

BM818 Operation manual_V1.4

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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)
CEM SEO	GPRS,GMSK	31±1
G2101 820	EDGE,8PSK	25±1
CSM 1000	GPRS,GMSK	27±1
G2IM 1900	EDGE,8PSK	23±1
WCDMA Band 2	RMC	23±1
WCDMA Band 4	RMC	22±1
WCDMA Band 5	RMC	23±1
	QPSK	21±2
LIE Band Z	16QAM	21±2
ITE David 4	QPSK	21±2
LIE Band 4	16QAM	21±2
ITC Devel C	QPSK	21±2
LIE Band 5	16QAM	21±2
ITC David 12	QPSK	21±2
LIE Band 12	16QAM	21±2
ITC David 17	QPSK	22±1
LIE Band 17	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	×(0)
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
 - \diamond 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
 - \diamond 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 havebalance.

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.





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.





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.

Broadhlooi









- 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_{\circ}



3) Tightening antenna SMA contact and RF patch cord SMA



contact. See 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.



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 Picture14.



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"

	Welcome to the Hardware Update Wizard Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission). Online privacy information
	Can Windows connect to Windows Update to search for software? Yes, this time only Yes, now and every time I connect a device No, not this time
	Click Next to continue.

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	
State State State		

Please wait while the wizard installs the	software	
Network Connect HS-USB NMEA		
qcusbser.sys To C:\WINDDWS\sustem32\	DRIVERS	

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



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:



🔍 🗢 📔 « BMC_M1	00A_0FLD_5102 + BMC_M100A_0FLD_51	02_V1.0.0.8_180507 • B	MC_M100A_0FLD_51	02_V1.0.0.8_180507 >	- 4→ 22 ± 1	IMC_M100A_0FLD_5102_V1.0 🖇
	TRO THAN			100mm - 100 - 8		
又(仟(F) 3開始(E) 宣君(V)	工具(1) 希助(H)					
组织 新建文件夹						iii 🔹 🛄 🔞
🕞 文档 (E:) 🛛 🔺	名称	修改日期	供型	大小		
👝 工作 (F:)	Driver	2019/5/7 17/52	**#*			
🕞 其它 (G:)	image	2018/5/7 17:53	文件关			
🖵 public (\\192.)	adb	2014/4/28 13:04	应用程序	491 KB		
🖵 work (\\192.1	AdbWinApi.dll	2014/4/28 13:04	应用程序扩展	94 KB		
👊 网络	AdbWinUsbApi.dll	2014/4/28 13:04	应用程序扩展	60 KB		
192.168.3.208	a back	2018/5/7 17:52	配置设置	10 KB		
public E	CDSwitch	2016/12/30 16:42	配置设置	1 KB		
cadence 1	CDToBootloaderFor9x15	2018/6/20 18:18	应用程序	57 KB		
tools	CDToDiagFor9x15	2018/6/20 18:20	应用程序	56 KB		
	SownLoad	2016/12/29 20:24	Windows 批处理	2 KB		
产品空心的	fastboot	2014/4/28 13:04	应用程序	160 KB		
2029bareli	🖉 GUI_dI	2018/6/20 21:05	应用程序	1,407 KB		
####################################	GuiSetup	2018/4/12 11:22	配置设置	1 KB		
	MDM9x07_download_EFS_only	2018/6/20 21:25	应用程序	1,378 KB		
MDM9X	NVRAM_Backup	2018/6/20 18:21	应用程序	172 KB		
M100A	QuickDownLoad	2016/12/29 20:24	Windows 批处理	2 KB		
BMC						
JI BMC						
BM						
🍌 B						
🗼 El						

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.







