

LG69T (AA)

EVB User Guide

GNSS Module Series

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About the Document

Revision History

Version	Date	Author	Description
1.0	2020-04-23	Gobber HU	Initial

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1 Introduction

This document specifies the usage of LG69T (AA) EVB (Evaluation Board) which is an assistant tool for engineers to develop and test Quectel LG69T (AA) module.

1.1. Safety Information

The following safety precautions must be observed during all phases of operation, such as usage, service or repair of any terminal incorporating Quectel GNSS module. Manufacturers of the terminal should notify users and operating personnel of the following safety information by incorporating these guidelines into all manuals of the product. Otherwise, Quectel assumes no liability for customers' failure to comply with these precautions.



Ensure the use of the product conforms to the local safety and environment regulations, and is allowed in the country and the environment required.



Keep away from explosive and flammable materials. The use of electronic products in extreme power supply conditions and locations with potentially explosive atmospheres may cause fire and explosion accidents.



The product must be powered by a stable voltage source, and the wiring shall conform to security precautions and fire prevention regulations.



Proper ESD handling procedures must be followed throughout the mounting, handling and operation of any application that incorporates the module to avoid ESD damages.

2 General Overview

2.1. EVB Top View

The following figure illustrates the top view of the EVB.

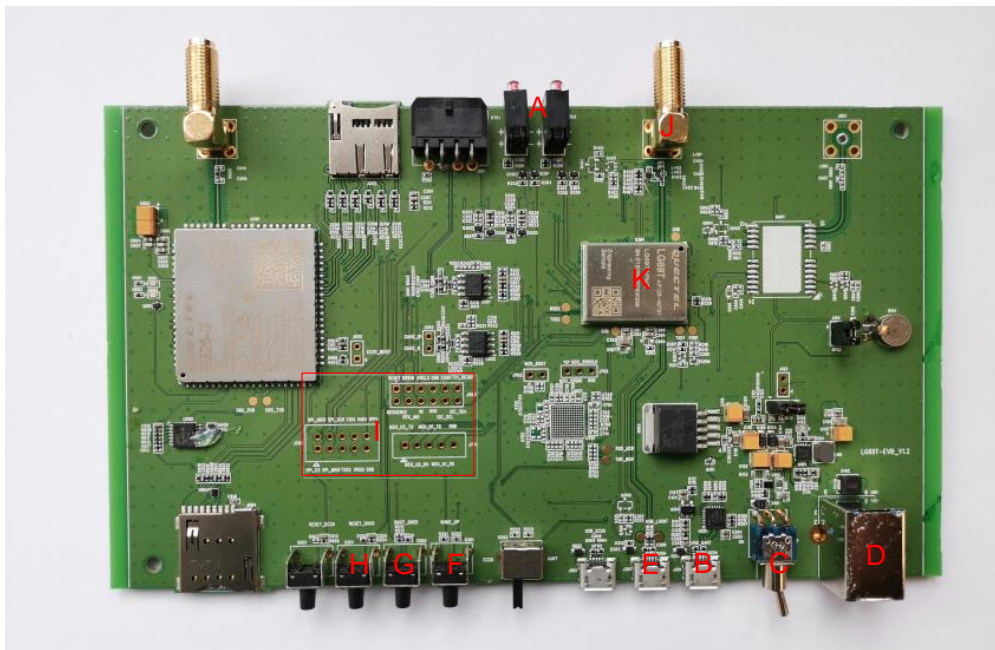


Figure 1: Top View of LG69T (AA) EVB

Table 1: Interfaces of LG69T (AA) EVB

SN.	Part No.	Description
A	D301, D302	Indication LEDs
B	J201	Micro-USB to UART interface
C	S101	Power switch
D	J101	5 V power interface

E	J301	LG69T (AA) USB interface
F	S301	LG69T (AA) wakeup button
G	S202	Boot button
H	S201	LG69T (AA) reset button
I	J303, J701, J302	Test points
J	J401	LG69T (AA) antenna interface
K	U301	LG69T (AA) module

3 Interface Applications

3.1. Micro-USB to UART Interface (J201)

Micro-USB to UART interface can supply power to the EVB, and also supports data transmission.

