



L26 EVB User Guide

GNSS Module Series

Rev. L26_EVB_User_Guide_V1.0

Date: 2013-04-26



Our aim is to provide customers with timely and comprehensive service. For any assistance, please contact our company headquarter:

Quectel Wireless Solutions Co., Ltd.

Room 501, Building 13, No.99, Tianzhou Road, Shanghai, China, 200233

Tel: +86 21 5108 6236

Mail: info@quectel.com

Or our local office, for more information, please visit:

http://www.quectel.com/quectel_sales_office.html

For technical support, to report documentation errors, please visit:

<http://www.quectel.com/tecsupport.aspx>

GENERAL NOTES

QUECTEL OFFERS THIS INFORMATION AS A SERVICE TO ITS CUSTOMERS. THE INFORMATION PROVIDED IS BASED UPON CUSTOMERS' REQUIREMENTS. QUECTEL MAKES EVERY EFFORT TO ENSURE THE QUALITY OF THE INFORMATION IT MAKES AVAILABLE. QUECTEL DOES NOT MAKE ANY WARRANTY AS TO THE INFORMATION CONTAINED HEREIN, AND DOES NOT ACCEPT ANY LIABILITY FOR ANY INJURY, LOSS OR DAMAGE OF ANY KIND INCURRED BY USE OF OR RELIANCE UPON THE INFORMATION. ALL INFORMATION SUPPLIED HEREIN ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

COPYRIGHT

THIS INFORMATION CONTAINED HERE IS PROPRIETARY TECHNICAL INFORMATION OF QUECTEL CO., LTD. TRANSMITTABLE, REPRODUCTION, DISSEMINATION AND EDITING OF THIS DOCUMENT AS WELL AS UTILIZATION OF THIS CONTENTS ARE FORBIDDEN WITHOUT PERMISSION. OFFENDERS WILL BE HELD LIABLE FOR PAYMENT OF DAMAGES. ALL RIGHTS ARE RESERVED IN THE EVENT OF A PATENT GRANT OR REGISTRATION OF A UTILITY MODEL OR DESIGN.

Copyright © Quectel Wireless Solutions Co., Ltd. 2013. All rights reserved.

About the document

History

Revision	Date	Author	Description
1.0	2013-04-22	Ada LI	Initial

Quectel
Confidential

Contents

About the document	2
Contents	3
Table Index.....	4
Figure Index	5
1 Introduction	6
2 Introduction to EVB Kit	7
2.1. EVB Top and Bottom View.....	7
2.2. EVB Accessories.....	9
3 Interface Application	10
3.1. USB Interface.....	10
3.2. UART Interface.....	11
3.3. Antenna Interface.....	12
3.4. Switches and Buttons	12
3.5. Operating Status LEDs	14
3.6. Test Points.....	15
4 EVB and Accessories	17
5 Install Device Driver.....	18
6 Starting PowerGPS	19
7 Appendix A Reference.....	22

Table Index

TABLE 1: PINS OF UART PORT	11
TABLE 2: SWITCHES AND BUTTONS.....	13
TABLE 3: OPERATING STATUS LEDS	14
TABLE 4: PINS OF J106	15
TABLE 5: EXPLANATIONS OF POWERGPS WINDOW	20
TABLE 6: REFERENCE	22
TABLE 7: ABBREVIATIONS.....	22

Quectel
Confidential

Figure Index

FIGURE 1: EVB TOP VIEW	7
FIGURE 2: EVB BOTTOM VIEW	8
FIGURE 3: EVB ACCESSORIES	9
FIGURE 4: MICRO-USB INTERFACE	10
FIGURE 5: UART INTERFACE	11
FIGURE 6: ANTENNA INTERFACE	12
FIGURE 7: LNA LAYOUT	12
FIGURE 8: SWITCHES AND BUTTONS	13
FIGURE 9: OPERATING STATUS LEDS	14
FIGURE 10: TEST POINTS J106	15
FIGURE 11: EVB AND ACCESSORY EQUIPMENTS	17
FIGURE 12: POWERGPS TOOL	19
FIGURE 13: MTK COMMAND	21
FIGURE 14: STATIC TTFF TESTING	21
FIGURE 15: STATIC TTFF TESTING CONFIGURATION OPTIONS	21
FIGURE 16: STATIC TTFF TESTING CONFIGURATION	21

1 Introduction

This document defines and specifies the usage of L26 EVB (Evaluation Board). You can get useful information about L26 EVB and GNSS demo tool from this document.

