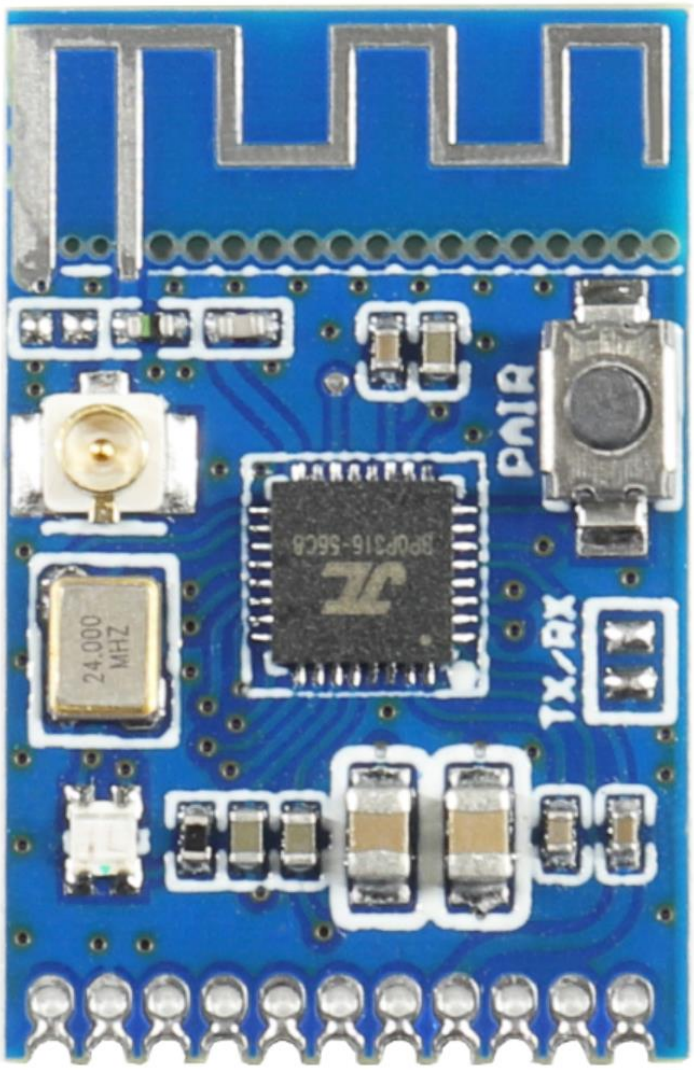
Bluetooth Audio Transmitter Module Serial Port Operation Manual

KCX_BT_EMITTER

- - - - Bluetooth Stereo Audio Transceiver Module



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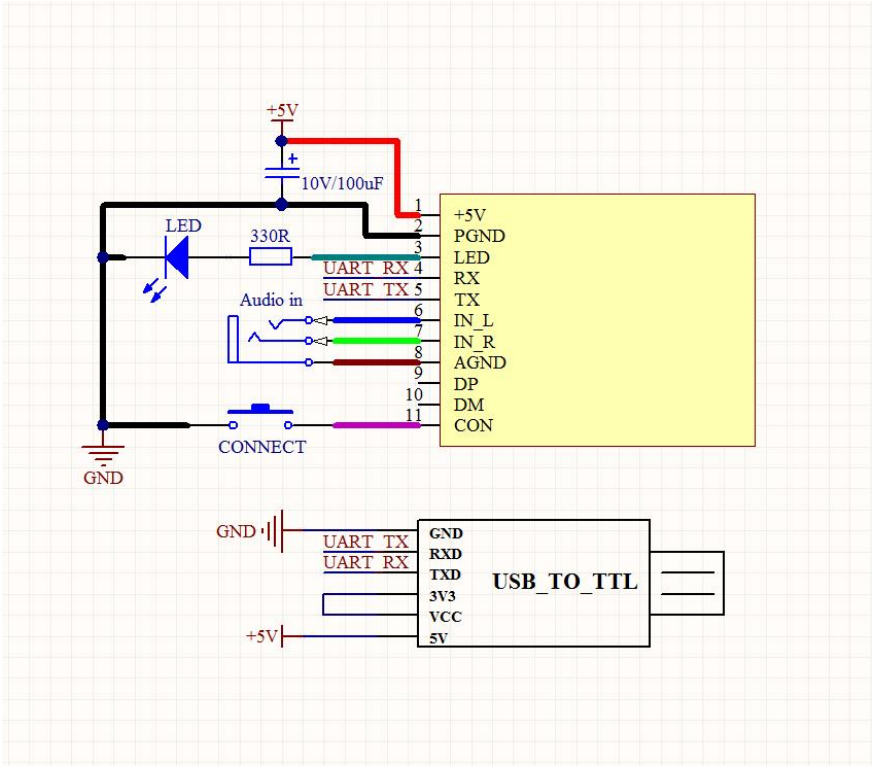
1: Preface

TTLThe serial interface is an expansion interface of the module, which is mainly used to realize the control and remote management of the computer, single-chip microcomputer and other controllers and the Bluetooth transmitter module. This article introduces how to use the serial port to operate the Bluetooth transmitter module.