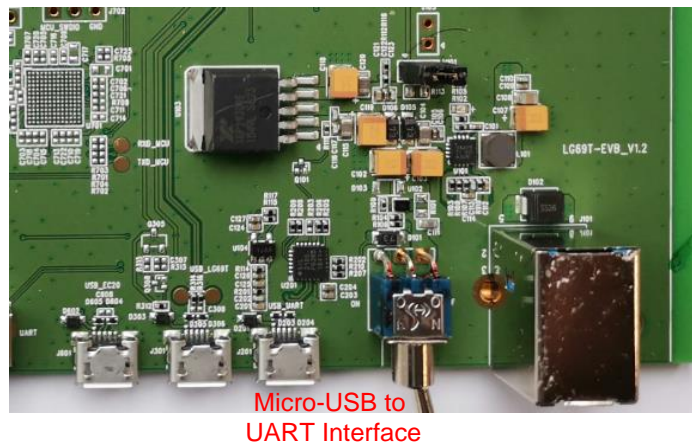


Figure 2: Micro-USB to UART Interface

3.2. GNSS Antenna Interface (J401)

The GNSS antenna interface is used to connect an external passive or active GNSS antenna.

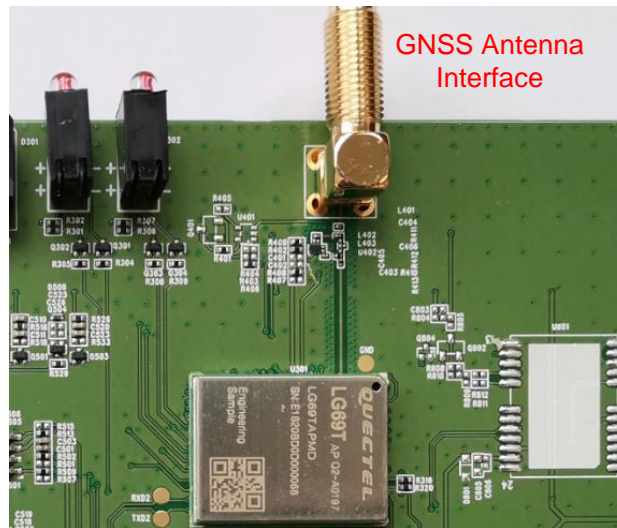


Figure 3: GNSS Antenna Interface

3.3. Buttons

The following figure illustrates the switches and buttons of the EVB.