Quectel
Confidential

2 Introduction to EVB Kit

2.1. EVB Top and Bottom View

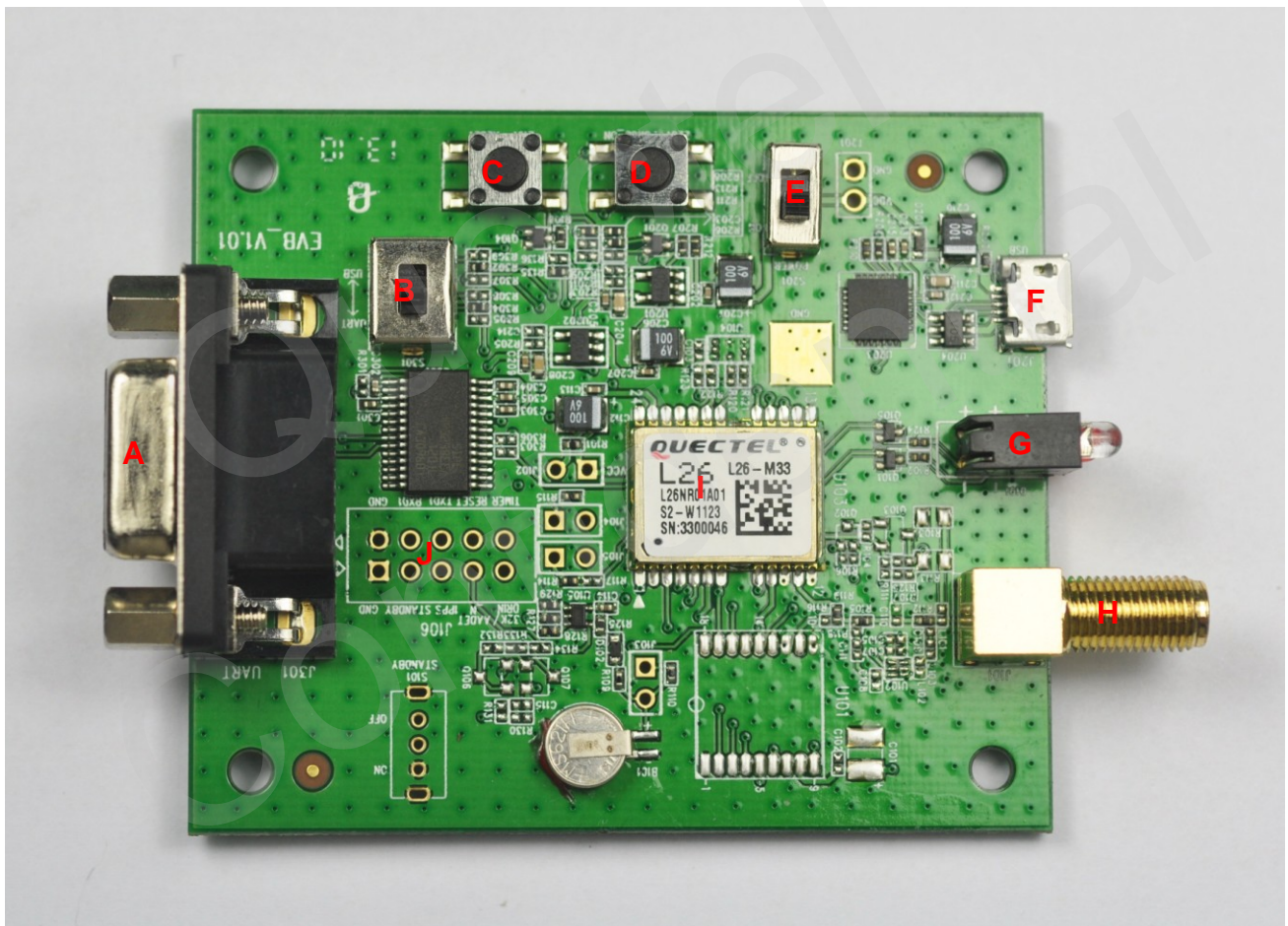


Figure 1: EVB Top View

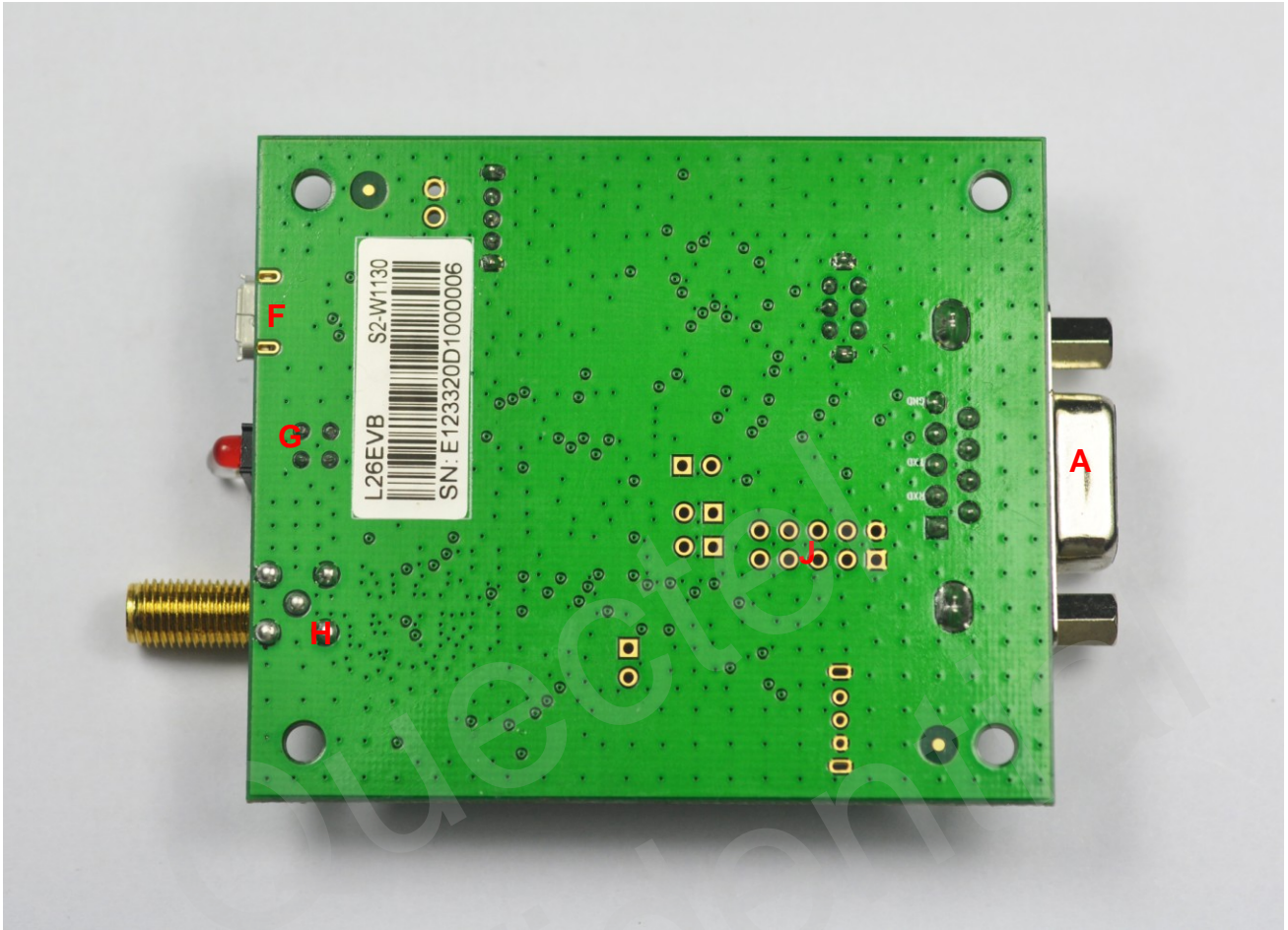


Figure 2: EVB Bottom View

- A: UART port
- B: Serial port alternation switch
- C: RESET button
- D: FORCE_ON button
- E: POWER switch
- F: Micro-USB port
- G: Indication LEDs
- H: Antenna interface
- I: L26 Module
- J: Test points

2.2. EVB Accessories



Figure 3: EVB Accessories

- A: USB cable
- B: GNSS active antenna (3.3V)

