EWT104-BT53A3 User Manual

Bluetooth Test Kit



Chengdu Ebyte Electronic Technology Co.,Ltd.

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Contents

Disclaimer 2
1 Introduction 3
1.1 Brief Introduction 3
1.2 Features 3
2 Hardware Description 3
2.1 Product Dimensions and Pinouts 3
2.2 Module Recommended Wiring Diagram 5
2.3 Special Pin Function Description 5
3 Software Features 6
3.1 Commonly used instruction 6
4 Quick use 7
4.1 Operating mode 7
4.2 Module works as a slave to communicate with the nrf connec app of the cell phone 8
4.3 Transmission Demonstration 14
4.4 Module Multi-Connection Usage 19
5 Common problems 25
Revision history 25
About us 25

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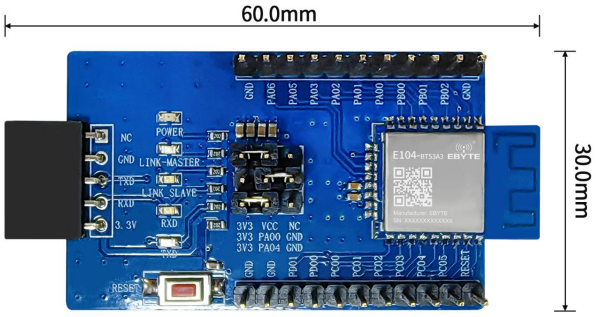
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1 Introduction

1.1 Brief Introduction

EWT104-BT53A3 is a Bluetooth test suite based on the E104-BT53A3 module, which can dramatically reduce the user's development cycle. For more information about E104-BT53A3, please visit the official website to download the related information of this model.

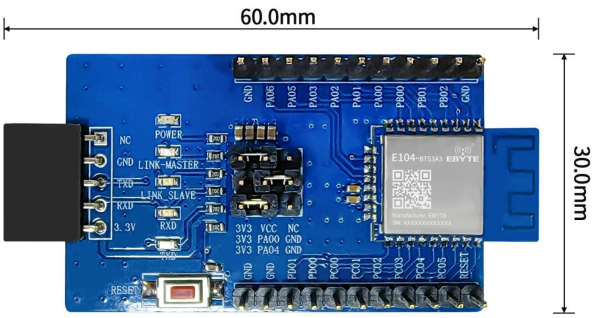


1.2 Features

- Supports BLE5.2 (2M PHY, Long Distance Broadcast, Extended Broadcast);
- Supports host, slave roles, master-slave, beacon;
- Supports connecting only one slave at the maximum when it is a host;
- Low-power consumption mode, as low as 2uA;
- Module firmware support OTA upgrade, etc.
- Communication interface: UART.

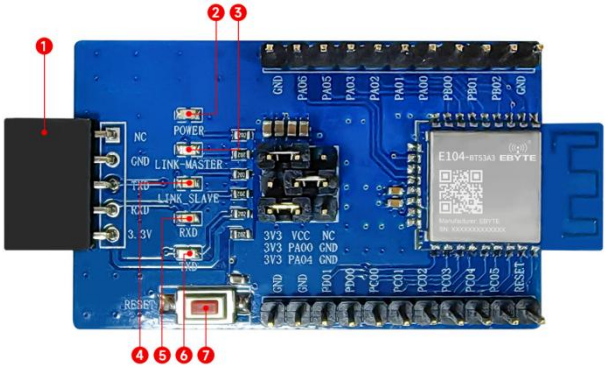
2 Hardware Description

2.1 Product Dimensions and Pinouts



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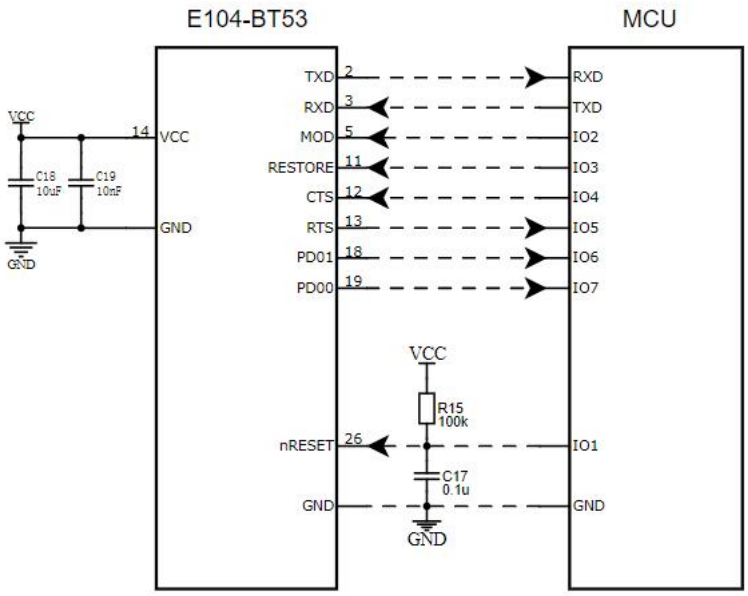


No.	Definition	Instruction	Remark
1	NC	-	2.54mm Pitch Busbar
	GND	Powered Ground	
	TXD	Serial Output Pin	
	RXD	Serial Input Pin	
	3.3V	DC 3.3V Input Pin	
2	POWER	Power Indicator	-
3	LINK-MASTER	Indicates Host Connection Status	Connection Module PD01 Pin
4	LINK-SLAVE	Indicates Slave (including Beacon role) Connection Status	Connection Module PD00 Pin
5	RXD	Serial Receive Indicator	-
6	TXD	Serial Transmit Indicator	-
7	RESET	Reset Button	

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2.2 Module Recommended Wiring Diagram



2.3 Special Pin Function Description

Level / PIN	High Level	Low Level
PA00(MOD)	Input high level is held for more than 200ms, the module enters the pass-through mode. (This pin has an internal pull-up and works in pass-through mode by default)	Input low level is held for more than 200ms, the module enters the configuration mode
PA4(RESTORE)	Internal pull-up.	internal pull-up. Falling edge, then hold low for at least 5 seconds, all parameters restore to factory settings and reboot the module automatically
PD01（LINK-MASTER）	Output high level after connection disconnection	Indicates host connection status
PD00(LINK-SLAVE)	Output high level after connection disconnection	Pin outputs low level after successful connection
RESET	Internal pull-up	Indicates slave (including Beacon role) connection status

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3 Software Features

Recommended to use Xcom serial port debugging assistant for communication test.

3.1 Commonly used instruction

Restore factory settings

Send: AT+RESTORE

Return: +OK

Reboot device

Send: AT+RESET

Return: +OK

Set module to master role

Send: AT+ROLE=1

Return: +OK

Scan for nearby device

Send: AT+SCAN=1,2,1

Return: +OK

connect to device via index id

Send: AT+CONNECT=1

Return: +OK

set module to slave role

Send: AT+ROLE=0

Return: +OK

set module to enable broadcasting Function

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Send: AT+ADV=1,1,200

Return: +OK

Modify module broadcast name

Send: AT+NAME=quick_start

Return: +OK

Specify transmission device

Send: AT+TRM_HANDLE=1

Return: +OK

Specify transmission device

Send: AT+CONNECT_LIST?