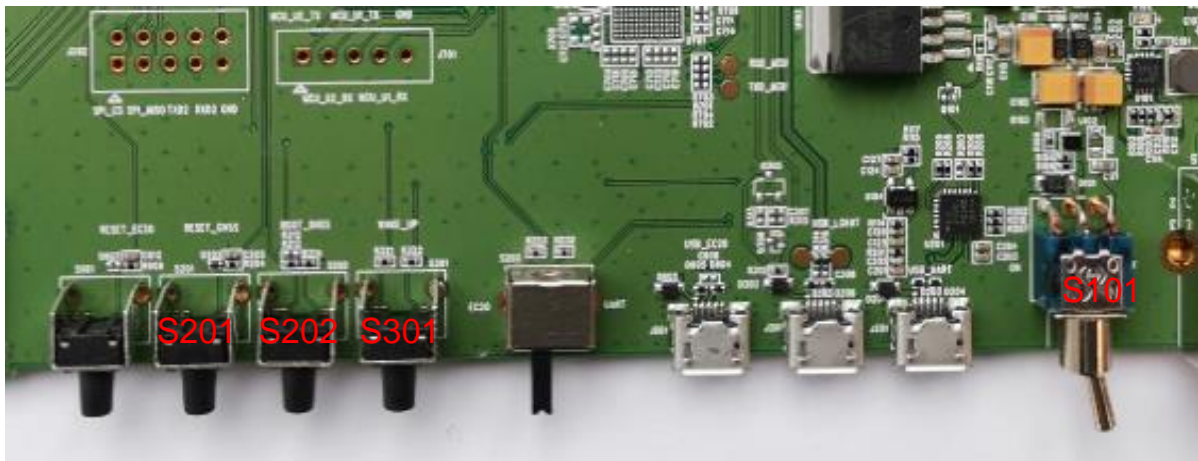


Figure 4: Switches and Buttons

Table 2: Switches and Buttons

Part No.	Name	Description
S101	ON/OFF	Power on/off switch
S301	WAKE_UP	Wake up LG69T (AA) module
S202	BOOT_GNSS	Pressing the BOOT button when LG69T (AA) module is turned on, the module will enter bootloader download mode.
S201	RESET_GNSS	LG69T (AA) module will be reset through pressing and then releasing the button.

3.4. Operation Status Indication LEDs

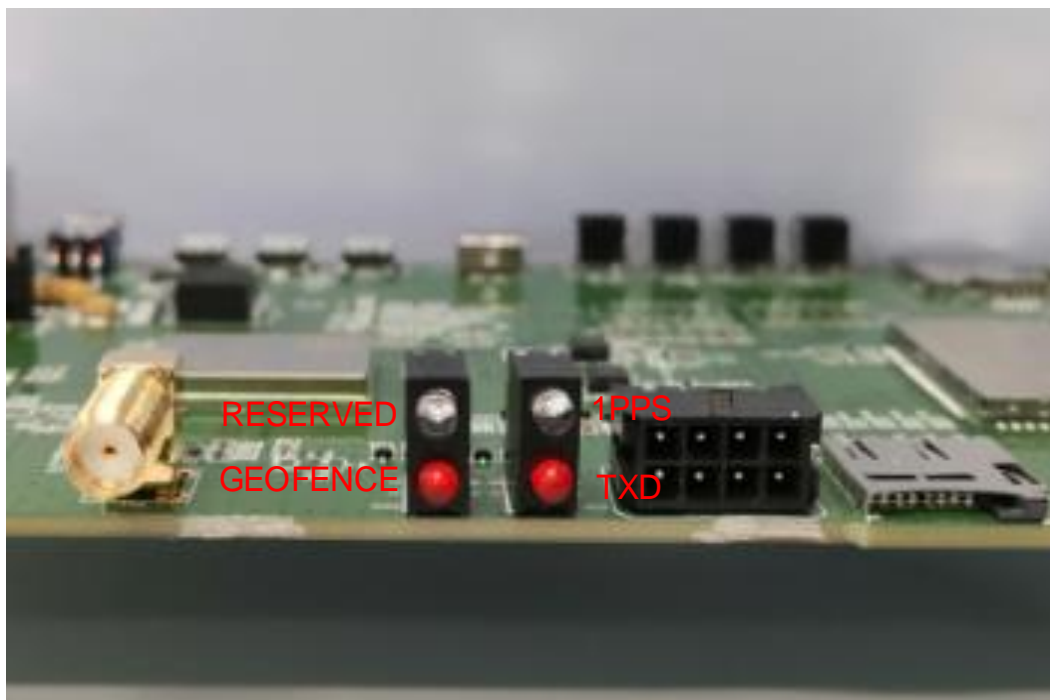


Figure 5: Operation Status Indication LEDs

Table 3: Operation Status Indication LEDs

Name	I/O	Description
GEOFENCE	DO	Used to indicate entering or exiting from the geofence state

RESERVED	/	
1PPS	DO	Flash: 1PPS signal indicator. The frequency is 1Hz (configurable).
TXD	DO	Flash: the module is turned on successfully, and UART is outputting data. Extinct: failed to turn on the module.

3.5. Test Points

The following figure illustrates the test points of the EVB.



