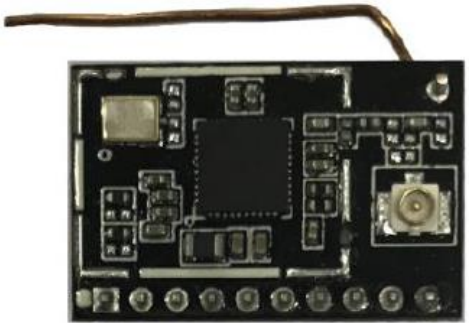
# Quick Start Guide

HF-LPX30 Series Wi-Fi Module


HF-LPB130


HF-LPT230



HF-LPT130A

# 1. Introduction of EVK

High-Flying provides evaluation kit for users to be familiar with the product and develop application quickly. The evaluation kit is shown as below, users can connect to module with the RS-232 UART, USB (Internal UART-USB convertor) or wireless interface (webpage) to configure the parameters, manage the module or do some functional tests.

**EVK list:**

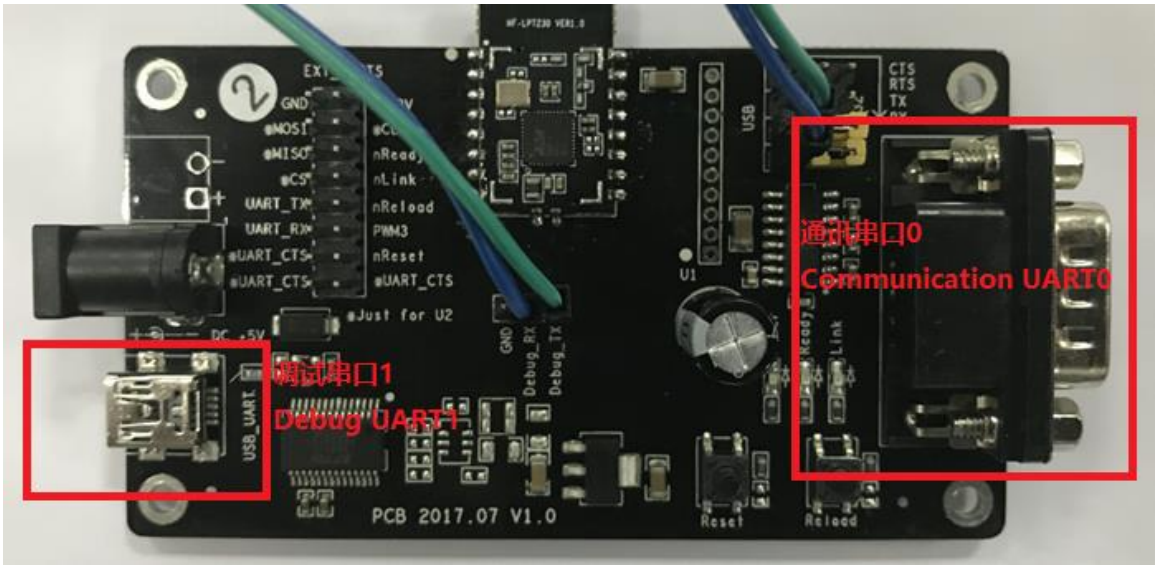
① HF-LPX30 series module: 1 Pcs

② HF-LPX30 evaluation board: 1 Pcs

③ Power Adapter (DC5V/1A): 1 Pcs

④ Serial Line: 1 Pcs

or: USB line: 1 Pcs




# 2. Use Step

## 2.1 Connect Device

Power adapter connect to power, serial line connect to computer serial port.

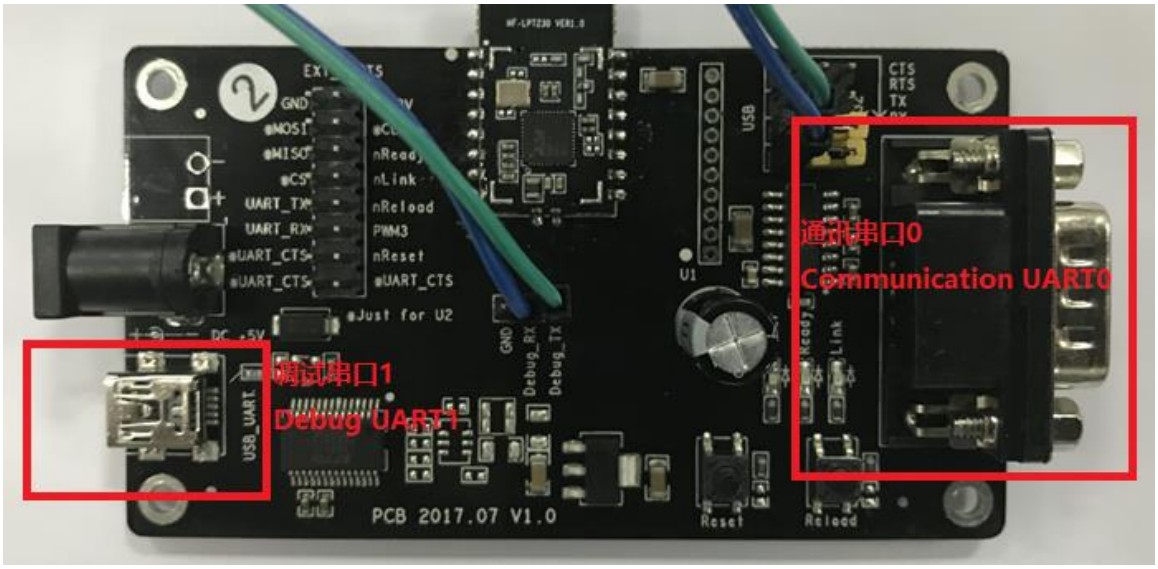
After that, we can find that the “Power” LED is on, which indicates that the HF-LPT230 is power on.

After 2-3 seconds, the “nReady” LED light is on, which indicates that the module is launched successfully.