2:Wiring diagram

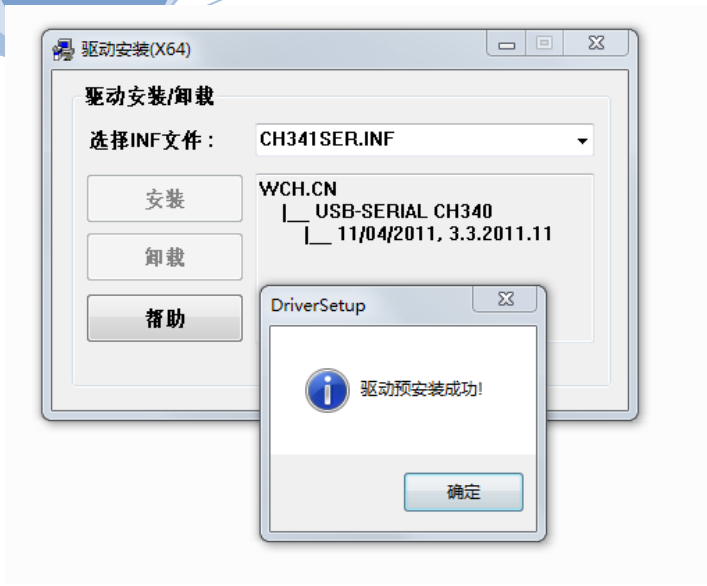
Schematic diagram of computer-controlled Bluetooth module connection (viaUSBchangeTTLThe module uses a computer to control the Bluetooth module)



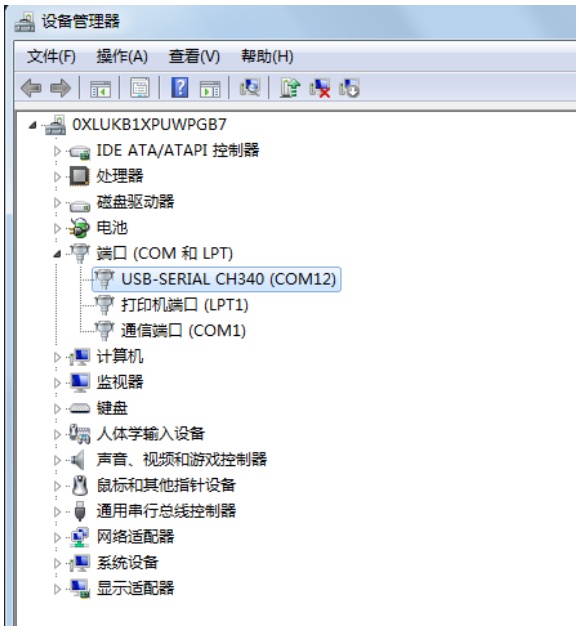
3:USBchangeTTLLine driver installation

If the Bluetooth module is controlled by a computer, you need to passUSBchangeTTLThe serial port module performs interface conversion, this driver is onlyUSBchangeTTLThe driver of the serial port line has nothing to do with the Bluetooth module (no needUSBchangeTTLThere is no need to install the serial port module)

USBAfter the cable is plugged into the computer, it will prompt to install the driver, double-clickCH341SER_V3.3[2012-02].EXEinstall driver,



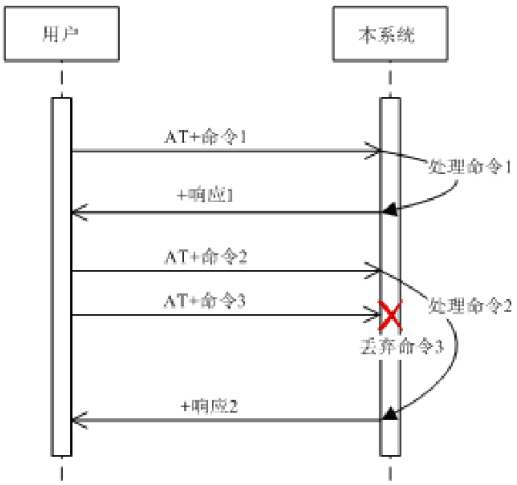
After the installation is complete, in the device manager inside the "port (COMandLPT)" with a "USB-SERIAL CH340(COM12) "The serial number isCOM12. differentUSBportCOMThe numbers are different.