Figure 6: Test Points (J303)

Table 4: Pin Definition of J303 Test Points

Pin No.	Signal	I/O	Description
1	RESET	DO	System reset
2	NC		Not connected
3	NC		Not connected
4	GND	IO	Ground
5	NC		Not connected
6	NC		Not connected

7	GEOFENCE	DO	Geofence status
8	NC		Not connected
9	WI	PO	
10	GND	-	Ground
11	NC		Not connected
12	NC		Not connected

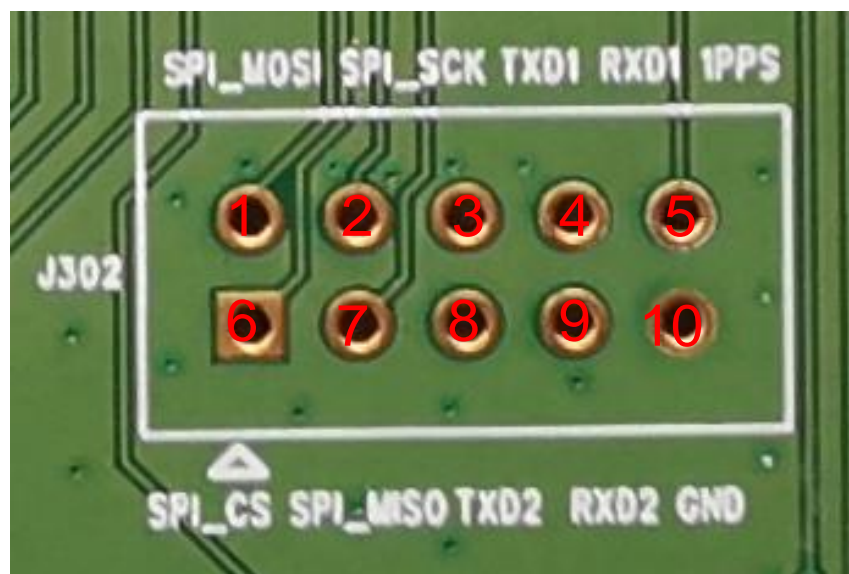


Figure 7: Test Points (J302)

Table 5: Pin Definition of J302 Test Points

Pin No.	Signal	I/O	Description
1	SPI_MOSI	DI	SPI master out slave in
2	SPI_SCK	DI	SPI clock
3	TXD1	DO	UART transmit data
4	RXD1	DI	UART receive data

5	1PPS	DO	One pulse per second
6	SPI_CS	DI	SPI chip select
7	SPI_MISO	DO	SPI master in salve out
8	NC		Not connected
9	NC		Not connected
10	GND		Ground

4 EVB Operation Procedures

This chapter mainly illustrates the operation procedures of LG69T (AA) EVB.

4.1. Communication through Micro-USB to UART Interface

Step 1: Connect the EVB to a PC with a Micro-USB cable through Micro-USB to UART interface, and then switch S101 to **ON** state to power on the EVB.

Step 2: Run the USB flash drive on PC to install the USB driver. The USB port numbers can be viewed through the PC Device Manager, as shown below.

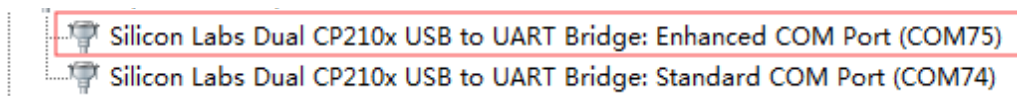


Figure 8: USB Port

Step 3: Install and then use the QCOM tool provided by Quectel to realize the communication between LG69T (AA) module and the PC.

The following figure shows the COM Port Setting interface of QCOM: select the correct “**COM Port**” (USB port shown in the above figure) and set the correct “**Baudrate**” (the default value: 460800). For more details of QCOM usage, please refer to **document [4]**.

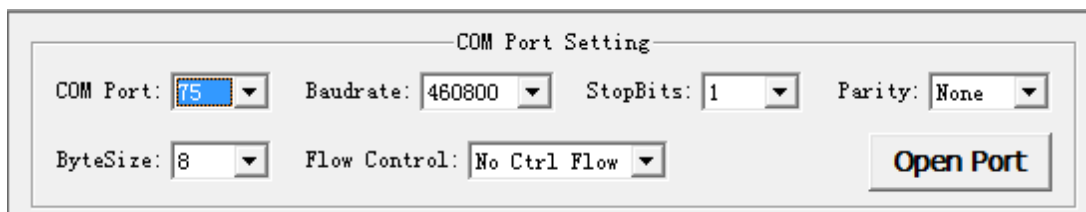


Figure 9: COM Port Setting Interface of QCOM

4.2. Firmware Upgrade

LG69T (AA) module supports firmware upgrade through Micro-USB to UART interface.

