Development Kit Manual

SIM908 EVB kit_User Guide_V1.00

Development Kit

Hardware Design

Reference Design

Software Design
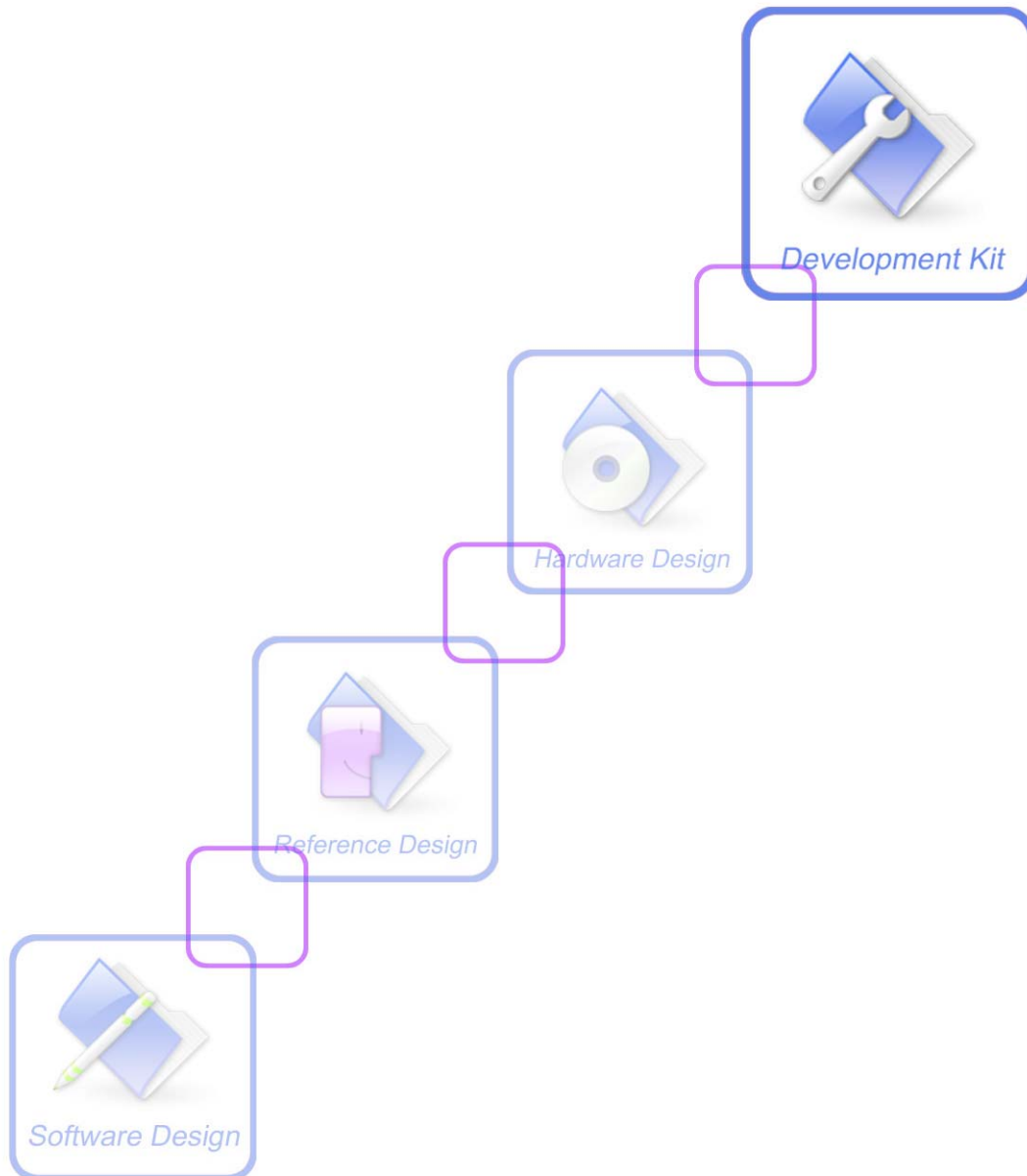
Document Title:	SIM908 EVB kit User Guide
Version:	1.00
Date:	2011-08-15
Status:	Release
Document Control ID:	SIM900_EVB kit_User Guide_V1.00