Return: 1(<handle>),90:35:EA:FE:2E:1F(<mac>)

4 Quick use

- This chapter describes the working mode of the module;
- This chapter describes the process of connecting and communicating with the cell phone when the module works as a slave;
- This chapter describes the process of connecting and communicating with the cell phone when the module works as a master, and a slave respectively. The process of completing the communication between modules;
- This chapter describes the module working in master-slave mode, connecting the cell phone and the module at the same time.

4.1 Operating mode

The module is mainly divided into:
1. configuration mode;
2. transmission mode.
Use the MOD pin to operate the pin level to switch between configuration and transmission mode;
Note: Multi-linking in transmission mode requires the use of the AT+TRM_HANDLE instruction to switch the transmission device, and the module is not able to send data to all devices at once. Working Mode

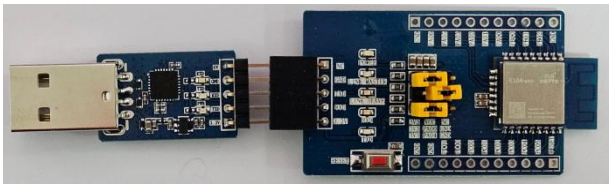
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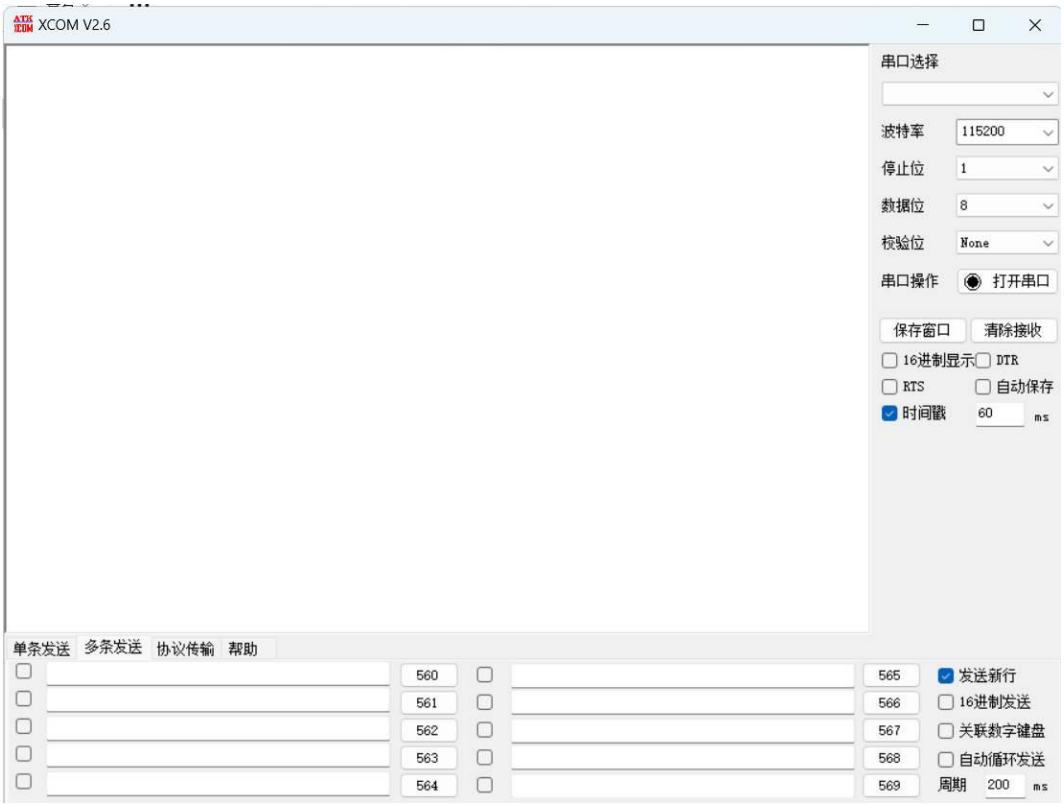
4.2 Module works as a slave to communicate with the nrf connec app of the cell phone

4.2.1 Preparatory work

Prepare 2pcs EWT104-BT53A3 kit and 2pcs E15-USB-T3 serial converter and connect them according to the figure below.



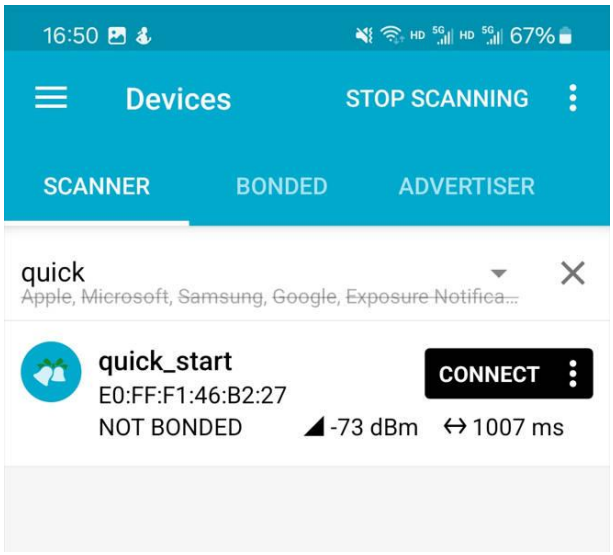
Open the Xcom serial port debugging assistant.



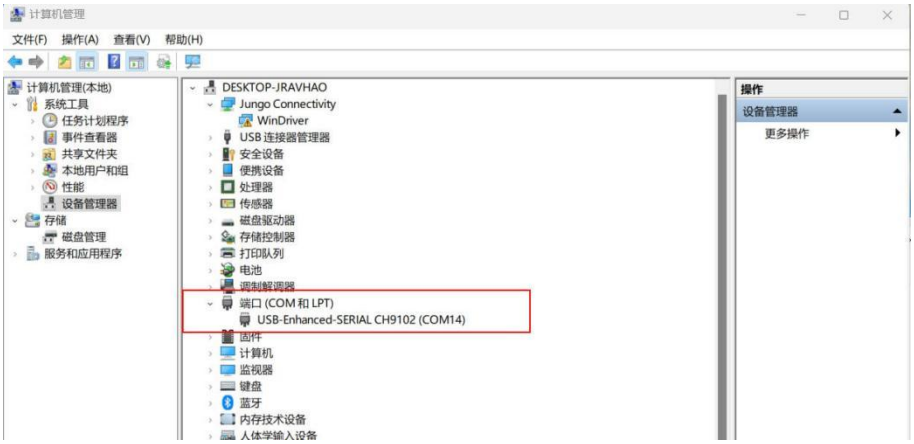
Cell phone and nrf connect app

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After connecting the test kit to the computer you can see the following port operating modes in the device manager



Usually Windows 10 or above will automatically install the serial port driver, but if the test kit is connected to the computer through the usb port and there is no corresponding port, you can try to install the serial port driver first.

4.2.2 Connection Procedure

1. Connect the test kit to the computer through the USB port. Test access to the computer, you can see the corresponding port number in the “My Computer ->Properties-> Device Management->See the corresponding port number operating mode in the ports”

2. Open the xcom assistant, select the corresponding port number, select the serial port parameters, and click to open the serial port.