Notes:

Press down “nReload” key more than 4 seconds and loose, the “nReady” LED is off; after 2-3 seconds, the “nReady” LED is on again, the module restore to factory default configuration

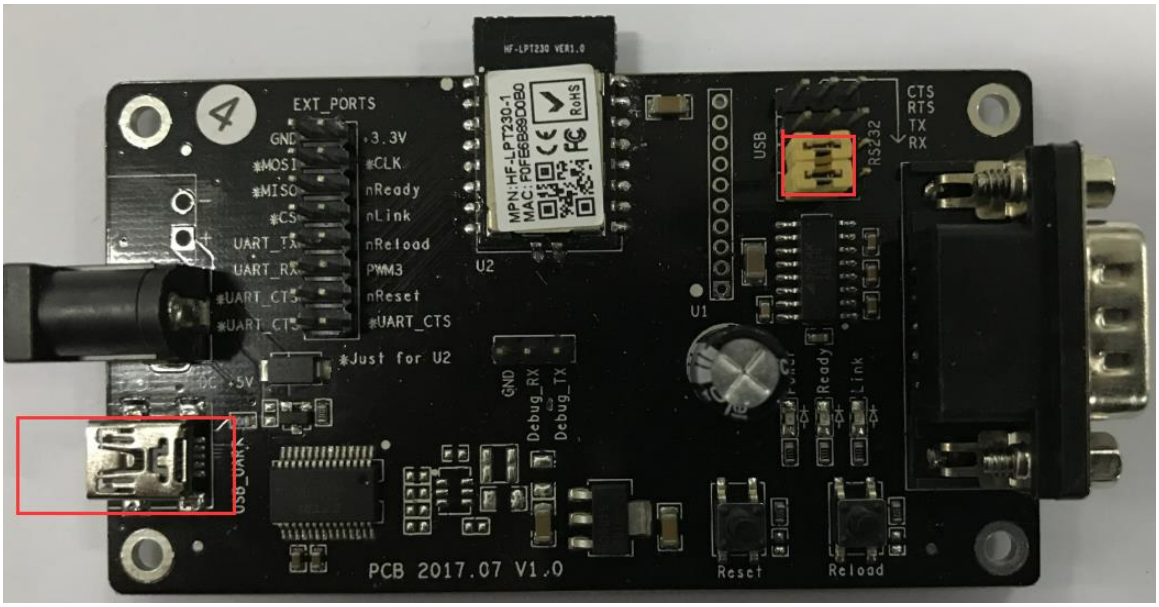
 




The above use RS232 UART to communicate, so must use RS232 cable connect to PC(Debug UART1 is only for log information output, its baud rate is 921600, must use USB UART to output due to RS232 transform chip max baud rate is just 460800)

If need to use USB UART for the test, then connect the jumper as the following pic. The USB 若需 UART chip driver can be download from our website.

http://www.hi-flying.com/download_detail_dc/downloadsId=108.html。

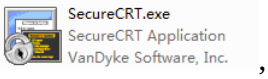



## 2.2 Serial setting:

### 2.2.1 Serial Tool: SecureCRT

Download site:

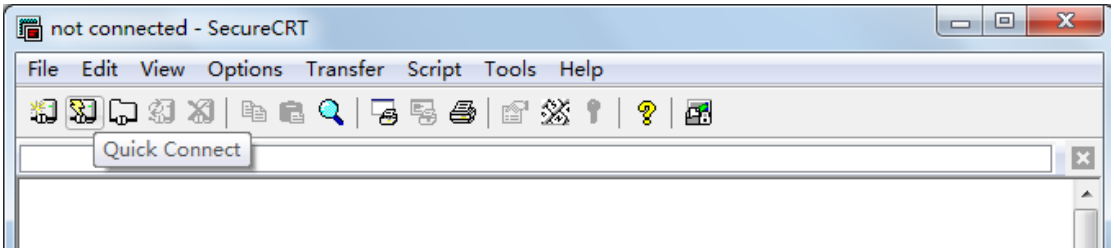
http://www.hi-flying.com/download_detail_dc/&downloadsId=cf2dd62e-abb8-48ed-9a12-36d393aac9ab&comp_stats=comp-FrontDownloads_list01-dc.html

Decompress the file folder, find "SecureCRT", 

, click to

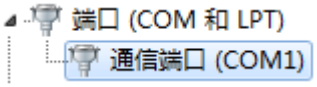
 

open, Click on the button  , create a connection.




**2.2.2 Set Serial Parameter as follows:**

protocol: Serial

port: computer port("My computer"->"device manager"->"port(COM and LPT)"as the left photo shows。 

)

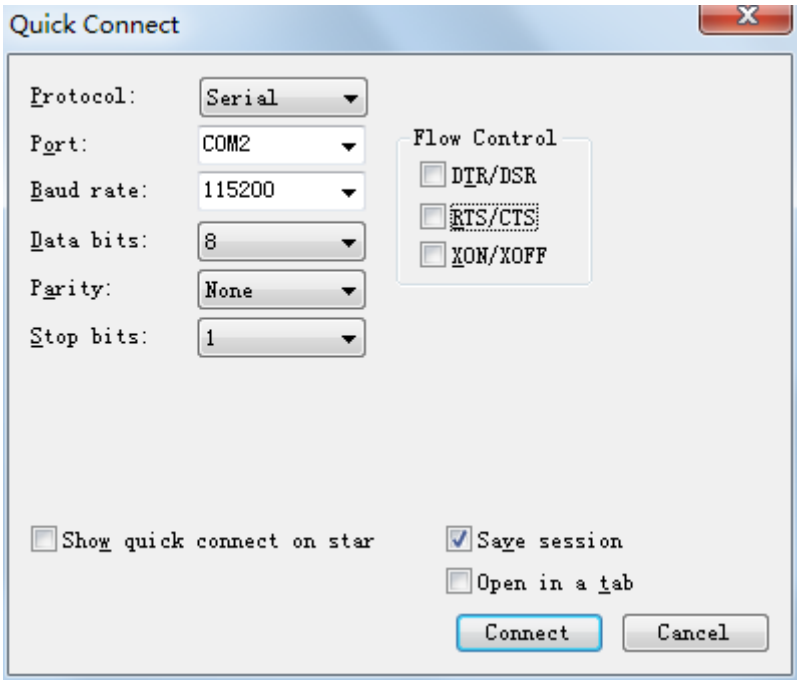
Baud rate: 115200

Data bit: 8

Parity check: None

Stop bit: 1

Flow control: NONE(Please remove "√" in front of RTS/CTS)



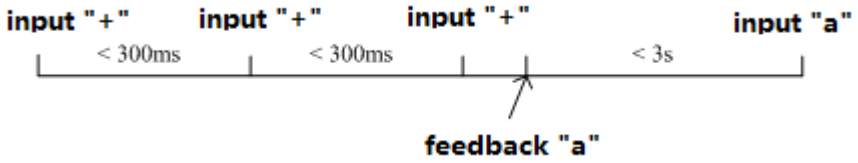
# 3. AT command configure

### 3.1 UART input “+++”, after module receive “+++”, and feedback “a” as confirmation;

### 3.2 UART input “a”, after module receive “a” and feedback “+ok” to go into AT+ instruction set configuration mode.

<Notes>:

- When user input “+++” (No “Enter” key required), the UART port will display feedback information “a”, and not display input information”+++” as above UART display.
- Any other input or wrong step to UART port will cause the module still works as original mode (transparent transmission).




