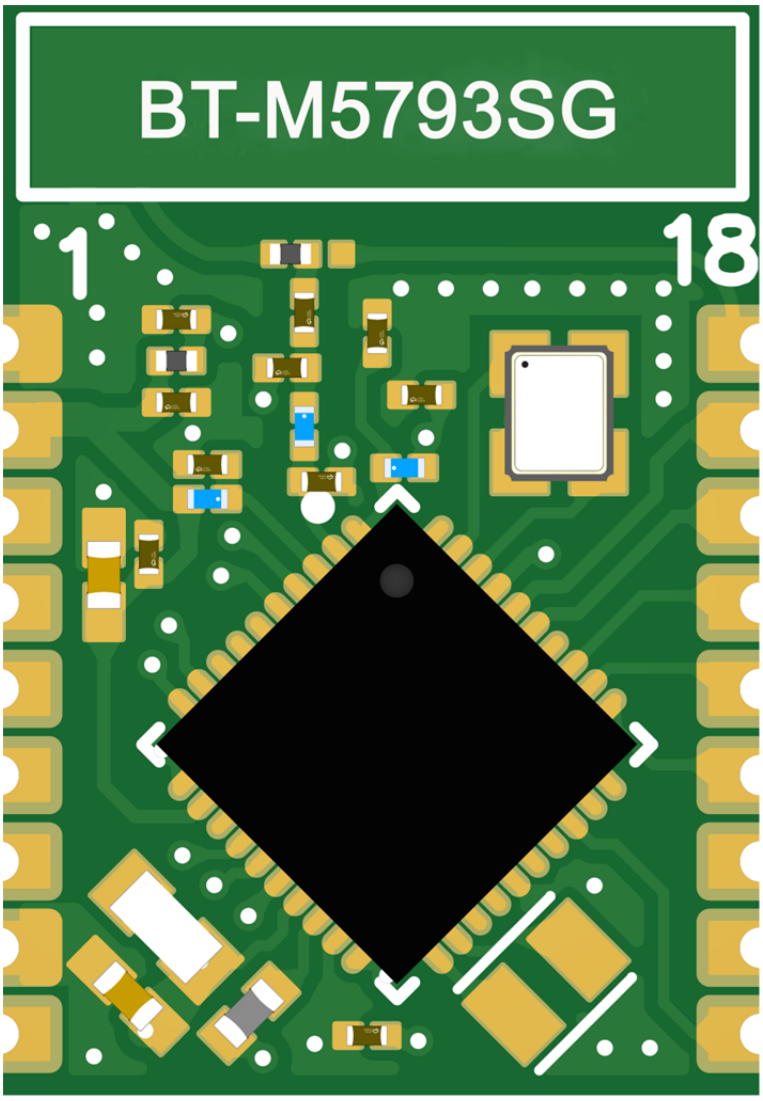
BT-M5793SG

BLE+FIND MY DUAL MODE MODULE

SPEC V1.0



1 Module Overview

1.1 Features

- Bluetooth LE: Bluetooth 5.1
- ARM® Cortex®-M4F core
- 512 KB Flash
- 128 KB SRAM
- GFSK encoded
- AES 128-bit/192-bit/256-bit symmetric encryption (ECB, CBC)
- -97 dBm sensitivity @ 1 Mbit/s GFSK
- -93 dBm sensitivity @ 2 Mbit/s GFSK
- TX power: -20 dBm to +7 dBm
- TX current: 3.05 mA @ 0 dBm, 1 Mbps
- RX current: 3.9 mA @ 1 Mbps
- Sleep mode: 1.3 µA (Typical)
- Wide operating voltage 2.5 ~ 3.6 V, 3.3 V typical
- Operating temperature -40 ~ +85ºC
- Small size 16.10 x 11.20 mm

1.2 Application

- Apple Find My
- BMS
- Scooter
- E-bike
- Bag
- IoT
- Game entertainment
- Electric Tools
- Home appliances
- Instruments
- Industry and Agriculture
- Medical and Health
- Portable Medical
- Asset Tags and Beacons
- Toy entertainment
- Sports, Fitness, and Wellness device
- Building Automation and Security
- Automotive Electronics

2 Performance and Electrical Parameters

Operating Conditions Summary

Recommended Operating Conditions	Min	TYP	Max	Unit
Power supply Voltage (VDD)	2.2	3.3	3.8	V
Voltage of I/O pins	VDD		3.3	V
Operating Temperature	-40	25	+85	℃

