

L26 EVB User Guide

GNSS Module Series

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About the document

History

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

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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.

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2 Introduction to EVB Kit

2.1. EVB Top and Bottom View

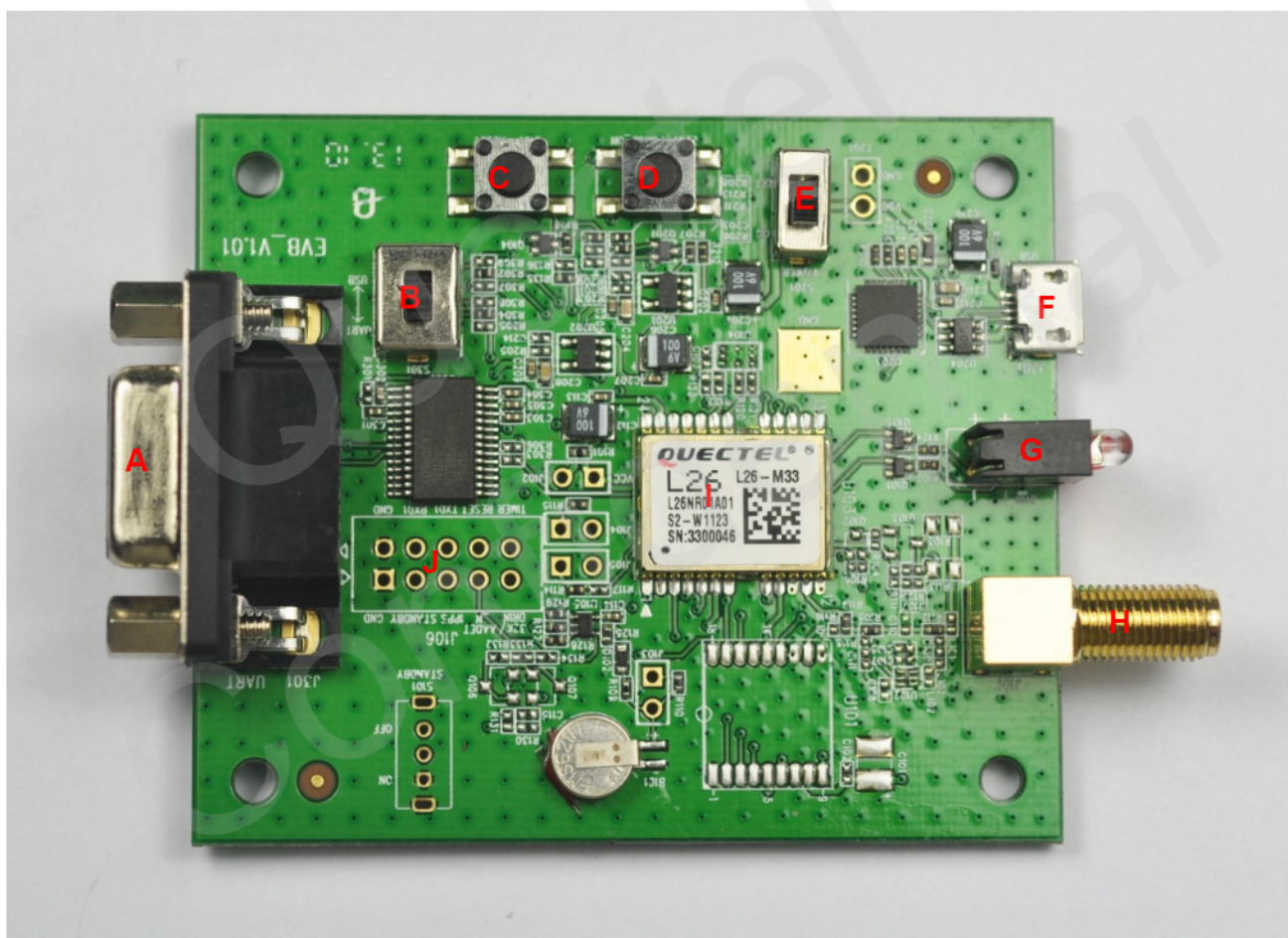


Figure 1: EVB Top View

2.2. EVB Accessories



Figure 3: EVB Accessories

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

3 Interface Application

3.1. USB Interface

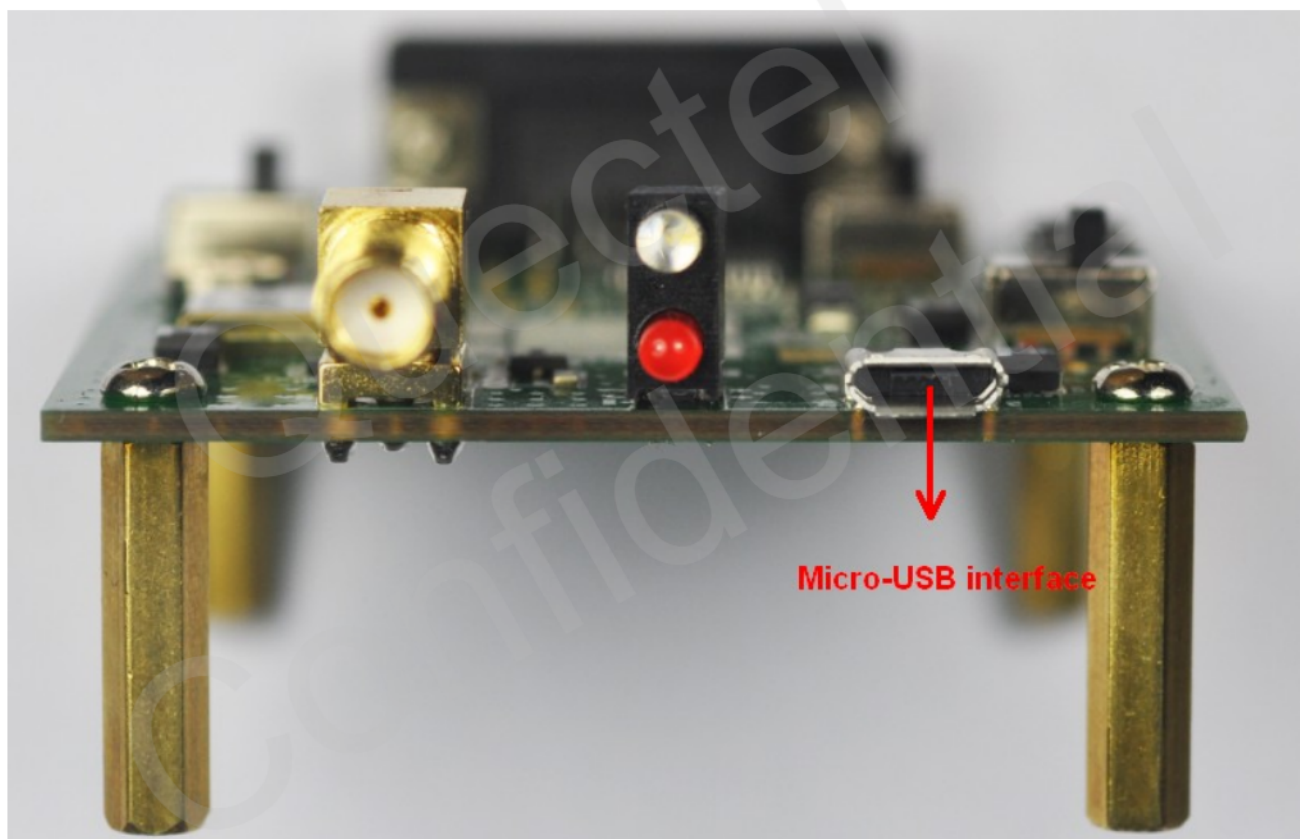


Figure 4: Micro-USB Interface