After entering command mode through serial tool, input “AT+H” and enter, will display all AT+ command as follow. Detail info please check module user manual chapter 4 “AT command description.

```
a+ok

AT+H
+ok
   AT+UART: Set/Get the UART0/UART1 Parameters.
   AT+WSMAC: Set/Get Module MAC Address.
   AT+WSCAN: Get The AP site Survey (only for STA Mode).
   AT+WANN: Set/Get The WAN setting if in STA mode.
   AT+WSSSID: Set/Get the AP's SSID of WIFI STA Mode.
   AT+WSKEY: Set/Get the Security Parameters of WIFI STA Mode.
   AT+SMTLK: Start Smart Configuration.
   AT+PING: General PING command.
   AT+NDBGL:set/get debug level
   AT+RELD: Reload the default setting and reboot.
   AT+RLDEN: Put on/off the Reload Pin.
   AT+MID: Get The Module ID.
   AT+WRMID: Write Module ID.
   AT+VER:Get application version.
   AT+FCLR: Clear Fsetting.
   AT+CFGRD: Get current system config.
   AT+CFGTF: Save Current Config to Default Config.
   AT+ENTM: Goto Through MOde.
   AT+SMEM:show system memory stat
   AT+OTA:OTA
   AT+UPURL: Set/Get the path of remote upgrade.
   AT+SRST:Soft Reset the Module.
   AT+E: Echo ON/Off, to turn on/off command line echo function.
   AT+Z: Reset the Module.
   AT+H:show help
   AT+SOCKB: Set/Get Parameters of socket_b.
   AT+TCPDISB: Connect/Dis-connect the TCP_B Client link.
   AT+TCPTOB: Set/Get TCP_B time out.
   AT+TCPLKB: Get The state of TCP_B link.
   AT+NETP: Set/Get the Net Protocol Parameters.
   AT+TCPLK: Get The state of TCP link.
   AT+TCPTO: Set/Get TCP time out.
   AT+TCPDIS: Connect/Dis-connect the TCP Client link
   AT+MAXSK: Set/Get MAX num of TCP socket (1~5)
   AT+DISPS: Disable power saving mode of WIFI
   AT+WSLQ: Get Link Quality of the Module (Only for STA Mode).
   AT+WAP: Set/Get the AP parameters.
   AT+WAKEY: Set/Get the Security Parameters of WIFI AP Mode.
   AT+WMODE: Set/Get the WIFI Operation Mode (AP or STA).
   AT+WSLK: Get Link Status of the Module (Only for STA Mode).
   AT+UDPLCPT: Set/Get local UDP port.
   AT+LANN: Set/Get The LAN setting if in ADHOC mode.
   AT+WADHCP:enable/disable AP dhcp server and set ip address pool
   AT+ASWD: Set/Query WiFi configuration code.
   AT+PLANG=EN/CN: Set/Get the language of WEB page.
   AT+WEBU: Set/Get the Login Parameters of WEB page.
   AT+TXPWR: Set/Get wifi rf tx power.
```

Note:

■ When input “+++” (No “Enter” key required), the UART port will display feedback information “a”, but not ”+++” ;then input another “a”, will display feedback “+OK”, enter into command mode

If did not enter into command mode at first time, probably the space time is wrong when input, please try again by input “+++” and “a”.

# 4. Test Case

## 4.1 Test Case 1: Under AP mode, transparent transmit between UART and Wi-Fi

Prepare:

Install TCP/UDP test tool: TCPUDPDbg

Download site:

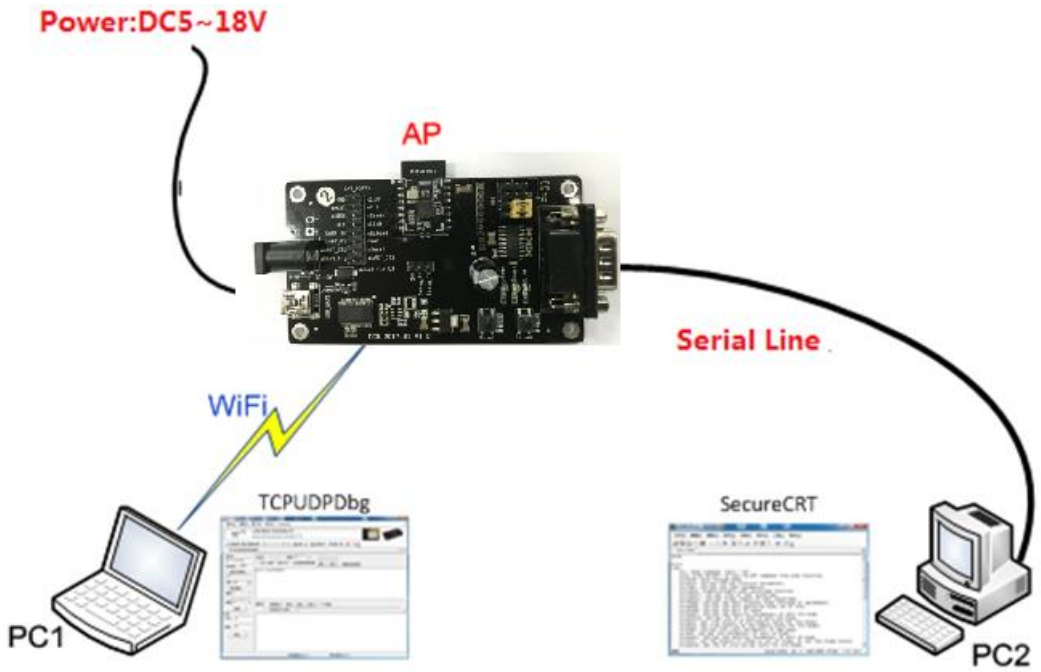
http://www.hi-flying.com/download_detail_dc/&downloadsId=0eb97afc-ea80-4f58-acd6-b34fc010207d&comp_stats=comp-FrontDownloads_list01-dc.html