3 Interface Application

3.1. USB Interface

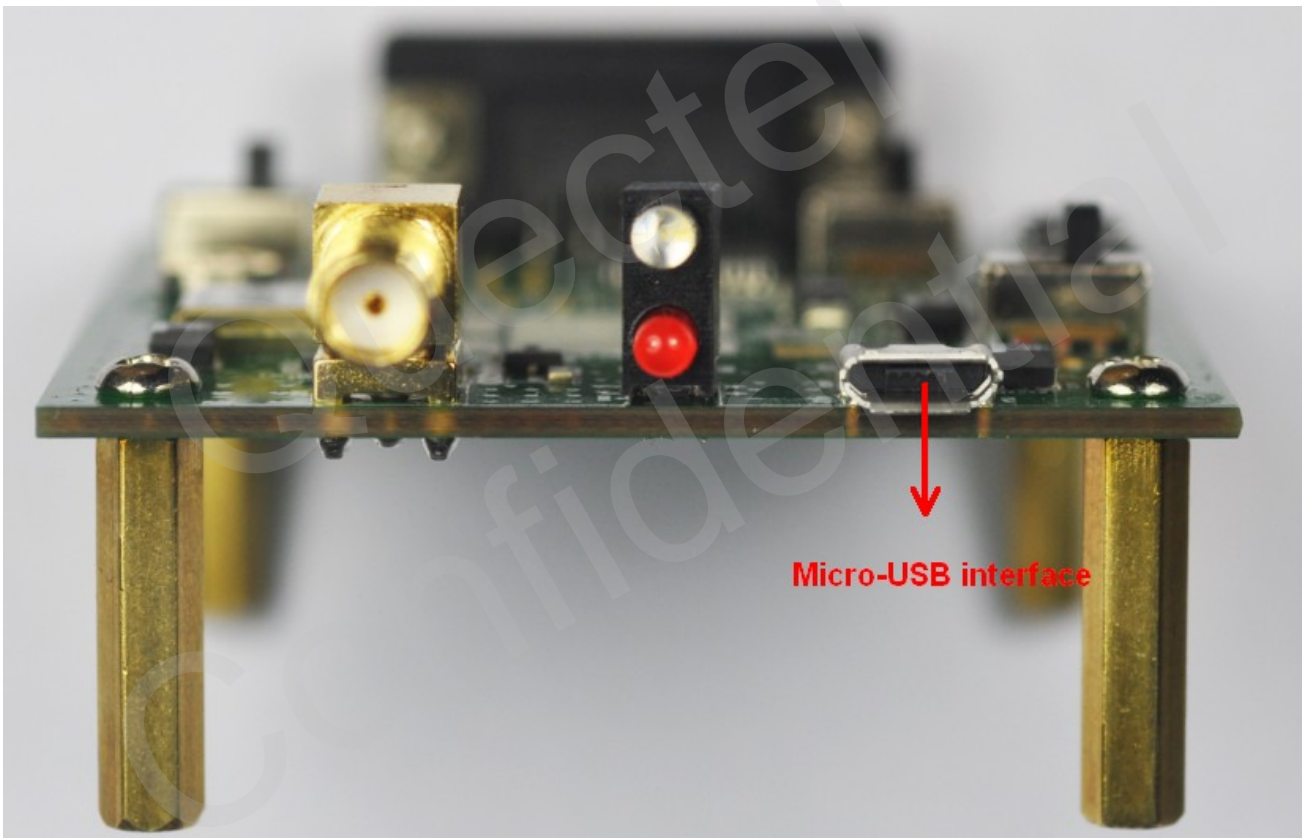


Figure 4: Micro-USB Interface

The main power is supplied via Micro-USB interface. We provide two ways for data communication: Micro-USB and UART interface which are controlled by alternation switch (S2). Both of RS232 and Micro-USB cable are necessary, if you want to use UART to output NEMA. So the easy way is to use Micro-USB cable which both supplies the power and outputs NEMA. You can makes alternation between UART port and Micro-USB interfaces via switch (S2).