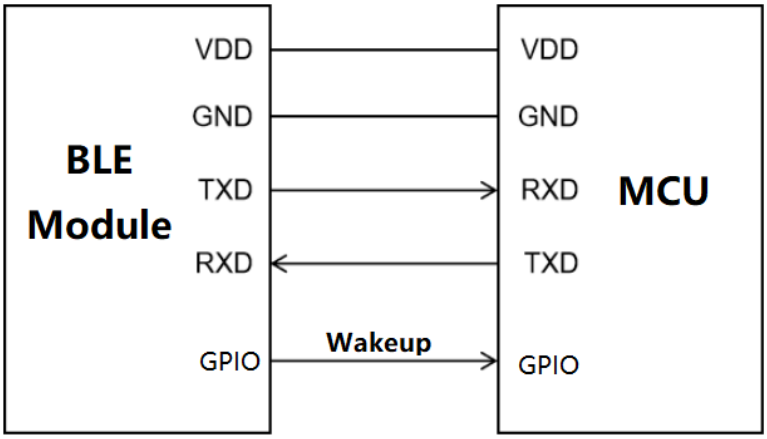
RF General Characteristics

	Description	Condition	Min.	Typ	Max.	Unit
FREQ	Frequency Range	VDD=3.0V,TA=25℃	2400		2480	MHz
FC	Frequency gap	VDD=3.0V,TA=25℃		2		MHz
RFch	RF channel freq	VDD=3.0V,TA=25℃	2400		2480	MHz

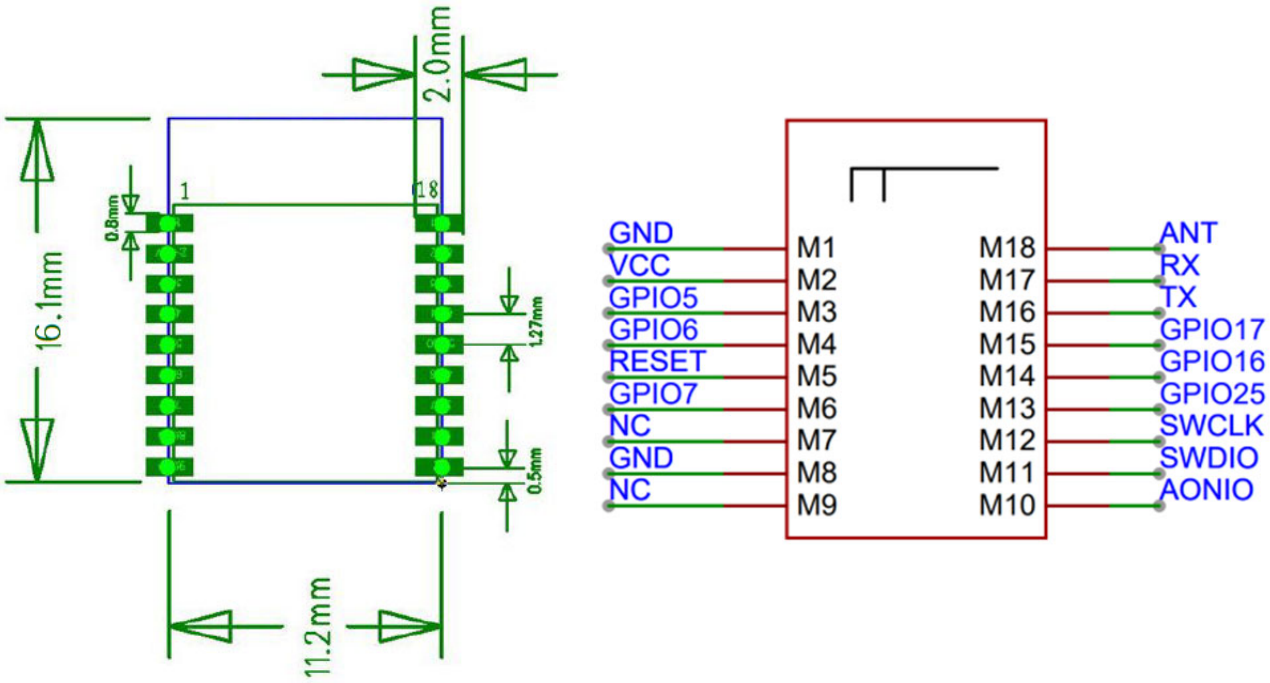
Current Consumption Summary Measurements, TA = 25°C