Baud rate: 115200

Stop bit: 1 bit

Data bit: 8 bits

Checksum bit: NONE

3. Configure the module according to the following steps.

① Restore factory reset

② Module successful startup prompt

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③ Restart module Set the module to work in slave mode

④ Open the normal broadcast function of the slave device

⑤ Modify the name of the slave broadcast

⑥ Restart module

⑦ Device connected prompt

⑧ Receive data prompts



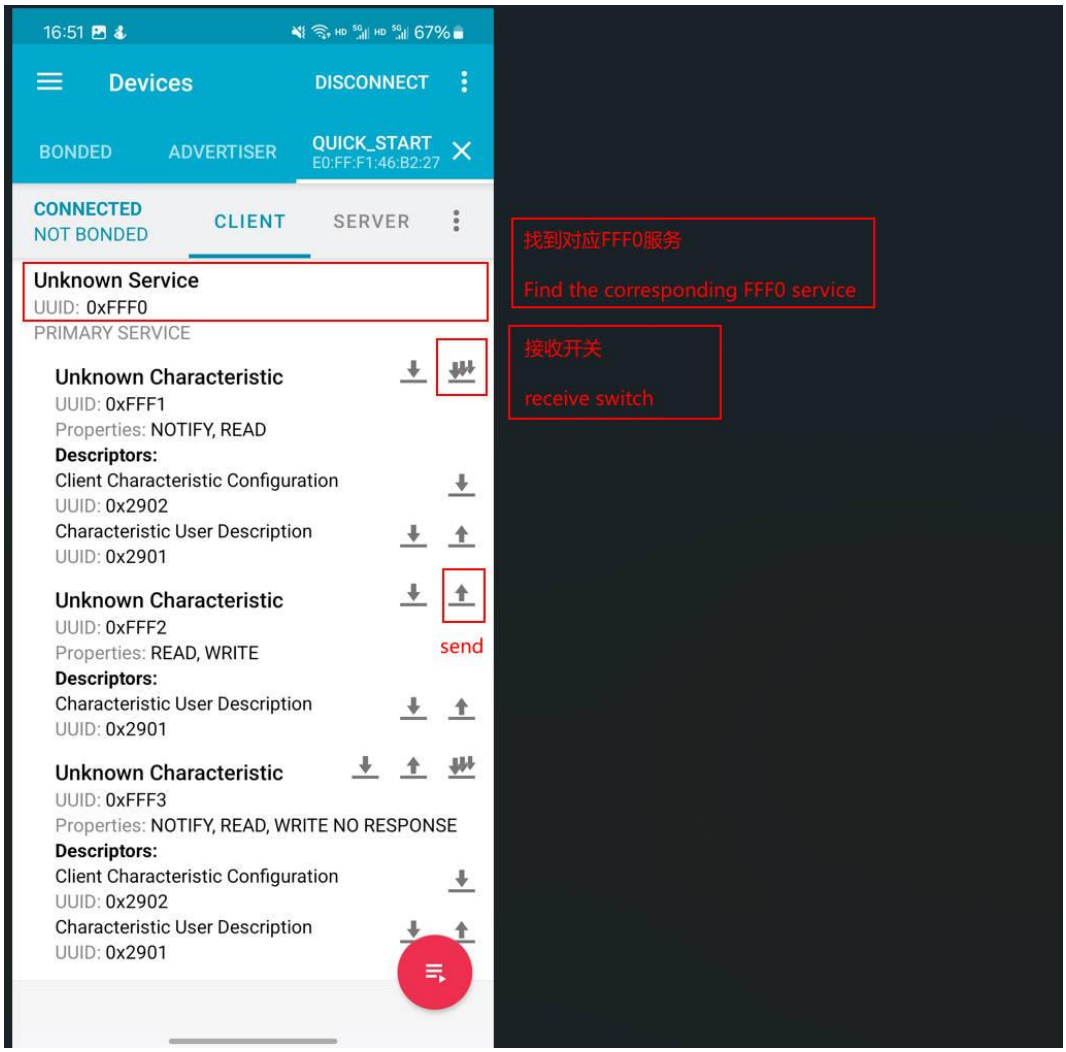
4. Open the app “nrf connect” on your cell phone.

5.Find the corresponding bluetooth module, click “connect” button, connect the module.

6.Find the corresponding service, turn on the corresponding receive switch, click “send”.

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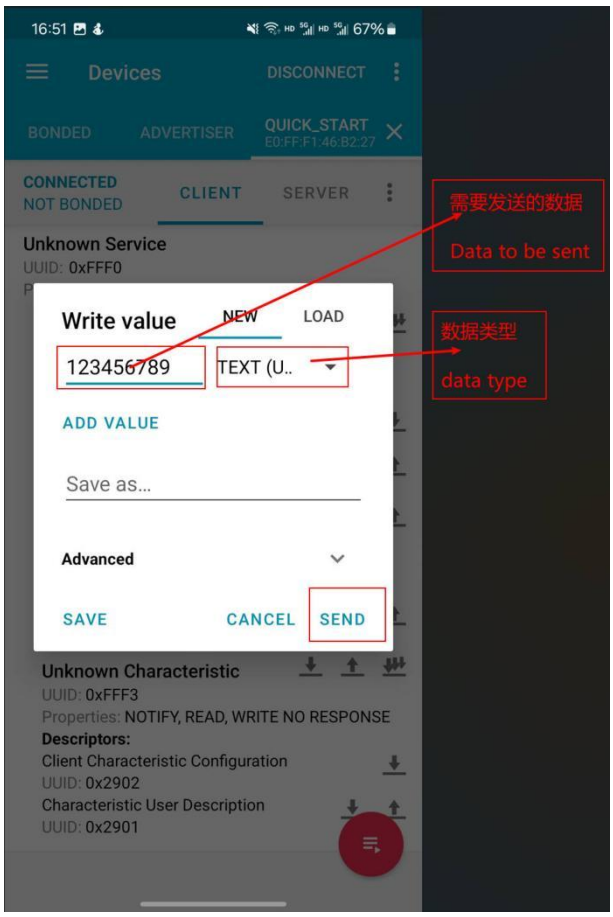
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7. Enter the data 123456789, select the data type and click the Send button.