3.2. UART Interface

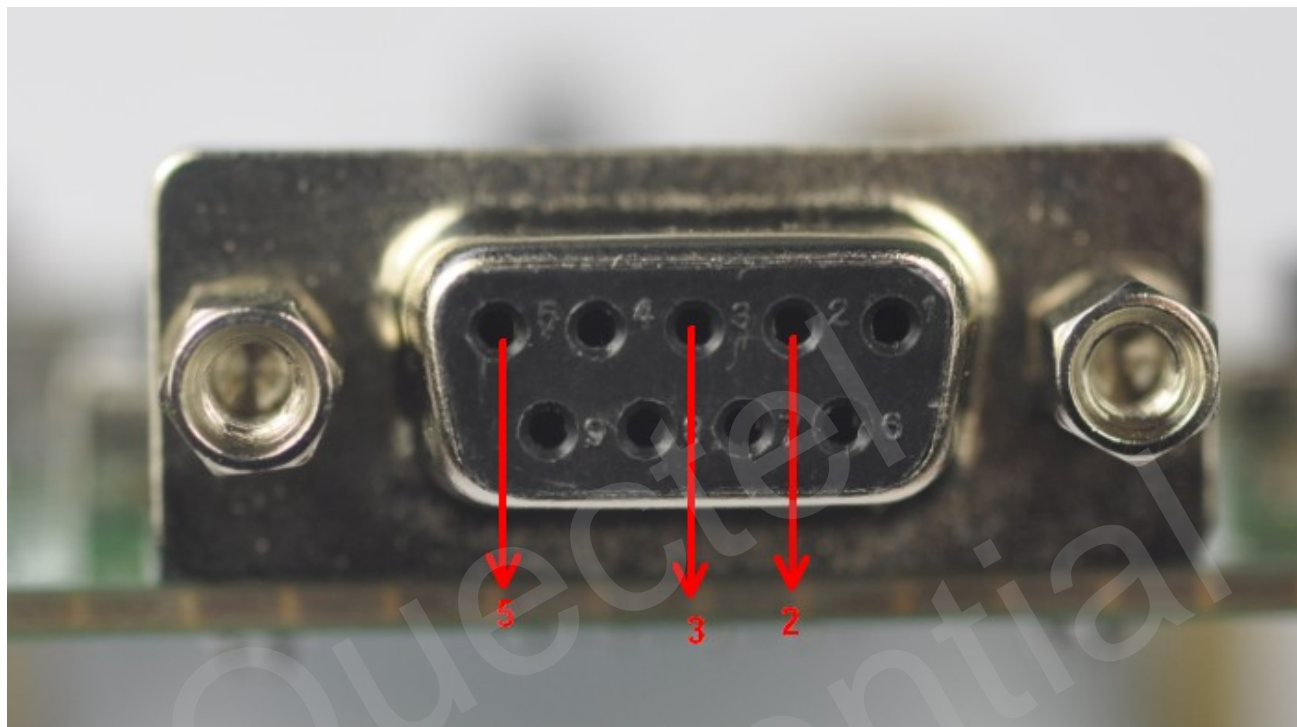


Figure 5: UART Interface

Table 1: Pins of UART port

Pin	Signal	I/O	Description
2	RXD	I	Receive data
3	TXD	O	Transmit data
5	GND		GND

3.3. Antenna Interface

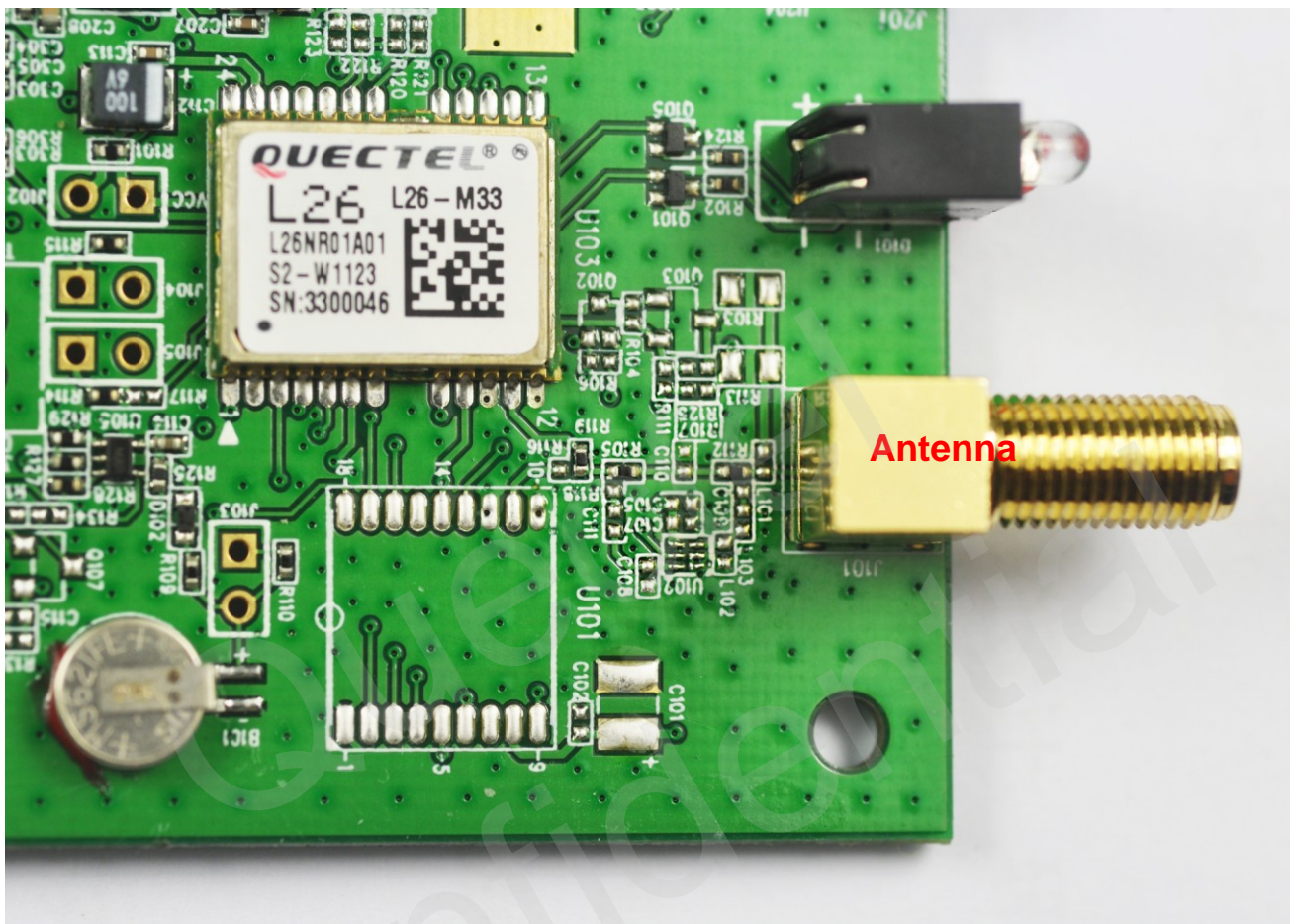


Figure 6: Antenna Interface

3.4. Switches and Buttons

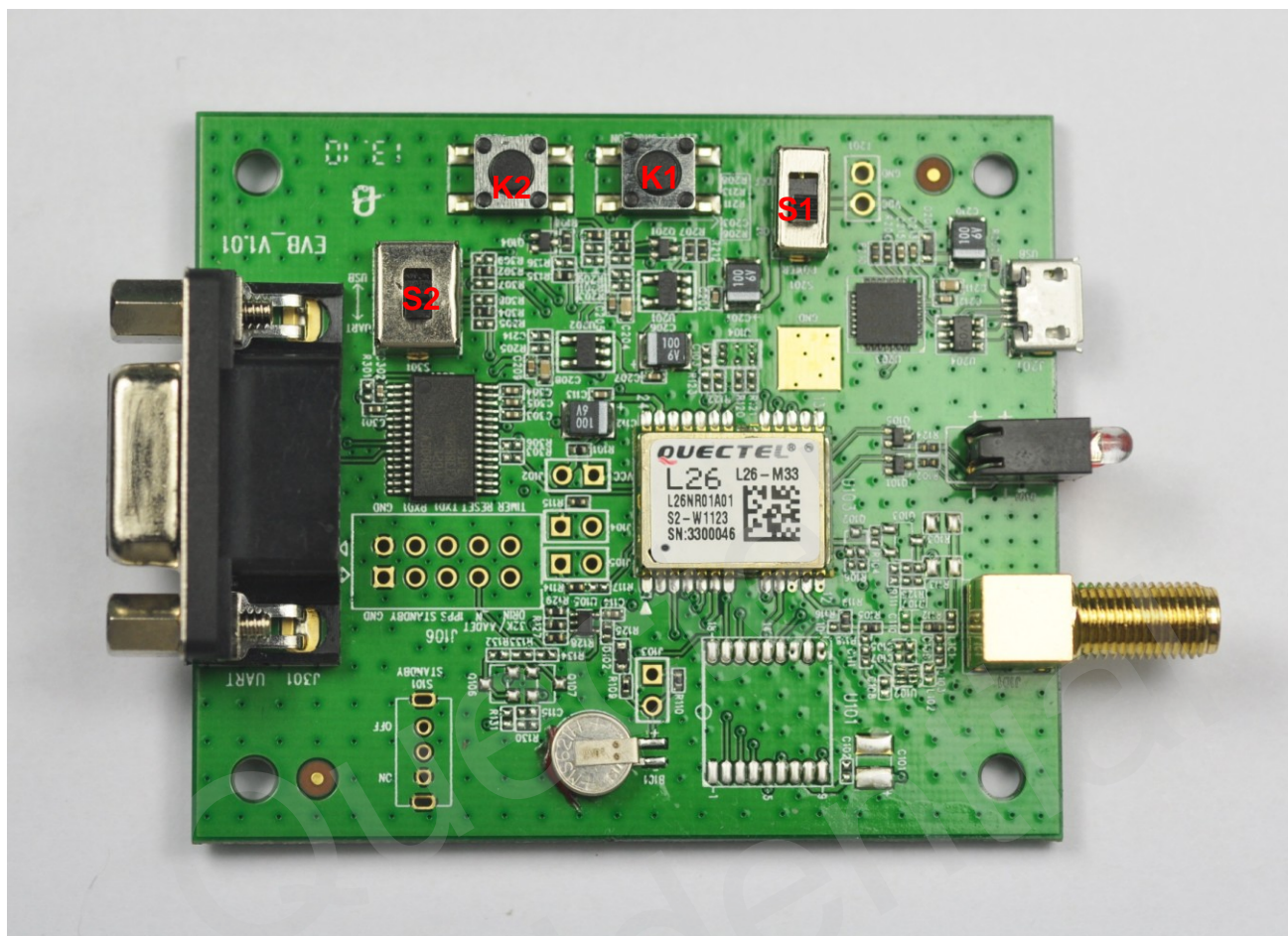


Figure 7: Switches and Buttons

Table 2: Switches and Buttons

Part	Name	I/O	Description
S1	POWER	I	Control power supply from Micro-USB.
S2	Serial port alternation switch	I	Quectel EVB supplies two communicative ways: Micro-USB and UART which are controlled by switch.
K1	FORCE_ON		Press and release the button, the module will be waked up from backup mode.
K2	RESET	I	Press and release this button, then the module will reset.

3.5. Operating Status LEDs



Figure 8: Operating Status LEDs

Table 3: Operating status LEDs

Part	Name	I/O	Description
L1	TXD1	O	Flash: turn on successfully, Micro-USB or UART1 port can output messages. Extinct: fail to turn on the module
L2	1PPS	O	Flash: fix successfully, the frequency is 1Hz Extinct: no fix

before entering into backup mode. If unused, keep this pin open.

7	RESET	I	System reset
8	TXD1	O	Transmit data
9	RXD1	I	Receive data

Quectel
Confidential

4 EVB and Accessories

The EVB and its accessories are equipped as shown in Figure 10.