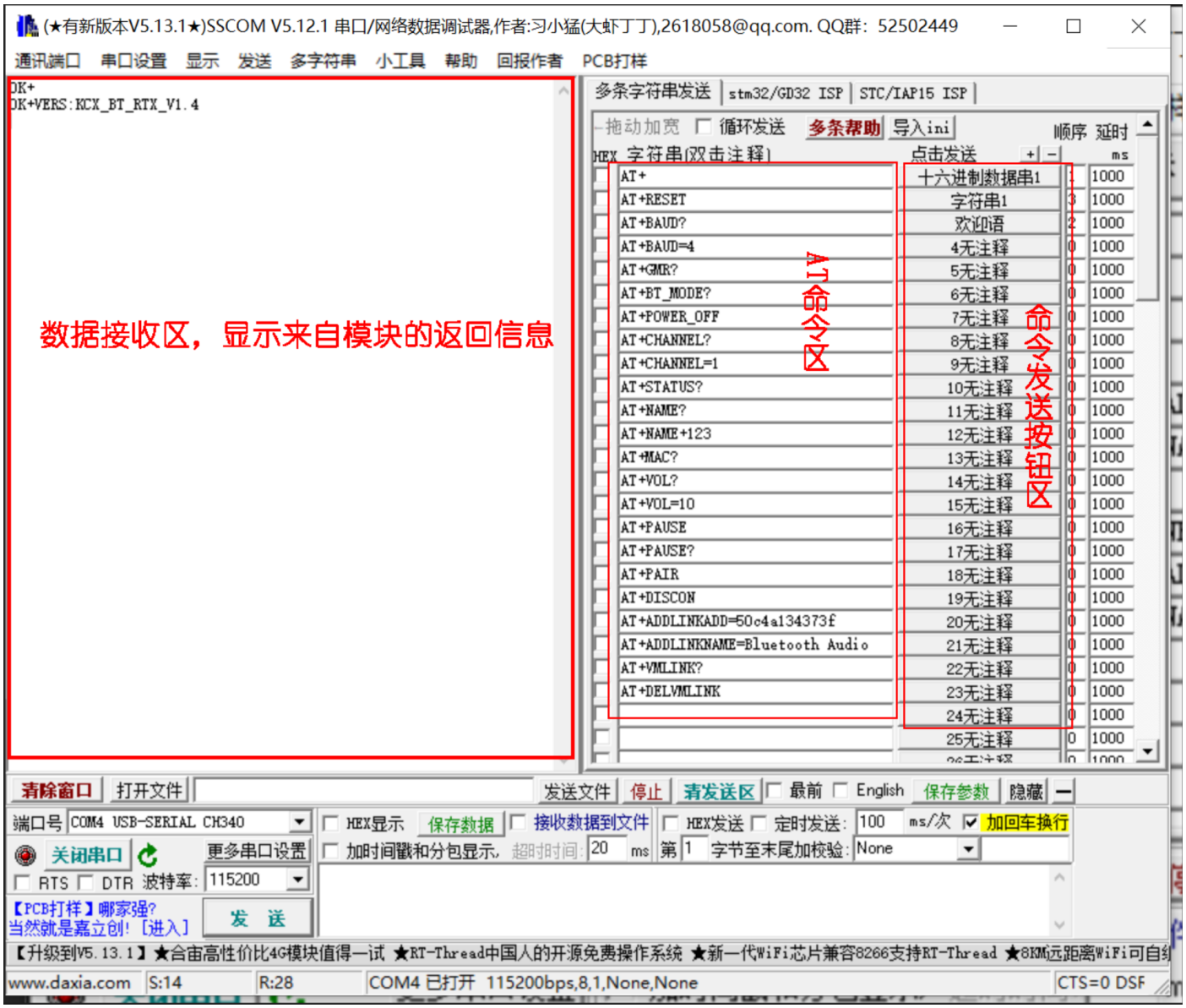
4:ATCommand Introduction

<1>:This module usesATCommand protocol as user control protocol.ATThe instruction protocol uses a set based onasciiThe command line format instruction set, the command starts withAT beginning.

<2>:ATThe instruction protocol adopts the form of command + response. Most instructions require the receiver to return a response message after the processing is completed. If a new command is received again during the previous command processing, it will be discarded and no message will be returned. As shown below.



5:Serial port configuration Factory default baud rate:115200, the configuration of the serial port tool is as shown in the figure below



6:ATCommand examples and descriptions

Note: The name of the Bluetooth receiver used for testing isBluetooth Audio,MACaddress is0x32a16c6f7f99, different bluetooth receiver names andMACAddress may vary.