Symbol	Parameter	Test condition	Min.	Typ.	Max.	unit
I_{ISTDBY}	STANDBY	VDD=3.3V	-	1.3	-	uA
I_{RX}	RX	VDD=3.3V	-	3.9	-	mA
I_{TX0}	TX	0 dBm VDD=3.3V	-	3.05	-	mA

3 Function block



4 Size and Package



PinNo	Symbol	I/O	Function Description
1	GND	GND	Ground
2	VCC	Power	+3.3V
3	GPIO5	GPIO/I^{2}C	
4	GPIO6	GPIO/I^{2}C	
5	NRST		NRST
6	GPIO8	Reserved	PWM
7	GPIO9	GPIO	
8	GND		Ground
9	NC		
10	AONIO	Wake up	Wake up
11	SWDIO		SWDIO
12	SWDCLK		SWDCLK
13	GPIO25	GPIO	
14	GPIO16	GPIO	
15	GPIO17	GPIO	
16	TX		UART_TX
17	RX		UART_RX
18	ANT		Antenna

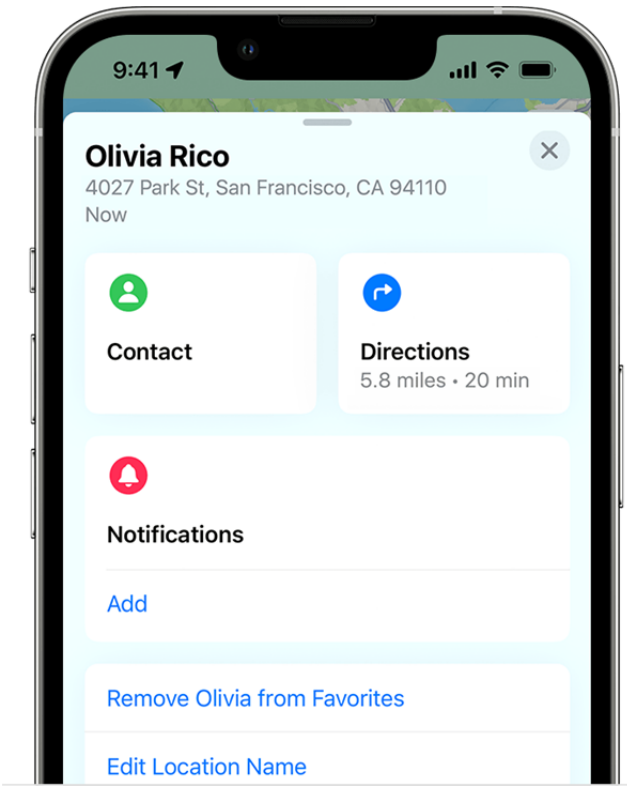
5 Apple Find My test flow

5.1 Apple support Find My network as below:

From iOS 14.5, iPadOS 14.5 , macOS Big Sur 11.1, iOS 14.5 etc.