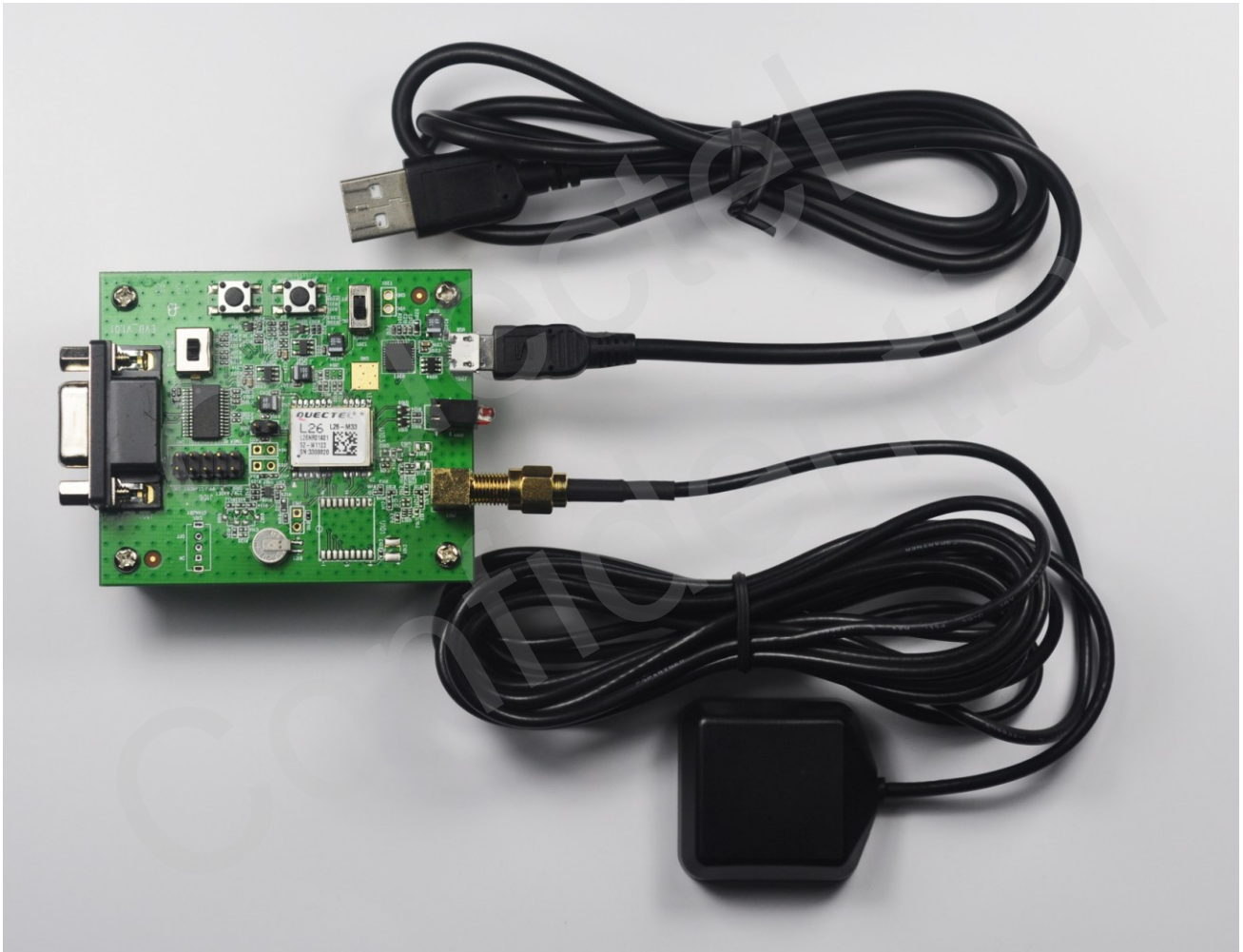


Figure 7: EVB and Accessory Equipments

5 Install Device Driver

Before using Micro-USB port, please install the driver of Micro-USB. Customer can login our FTP for download device driver. Overseas FTP path is /d:/FTP/OC/Overseas_Technical/Overseas_Module Official Documents/GNSS Module/Common/04 Tool Kit/ GNSS_EVB_Micro-USB_Driver_CP210x.

Domestic FTP path is /d:/FTP/CC/Domestic_Technical/Domestic_Module Official Documents/GNSS Module/Common/04 Tool Kit/ GNSS_EVB_Micro-USB_Driver_CP210x.

Quectel
Confidential

6 Start PowerGPS

The PowerGPS version is V2.2.0. The PowerGPS tool can help user to view the status of GPS&GLONASS receiver conveniently. When the tool is opened, the following window will be displayed:

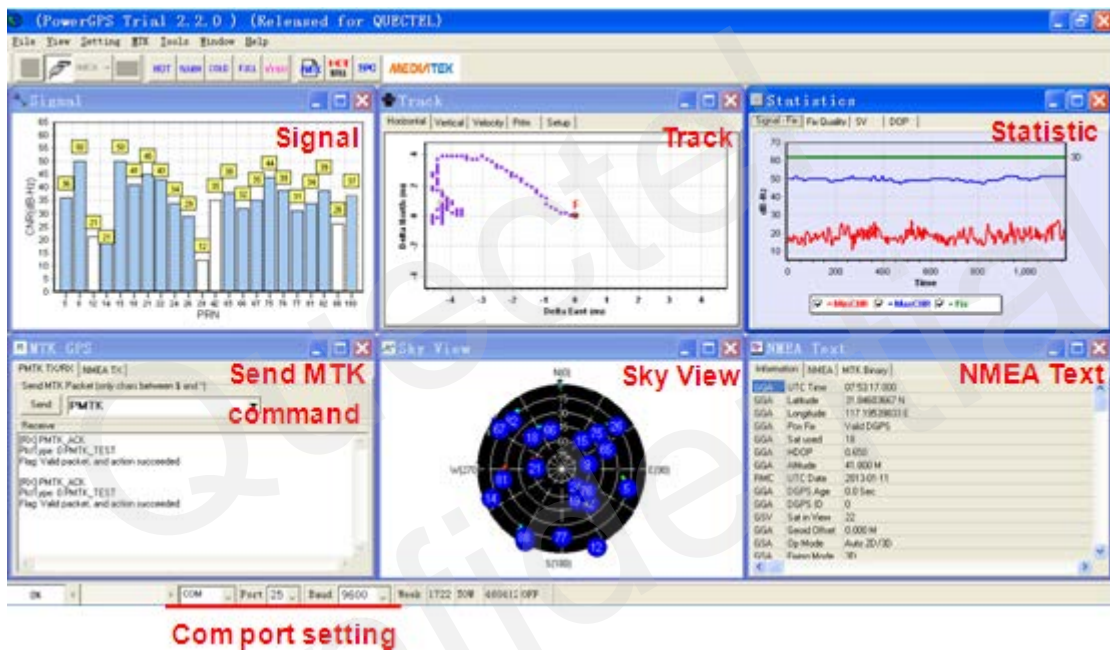
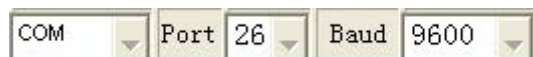




Figure 8: PowerGPS Tool

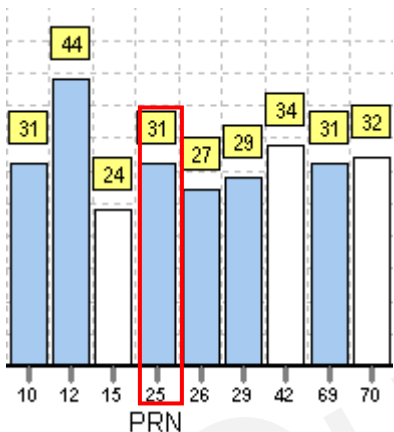
After EVB accessories are assembled, turn on the module and start up the PowerGPS. Select a correct COM port and baud rate (L26 module supports 9600bps by default), then click the button “Create Connection”.