 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.
— /			P

Connect To	? 🛛	
	erminalasdasd	
Enter details for	the phone number that you want to dial:	
Country/region:	United States (1)	
Enter the area c	ode without the long-distance prefix.	
Ar <u>e</u> a code:	021	
Phone number.		
Connect using:	COM8 Network Connect HS-USB Modem #2 COM1 COM5 COM7	
V Use country. Redial on bu	COM9 TCP/IP (Winsock) OK Cancel	

Picture 25: Choose the port for HyperTerminal

3) Choose baud rate 9600, choose none for flow

control, other setting default. See Picture 26

	COM8 Properties Post Settings		
2	Bits per second S600 Data bits: S	N N	
\mathcal{O}	Parity: None Stop bite: 1	×	
		Restore Defaults	

Picture 26: ConfigurationHyperTerminal

4) Sending AT, check it is or isn'tcommunicated. See

Picture 27



Asdasd - HyperTerminal File Edit View Call Transfer ロ	Help ST					
at OK	2					
Connected 0:00:05 Auto	o detect 9600 8-N-1	SCROLL CAPS	NUM Capture	Print echo	_	

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\$qcrmcall=1,1", create network connection.



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



b) Type"at\$qcrmcall=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"

New Connection Wizard Network Connection Type What do you want to do? Connect to the Internet Connect to the Internet so you can browse the Web and read email. Connect to the network at my workplace Connect to a business network (using dial-up or VPN) so you can work from home, a field office, or another location. Set up a home or small office network Connect to an existing home or small office network or set up a new one. Set up an advanced connection Connect directly to another computer using your serial, parallel, or infrared port, or set up this computer so that other computers can connect to it. < Back Next > Cancel

Picture 29: Choose Network Connection

Choose "Set up my Connection manually", click "Next"

B)





Picture 30: Create new Network connection

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

Internet Connect How do you wa	ion Int to connect to the Internet?
O Connect u	sing a dial-up modem
This type of	connection uses a modem and a regular or ISDN phone line.
Connect u password	ising a broadband connection that requires a <u>u</u> ser name and
This is a hig refer to this	ph-speed connection using either a DSL or cable modem. Your ISP may type of connection as PPPoE.
O Connect u	sing a broadband connection that is always on
This is a hig connection.	h-speed connection using either a cable modem, DSL or LAN . It is always active, and doesn't require you to sign in.

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 **BM818**0peration Manual **28/34**



China Union 3G and 4G is empty (not type any character) the

number is *99#, then choose "Connect"

Type an ISP account name and password, then write down this information and store it ir safe place. (If you have forgotten an existing account name or password, contact your IS User name: *99#	ra P.)
User name: *99#	
Password:	
Confirm password:	
Use this account name and password when anyone connects to the Internet from this computer	
Make this the default Internet connection	

Picture 32: Configuration Network Connection

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

Connec	ing adasd	
3	Dialing Cancel]

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;"

🌯 asdasd - HyperTerminal						
File Edit View Call Transfer Help						
□ 🛩 🦉 🎒 💷 🗗 🖼						
RING_BACK						
CONNECT						
-						
						_
Connected 0:00:22 Auto detect	9600 8-N-1	SCROLL	CAPS NUM	Capture	Print echo	

Picture 34: Using HyperTerminal dial number

D. The AT Command for Hang up is "AT+CHUP".



File File (((-	asdasd - HyperTerminal Edt View Call Transfer Help atd10010; X XING_BACK 20NNECT at+chup X +DISC:2,0,0,16, "10010",129, ""	
Conr	nected 0:01:26 Auto detect 9600 8-14-1 SCROLL CAPS NUM Capture Print echo	S.

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 Picture22 and 23.
 - B. Type "ATI", shows module information; type "AT+CPIN?" shows SIM Card Status.





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
 - 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)

Α.



🍣 asdasd - HyperTe	rminal							
File Edit View Call	Transfer Help							
	8 G.							
at+cfun=4								
at+cfun?								
+CFUN: 4								
ок								
								=
			10000000000				100000000000000000000000000000000000000	v
Connected 0:00:36	Auto detect	9600 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo	.1

Picture 37 : Setting airplane mode

*RF warning for Mobile device:

This equipment complies with FCC radiation exposure limits set for

anuncontrolled 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.