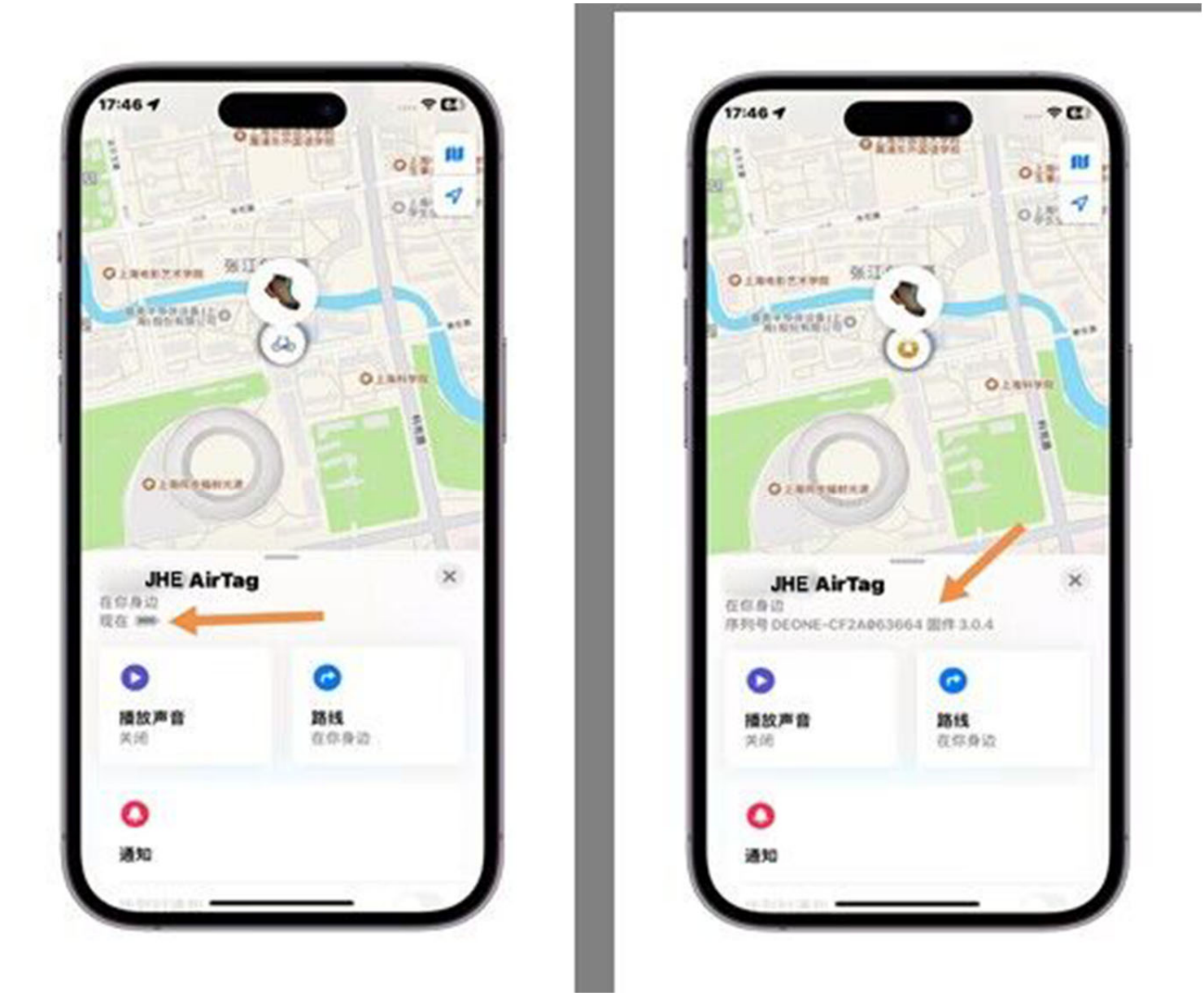
BT-M5793SG can join Apple Find My network, just like Apple Airtag.

No need software development, you can contact us to get our BLE module sample for try.



5.2 Add your products to Apple ID：

5.3 How to get your product parameters, such as battery power, SN and firmware version?



5.4 How to let the Find My module drive LED or buzzer?

Connect pin#6 of this module with LED or buzzer.

5.5 How to wake up the Find My module?

Power on Pin#10 of this module with 0.1 second, you can search this product to follow 5.2.

5.6 How to reset the Find My module?

Power on/off the module for three times, you can add your product to Apple ID again.