Install serial tool: SecureCRT

Download site:

http://www.hi-flying.com/download_detail_dc/&downloadsId=cf2dd62e-abb8-48ed-9a12-36d393aac9ab&comp_stats=comp-FrontDownloads_list01-dc.html

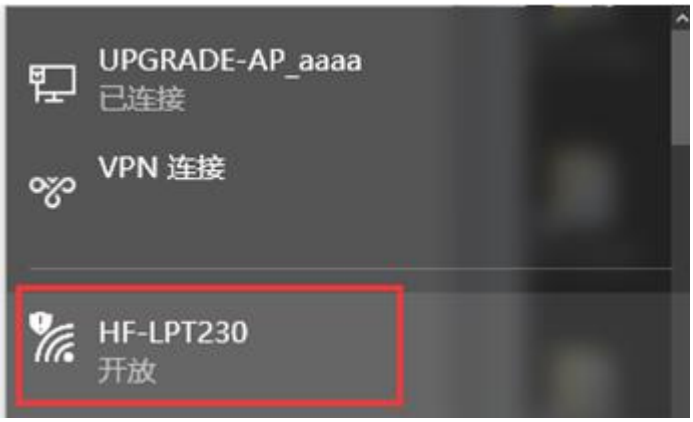
### 4.1.1 Test Topology



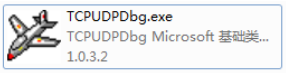

### 4.1.2 PC1 Connect to Module by Wireless

Configure the module by wireless (require a notebook with WIFI). Power up HF-LPT230 EVK, after 3 seconds, the Ready LED light turn on. At this time, user can search “HF-LPT230” SSID through notebook.



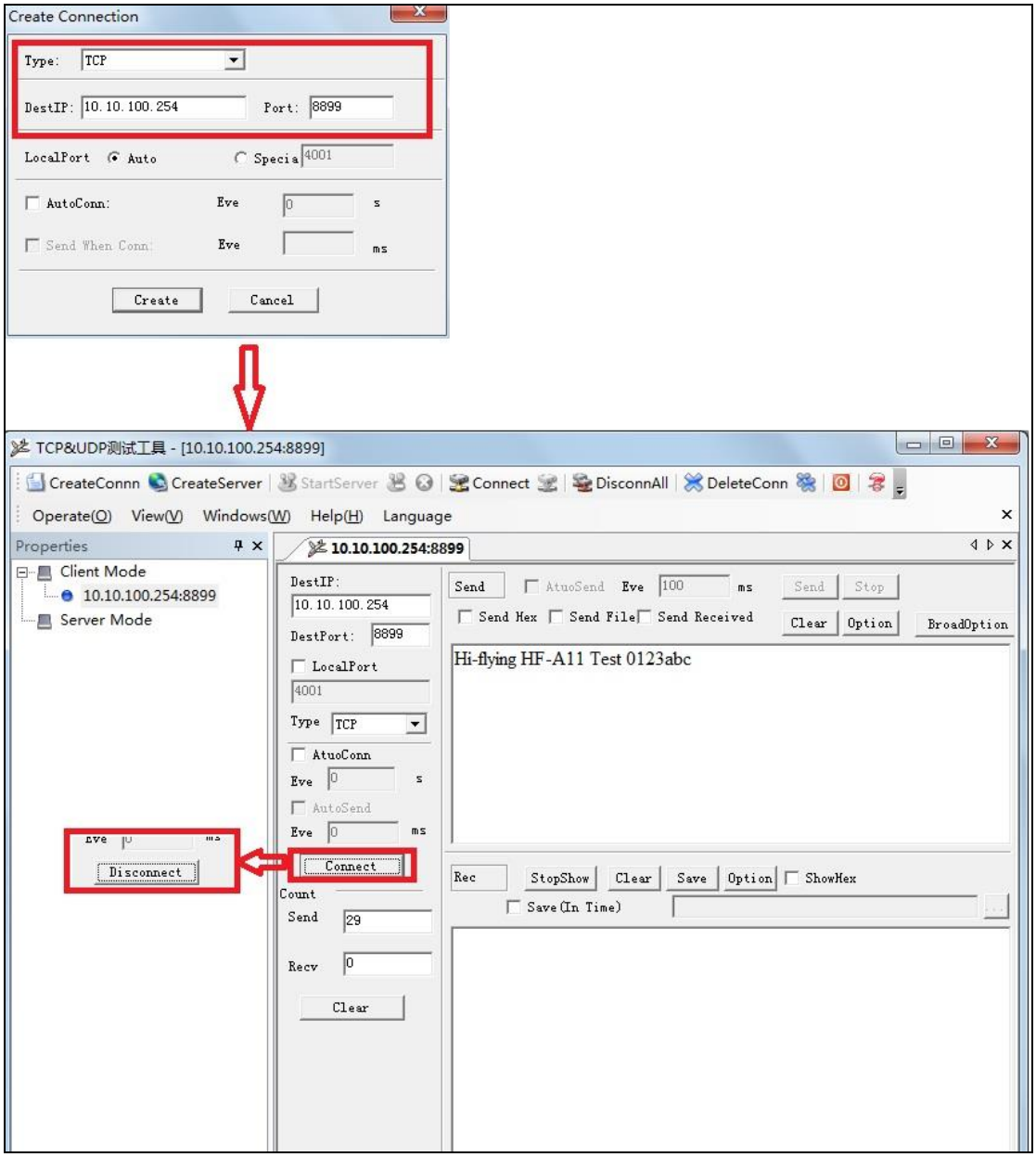

### 4.1.3 TCPUDP Test Tool Configure

Decompress “TCPUDPDbg”, select 

, open TCPUDP and create a TCP connect, configure as follow:

Press “create connection” and select “TCP’, target IP: 10.10.100.254, Port 8899. After connection, press “Connect”, input the data in the send area, such as “Hi-flying HF-A11 Test 0123abc”.




