L651_EVB User Manual

NB-IoT+GSM/GPRS+(GNSS)

Version： V1.2

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Shanghai Mobiletek Communication Ltd

Notice

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Version History

Date	Version	Modify records	Author
2018-11-22	V1.0	Initial	Tp.Lin
2019-01-01	V1.1	Serial port switch description	Tp.Lin
2019-04-18	V1.2	Pictures update	Tp.Lin

Content

1. Introduction

L651_EVB is designed to help the developers to debug and test L651 module. The following figure shows the label of the main functions of L651_EVB. This document will describe the various parts of its functions in later chapters.

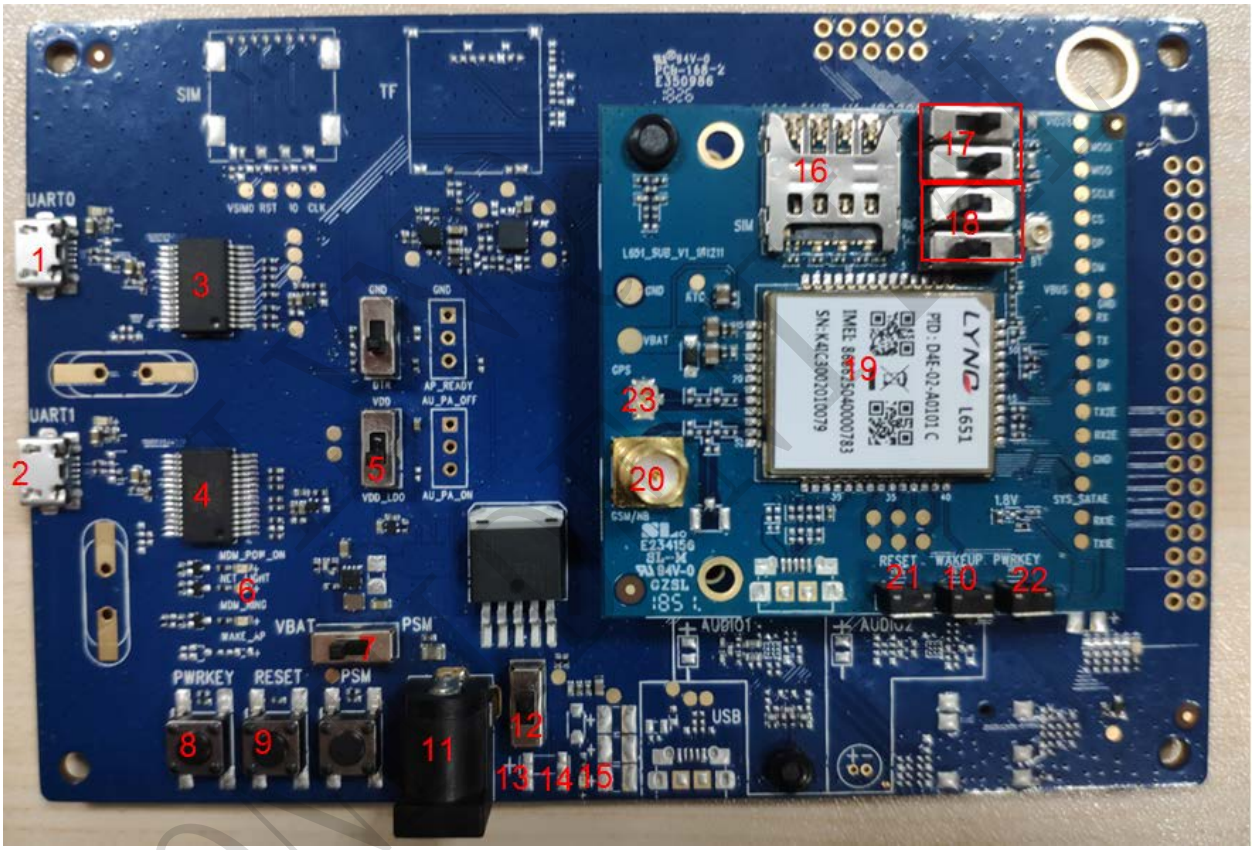

Figure 1-1 L651_EVB TOP View

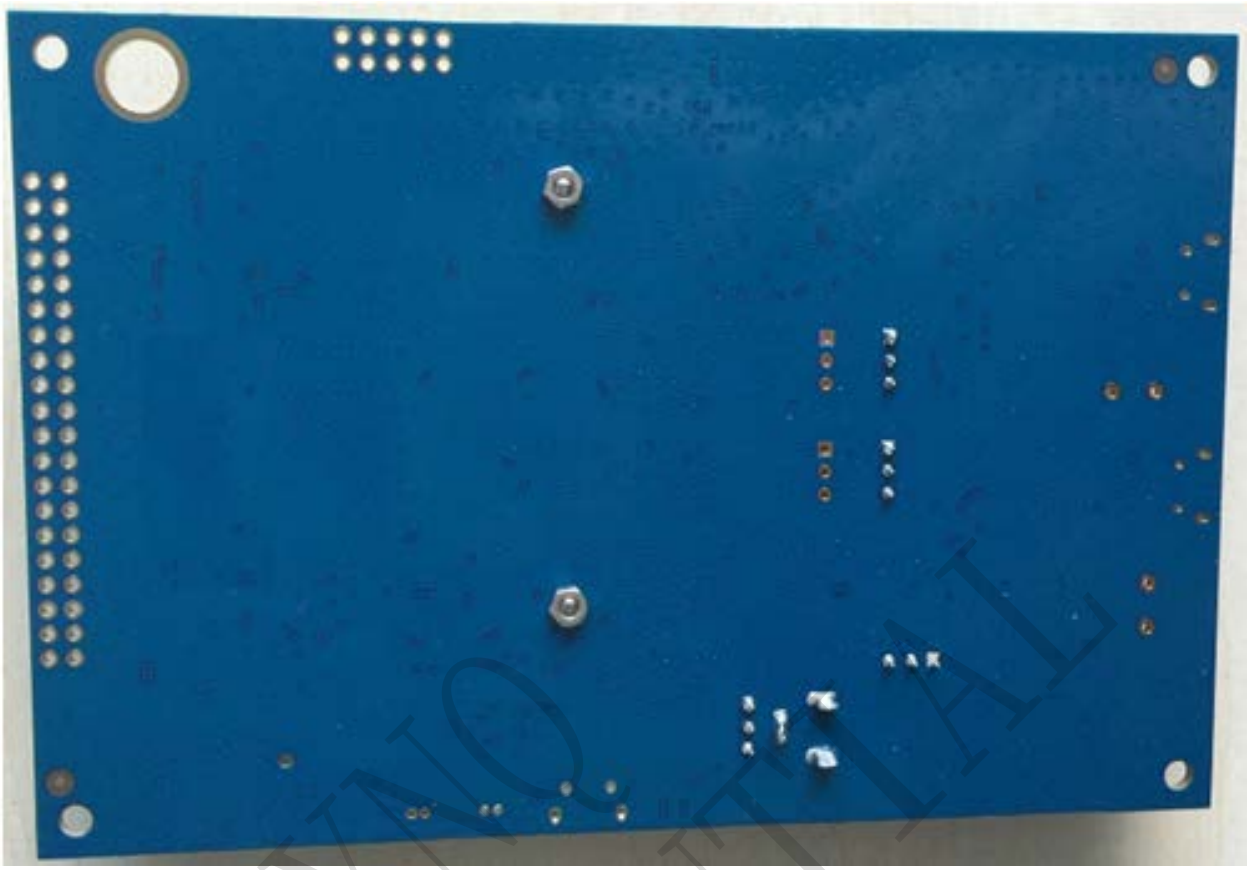

Figure 1-2 L651_EVB BOT View

Table 1-1 Label illustrate

1. UART0	2. UART1	3. USB to UART IC
4. USB to UART IC	5. 1.8V Switch	6. SYS_SATAE
7. Ultra-low Power Switch	8. Power Key	9. RESET Key
10. PSM Key	11. DC5V	12. Power Switch
13. DC3.3V	14. GND	15. Power Indication LED
16. SIM Card	17. GPS/Open UART Switch	18. AT/Download UART Switch
19. L651 Module	20. NB/GSM Antenna	21. RESET Key
22. Power Key	23.GPS Antenna	

2. Function Introduction

2.1 Power Supply

L651_EVB provides two kinds of power supply: DC5V adapter power supply and DC3.8V power supply. Customers can switch by controlling Power Switch. When the switch sets to the DC5V, it is powered by the DC5V adapter. When the switch sets to the DC3.8V, it is powered by the DC3.8V. As shown in the figure below.