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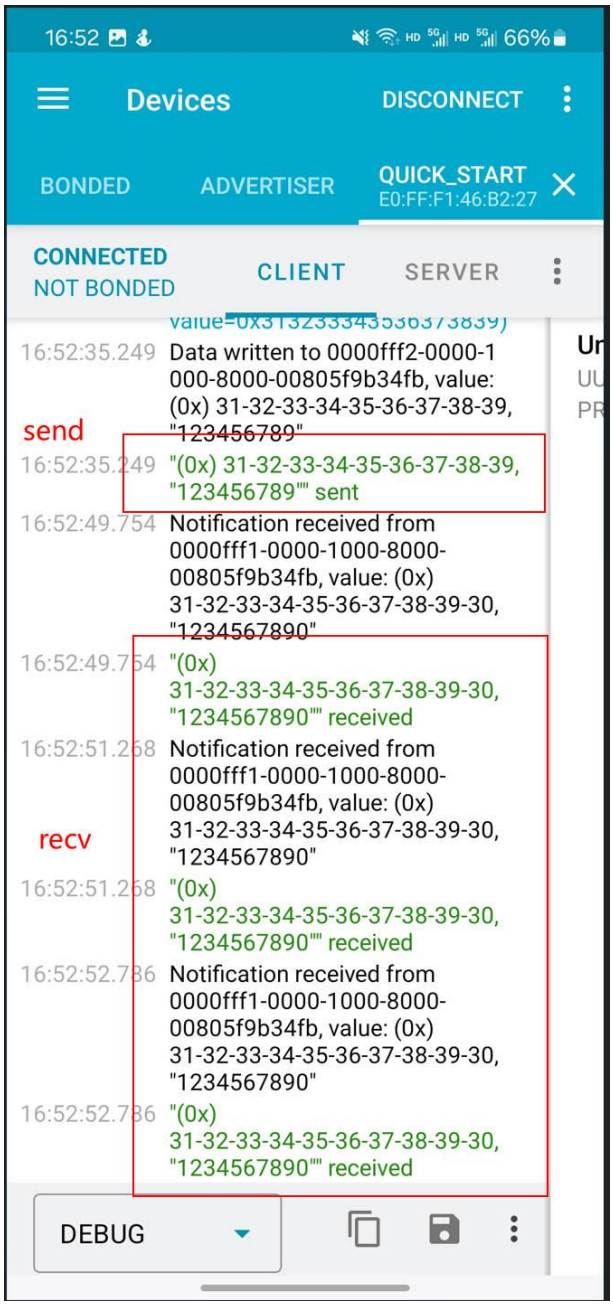
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8. The interface right slide can enter the log interface.

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9. Kit receive and send display.

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Note: When using the module to send data to the cell phone you need to switch the MOD pin level first.

4.3 Transmission Demonstration

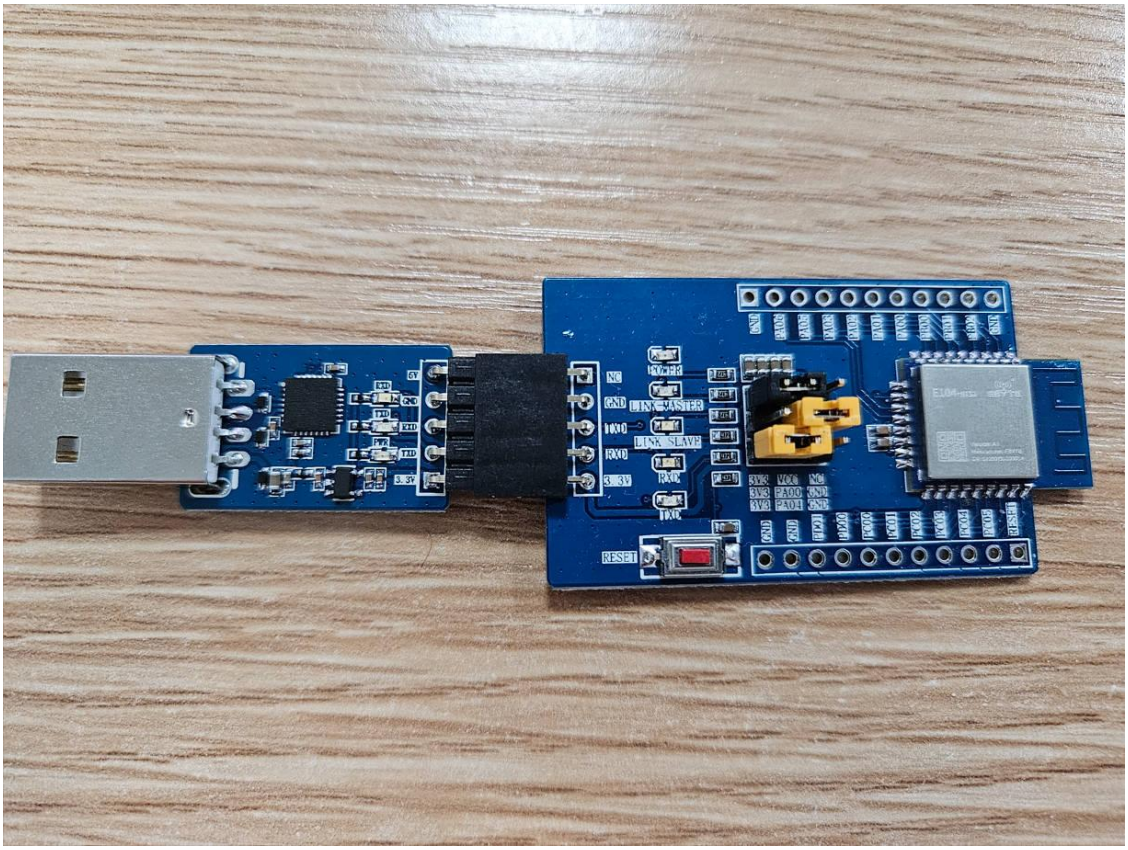
Modules were configured as host and slave roles to complete the data passthrough between modules, and the following describes the process of connecting and communicating between modules

4.3.1 Preparation

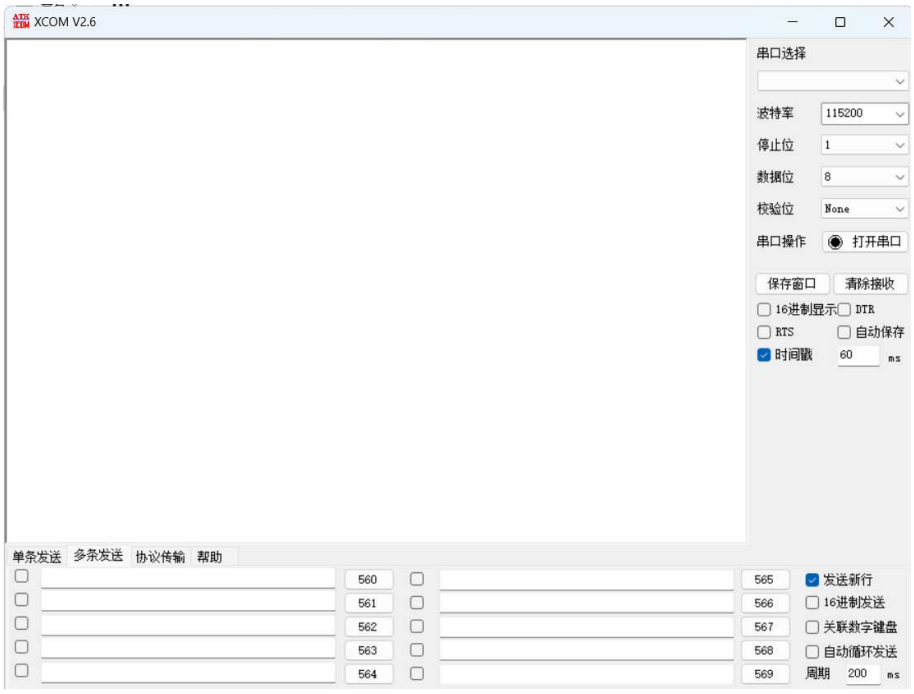
Prepare 2pcs EWT104-BT53A3 test kit and 2pcs E15-USB-T3 and connect them in the following way.