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

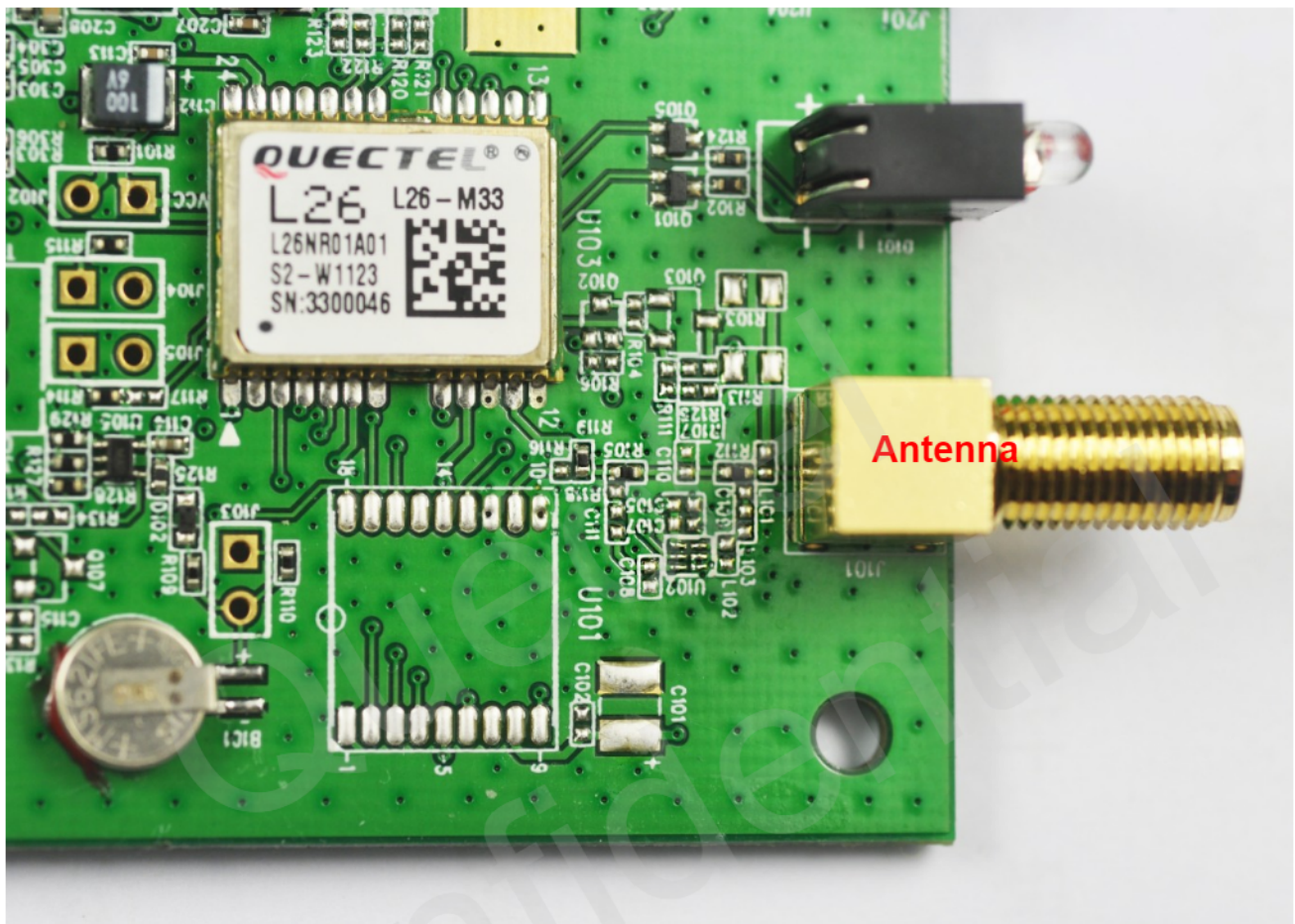


Figure 6: Antenna Interface

3.4. Switches and Buttons

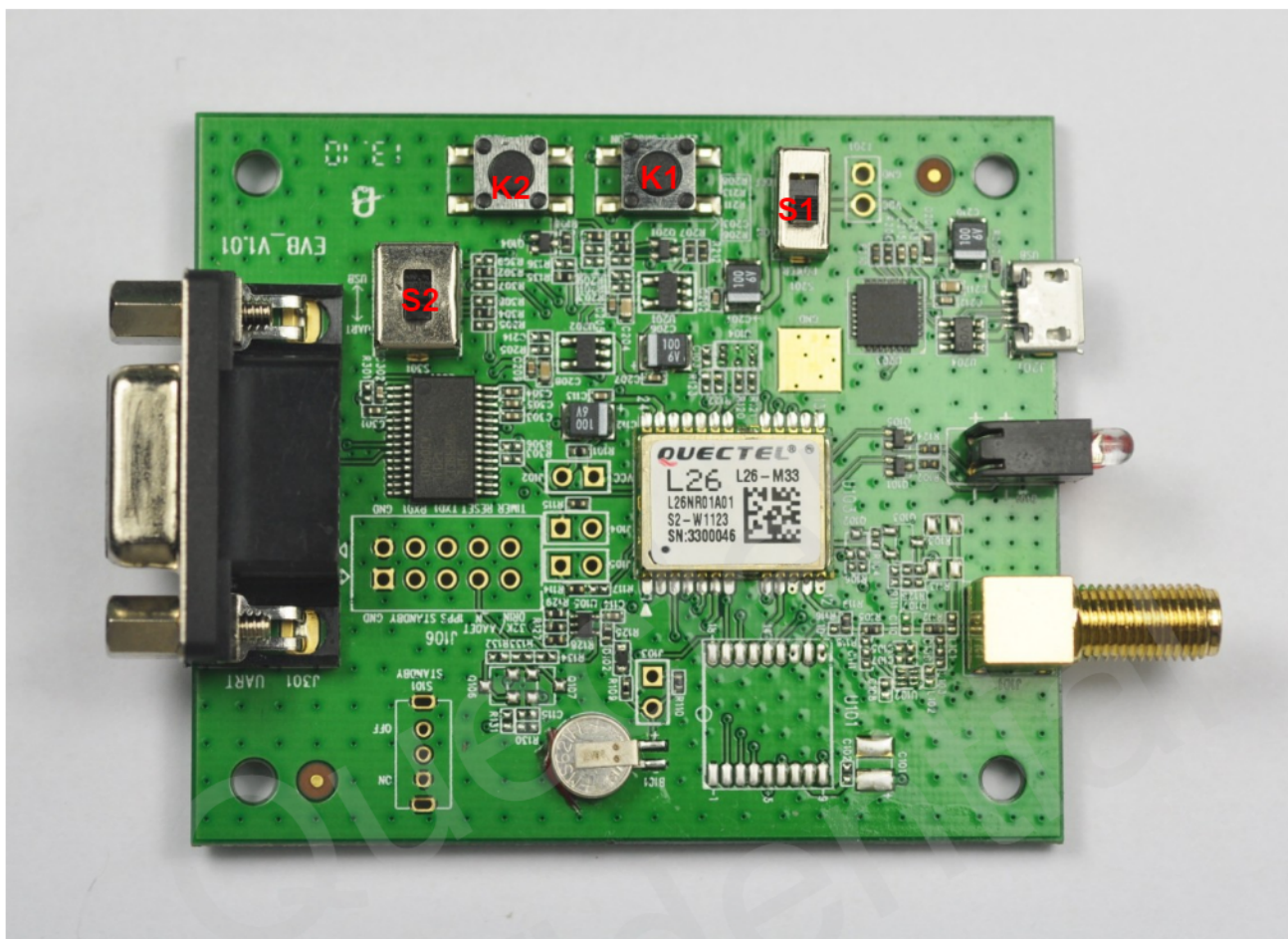


Figure 7: Switches and Buttons

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 |

3.6. Test Points

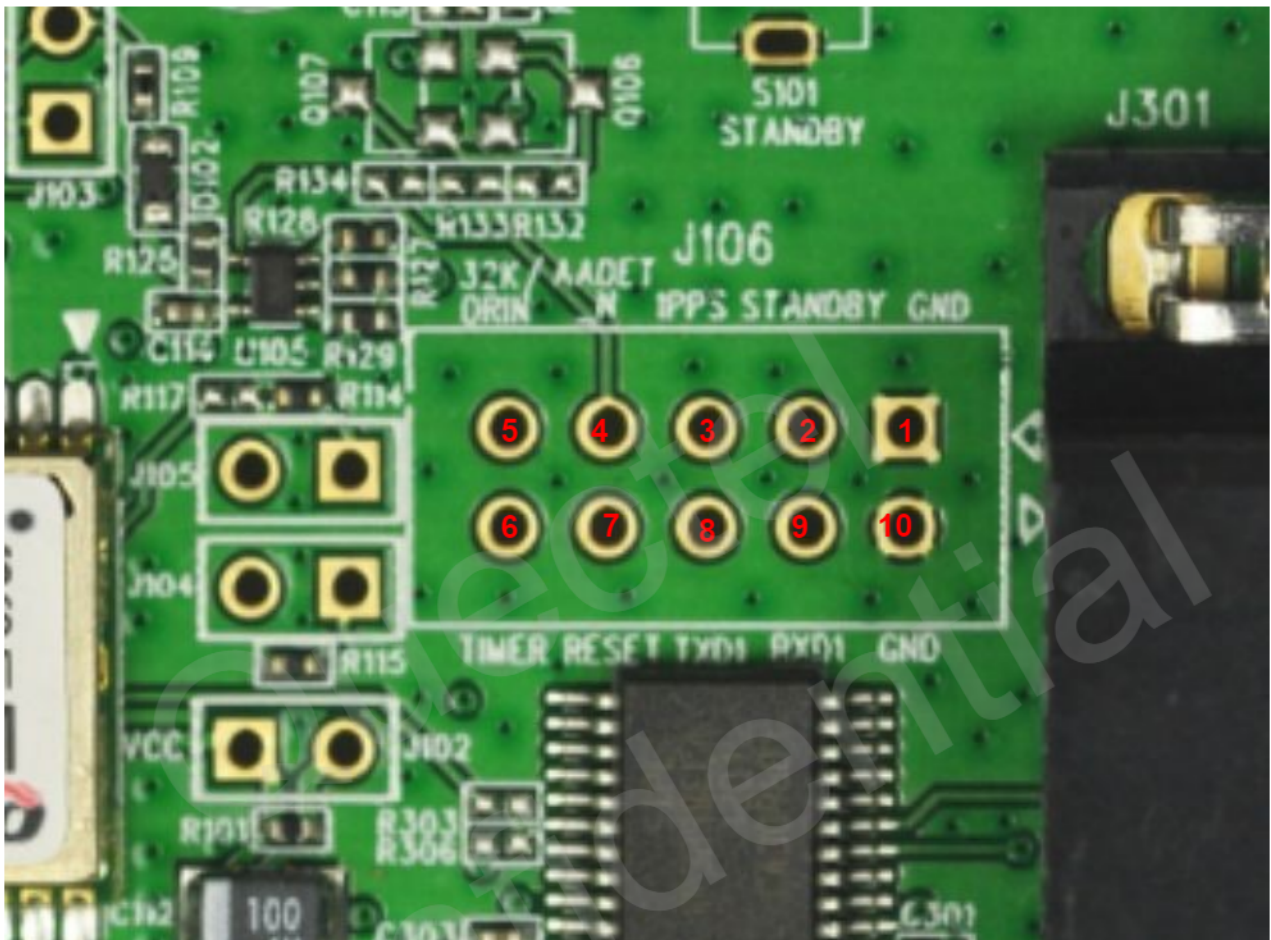


Figure 9: Test Points J106

Table 4: Pins of J106

| Pin | Signal | I/O | Description |
|------|----------|-----|--|
| 1/10 | GND | | Ground |
| 2 | STANDBY | | Reserved |
| 3 | 1PPS | O | 1 pulse per second |
| 4 | AADET_N | I | Active antenna open circuit detection |
| 5 | 32K/DRIN | | Reserved |
| 6 | FORCE_ON | | Logic high will force module to be waked up from backup mode. Keep this pin open or pulled low |

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 |

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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.

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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:

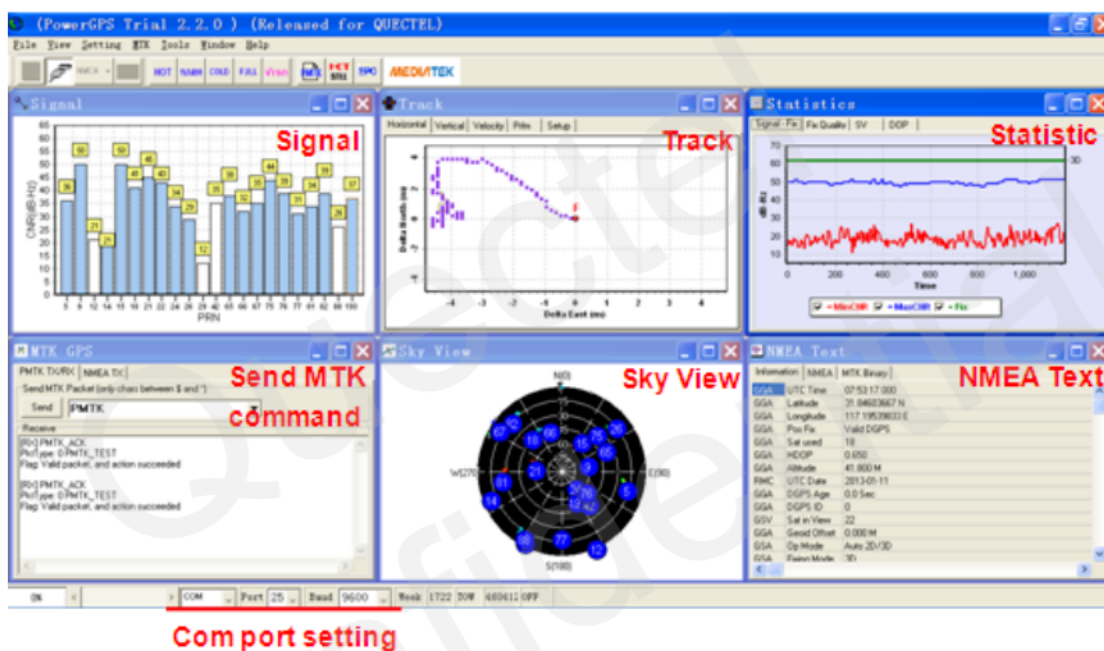




Figure 8: PowerGPS Tool

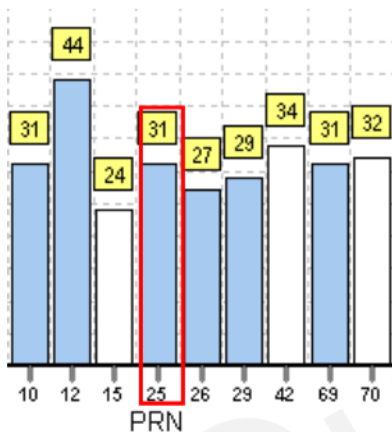
After EVB accessories are assembled, turn on the module and start up the PowerGPS. Select a correct COM port and baud rate (L26 module supports 9600bps by default), then click the button “Create Connection”.



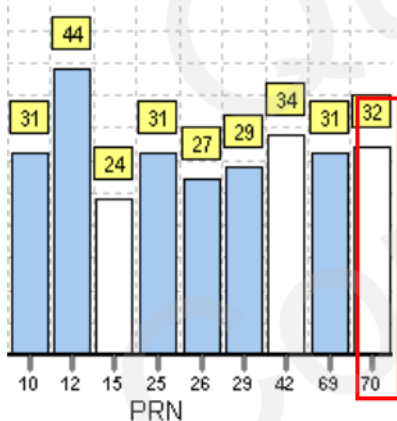
From the PowerGPS window, user can view CNR message, time, position, speed, precision and so on. Explanations are listed in Table 5.

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.

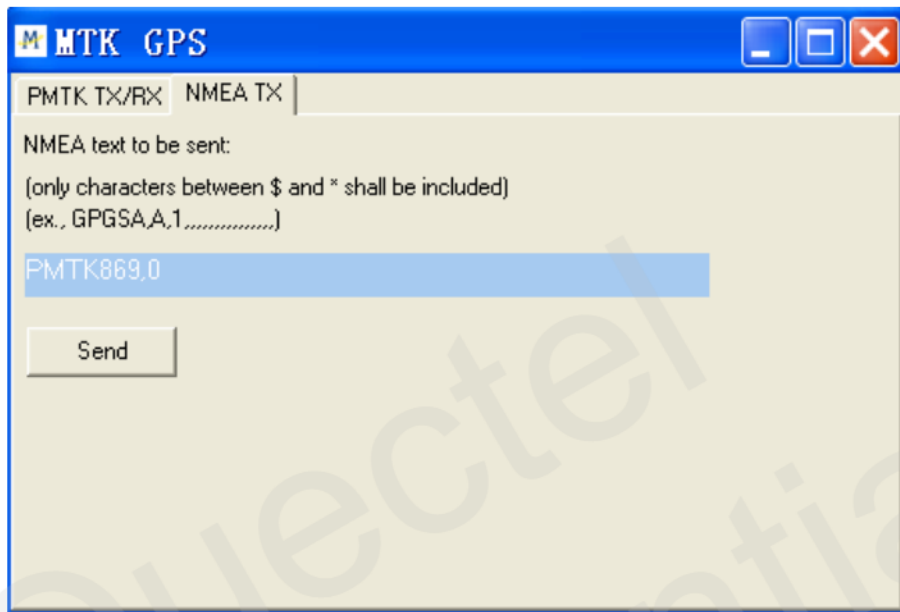


Figure 9: MTK Command

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 |