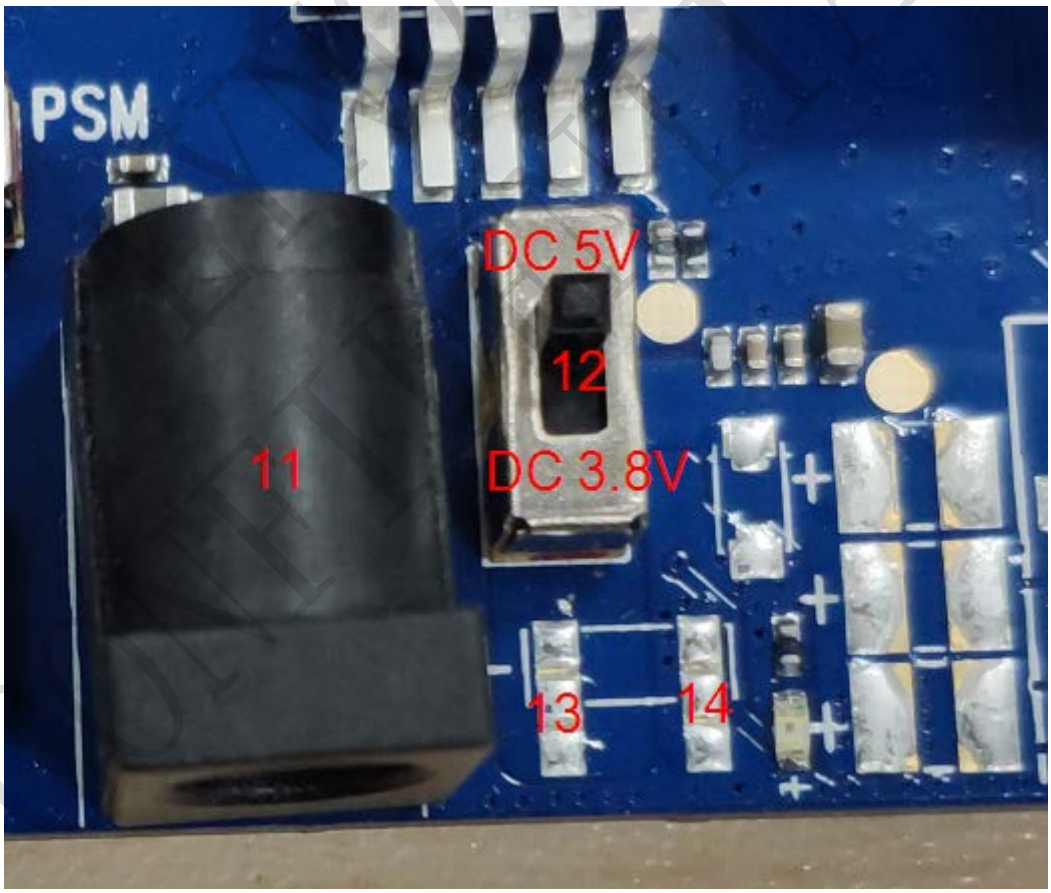

Figure 2-1 L651_EVB DC Power interface and Power Switch

2.2 Power Key

The module can be turn on by pressing the power key for 460ms to 1s.

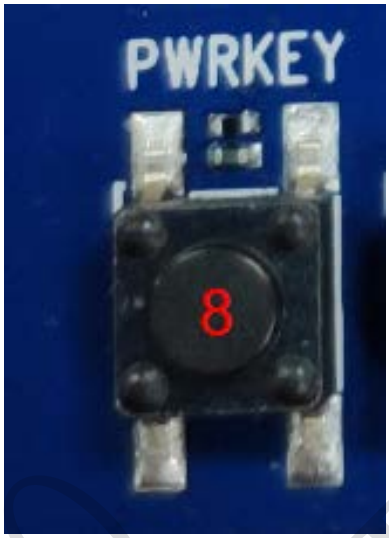

Figure 2-2 Power Key

2.3 RESET Key

Pressing the RESET key for 460ms to 1s, can restart the module.

Figure 2-3 RESET Key

2.4 PSM Key

When the module is in the PSM mode, press the PSM key for 460ms to 1s,that exit the module from the PSM mode.