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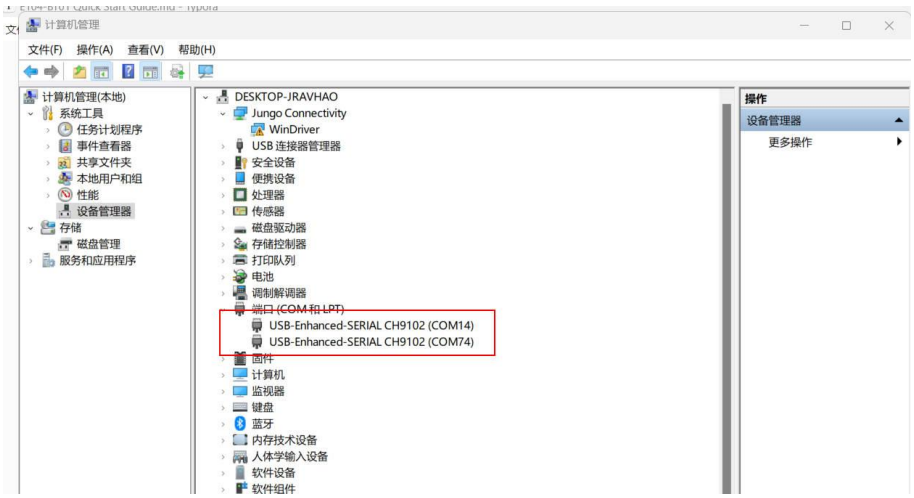
Open Xcom Serial Debugging Assistant



After plugging the test suite into the computer you can see the following port in the Device Manager

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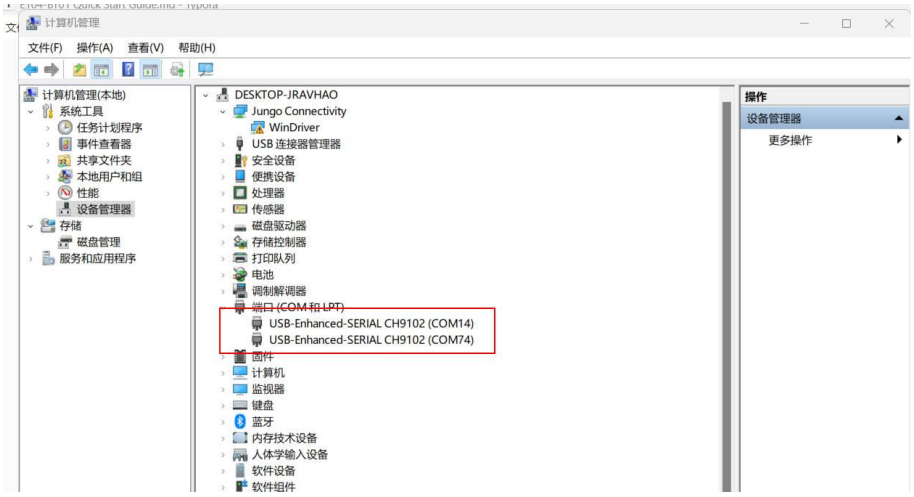
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Usually Windows 10 or above will automatically install the serial driver, but if the test kit is connected to the computer through the usb port and there is no corresponding port can first try to install the serial driver

4.3.2 Connection procedure

1. Connect the test kit to the computer through the USB port. After the test kit is connected to the computer, you can see the corresponding port number in “My Computer ->Properties ->Device Management ->Ports”, here respectively, the test kit A, test kit B are connected to the computer can see the two ports.



2. Open two XCOM serial port debugging assistant software, respectively, select the two corresponding serial port number, select the serial port parameters, click to open the serial port.

Baud rate: 115200

Stop bit: 1 bit

Data bit: 8 bits

Checksum bit: NONE

3. Follow the steps in the following figure to configure Test Suite B in the slave role.

① factory reset

② Module successful startup prompt

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③ Restart module Set the module to work in slave mode

④ Open the normal broadcast function of the slave device

⑤ Modify the name of the slave broadcast

⑥ Restart module

⑦ Device connected prompt

⑧ Receive data prompts



4. Follow the steps in the following figure to configure Test Suite B in the slave role.

① factory reset

② Set the module to work in the host role

③ Set the target MAC for automatic connection

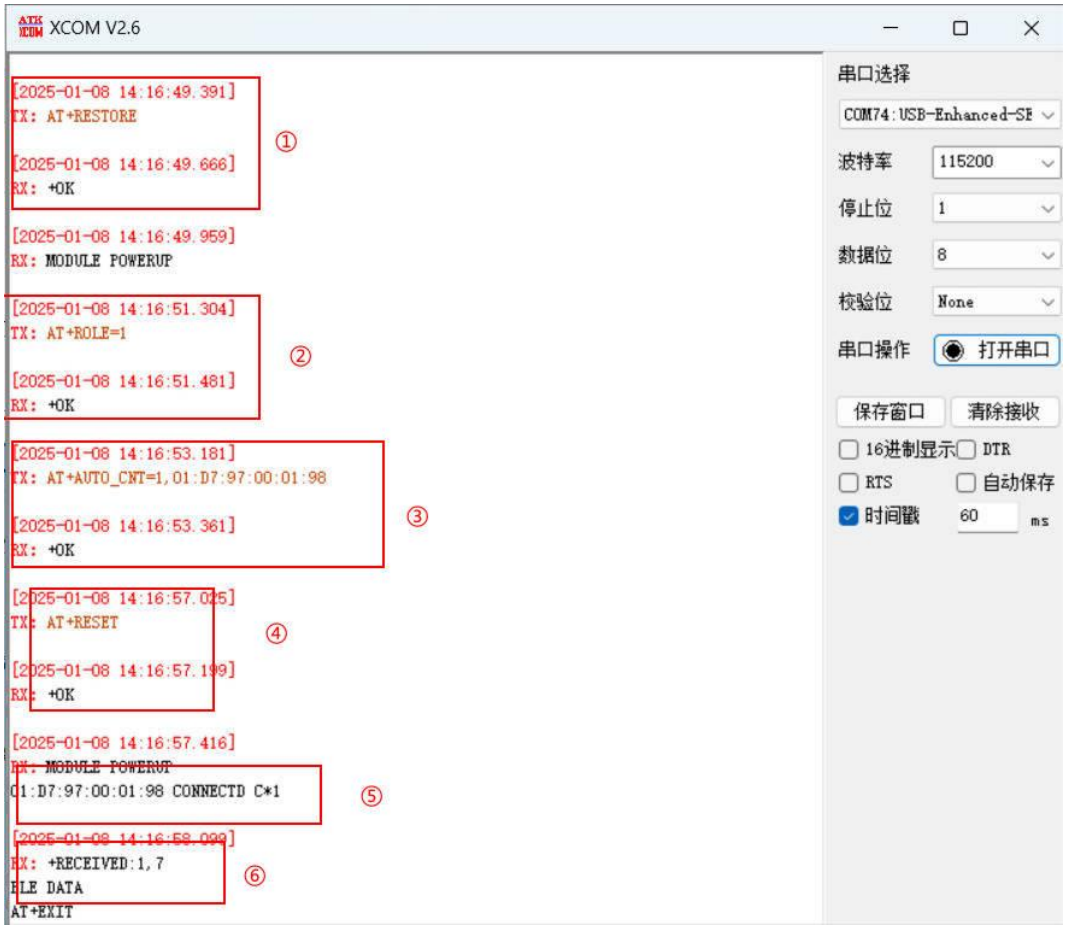
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④ Restart module

