

BM818

Operation manual_V1.4

Important Statements

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1. Introduction

BM818 EVB use for testing the function and performance of BM818module , and provide relevant assessment to help customer develop application.

1.1 Purpose

This document detailed describes the basic function of BM818 and point out the main feature is data transmission.

1.2 General view

- ✧ Chapter 2, Main introduction the Development environment and list of equipment for BM818
- ✧ Chapter 3, in detail describe the construct of software environment for BM818
- ✧ Chapter 4, in detail describe the methods of data transmission and common business for BM818

2. Brief Introduction

BM818 EVB is development and evaluation board that for customer to test the performance and function of BM818modul. This EVB board is module adapter PCBA board,

Technology/Band	Mode	Target Power and Tolerance (dBm)
GSM 850	GPRS,GMSK	31 ± 1
	EDGE,8PSK	25 ± 1
GSM 1900	GPRS,GMSK	27 ± 1
	EDGE,8PSK	23 ± 1
WCDMA Band 2	RMC	23 ± 1
WCDMA Band 4	RMC	22 ± 1
WCDMA Band 5	RMC	23 ± 1
LTE Band 2	QPSK	21 ± 2
	16QAM	21 ± 2
LTE Band 4	QPSK	21 ± 2
	16QAM	21 ± 2
LTE Band 5	QPSK	21 ± 2
	16QAM	21 ± 2
LTE Band 12	QPSK	21 ± 2
	16QAM	21 ± 2
LTE Band 17	QPSK	22 ± 1
	16QAM	21 ± 2

it has USB interface, SIM card interface, MINI PCI-E port 3 ports.

2.1 Necessary equipment

The chart 1 detailed describe the necessary equipment for testing environment BM818.

Chart 1: EVB Kit List

Equipment	EVB kit whether or not Include	Description
EVB Board	Yes	Use for BM818test

USB Cable	Yes	Standard USB
Antenna	Yes	Antenna has two parts: 1) diversity antenna and main antenna 2) antenna patch cord
BM818 Board	Not	
SIM/USIM	Not	Need a SIM/USIM Card have balance

Chart 2 Antenna Gain

Frequency (MHz)	Gain (dBi)
700	3.08
711	2.24
781	1.44
791	1.14
824	2.80
896	0.78
960	0.14
1710	1.7
1805	2.3
1880	3.25
1950	3.1
2150	2.28
2300	1.3
2400	1.78
2500	2.04
2690	0.94

3. Set up and Install

EVb construct divide by hardware environment and software environment:

1) The Construct of Hardware Environment

- ✧ How put in or out SIM/USIM card
- ✧ How to link module
- ✧ How to link main antenna
- ✧ How to link diversity antenna
- ✧ How to link USB cable
- ✧ How to power on
- ✧ How to power off

2) The Construct of Software Environment

- ✧ How to install driver
- ✧ How to upgrade firmware

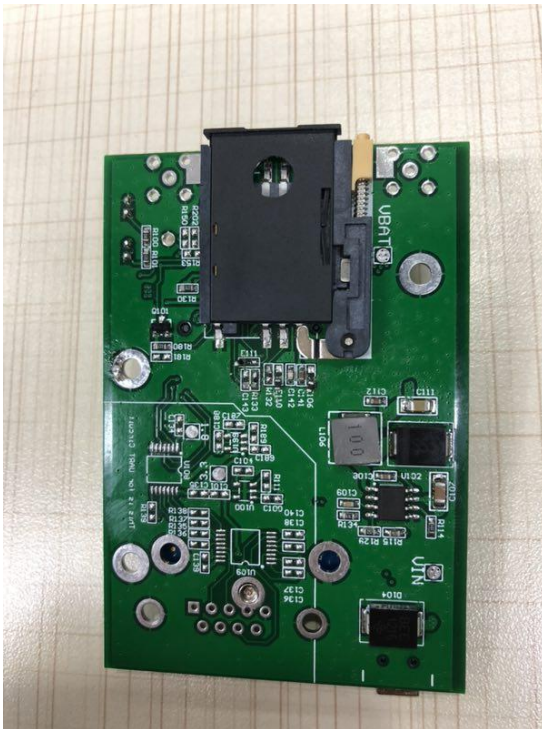
3.1. The Construct of Hardware Environment

3.1.1. How put in or out SIM/USIM card

Need a SIM/USIM Card have balance.

The step for put in SIM/USIM:

- 1) Put EVB upwards, hold the yellow button, and pull out the SIM Card slot. See Picture 1 and 2.



(Picture 1)



(Picture 2)

2) Put SIM Card into the slot, make sure SIM chip upwards, put into the SIM slot on EVB Boar. See Picture 3 and 4.



(Picture 3)



(Picture 4)

3.1.2. How to link module

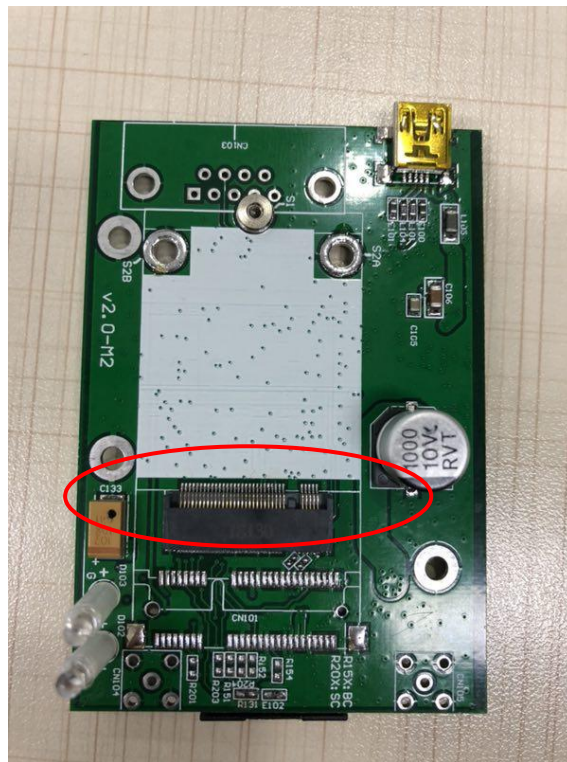
Put module into development board after finish install SIM

card:

- 1) Put EVB Board right side up, and put module into Mini PCI-E connector. See Picture 5 and 6.