Figure 2-4 PSM Key

2.5 Ultra-low Power Switch

When the module enters the PSM, eDRX and DRX modes, the following settings need to be made. Entering the PSM mode need close the eDRX function with the AT command at first and then set the AT command into the PSM mode. Entering the eDRX mode need close the PSM function with the AT command at first and then set the AT command into the eDRX mode. Entering the DRX mode need close the PSM and eDRX functions with the AT command at first and when the module receives the RRC Connection Release by the network, it can enter the DRX mode.

If you want to test the low power consumption of these three modes and the Ultra-low Power Switch must be set to PSM, and the 1.8V Switch (NO.5) must be set to VDD. If you don’t need to test the low power consumption, the Ultra-low Power Switch need to set to VBAT, and the power LED will light normally (location of NO.15). Otherwise, NETLIGHT and other functions on the EVB will be abnormal.

Figure 2-5 Ultra-low Power Switch

2.6 Interface Section

2.6.1 USB to UART Interface

L651_EVB provides two serial ports through serial USB to UART IC which converts the COMS 1.8V level of the L651 module to a standard USB2.0 signal. AT present, UART on the development board can connect PC or other terminal devices for communication through the standard USB interface, which can be used for module download and transmit AT commands.

Switching through the switch on SUB. As shown in figure 2-7 when 17 switch to the AT the mouth of

the floor UART1 (as shown in figure 2-6) for the AT command to send and receive, now support by default baud rate up to 57600 bps.When 18 of the switch to the Download, floor of UART0 (as shown in figure 2-6) used for module Download and debug, baud rate 961200 bps by default.

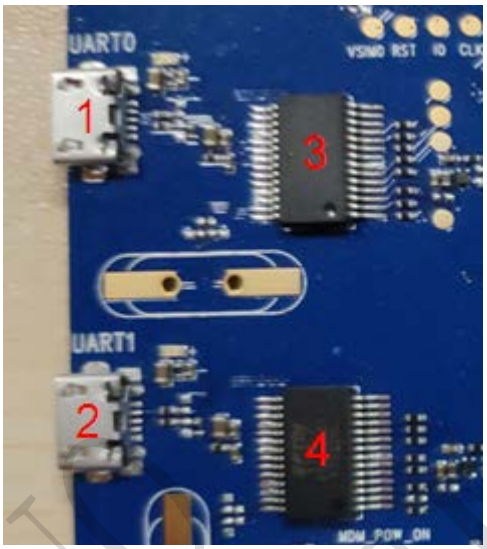

Figure 2-6 USB to UART interface

Figure 2-7 Serial port switch

2.6.2 SIM Card

L651_EVB provides one SIM interface which can automatically identify 1.8V and 3V SIM card.

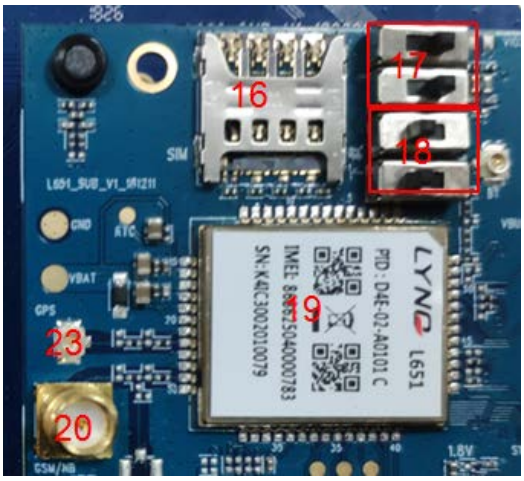

Figure 2-8 SIM card

2.6.3 SYS_STATE

Table 2-1 SYS_STATE Status

LED Status	Module Status
OFF	Power off or PSM Mode
64ms ON/800ms OFF	Shut down network
64ms ON/3000ms OFF	Registered network

2.7 Antenna Interface

L651_EVB provides two antenna interface: GSM/NB-IoT (20) and GPS (23).

Figure 2-9 Antenna interface

3. EVB and Accessories

The EVB and its accessories are showed as follow figure which tell user how to connect them.