⑤ Device connected prompt

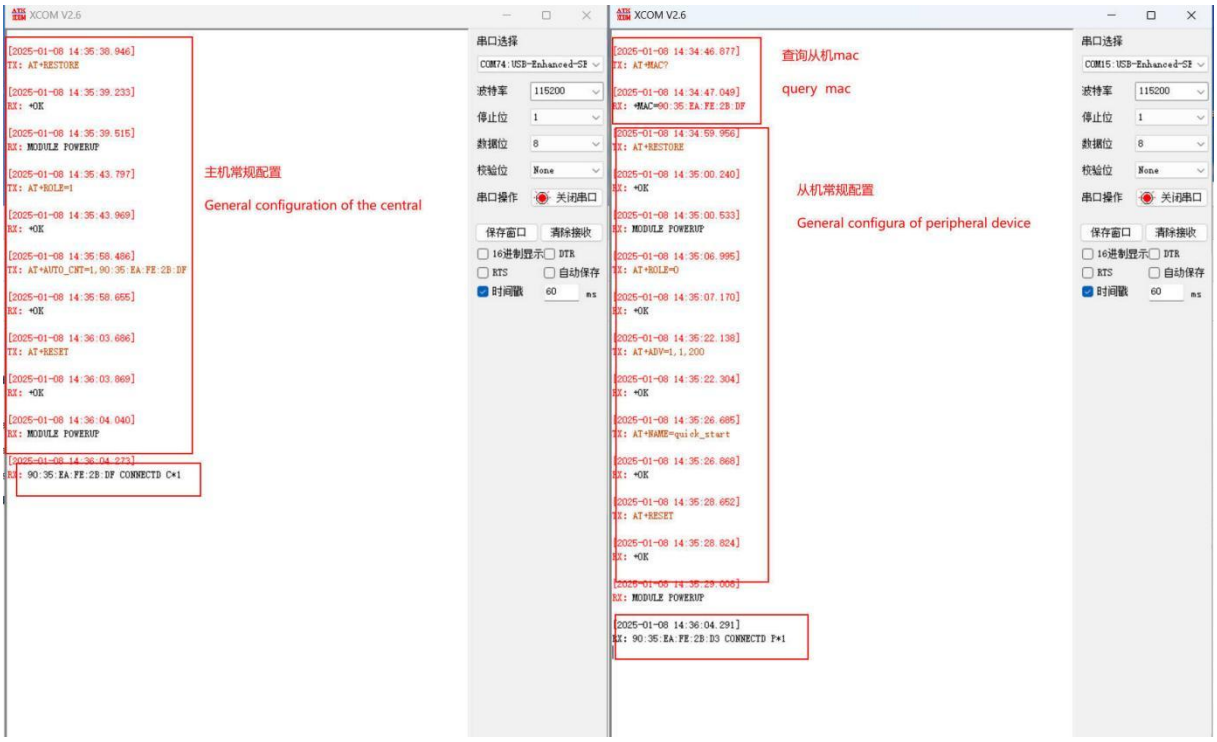
⑥ Receive data prompts



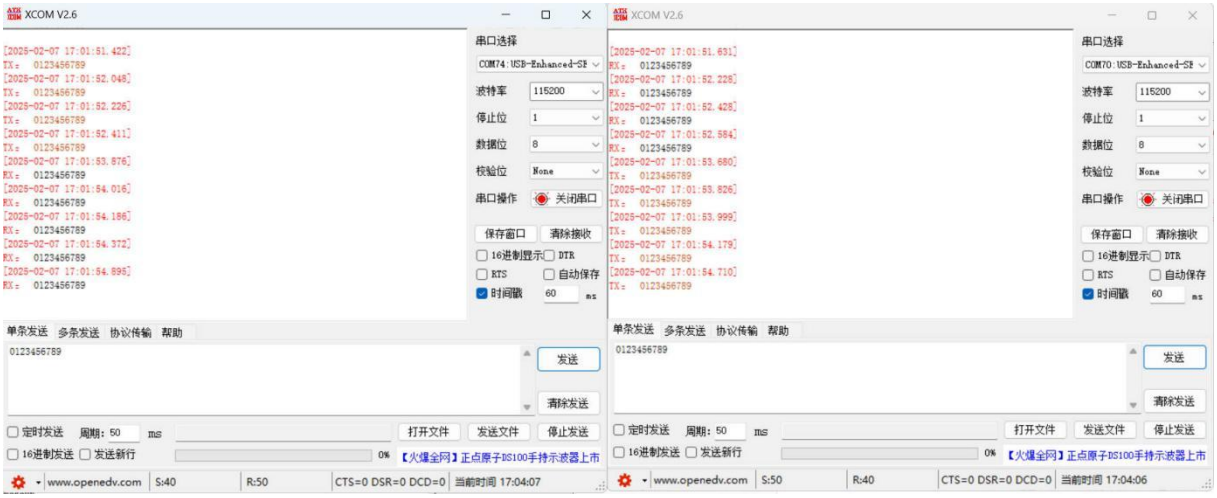
5. Wait for the module to connect automatically after the configuration is complete.

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6. Data Transmission Testing



4.4 Module Multi-Connection Usage

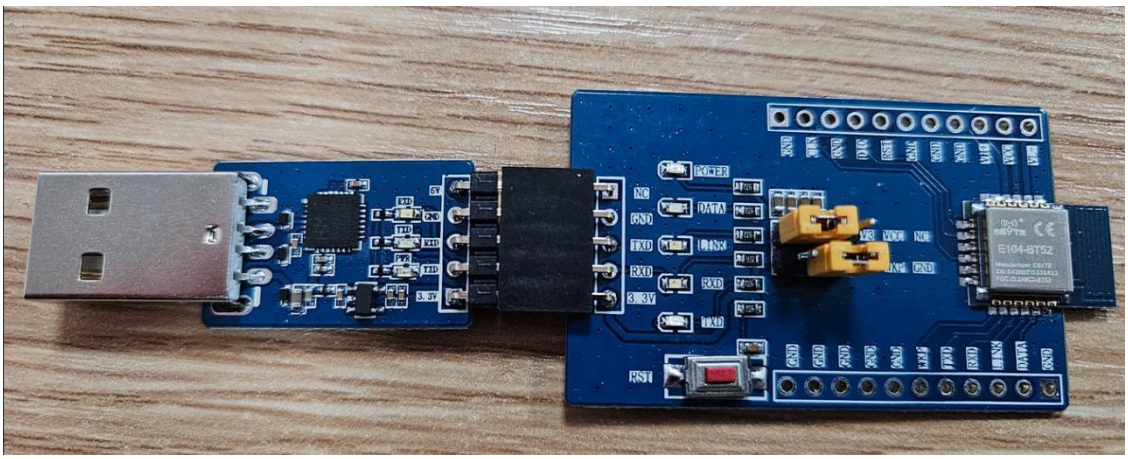
- Modules are connected to modules and cell phones with multiple masters and slaves.