<1>: test command

send: AT+

Description: Test whether the communication is normal

Return value: OK (return response)

<2>: System reset

send: AT+RESET

Description: reset

return value: OK+RESET (return answer)

POWER ON (restart)

<3>: Read the current serial port baud rate

send: AT+BAUD?

Description: Get the baud rate

return value: OK+BAUD=(no)BAUD = baud (returns the current baud rate)

Note:baudRange is0-4, the corresponding baud rate is as follows

n=0,9600
n=1,19200
n=2,38400
n=3,57600
n=4,115200

<4>: Set the current serial port baud rate

send: AT+BAUD =no

Description: Get the baud rate

return value: OK+BAUD=(no)BAUD = baud (returns the current baud rate)

Note:baudRange is0-4, the corresponding baud rate is as follows

n=0,9600
n=1,19200
n=2,38400
n=3,57600
n=4,115200

After setting the baud rate, the chip will restart

<5>: query version

send: AT+GMR?

Description: Check the software version

return value: OK+VERS :KCX_BT_RTX_V1.x (returns software version)

<6>: Query receive/transmit mode

send: AT+BT_MODE?

Description: Inquire whether the module is working in transmit mode or receive mode

return value: OK+BT_EMITTER launch mode

OK+BT_RECEIVER receive mode

<7>: shutdown

send: AT+POWER_OFF

Description: Module shutdown

return value: OK+POWEROFF_MODE enter shutdown

Note: To turn on again after shutting down, you need to press the button to wake up or power off and restart to wake up

<8>: Query the currently playing audio source signal channel

send: AT+CHANNEL?

Description: Search the currently playing audio source signal channel

return value: OK+CHANNEL=BT CHANNEL Bluetooth audio channel

OK+CHANNEL=LINE CHANNEL Analog audio input port

OK+CHANNEL=PC CHANNEL USBSound card to computer port

<9>: Set the current audio source signal channel

send: AT+CHANNEL =ch

Description: Search the currently playing audio source signal channel

return value: ch=0 reserved (void)

ch=1 Analog audio input port

ch=2 USBSound card to computer port

<10>: get connection status

send: AT+STATUS?

illustrate:**get connection status**

return value: OK+STATUS:0 bluetooth not connected

OK+STATUS:1 bluetooth connected

<11>: get bluetooth name

send: AT+NAME?

illustrate:**get bluetooth name**

return value: OK+NAME=(name)

Name:bluetooth name

Note: This command is effective in receiving mode, and the transmitting mode does not broadcast the Bluetooth name

<12>: set bluetooth name

send: AT+NAME+(name)

illustrate:**set bluetooth name**

return value: OK+NAME=(name)

Name:bluetooth name

Note: This command is effective in receiving mode, and the transmitting mode does not broadcast the Bluetooth name. After the setting is successful, the chip will restart.

<13>: get bluetoothMACaddress

send: AT+MAC?

illustrate:**get bluetoothMAC**

return value: OK+MAC:(mac)3f3734a1c450

Mac: 6bytesmac

Note: This command reception mode is valid

<14>: get volume

send: AT+VOL?

illustrate:**get volume**

return value: OK+VOL=(vol)

Note:vol:volume, range00-31,common32level, the default maximum volume when booting31

<15>: Set the volume

send: AT+VOL=(vol)

illustrate:**set volume**

return value: OK+VOL=(vol)

Note:vol:volume, range00-31,common32level, the default maximum volume when booting31

<16>:play / Pause

send: AT+PAUSE

illustrate:**play / Pause**

return value: OK+PAUSE pause

OK+PLAY play

Note: The play/pause state changes every time this command is sent

<17>: get play/pause status

send: AT+PAUSE?

illustrate:**Get play/pause status**

return value: OK+PAUSE pause

OK+PLAY play

<18>: Disconnect the current connection and search for pairing again

send: AT+PAIR

illustrate:**Disconnect current connection and search for pairing again**

return value: OK+PAIR

NOTE: This command and pressingPAIRSame function as a button

<19>: Disconnect the current connection and search for pairing again

send: AT+PAIR

illustrate:**Disconnect current connection and search for pairing again**

return value: OK+PAIR

NOTE: This command and pressingPAIRSame function as a button

<20>: Search for Bluetooth receiving devices

send: AT+SCAN

Description: Search for bluetooth receiving devices, cycle through and list all searched bluetooth device information

return value: OK+SCAN (Perform device search operation)

New Devices: 1 (found on theNdevices found)

MacAdd:0x32a16c6f7f99 (This device'sMACaddress is0x32a16c6f7f99)

