG_UART1_TX)
Download link of burning tool:
http://ftp.hi-flying.com:9000/HF-BL500/Tools/
Connect as shown below:



Select 115200 baud rate (RS232 serial port cannot support 921600 and 460800 baud rate).



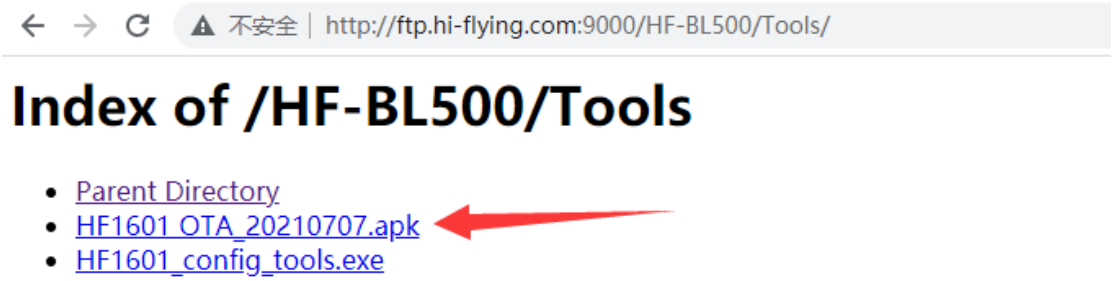
Load the firmware.



Load the firmware, plug in the module and power on again (the module has no hardware reset function, only power off and power on), the current status shows that it is connected and click [Write all content] to complete the firmware burning.

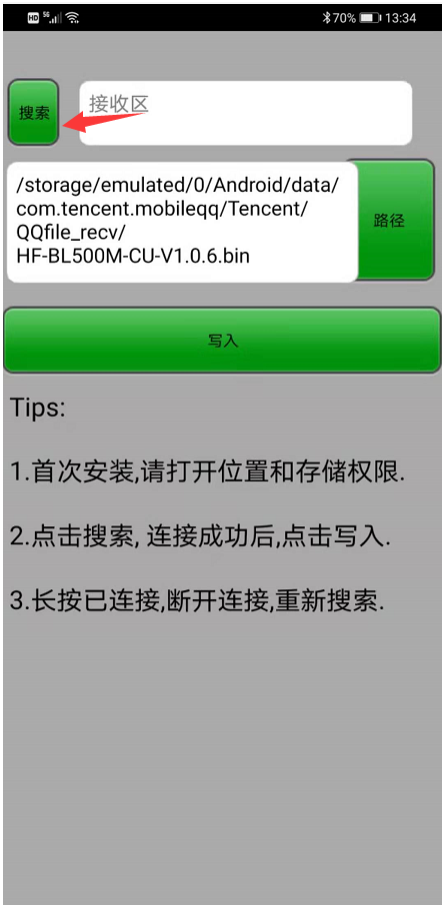
3.6. OTA Upgrade

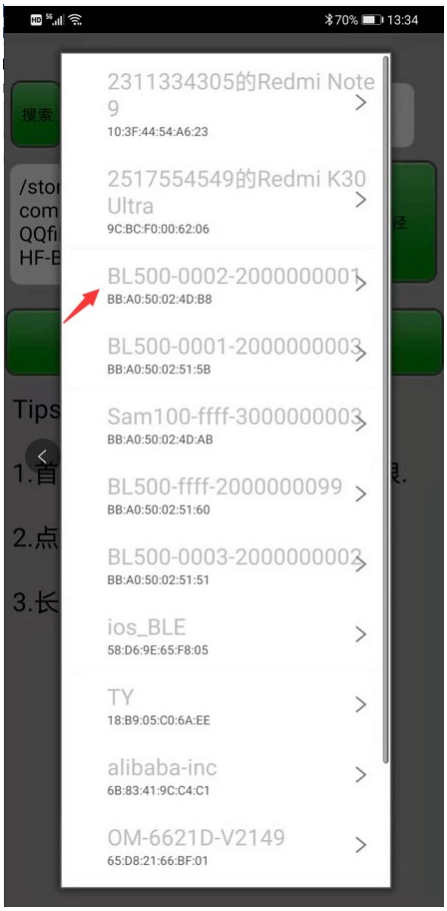
Step 1: Install “HF1601_XXX.apk”（Enable all authority）.



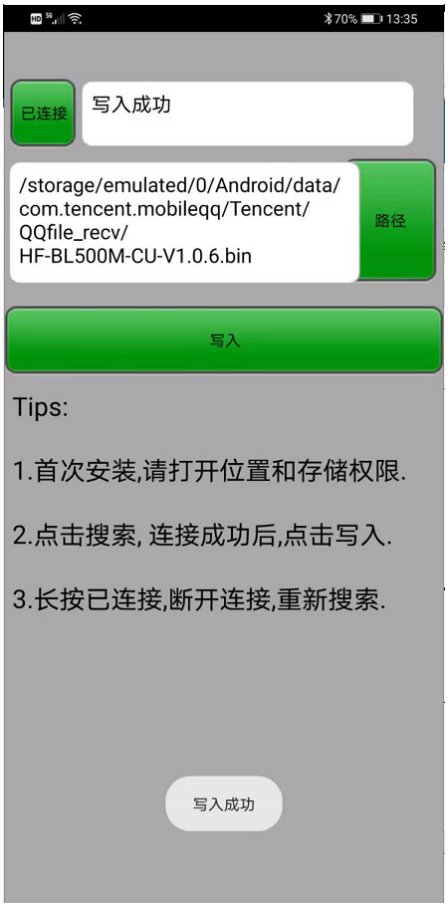
Step 2: Send firmware to phone. Take QQ for example, firmware will be saved in Android/data/com.tencent.mobileqq/Tencent/QQfile_recv directory.

Step 3: Click “搜索” to search the module need to upgrade, and click “路径” to choose the firmware.





Step 4: Click to upgrade



Note: Erase all Content before using UART tools to program the firmware if OTA upgrade method has been used before). This will erase the MAC address, use AT:WAC-XXXX, AT:SAVE to rewrite the MAC address.