4.4.1 Preparation

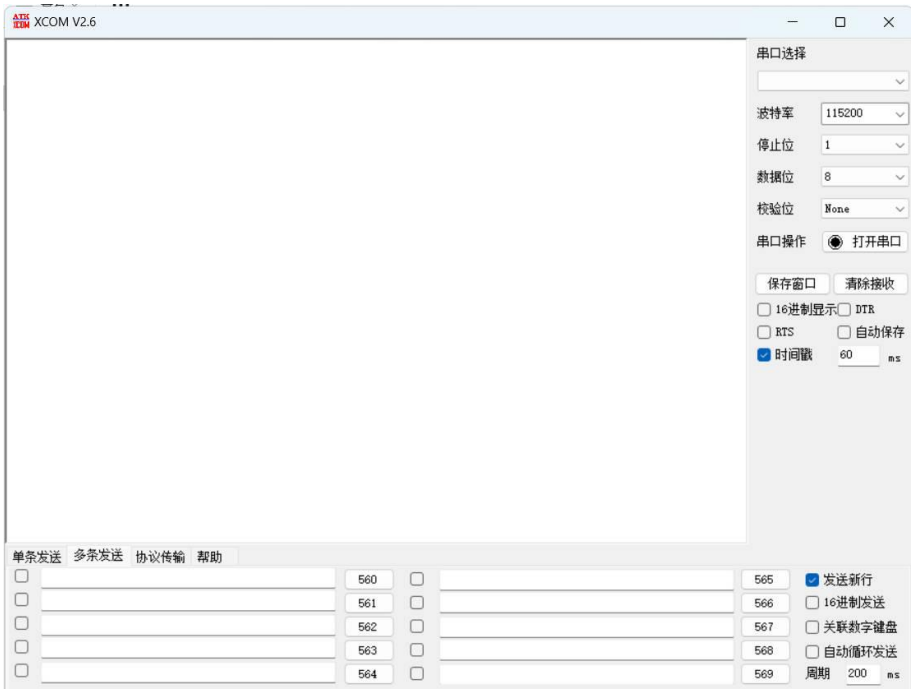
Prepare 2pcs EWT104-BT53A3 test kit, 2pcs E15-USB-T3, and connect them in the following way.

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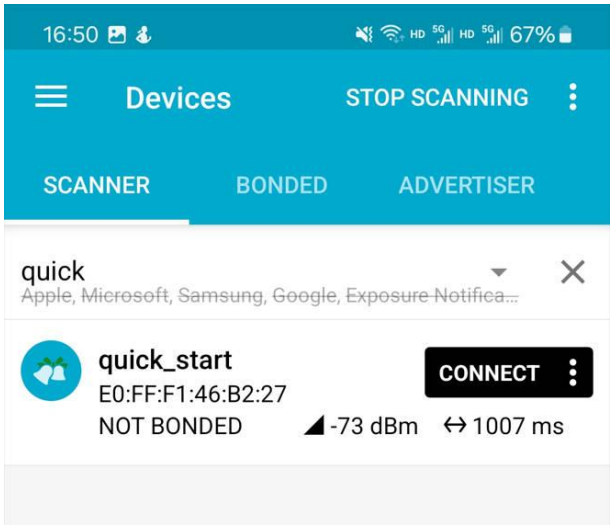
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Open Xcom Serial Debugging Assistant



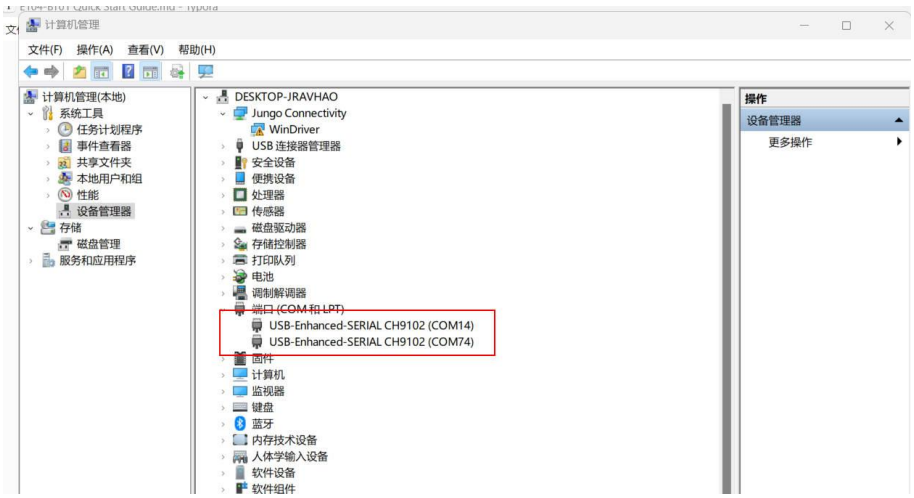
Open the nrf connect app using your cell phone



After plugging the test kit into the computer you can see the following ports in the Device Manager

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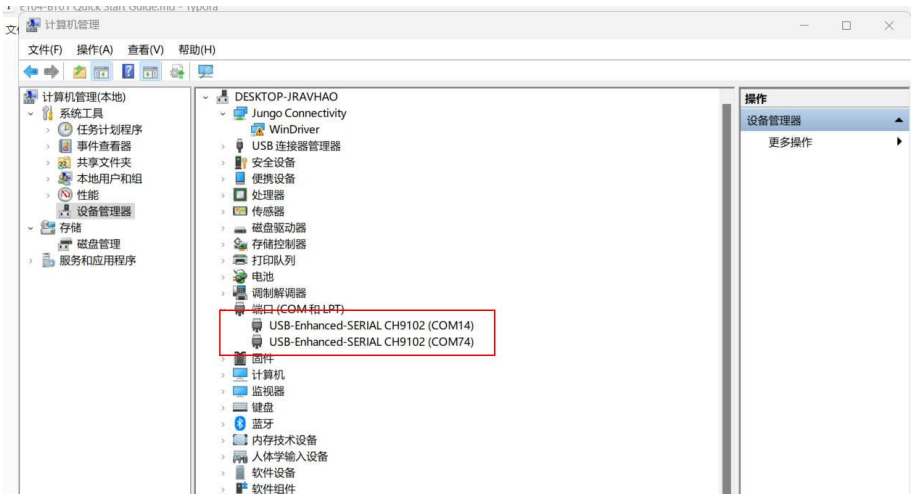
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Usually Windows 10 or above will automatically install the serial driver, but if the test kit is connected to the computer through the usb port and the corresponding port does not appear, you can try to install the serial driver first.

4.5.2 Preparation

1. Connect the test kit to the computer through the USB port. Test suite access to the computer, you can see the corresponding port number in the “My Computer ->Properties->Device Management-> Port”, here respectively, the test suite A, test suite B are access to the computer can be seen in the two ports.



2. Open two XCOM serial port debugging assistant software, respectively, select the two corresponding serial port number, select the serial port parameters, click to open the serial port.

Baud rate: 115200

Stop bit: 1 bit

Data bit: 8 bits

Checksum: NONE

3. Follow the steps in the figure below to configure Test Suite B to the slave role.

① Test the command to detect whether the command function is normal;

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② Restore the factory mode;

③ Reboot the module;

④ Set the module to work in the slave mode;

⑤ Enable the output of function information;

⑥ Turn on the slave general broadcast function;

⑦ Modify the slave broadcast name;

⑧ Reboot the module.