### 4.1.4 PC2 Serial Tool Configure

PC2 connect to HF-LPT230 through serial line, click “SecureCRT” to create a connection, detail setting as follow:

Protocol: Serial

Port: computer COM port

Baud rate: 115200

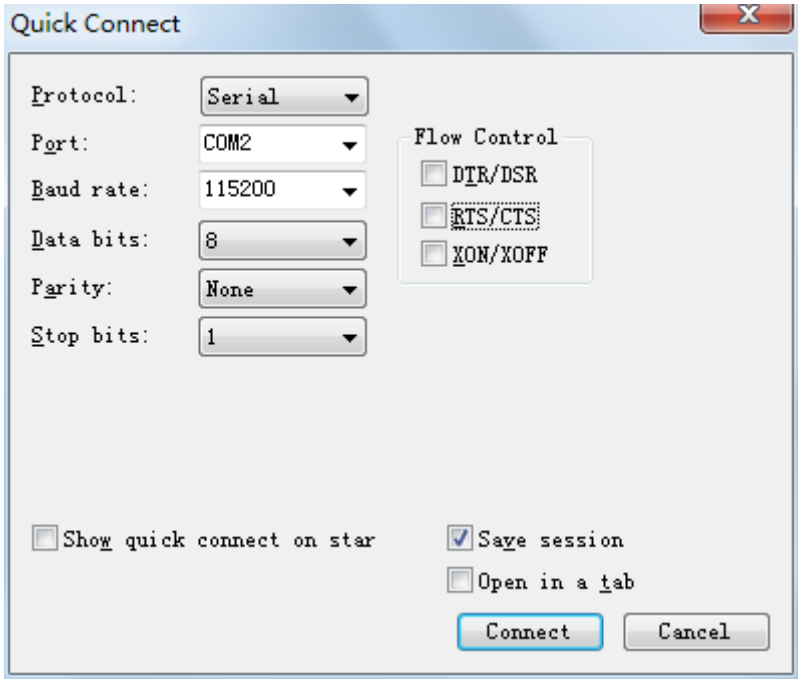
Data bit: 8

Parity check: None

Stop bit: 1

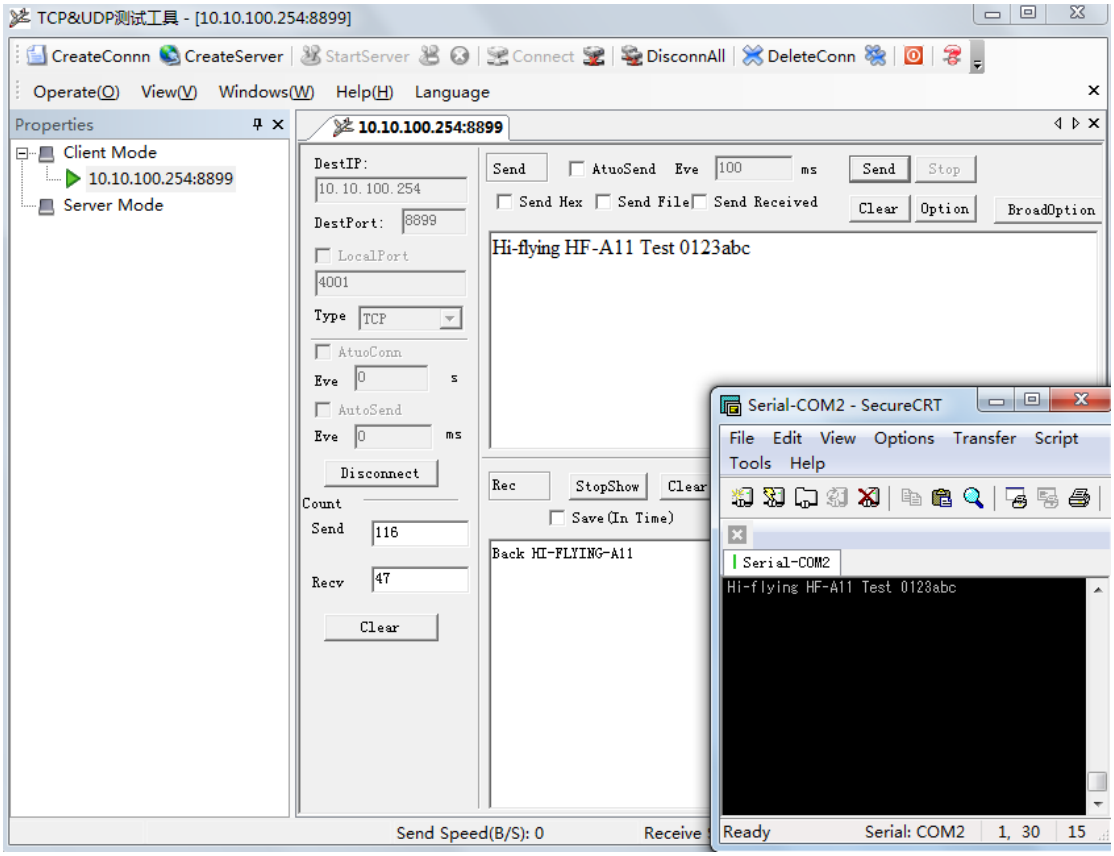
Flow control: none (Please remove “√” in front of RTS/CTS)



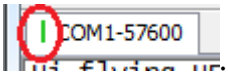

### 4.1.5 Data Transparent Transmit

After connect with COM port, enter into transparent transmit mode. Then user can run data transmit test. As below photo, press “send” on TCPUCP test tool interface, the data will be transmitted directly to COM port. Meanwhile, input message in COM port tool, the message will be transmitted to TCPUCP receive area directly, such as “Back HI-FLYING-A11”



**Notes:**

- Use“SecureCRT”serial tool, after connection with COM port, there is a green sign “|”, 

If it is red, it indicates that the COM port is disconnect
- When transmit, the message inputted in “SecureCRT” will not display in SecureCRT interface, but transmitted to receive area in “TCPUCP test tool interface”
- If “SecureCRT” already enters into command mode, input“AT+ENTM”and enter into transparent transmit mode, or press Reset to enter into transparent transmit mode
- When module work in AP mode, it allows max 8 STA device connecting.