Step 1: Connect the EVB to a PC through a USB cable.

Step 2: Long press BOOT button (S202), and switch S101 to **ON** state to power on the EVB before releasing S202.

Step 3: Run the GNSSFlashTool:

- a) Click **“Tool Options”** → **“LG69TAA_Download”**.
- b) Select the firmware package: click **“Open File”** to select the corresponding firmware path.
- c) Select the COM port.
- d) Click the **“Baud rate”** dropdown list and select **“115200”**.
- e) Click the **“START”** button to upgrade the firmware.

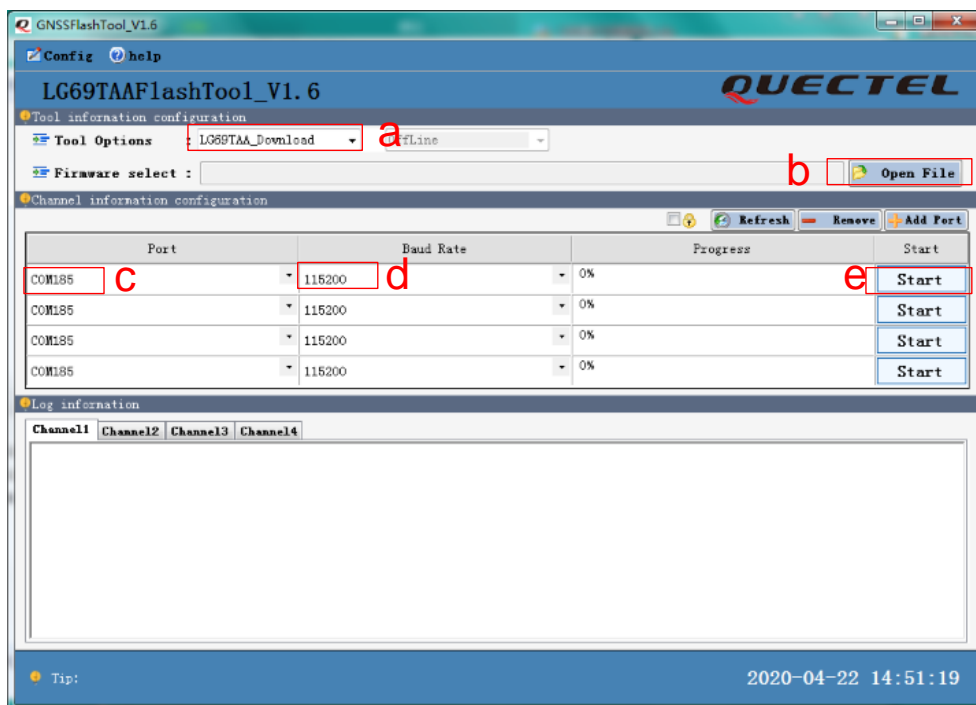


Figure 10: GNSSFlashTool Configurations for Firmware Upgrade

5 Appendix A Reference

Table 6: Related Documents

SN	Document name	Remark
[1]	Quectel_LG69T_Hardware_Design	LG69T Hardware Design
[2]	Quectel_LG69T(AA)_GNSS_Protocol_Specification	LG69T (AA) GNSS Protocol Specification
[3]	Quectel_LG69T(AA)_Reference_Design	LG69T (AA) Reference Design
[4]	Quectel_QCOM_User_Guide	Quectel QCOM User Guide

Table 7: Terms and Abbreviations

Abbreviation	Description
DI	Digital Input
DO	Digital Output
EVB	Evaluation Board
GNSS	Global Navigation Satellite System
LED	Light Emitting Diode
PO	Power Output
PPS	Pulse Per Second
UART	Universal Asynchronous Receiver/Transmitter