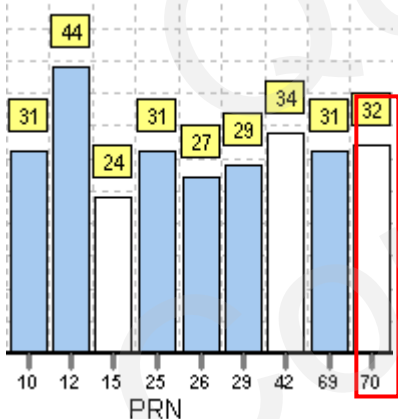
From the PowerGPS window, user can view CNR message, time, position, speed, precision and so on. Explanations are listed in Table 5.

Table 5: Explanations of PowerGPS Window

Icon	Explanation
	SV with PRN 65. If the position of SV is near to the centre of the Sky View, the elevation angle of SV is close to 90°. Dark blue means this satellite is in tracking.
	Light blue means this satellite is not in tracking.



The CNR of PRN 25 is 31dB/Hz. Light blue column means the navigation data of this satellite is in use.



The CNR of PRN 70 is 32dB/Hz. White column means the navigation data of this satellite is not in use. The range of GLONASS SVID is 65-96.

UTC Time	08:54:07.000
Latitude	31.84580167 N
Longitude	117.19548500 E
Pos Fix	Valid DGPS
Sat used	17
HDOP	0.630
Altitude	16.200 M
UTC Date	2013-01-11

UTC time
Latitude degree
longitude degree
Positing fix
Using the number of satellites
Horizontal Dilution of Precision
Altitude based on WGS84 Datum
UTC date

Fixing Mode	3D
Sat Used	18 25 14 21 15 31
PDOP	1.680
VDOP	1.410
Speed (m/s)	0.005

Fix type: No-Fix, 3D or 2D SPS
Using satellite
Position Dilution of Precision
Vertical Dilution of Precision
Speed of receiver

PMTK Command

You can send PMTK command by PowerGPS. The format of PMTK command is included only characters between '\$' and '*', for example: PMTK869,0.

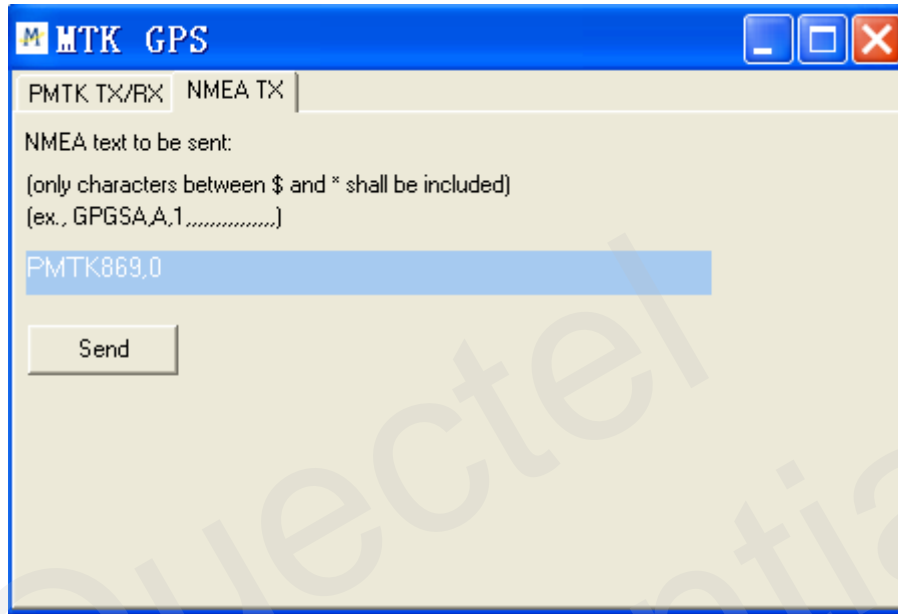


Figure 9: MTK Command

7 Appendix A Reference

Table 6: Reference

SN	Document name	Remark
[1]	L26_Hardware_Design	L26 Hardware Design
[2]	L26_Protocol_Specification	L26 Protocol Specification
[3]	L26_Reference_Design	L26 Reference Design

Table 7: Abbreviations

Abbreviation	Description
CNR	Carrier-to-Noise Ratio
GPS	Global Positioning System
GLONASS	Global Navigation Satellite System (The Russian GNSS)
GNSS	Global Navigation Satellite System
LED	Light Emitting Diode
PPS	Pulse Per Second
PRN	Pseudorandom Noise
SPS	Standard Positioning Service
SV	Satellite Vehicle
UART	Universal Asynchronous Receiver & Transmitter
UTC	Universal Time Coordinated
WGS84	World Geodetic System 1984