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(Picture 5)



(picture 6)

- 2) Put module into Mini PCI-E with screw fixation. See Picture 7.



(Picture 7)

3.1.3. How to link main antenna

Before the link antenna, need finish put in SIM card and Module.

- 1) Antenna interface located on top right of module with sign "M". See Picture 8.



(Picture 8)

- 2) Spike RF Patch cord into module connector smoothly. See Picture 9.



(Picture 9)

- 3) Tightening antenna SMA contact and RF patch cord SMA contact. See Picture 10.



(Picture 10)

3.1.4. How to link diversity antenna

Before link diversity antenna, need finish put SIM Card and module in, and link the main antenna

- 1) The antenna interface is located on the top left of module with sign “D”. See Picture 11.



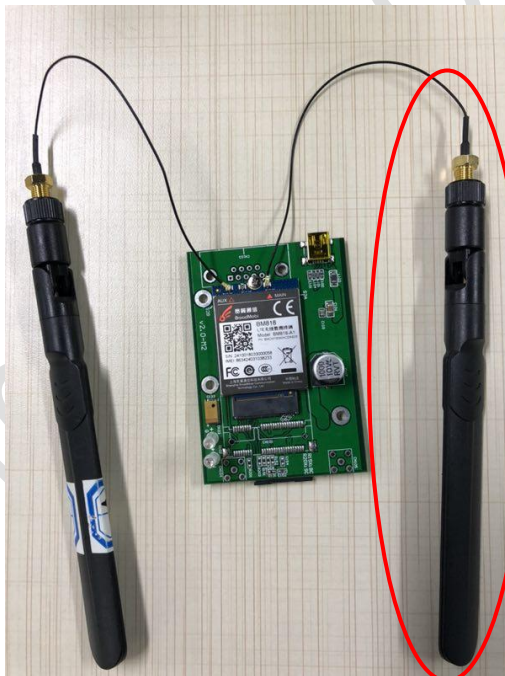
(Picture 11)

- 2) Spike RF Patch cord into module connector smoothly. See Picture 12.



(Picture 12)

- 3) Tightening antenna SMA contact and RF patch cord SMA contact. See Picture 13

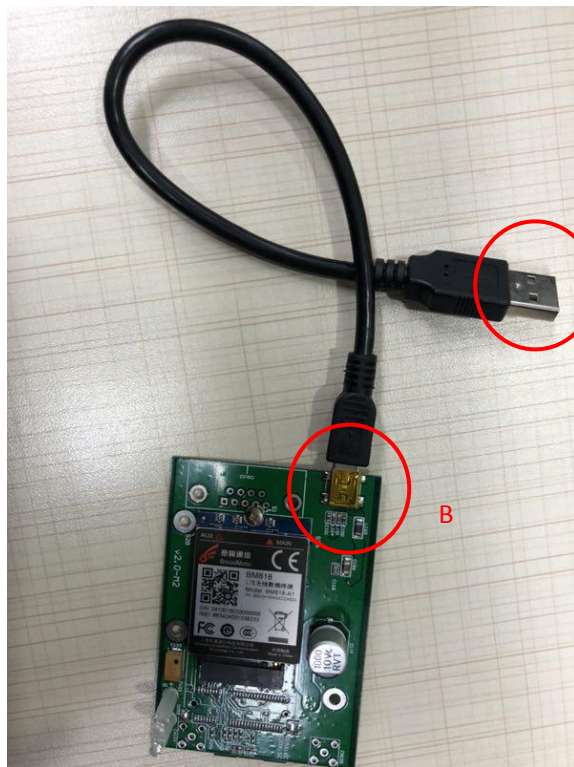


(Picture 13)

3.1.5. How to link USB cable

Follow the step to link USB cable:

- 1) Put EVB Board right side up;
- 2) Put the port B of USB Cable into the USB slot on the EVB Board.
- 3) Put the port A of USB cable into the USB interface of PC. See Picture 14.



(Picture 14)

3.1.6. How to power on

BM818 only support electrify power on, all need just put the port A of USB cable into PC, and module will auto power on.

3.1.7. How to power off

BM818 support outage shutdown, module will shut down when VBAT blackout.