5.7 How to remove Find My module?

6 BLE transparent transmission & Findmy dual mode;

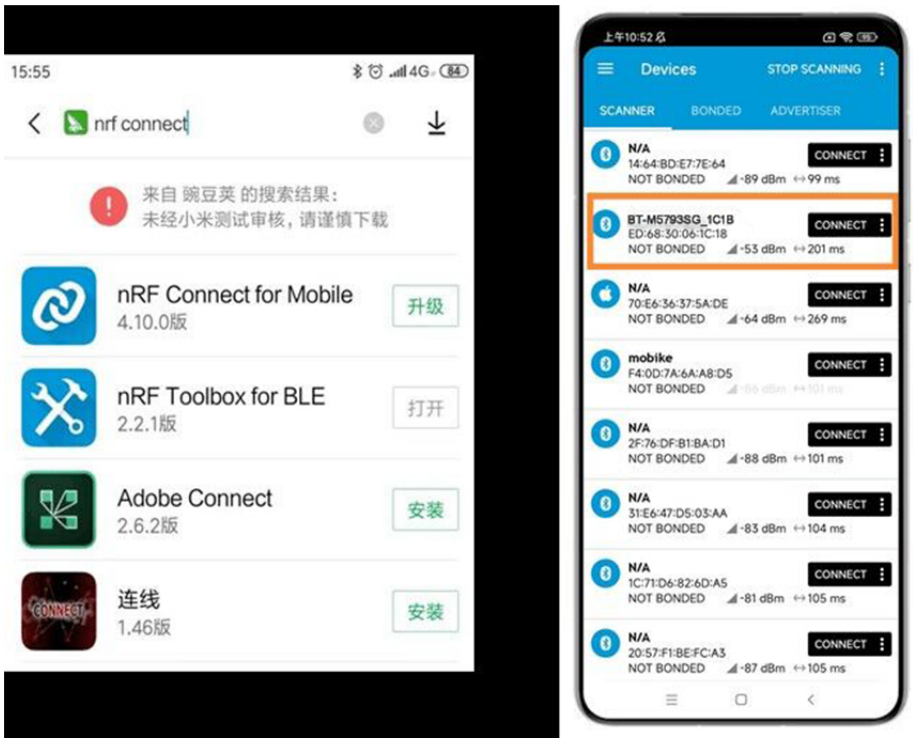
BT-M5793SG supports BLE transparent transmission & Findmy dual mode.

6.1 UART AT Command List:

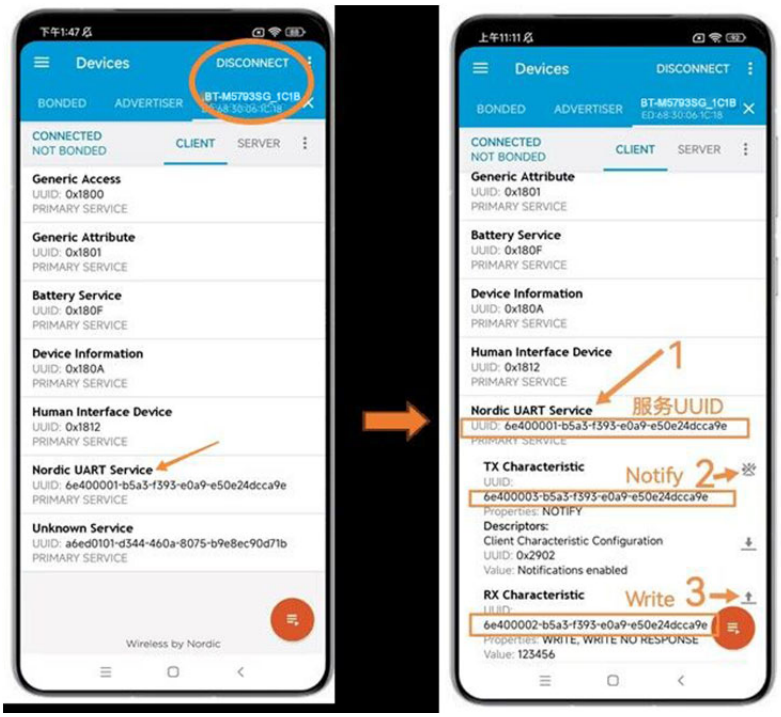
Function	AT Command Format	Example	Remarks
Rename BLE module	AT+Name	eg, "AT+Name123456789", Set the BLE names as 123456789	New module name, with length not exceeding 12 bytes
Set up the BLE broadcast cycle (100ms)	AT+Intv**X**	eg, AT+Intv3 Set t the BLE broadcast cycle as 300ms; eg, AT+Intv9 Set t the BLE broadcast cycle as 900ms;	**X**="1","2","3","4","5","6","7","8","9"
Set the baud rate	AT+BaudX	eg, AT+Baud3 set the baud rate as 4800;	The default baud rate is 115200. **X**="1","2","3","4","5","6","7","8","9"; Baud1--1200 Baud2--2400 Baud3--4800 Baud4--9600 Baud5--19200 Baud6--38400 Baud7--57600 Baud8--115200 Baud9--194000
Set sleep mode	AT+Sleep	AT+Sleep	The power consumption in sleep mode is below 3uA. CPU stops running, and peripheral function modules run.
Set BLE disconnect	AT+DISC	AT+DISC	Return with "OK"
Acquire MAC address	AT+MAC	AT+MAC	Return with MAC address
Acquire Findmy SN	AT+READSN	AT+READSN	Return with FMNA SN
Reset Find My	AT+RESET	AT+RESET	Reset FMNA