Name: Bluetooth Audio (The bluetooth name for this device isBluetooth Audio)

ALL Devices=1 (The total number of currently searched devices is1)

<21>: add auto-connectedMACaddress

send: AT+ADDLINK ADD=(mac)

Description: Set the specified by this commandMACAddress connection, a total of10indivualMACAddress record space can be added10Each device is sequentially recorded in the chip's built-in memory. When the module is turned on to search for the Bluetooth receiving device, it will search for the deviceMACaddress and record area ofMACAddresses are compared one by one, when the deviceMAC One of the address and recording areasMACAutomatically connect when the address is consistent, and do not connect if there is no match, so as to achieve the specifiedMACThe function of the address connection. when 10When all record spaces are empty, noMACThe address is matched and filtered, and it will be connected when it is searched (by default, this area is empty, and this command is valid when it is set to transmit mode) .

return value: OK+ADDLINK ADD=(mac) implementMACaddress memory

BT_ADD_NUM=(add_num)

BT_NAME_NUM=(name_num)

Auto_link_Add:(Auto_link mac)

VM_MacAdd(add_num) =(add) (MACaddress mac memory inVMdistrict vm_num store successfully)

Note: A total of10indivualMACaddress, stored in sequential order atMacAdd 00- MacAdd 09common10If the maximum memory area is exceeded, an error will be reportedAddr More than 10 !

<22>: Add the name of the Bluetooth device to be automatically connected

send: AT+ADDLINKNAME=(name)

Description: Set the specified Bluetooth name connection through this command, there are a total of10Bluetooth name record spaces can be added10Each device is sequentially recorded in the chip's built-in memory. When the module is turned on to search for Bluetooth receiving devices, it will compare the Bluetooth name of the searched device with the Bluetooth name in the recording area one by one. When the Bluetooth name of the device is consistent with any of the Bluetooth names in the recording area, it will automatically connect. This achieves the function of specifying the Bluetooth name connection. when 10 When all record spaces are empty, no Bluetooth name filtering will be performed (by default, this area is empty) .

return value: OK+ADDLINKNAME (implementnamememory)

VM_Name (name_num) = (name) (Bluetooth name (name) memory inVMdistrict name_num store successfully)

Note: A total of10Bluetooth names, stored sequentially inVM_Name 00-VM_Name 09common10If the maximum memory area is exceeded, an error will be reported Name More than 10 ! **<23>: Query the automatic connection record area**

send: AT+VMLINK?

Description: Sending this command will return the record in the auto-reconnectMACAll information in the record area and device name record area.

return value:

OK+VMLINK (return answer)

BT_ADD_NUM=(add_num) (add_num:memoryMACNumber of addresses0-9common10indivual)

BT_NAME_NUM=(name_num) (name_num:The number of memorized device names and addresses0-9common10indivual)

Last_Add=(last add) (last add:last connectedMACaddress) (mac:Automatically

VM_MacAdd0=(mac) reconnect recording area1ofMACaddress) (name:

VM_Name0=(name) Automatically reconnect recording area1device name)