3.2 The Construct of Software Environment

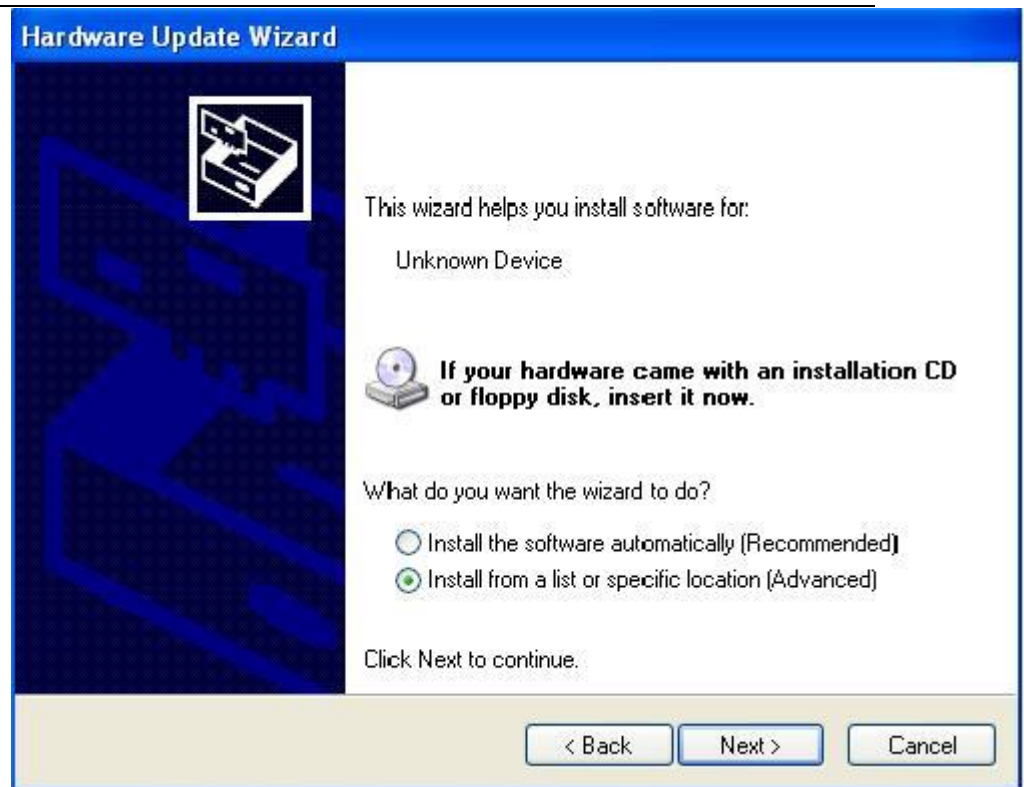
3.2.1. How to install driver

- 1) First use USB cable to connect PC and module, power module on, Windows will popup new equipment window, choose “No, not this time”, then click “Next”



Picture 15: find new hardware

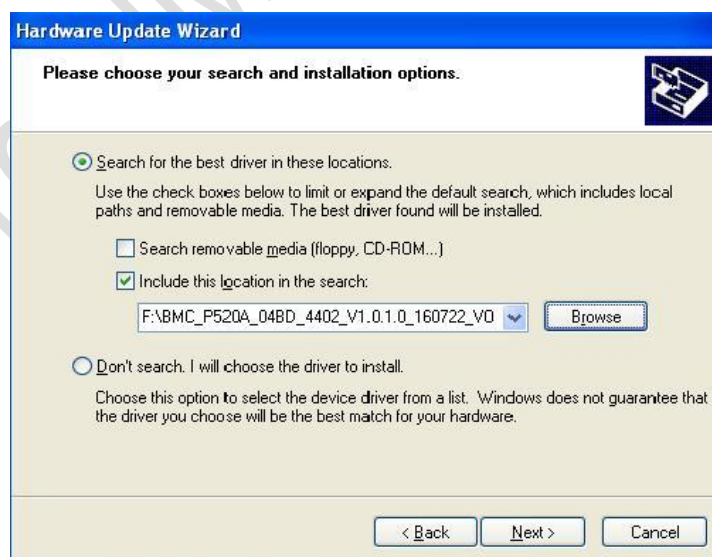
- 2) Choose “Install from a list or specific location (Advanced)”, click “Next”



Picture 16: choose the method for install driver

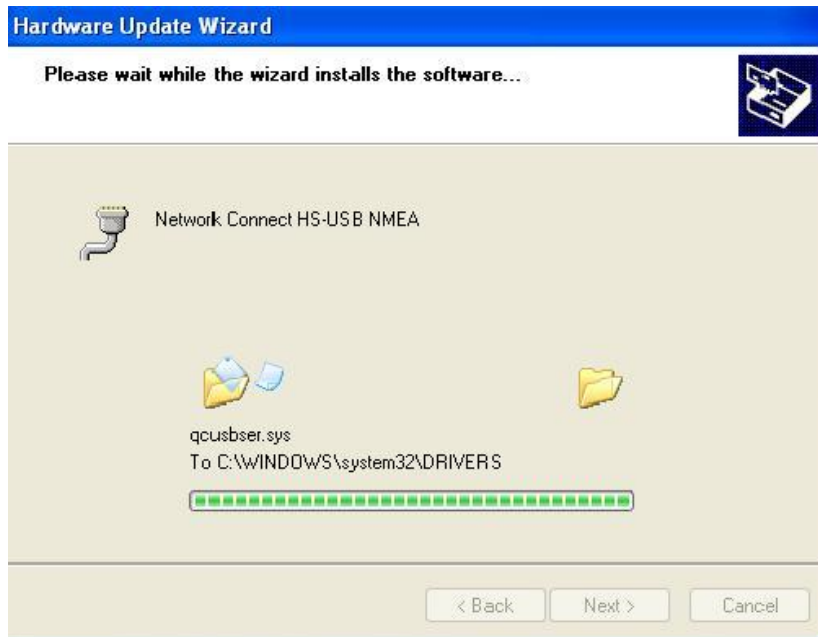
BM818 choose the path that driver file is located, and click “Yes”;

3) Click “Next”



Picture 18: Choose driver file path 2 in XP

4) The driver is installing



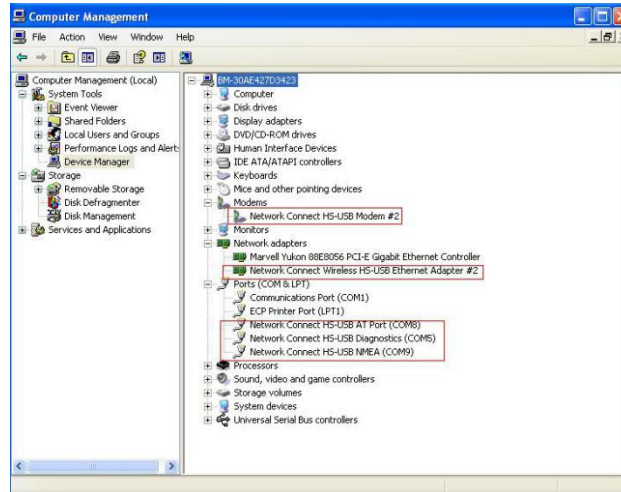
Picture 19: driver install

5) Wait for notes “Completing hardware Upgrade wizard”, click “Finish” finish the install.