6.2 BLE transparent transmission_ UART Test flow:

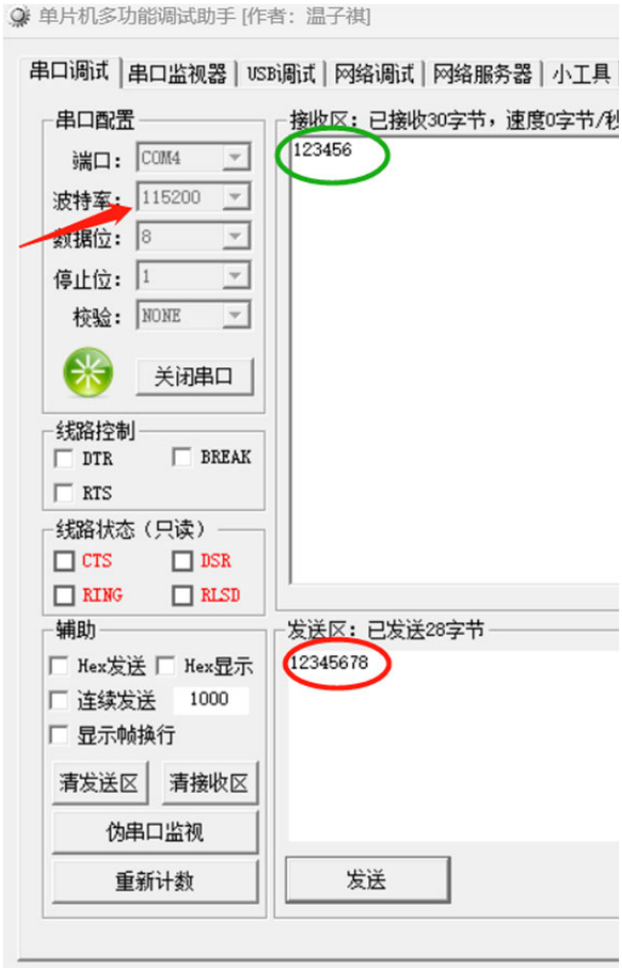
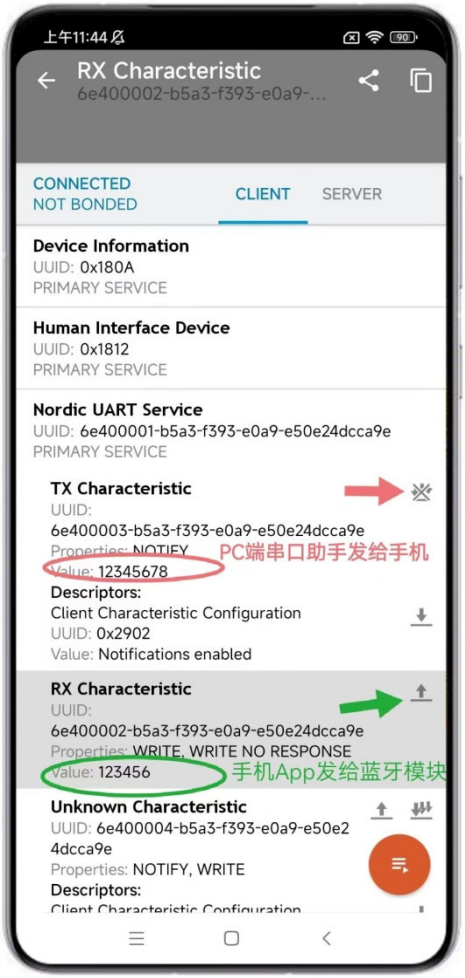
6.2.1 Download nRF Connect APP, and click “scan” to search for Bluetooth products, such as BT-M5793SG, and click “connect”.



6.2.2 Connected to BT-M5793SG.



6.2.3 Open PC UART tool, and connect the TX, RX fo the module to PC.

Send data from PC to nRF connect App, eg, red color.

Send data from nRF connect App to PC, eg, green color.