<24>: Delete all the records in the automatic connection record area

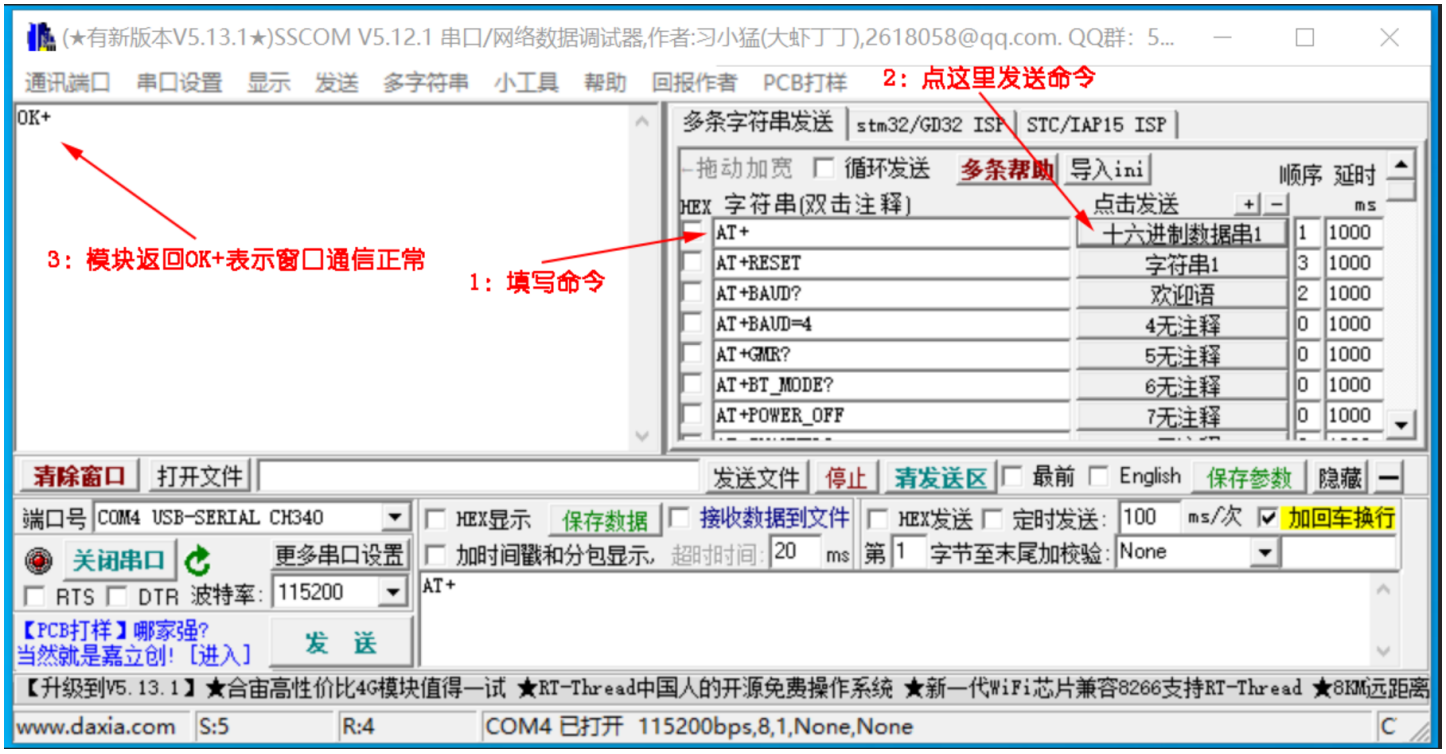
send: AT+DELVMLINK

Description: Delete all records in the automatic connection area (that is, restore to the factory default without filteringMACaddress and device name) Return value: Delete_Vmlink (Perform delete operation)

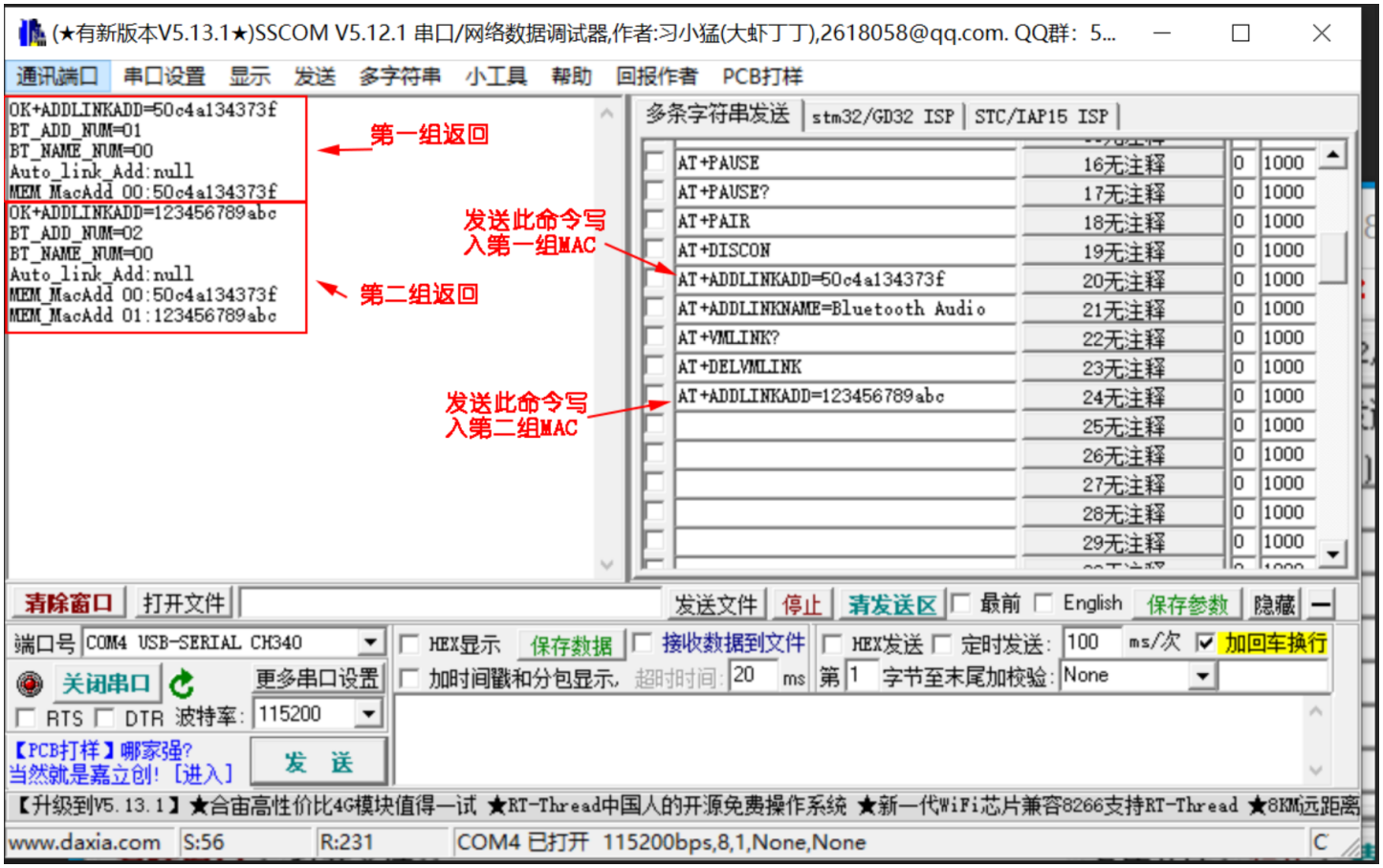
7: Demonstration example (based on the computer serial port to control the Bluetooth transmitter module)