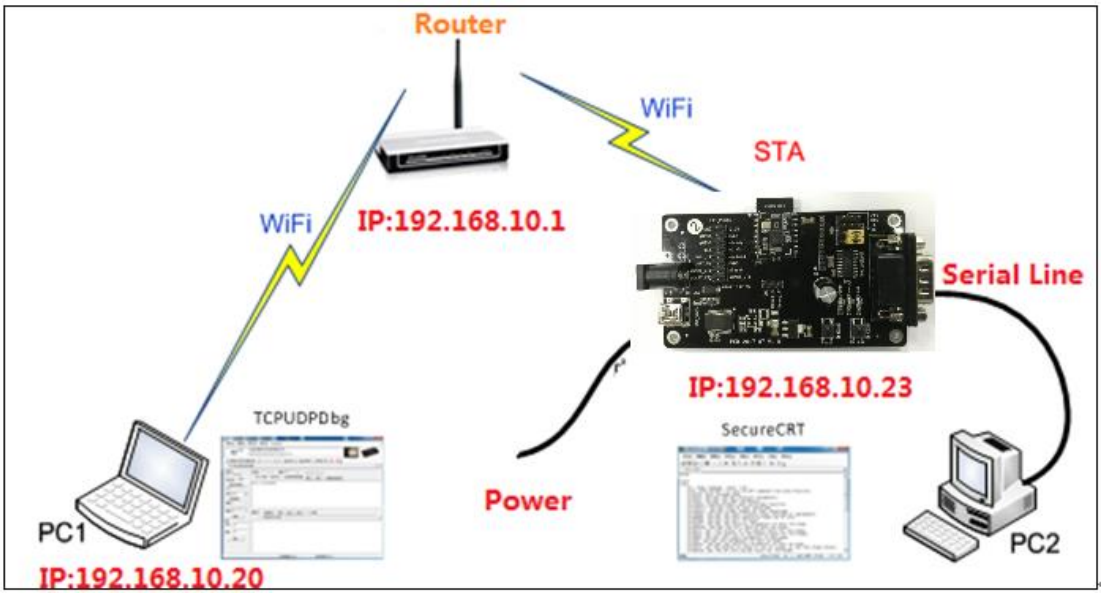
 

### 4.2 Test Case 2:

HF-LPT230 as STA mode, connect with router, transparent transmit between UART and Wi-Fi.

Please install “SecureCRT” and TCP/IPD” test tool before test.

#### 4.2.1 Test Topology:

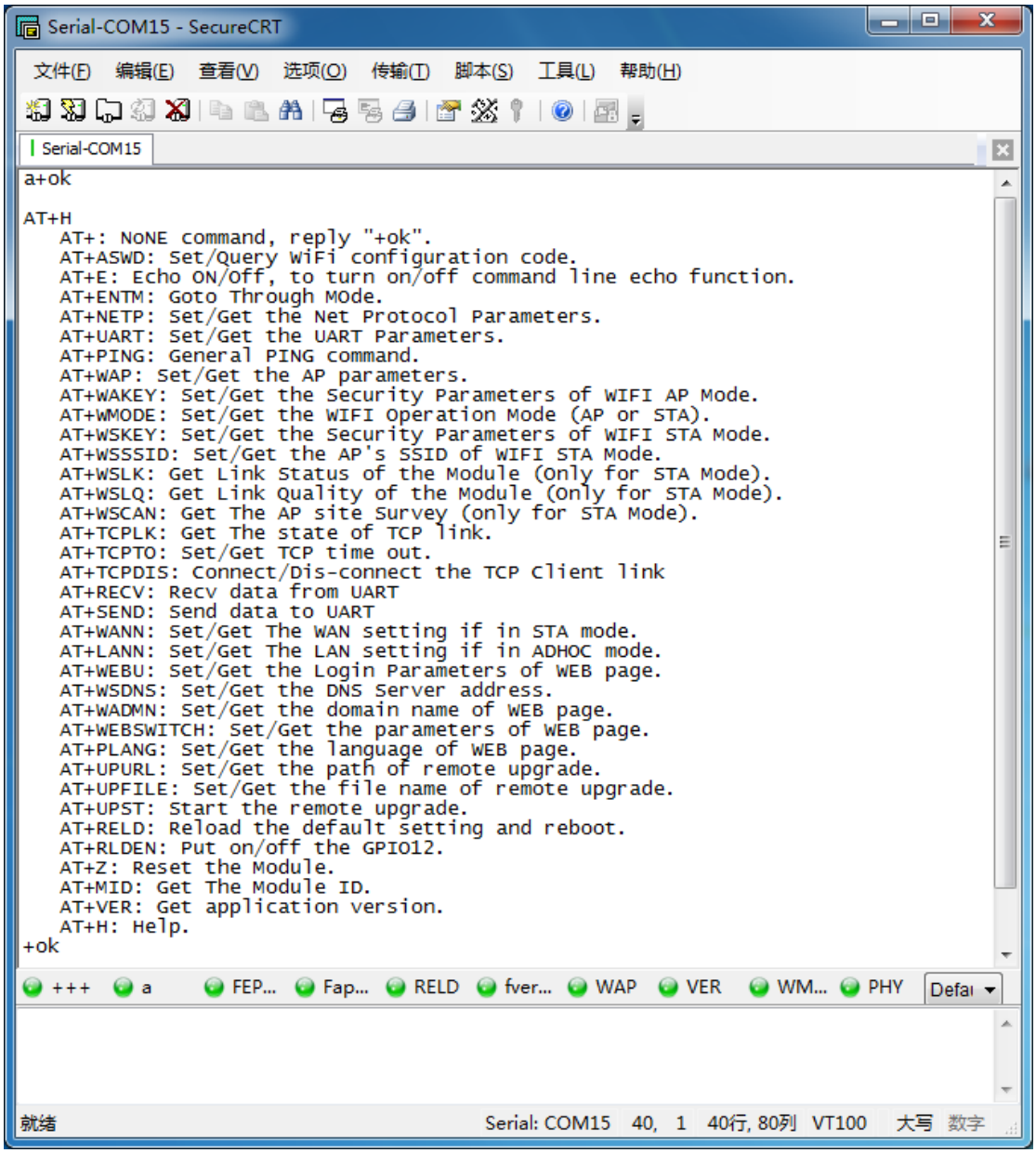



#### 4.2.3 HF-LPT230 work mode configuration

Because HF-LPT230 cannot support webpage configuration currently(will be supported soon), it is suggested to use serial port to configure. The specific steps are shown as follows:

First, enter into the AT command configure by command configuration in chapter 3.