General Notes

SIMCom offers this information as a service to its customers, to support application and engineering efforts that use the products designed by SIMCom. The information provided is based upon requirements specifically provided to SIMCom by the customers. SIMCom has not undertaken any independent search for additional relevant information, including any information that may be in the customer's possession. Furthermore, system validation of this product designed by SIMCom within a larger electronic system remains the responsibility of the customer or the customer's system integrator. All specifications supplied herein are subject to change.

Copyright

Contents

Figure Index

Version History

Data	Version	Description of change	Author
2011-8-15	1.00	Origin	Ma Honggang

SCOPE

This document give the usage of SIM908 EVB, user can get useful info about the SIM908 EVB quickly through this document. Using SIM908 EVB, user can demo SIM908 module.

This document is subject to change without notice at any time.

1 Overview
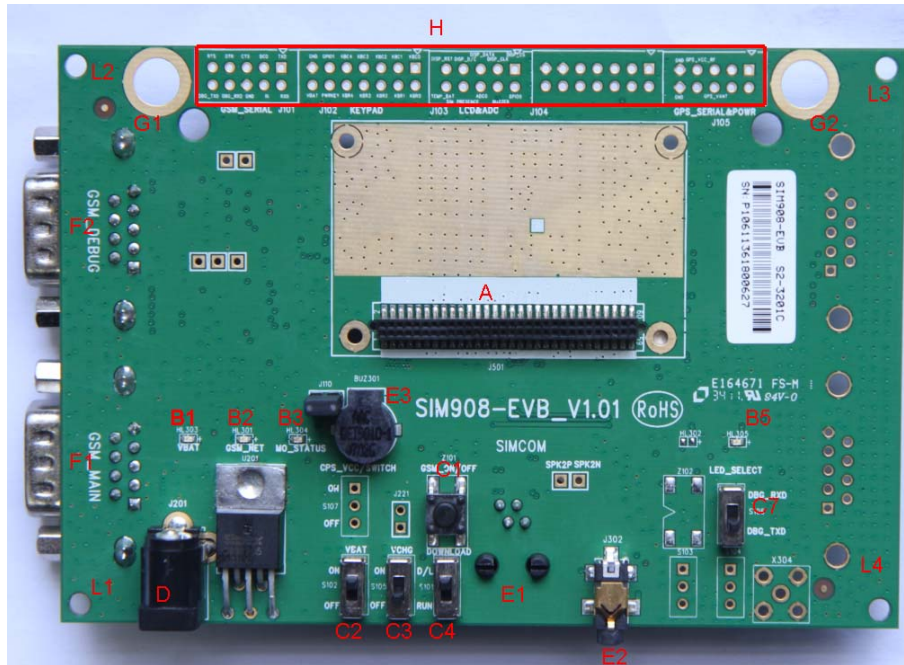
Figure 1: TOP view
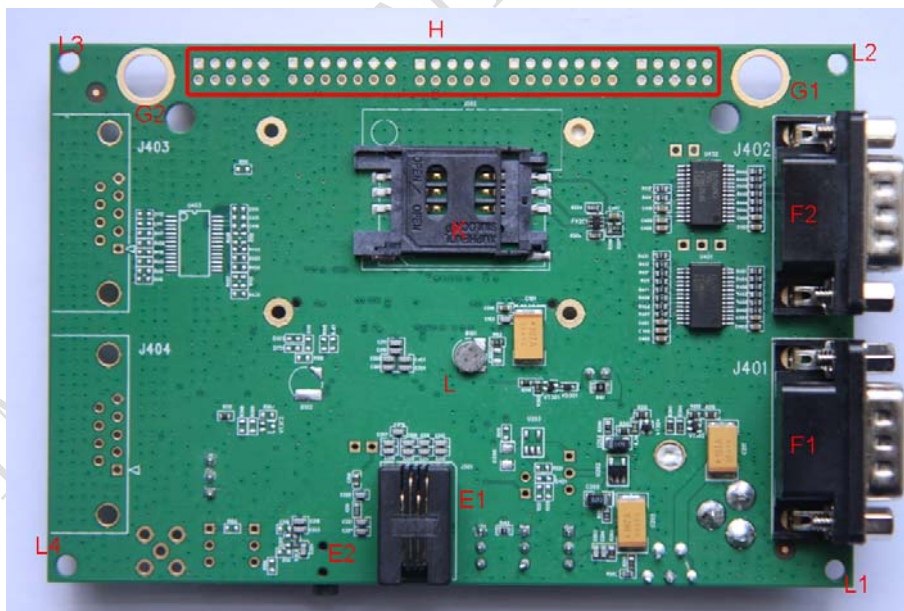
Figure 2: BOTTOM view