Picture 20: Finish the driver install

- 6) Operation system will popup 4 new equipments, please repeat step 1 to 6. After finish install, you will see them in device manager. See below Picture 21.



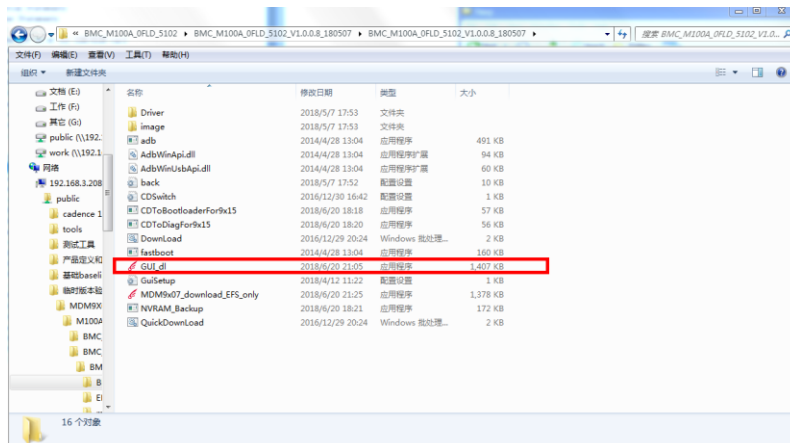
Picture 21: module appear in device manager

3.2.2. How to upgrade firmware

BM818 provide 1key upgrade tool for Windows, step of upgrade firmware:

- 1) Use USB cable to connect PC and BM818, double-click "GUI_dl" when the device manager recognize com port.

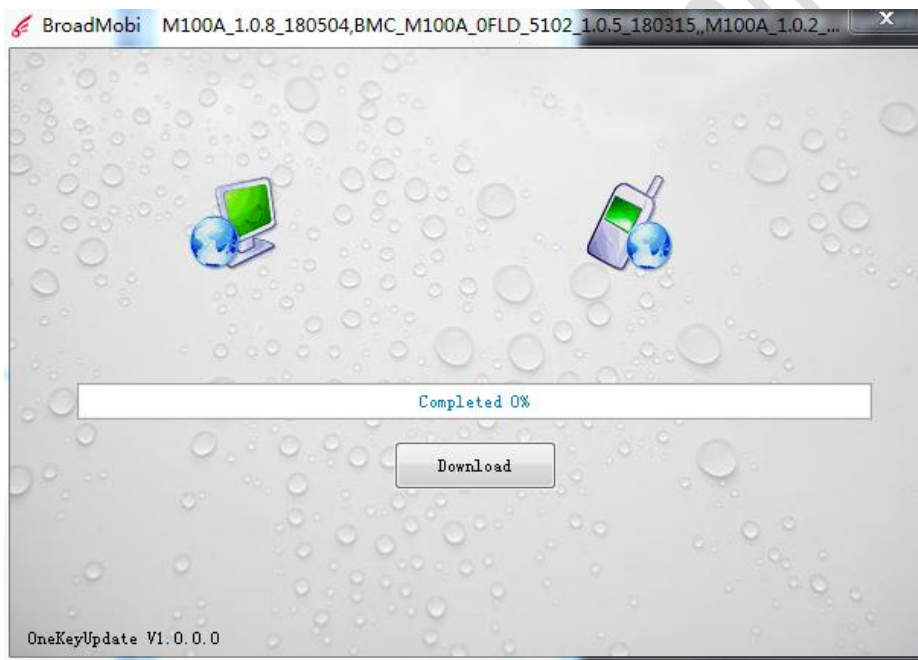
See Picture 22:



Picture 22: the window of firmware upgrades 1

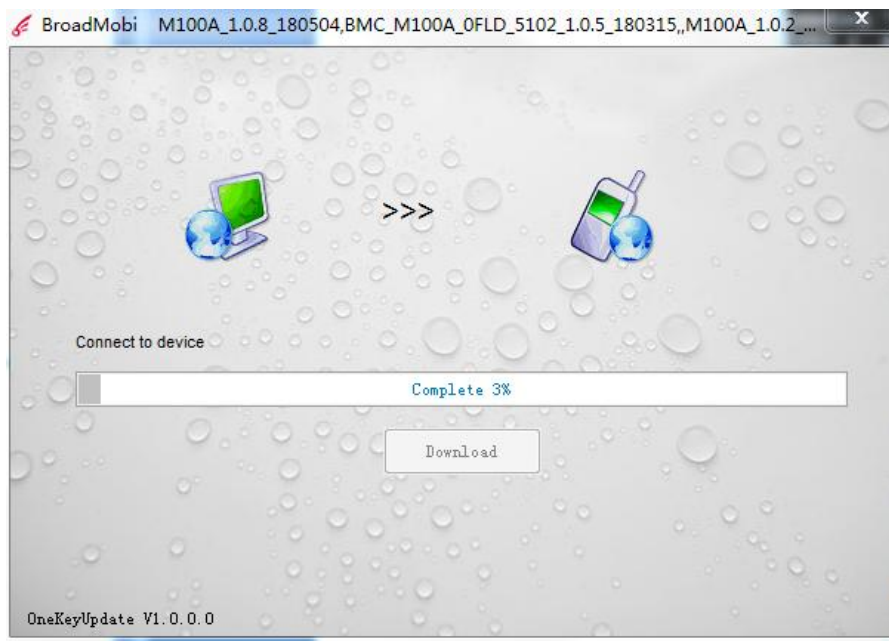
2) Follow the note to press “Download”, start to upgrade.