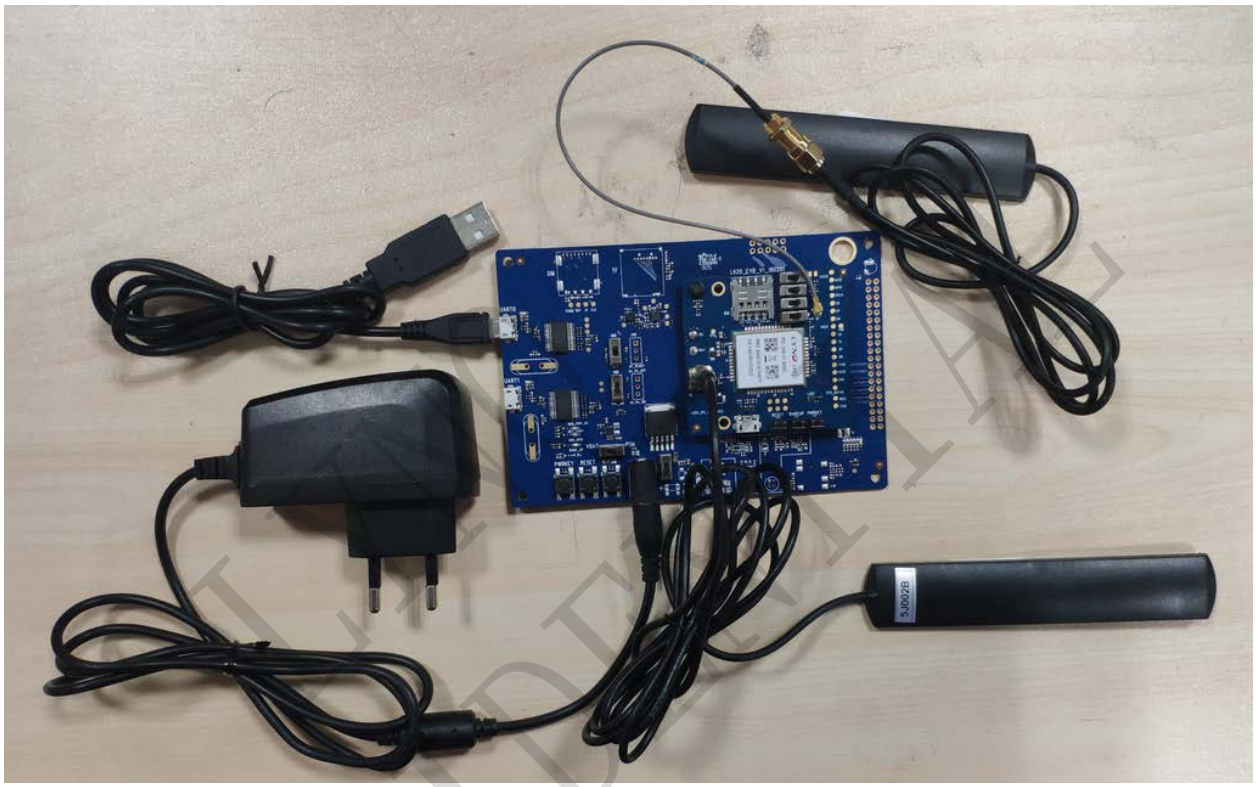

Figure 3-1 EVB and Accessories

4. USB Driver

You need to install the driver of Micro-USB, when use Micro-USB for data communication. Please get the driver from our FAE of Mobiletek Company or download them from internet. It download path is as below:

http://www.ftdichip.com/Drives/CDM/CDM21218_Setup.zip

5. Safety Information

For the reasonable usage of the module, please comply with all these safety notices of this page. The product manufacturers should send followed safety information to user, operator or product's spec.

The devices using the module may disturb some electronic equipment. Put the module away from the phone, TV, radio and automation equipment to avoid the module and the equipment to interfere with each other.

Shut down the mobile device or change to flying mode before boarding. The Using of wireless appliances in an aircraft is forbidden to avoid the interference, or else cause to unsafe flying, even violate the law.

In hospital or health care center, switch off the mobile devices. RF interference may damage the medical devices, like hearing-aid, cochlear implant and heart pacemaker etc.

Mobile devices can't guarantee to connect in all conditions, like no fee or with an invalid SIM card. When you need emergent help, please remember using emergency calls and make sure your device power on in an area with well signal.

Put the module away from inflammable gases. Switch off the mobile device when close to gas station, oil depot, chemical plant etc.

The module is not water proof. Please don't use the module in the area with high humidity like bathroom, which will decelerate the physical performance, insulation resistance and mechanical strength.

Non-professionals can't teardown the module which will damage it. Refer to the specification or communicate the related staffs to repair and maintain it.

Please switch on the module before cleaning. The staffs should be equipped with anti-ESD clothing and gloves.

The users and product manufacturers should abide by the national law of wireless modules and devices. If not, Mobiletek will not respond the related damages.