A: 60-pin connector, SIM908 module interface

B1-B5: LED indicator

B1: VBAT ON/OFF

B2: GSM net status

B3: The GSM part of the module ON/OFF status

B5: DBG RXD/TXD STATUS

C1-C9: Key control for various functions

C1: GSM part power-up / power down control (button Z101)

C2: VBAT ON/OFF control (shifter S102)

C3: VCHG ON/OFF control (shifter S105)

C4: GSM part program download control (shifter S101)

C7: debug port RXD/TXD LED status selective shifter (shifter S106)

D: Power source adapter interface

E1-E3: Audio interface

E1: Handset interface

E2: Headphone interface

E3: Buzzer

F1-F2: Serial ports

F1: Main serial port for downloading, AT command transmitting, data exchanging

F2: Debug serial port default for GPS NMEA information output

G1-G2: Hole for antenna fixed

G1: Hole for GSM antenna fixed

G2: Hole for GPS antenna fixed

H: Expand port, such as serial ports, display port

L1-L4: Hole for EVB board fixed

K: SIM card connector

L: 3.3V Back-up battery for GSM part

2 EVB accessory

Figure 3: EVB accessory

A: 5V DC source adapter

B: GSM antenna

C: GPS antenna

D: RF cable

E: Earphone

F: Two USB to serial port lines

3 Accessory interface

3.1 Power interface
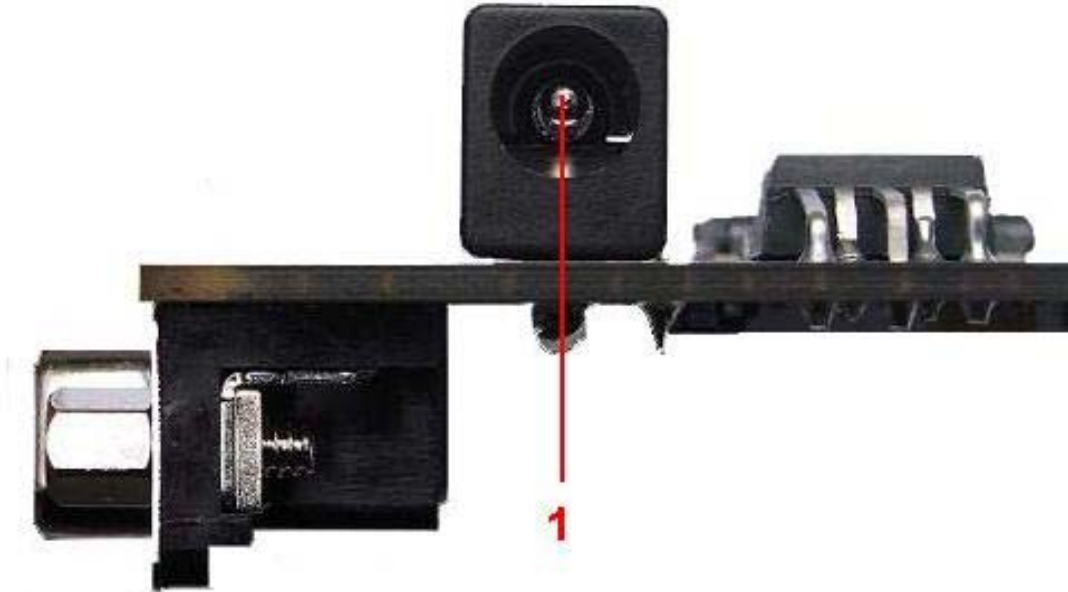
Figure 4: Power interface

Pin	Signal	I/O	Description
1	Adapter input	I	5V/2.5A DC source input

3.2 Audio interface
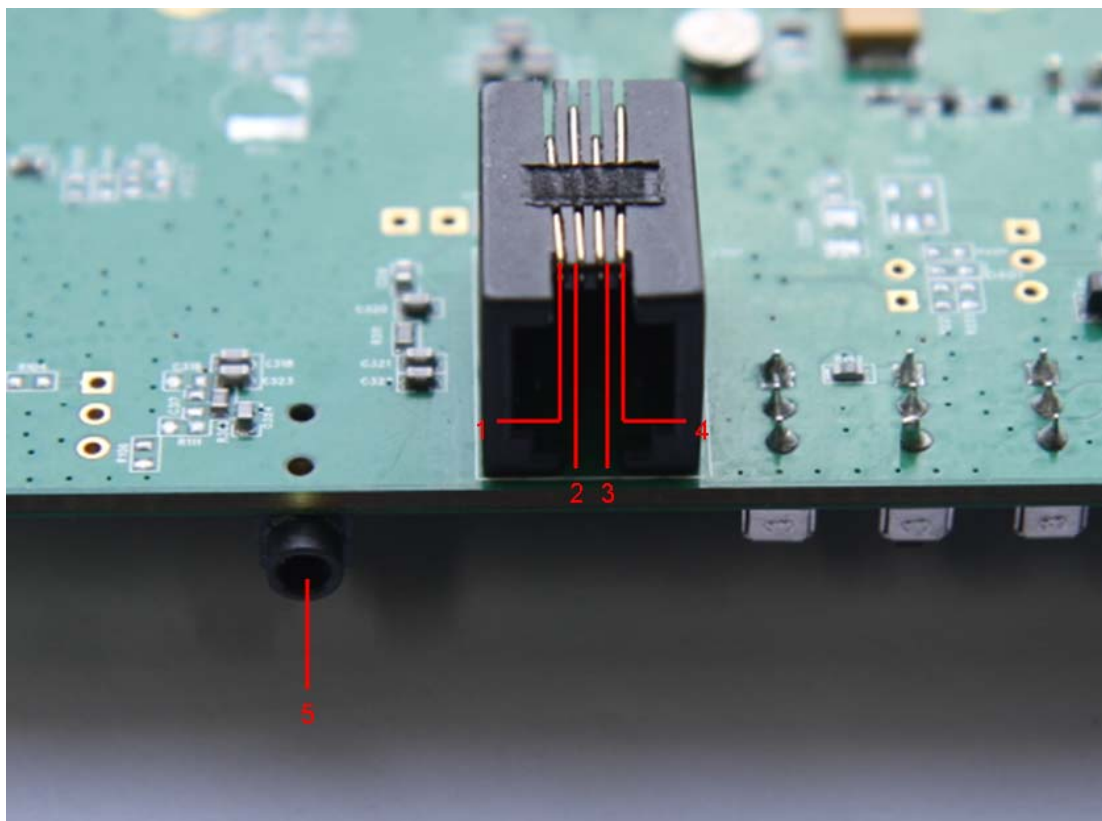
Figure 5: Audio interface

Headset interface

Pin	Signal	I/O	Description
1	MIC1N	I	Negative microphone input
2	SPK1N	O	Negative microphone input
3	SPK1P	O	Positive microphone input
4	MIC1P	I	Positive microphone input