See Picture 23



Picture 23: Firmware is upgrading

3) There is note “Success to upgrade” when it all finished.



Picture 24: Finish firmware upgrade

- 4) Do not remove USB cable from PC during the upgrade process, whole process cost 2-3 minutes.

Warning: Cannot outage during upgrade process, please make sure stabilization power supply, otherwise will damage module.

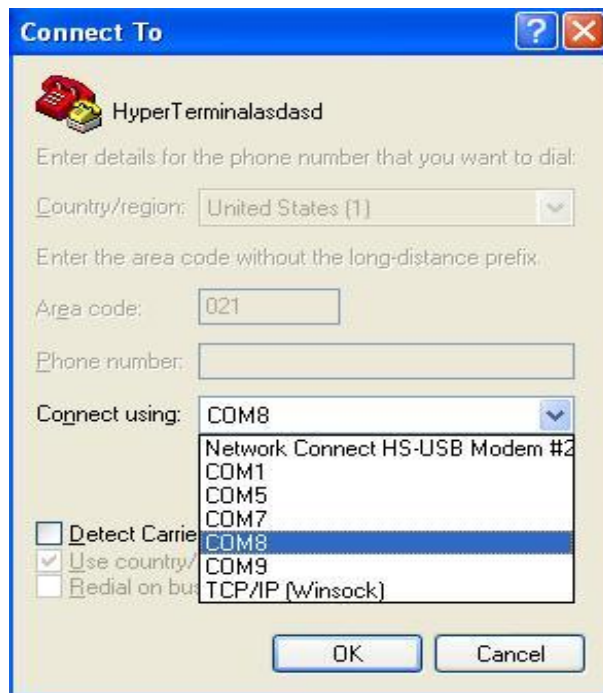
4. Debugging and Testing

The EVB through USB to communicate, can use for phone call, connect internet, this chapter will discuss in detail.

4.1 How to use USB cable to communicate

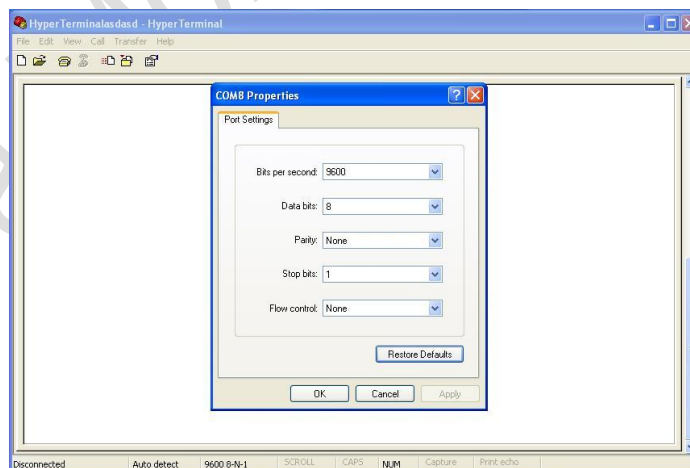
- 1) The communication methods for PC and BM818 is AT command, to test whether PC successfully communicate BM818 by sending AT command.

- 2) Open HyperTerminal, choose AT port.



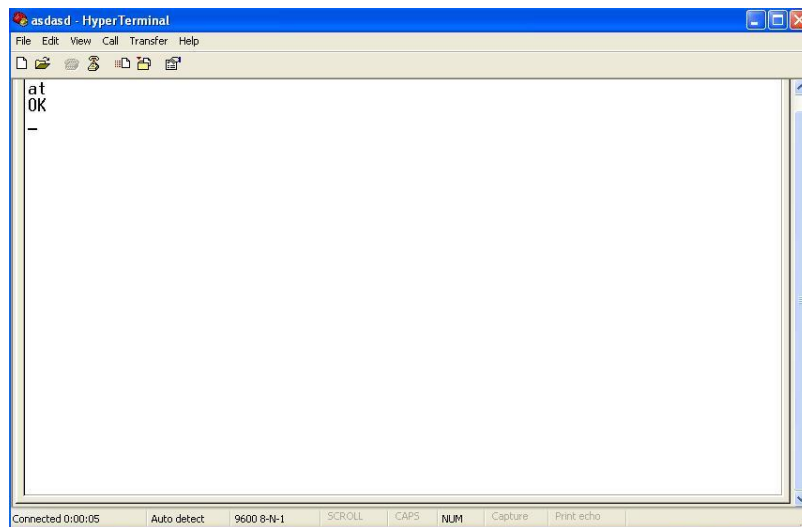
Picture 25: Choose the port for HyperTerminal

- 3) Choose baud rate 9600, choose none for flow control, other setting default. See Picture 26