Second, search the AP nearby and take the following figure as an example:

```
AT+WSCAN
+ok=
Ch,SSID,BSSID,Security,Indicator
3,UPGRADE-AP,FC:D7:33:04:3E:A8,OPEN/NONE,86
2,Tenda_Kevin,C8:3A:35:17:5A:C0,WPAPSKWPA2PSK/AES,70
1,LLJ,14:75:90:B6:A2:E6,WPAPSKWPA2PSK/AES,47
3,HF-TEST,28:2C:B2:D2:E5:96,WPAPSKWPA2PSK/TKIPAES,72
2,D-Link_DIR-605L,B0:C5:54:83:B3:8E,WPAPSKWPA2PSK/TKIPAES,54
6,Soneter,10:BF:48:E6:F3:98,WPA2PSK/AES,86
6,TP-LINK_95AA,8C:A6:DF:38:95:AA,WPAPSKWPA2PSK/AES,21
6,UPGRADE-AP_aaaa,C8:3A:35:54:B3:70,WPA2PSK/AES,100
6,NETGEAR60,04:A1:51:15:22:6A,WPA2PSK/AES,72
6,HF-Meeting-Room,80:89:17:D6:41:88,WPA2PSK/AES,42
7,HF-LPT220,84:5D:D7:4A:88:13,OPEN/NONE,47
8,UPGRADE-AP,B8:55:10:B7:39:54,OPEN/NONE,57
8,Administrator,14:75:90:0B:C6:96,WPA2PSK/AES,54
9,HF-Demo_Specia,00:0E:E8:B6:49:B0,WPAPSKWPA2PSK/AES,52
10,HF-LPB120,F0:FE:6B:5F:C6:FA,OPEN/NONE,66
10,360-NSZ,C4:36:55:00:02:9A,WPAPSKWPA2PSK/AES,37
11,ppppppppppp,24:05:0F:64:7F:52,WPA2PSK/AES,76
11,74A6,24:69:68:7F:74:A6,OPEN/NONE,42
10,LQJ-AP,14:75:90:B5:BE:3A,WPAPSKWPA2PSK/AES,90
11,TOTOLINK_LiLi,00:0E:E8:B6:57:2C,WPAPSKWPA2PSK/AES,64
+ok
```

Type the command AT+WSCAN, and then you will see some information like channel, SSID of the AP nearby.

```
AT+WSSSID=UPGRADE-AP_aaaa
+ok

AT+WSKEY=WPA2PSK,AES,12345678
+ok

AT+WMODE=sta
+ok
```

There are totally three commands in the figure above. The first one is used to set the SSID of the related AP. The second one is to set the encryption parameter of STA. (Note that the three parameters stand for authentication mode, encryption algorithm and the key respectively) The last one is about the work mode.

Can also use our Smartlink V7 APP to config the module connecting to router, see the following material.

http://www.hi-flying.com/download_list_dc/&downloadcategoryid=14&isMode=false&comp_stats=comp-FrontDownloadsCategory_show01-1376450727769.html


Third, set the parameters of network and serial port.

```
AT+WANN
+ok=DHCP,10.10.10.16,255.255.255.0,10.10.10.1

AT+NETP
+ok=TCP,Server,8899,10.10.100.254

AT+UART
+ok=115200,8,1,None,NFC
```

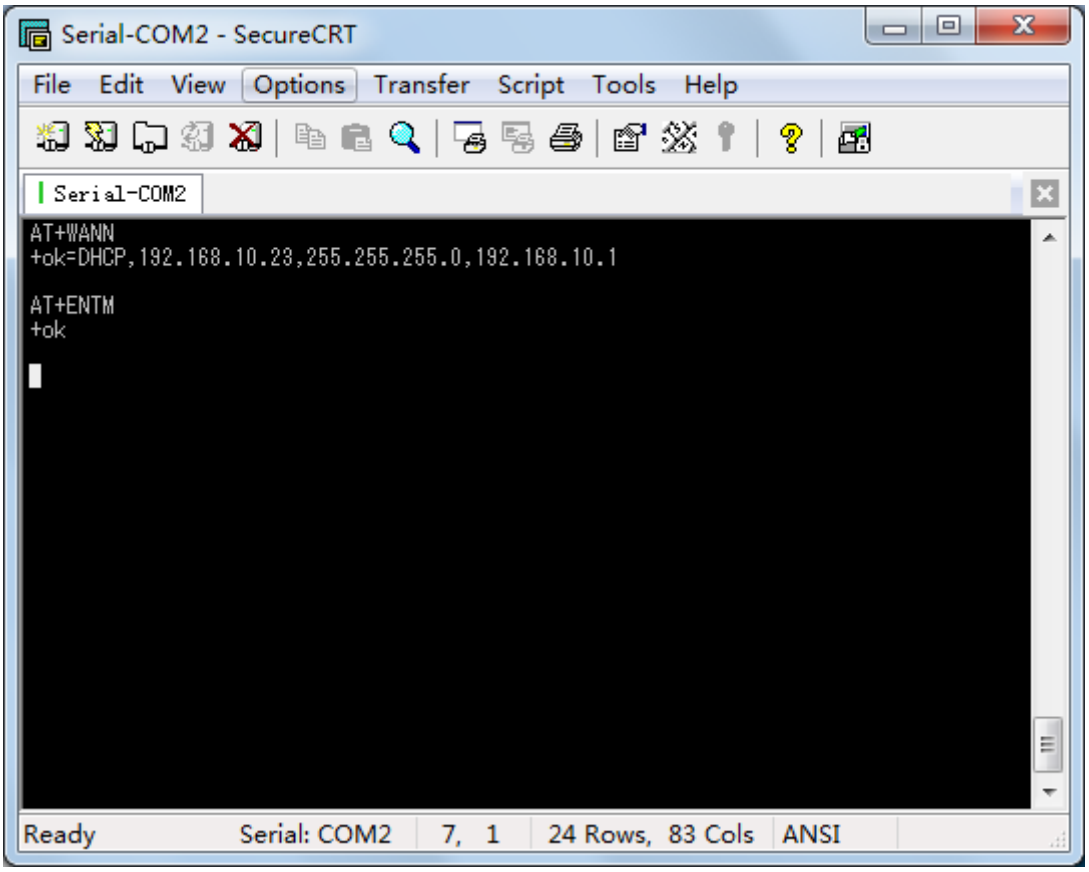
Among all the commands above, AT+WANN is used to set network parameters and there are four parameters which represent IP mode of STA, IP address of STA, the subnet mask of STA and gateway address of STA respectively.(In this case, the costumer can also set static IP according to special requirements)
AT+NETP is used to set parameters of network protocol, there are four parameters which stand for type of protocol, network mode, port and the IP address or domain name under client mode.
AT+UART is the command to check and modify the information in serial port. It has five parameters, and they are baud rate, data bits, stop bits, check bits and hardware flow control. If there are no special requirements, it is suggested to use default mode.