Headphone interface:

Pin	Signal	Input/Output	Description
5	MIC2P&SPK2P	I/O	Auxiliary positive input and output

3.3 SIM card interface
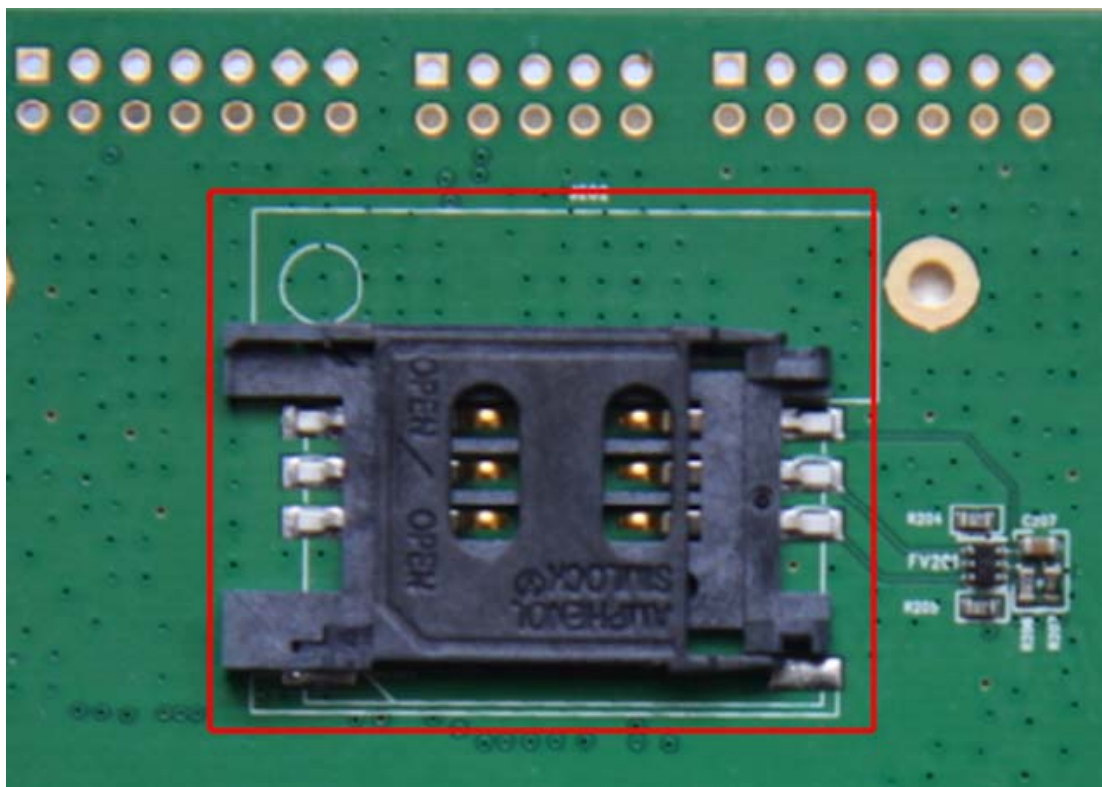
Figure 6: SIM card interface

Note: Please refer to SIM908 Hardware design, detailed in Chapter 4.8 SIM Card interface.