Picture 26: ConfigurationHyperTerminal

- 4) Sending AT, check it is or isn't communicated. See Picture 27



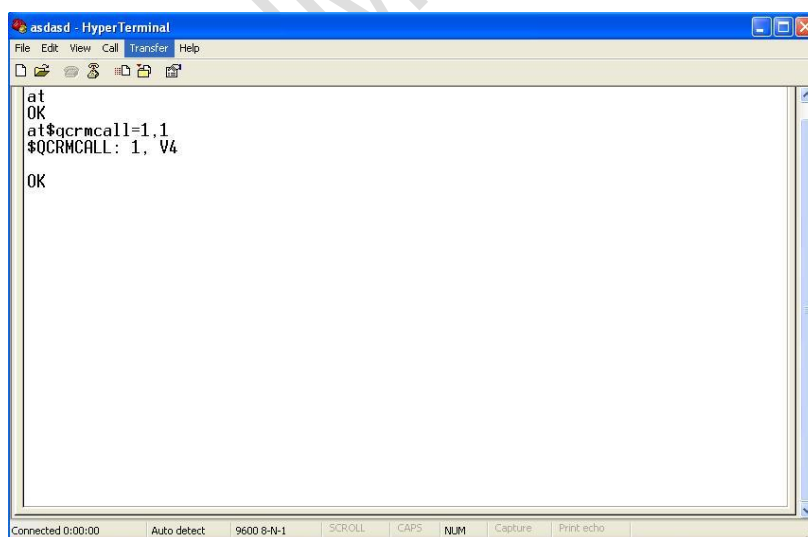
Picture 27: UsingHyperTerminal sending at

4.2 How to make data connection

Put SIM/USIM card that support data traffic into EVB board, connect antenna right, though USB cable to connect PC and power on module.

1) through NDIS to dial

a) type “at\$qrncall=1,1”, create network connection.



Picture 28: using HyperTerminal to send AT command to NDIS dial

b) Type “at\$qrncall=0,1” , to disconnect Network connection.

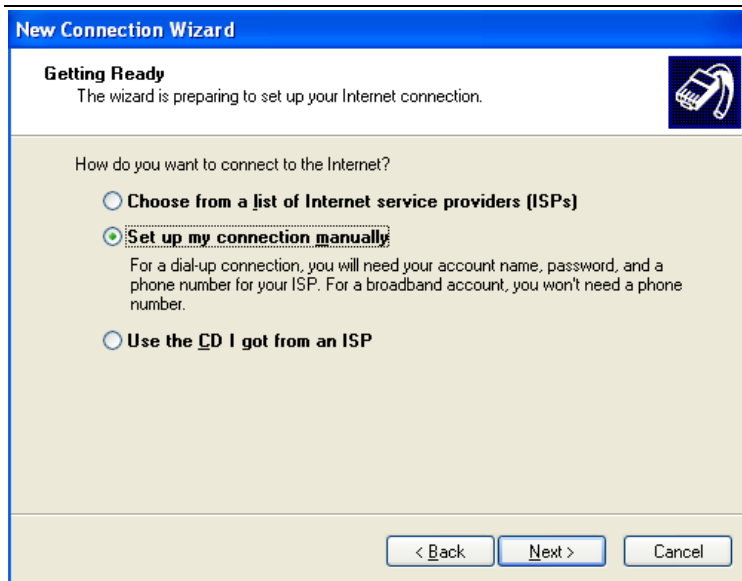
2) through MODEM to dial

A) open Network Connections to choose to connect Internet and click “下一步 Next”



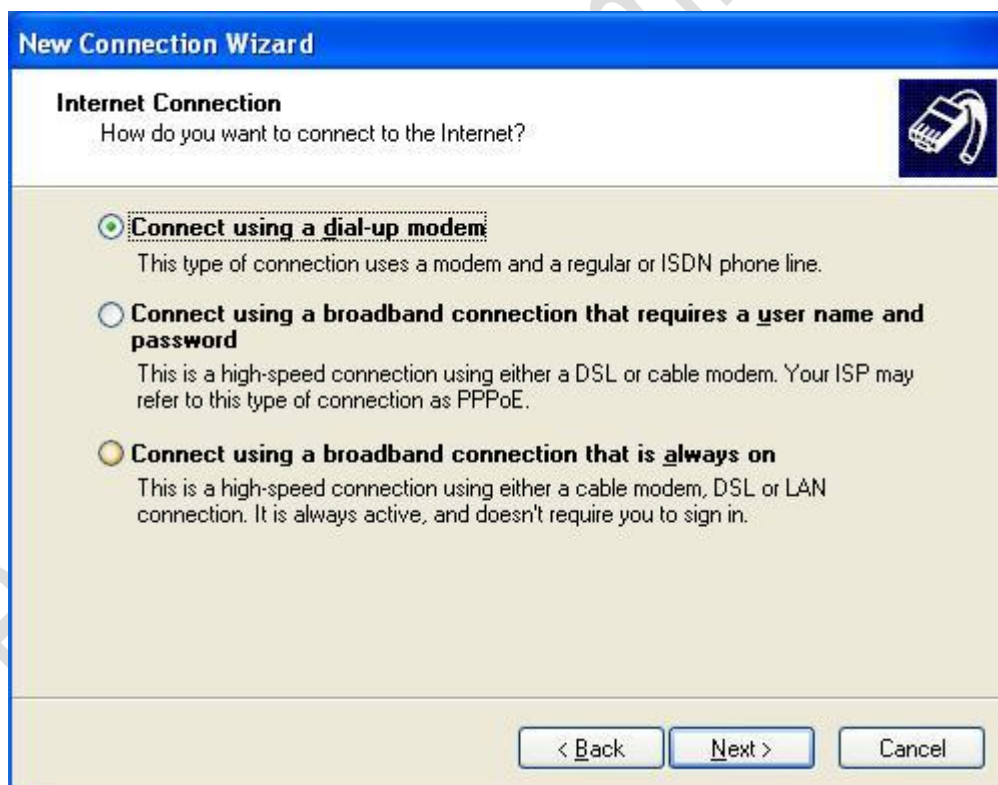
Picture 29: Choose Network Connection

B) Choose “Set up my Connection manually”, click “Next”



Picture 30: Create new Network connection

C) Choose "Connect using a dial-up modem"