Four, after setting all the parameters, you must reset the module. After restart, when the "Link" LED light turns on, it indicates the module already connected to router.

#### 4.2.4 PC2 serial configuration and check

Check the IP address of HF-LPT230 which connected to router, this IP address can set static or automatically acquire from router.
(1) Static set: in STA setting. Disable "acquire IP address automatically", then you can set IP address manually
(2) Acquire IP address automatic: PC2 connect to HF-LPT230 through serial port, and enter command mode, input "AT+WANN", the feedback message is the IP address, for example. "+ok=DHCP,192.168.10.23,255.255.255.0,192.168.10.1", then the IP address of HF-LPT230 is "192.168.10.23", please remember this IP address
Then input "AT+ENTM" enters into transparent transmit




### 4.2.5 TCPUDP test tool configuration

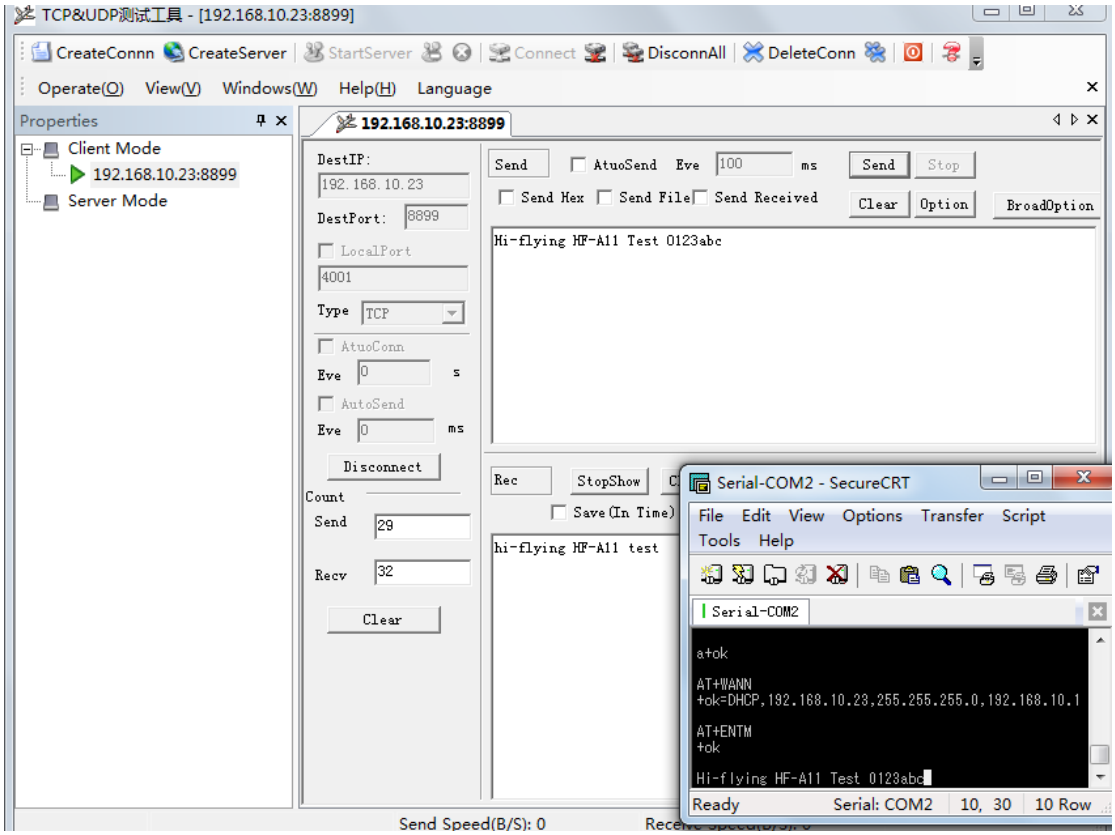
PC1 connect to “wireless router”, open TCPUDP and create a TCP connect, details set as follow:

Press “create connect” and select TCP, target IP:192.168.10.23 (This IP is acquired automatically) port: 8899

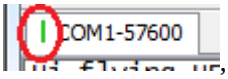
### 4.2.6 Data Transparent Transmit

After TCPUDP finished the connection, press “connect” button, input message in send area, such as “Hi-flying HF-LPT230 Test 0123abc”. Under the condition of COM connected, user can run the data transparent transmit test. As below photo shows: press send on TCPUDP interface, the message will be transparent transmitted directly to COM; meanwhile, input message on COM port tool, the message will be transparent transmitted directly to TCPUDP, such as “hi-flying HF-A11 test”




Notes:

■ when use “SecureCRT” serial tool, and once connected with COM port successfully ,there will be a green “|” sign, as 

, if is shows red, then it indicates COM port disconnected.

■ When transparent transmit through serial, the message inputted in “SecureCRT” will not displayed in “SecureCRT” interface, but displayed in “TCPUDP” receiving area.

■ If already input “+++” and enter command mode by “SecureCRT” serial tool, then user can input “AT+ENTM” switch to transparent transmit mode, or press Reset button to enter transparent transmit mode.

■ The target IP address in TCPUDP test tool is the IP address module acquired from wireless router, can check the IP address by input “AT+WANN”.