open computer sideSSCOMSerial assistant interface

example1:sendAT+test command



example2:Set the automatic connection address (for example, we have2a bluetooth receiver, we know his deviceMACaddress is50c4a134373f and123456789abc, we need to search only these two in many Bluetooth receiving devicesMACThe device with the matching address will be connected, and other devices will not be connected after searching. At this time, you only need to connect the two BluetoothMACThe address can be added to the filter list, and the maximum can be added10group, the secondary record group has power-off save function)



The data returned by the first command is analyzed as follows:

OK+ADDLINK ADD=50c4a134373f After receiving the command, return the to-be-writtenMACaddress is50c4a134373f BT_ADD_NUM=01

ADD_NUMdistrict(MACaddress filtering connection) records the1

Group BT_NAME_NUM=00

recorded inNAME_NUMZone (Bluetooth Name Filter Connections) records the0group, no record Auto_link_Add: null

last connected deviceMACaddress:nullnone

MEM_MacAdd 00:50c4a134373f

MEM_MacAddrecording area00District has a set of records,MACaddress is50c4a134373f

The data returned by the second command is analyzed as follows:

OK+ADDLINK ADD=123456789abc After receiving the command, return the
to-be-writtenMACaddress is123456789abc BT_ADD_NUM=02

ADD_NUMdistrict(MACaddress filtering connection) records the2
Group BT_NAME_NUM=00