Picture 31: Choose Modem to Dial

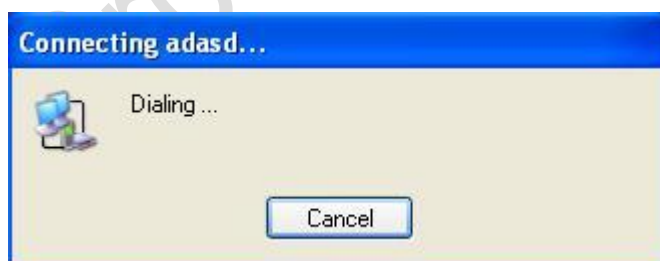
D) type the number u want to dial, the user and password need according different carriers. For example, the user and password for

China Union 3G and 4G is empty (not type any character) the number is *99#, then choose “Connect”



Picture 32: Configuration Network Connection

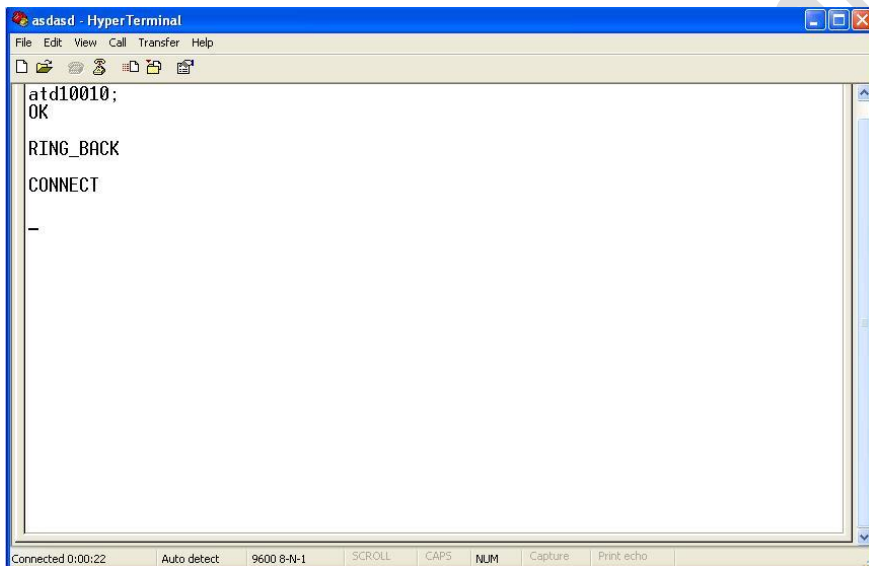
E) there is a note after Network Connection is successful.



Picture 33: Dial success

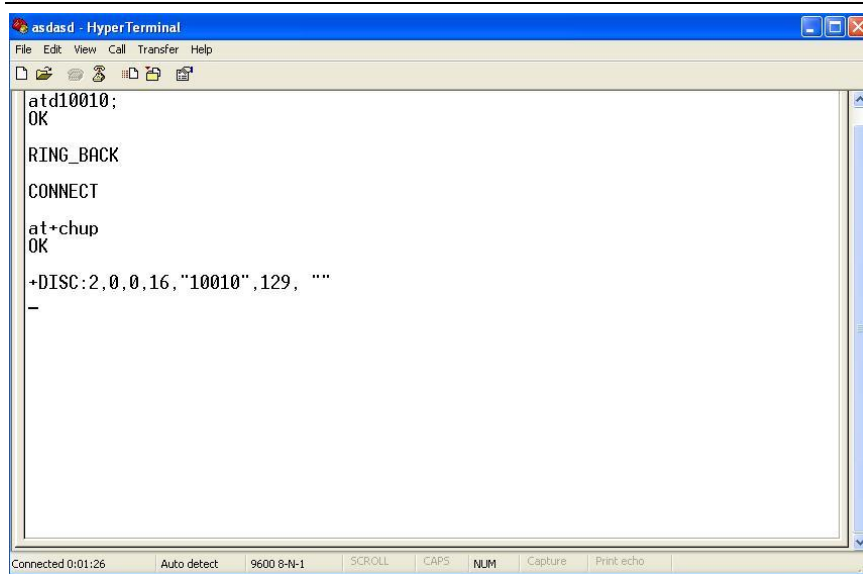
4.3. How to make voice call out

- A. Put SIM/USIM card which support voice service into EVB board.
- B. Open the HyperTerminal, configuration same as Picture 22 and 23.
- C. The AT command for dial phone call is “ATDXXX;”. For example, we make a call to 10010, type “ATD10010;”



Picture 34: Using HyperTerminal dial number

- D. The AT Command for Hang up is “AT+CHUP”.