4. Follow the steps below to configure Test Suite A as a host.

① Restore the factory mode;

② Set the module to work in the host all-in-one mode;

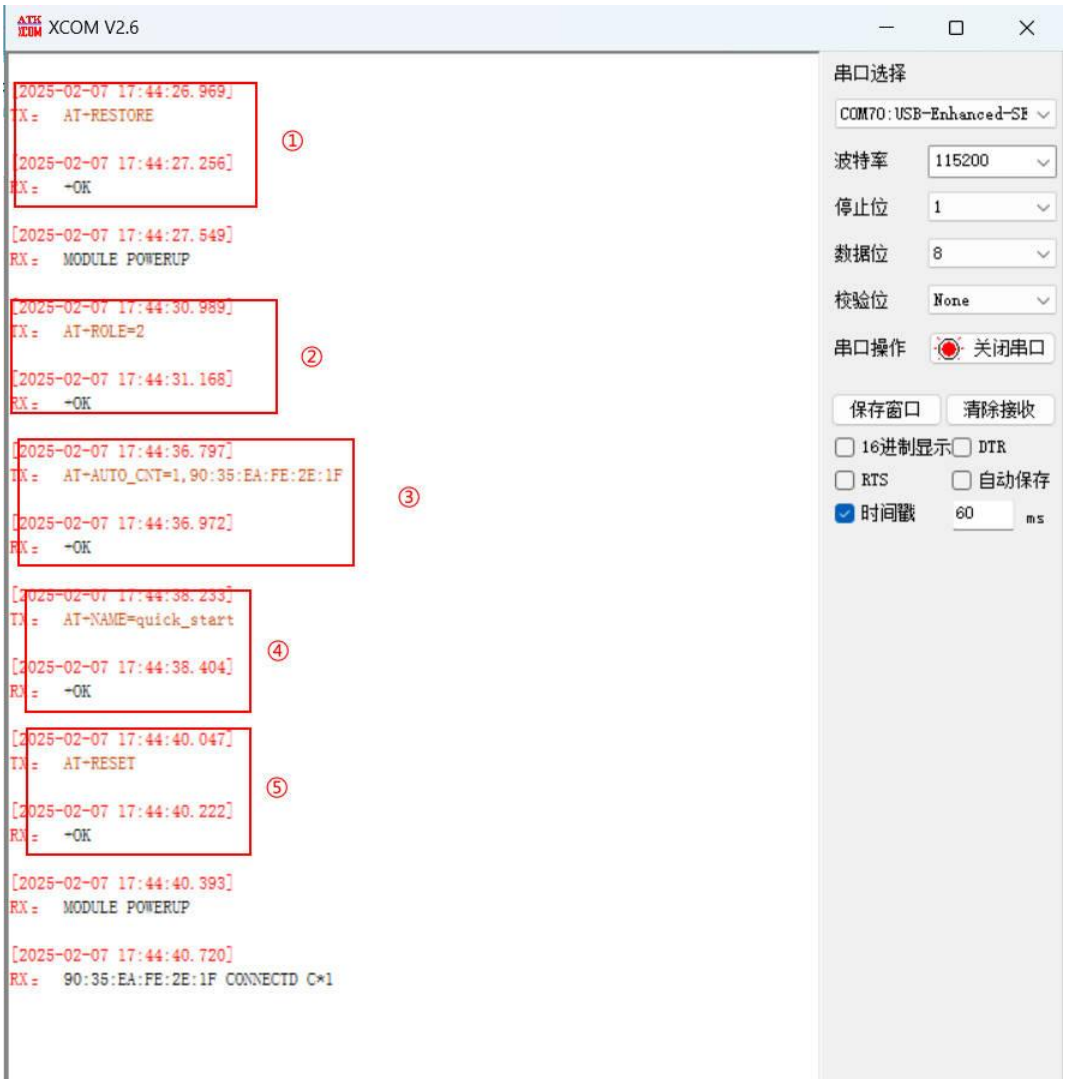
③ Set the target MAC for auto-connection;

④ Set the broadcast name for the slave function;

⑤ Reboot the module.

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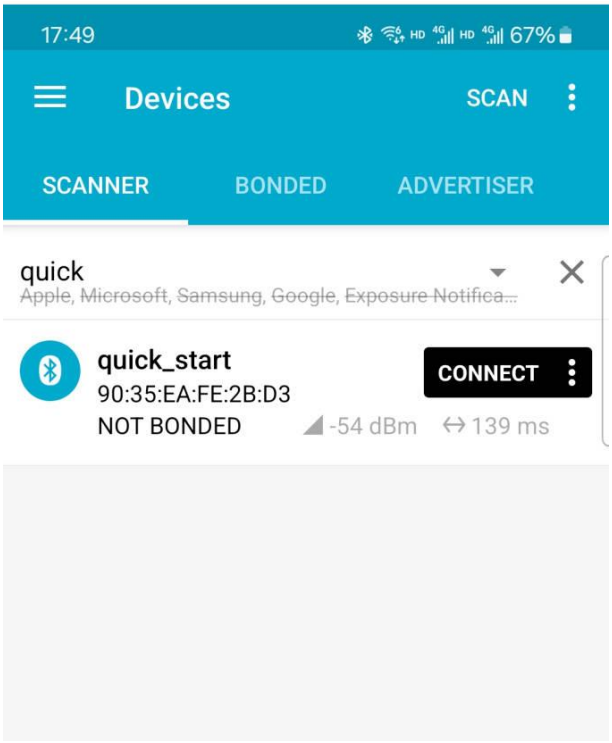
5. Wait for the module to connect automatically after the configuration is completed.



6. At this time, using the cell phone app nrf connect can also be scanned to the broadcast name for quick_start device, click CONNECT.

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7. After clicking Connect, you can see in the Serial Assistant that the new device is connected and the output printing is not consistent when the host and slave are connected.

```
[2025-02-07 17:44:40.720]
RX：  90:35:EA:FE:2E:1F CONNECTD C*1

[2025-02-07 17:52:02.324]
RX：  59:D0:AE:75:96:2A CONNECTD P*2
```

8. Use the command to query the connected list, note that the id number in front needs to be used to change the transmission of the specified device, i.e., the module can not send data to all modules at one time, but only through the command to specify the transmission of the device before switching the mod pin level for data transmission.

```
[2025-02-07 17:53:57.097]
TX：  AT+CONNECT_LIST?

[2025-02-07 17:53:57.294]
RX：  +CONNECT_LIST=
1,90:35:EA:FE:2E:1F
2P,59:D0:AE:75:96:2A
```

e.g. switch to the slave of the connected module for data sending (AT+TRM_HANDLE=1)
switch the MOD pin level to high to enter the pass-through mode
the serial port to send data directly open the Xcom serial port debugging assistant

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5 Common problems

- E104-BT53A3 module serial port baud rate is 115200;
- When the command appears ERR prompt you can refer to the E104-BT53A3 user manual. If you use other serial port assistant for debugging, please pay attention to check the string length;
- Note that the command ends with a carriage return line feed, otherwise it will lead to unrecognized commands;
- The module can not transmit data to all the slaves at one time;
- The master-slave mode supports up to 1 master and 7 slaves connections.

Revision history

Version	Date	Description	Issued by
1.0	2025-03-26	Initial version	Bin

About us

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