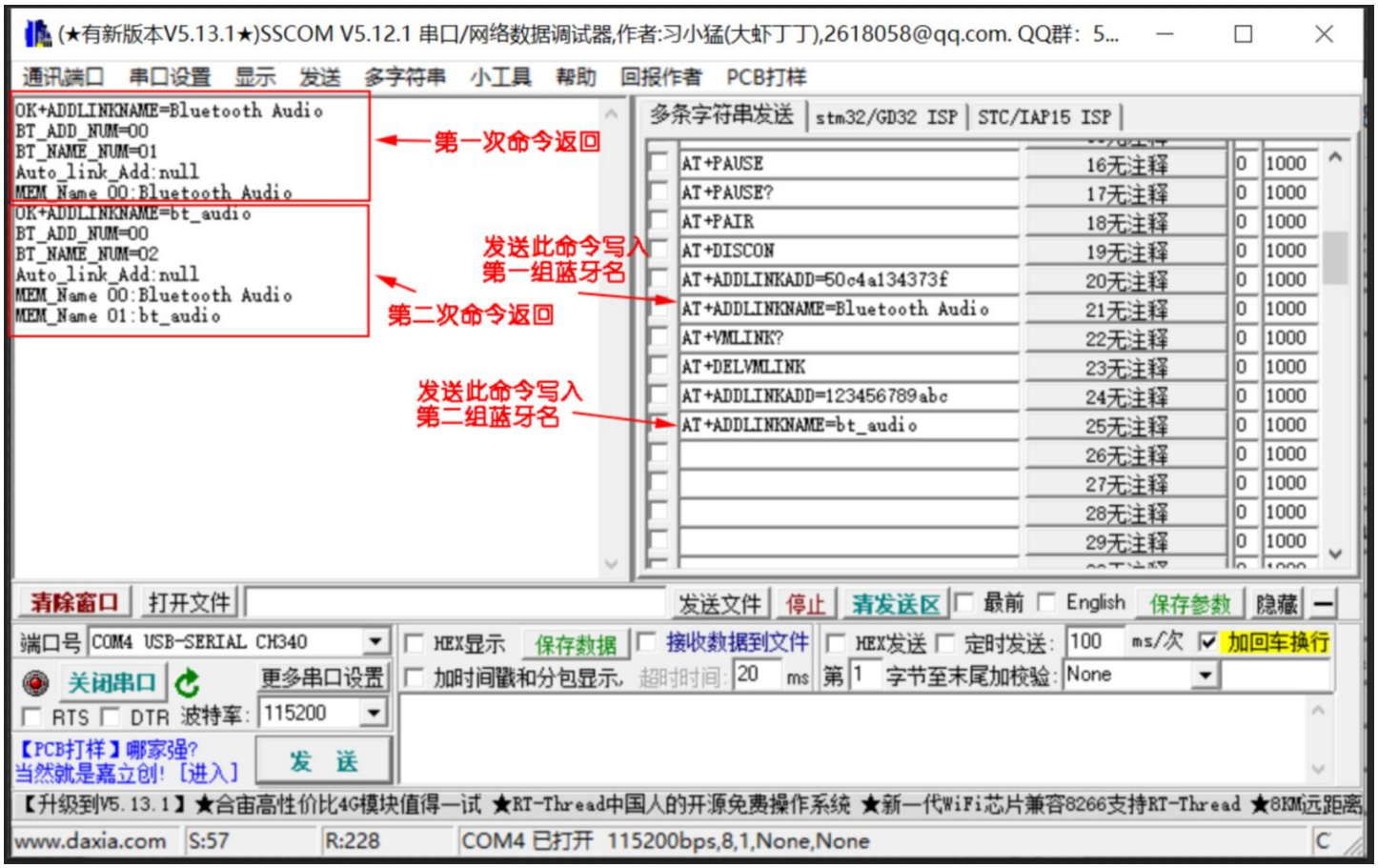
recorded inNAME_NUMZone (Bluetooth Name Filter Connections) records the0group, no
record Auto_link_Add: null
last connected deviceMACaddress:nullnone
MEM_MacAdd 00:50c4a134373f
MEM_MacAdd 01:123456789abc
MEM_MacAddrecording area00District has a set of records,MACaddress is50c4a134373f
MEM_MacAddrecording area01District has a set of records,MACaddress is123456789abc

example3: Set the automatic connection Bluetooth name (for example, we have2a bluetooth receiver, we know his bluetooth name

forBluetooth Audioandbt_audio, we need to search only these two in many Bluetooth receiving devices

The device with the Bluetooth device name is only connected, and other devices are not connected after searching. At this time, you only need to put the two Bluetooth device names

Just add to the filter list, up to support10group, this record group has power-off save function)



The data returned by the first command is parsed as follows:

OK+ADDLINKNAME=Bluetooth Audio After receiving the command, return the name of the bluetooth to be written into the automatic connection filterBluetooth Audio BT_ADD_NUM=00

ADD_NUMdistrict(MACaddress filtering connection) records the0group, no record

BT_NAME_NUM=01

recorded inNAME_NUMZone (Bluetooth Name Filter Connections) records the1Group

Auto_link_Add: null

last connected deviceMACaddress:nullnone

MEM_Name 00: Bluetooth Audio

MEM_Namerecording area00zone has a group of records, bluetooth namedBluetooth Audio

The data returned by the second command is parsed as follows:

OK+ADDLINKNAME=bt_audio After receiving the command, return the name of the bluetooth to be written into the automatic connection filterbt_audio BT_ADD_NUM=00

ADD_NUMdistrict(MACaddress filtering connection) records the0group, no record

BT_NAME_NUM=02

recorded inNAME_NUMZone (Bluetooth Name Filter Connections) records the2Group

Auto_link_Add: null

last connected deviceMACaddress:nullnone

MEM_Name 00: Bluetooth Audio

MEM_Namerecording area00zone has a group of records, bluetooth namedBluetooth Audio MEM_Name 01: bt_audio

MEM_Namerecording area01zone has a group of records, bluetooth namedbt_audio

Note:MACThe relationship between address filtering and Bluetooth name filtering is OR, that is, as long as the searchedMACThe address or Bluetooth name is in the filter connection list, as long as there is a match, it will be automatically connected.

If there is no record in the filter list, the device will be connected if it is found.

Memories that need to delete the filter list only need to send the command:AT+DELVMLINKYou can delete all the Bluetooth name andMACFilter the list.