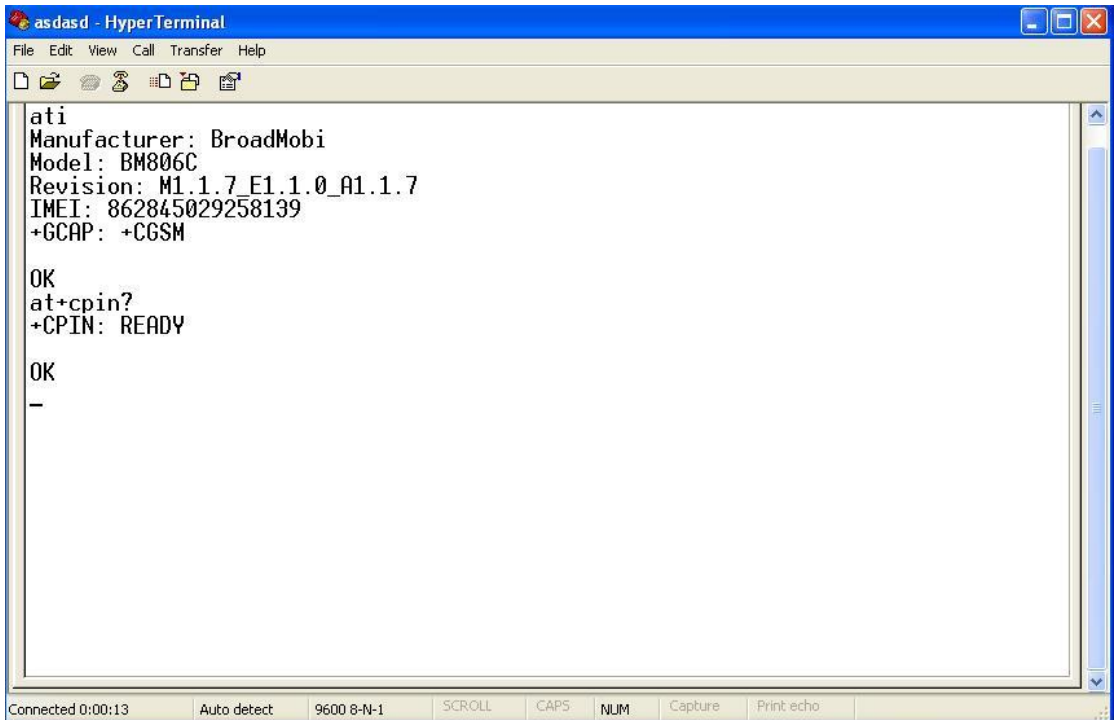
```
asdasd - HyperTerminal
File Edit View Call Transfer Help
atd10010;
OK
RING_BACK
CONNECT
at+chup
OK
+DISC:2,0,0,16,"10010",129, ""
-
```

Connected 0:01:26 Auto detect 9600 8-N-1 SCROLL CAPS NUM Capture Print echo

Picture 35: Hand up phone call

4.4. How to check module information and SIM card status

- A. Put SIM/USIM Card which supports voice service into EVB board.
 - a) Open the HyperTerminal, configuration same as Picture 22 and 23.
- B. Type “AT”, shows module information; type “AT+CPIN?” shows SIM Card Status.



```
asdasd - HyperTerminal
File Edit View Call Transfer Help
ati
Manufacturer: BroadMobi
Model: BM806C
Revision: M1.1.7_E1.1.0_A1.1.7
IMEI: 862845029258139
+GCAP: +CGSM

OK
at+cpin?
+CPIN: READY

OK
-
```

Connected 0:00:13 Auto detect 9600 8-N-1 SCROLL CAPS NUM Capture Print echo

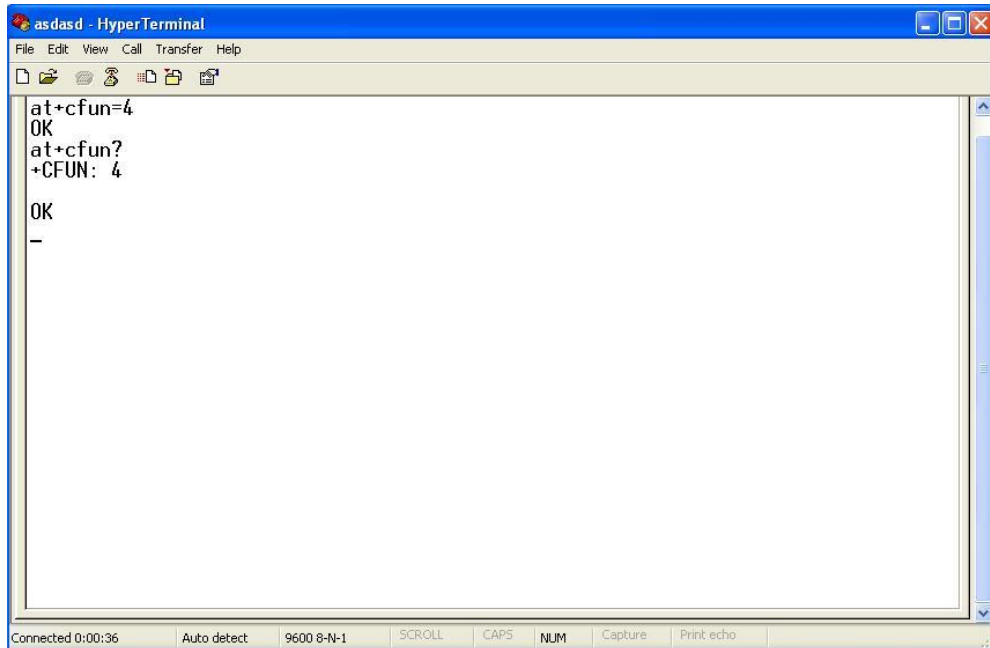
Picture 36: Show module information and SIM Status

Warning: SIM Card shows “Ready” indicate SIM status is normal, if it shows other, it means unmoral, please make sure your SIM is whether or not valid, or has pin.

4.5. How to set airplane mode

A. Type ATCommad“AT+CFUN=4”, enter intoairpalne mode.

(at+cfun=1 is normal mode; at+cfun=0 turn off RF, SIM 卡 cannot register ; default is equal 1; at+cfun? shows current status)



```
asdasd - HyperTerminal
File Edit View Call Transfer Help
at+cfun=4
OK
at+cfun?
+CFUN: 4
OK
-
```

Connected 0:00:36 Auto detect 9600 8-N-1 SCROLL CAPS NUM Capture Print echo

Picture 37 : Setting airplane mode

*RF warning for Mobile device:

This equipment complies with FCC radiation exposure limits set for uncontrolled environment.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

when the module is installed inside another device, This exterior label should use wording such as the following: “Contains

Transmitter Module FCC ID: 2AON8-BM818 “

CAUTION:

1. Labelling requirements.

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

2. Information to user.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

3. Information to the user.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference

to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.