3.4 Antenna interface

3.4.1 GSM antenna interface

Figure 7: GSM antenna interface

3.4.2 GPS antenna interface
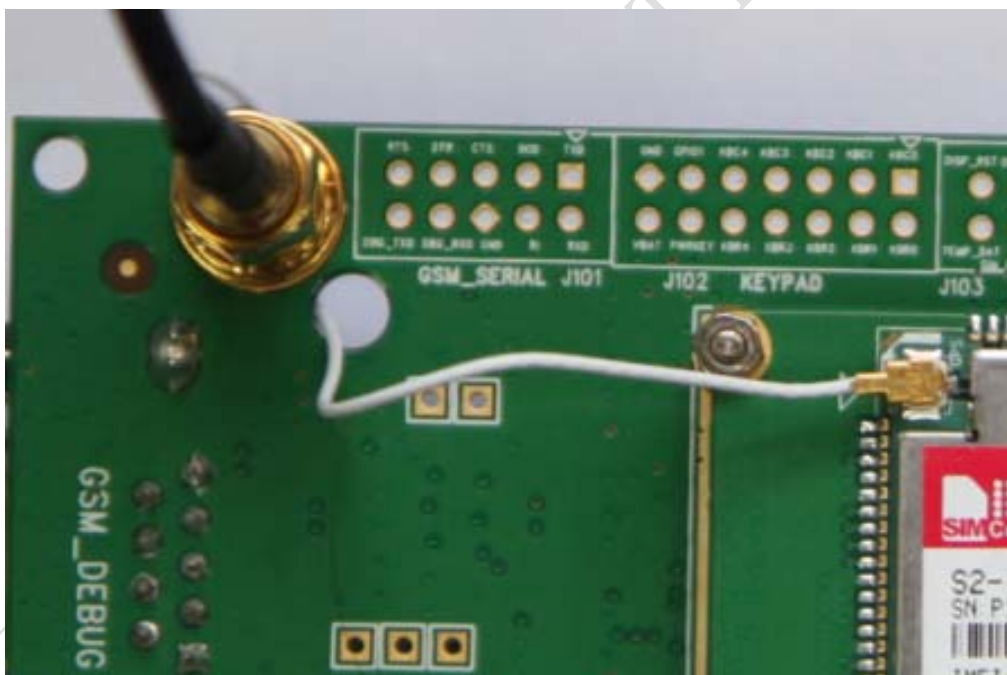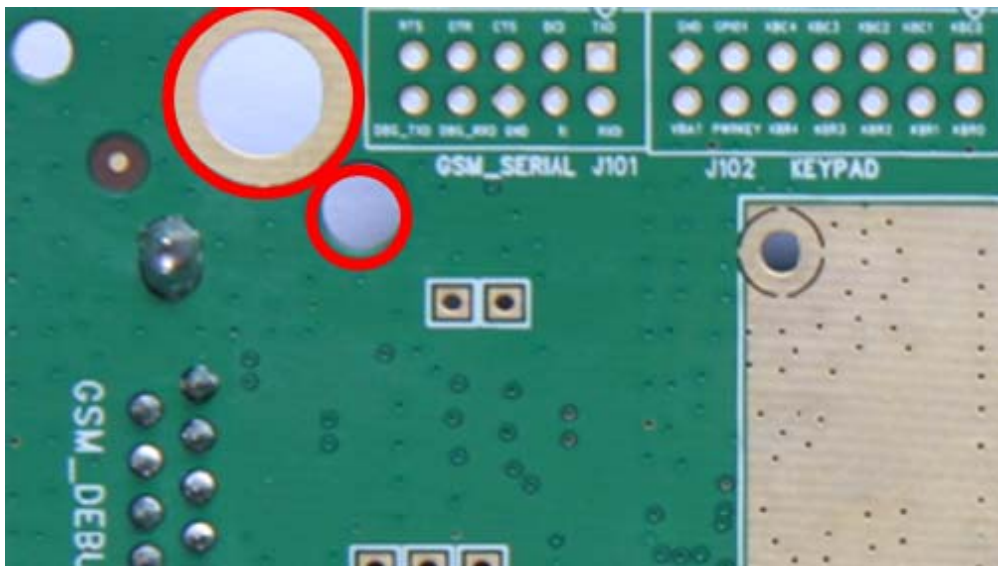
Figure 8: GPS antenna interface

3.5 RS232 interface
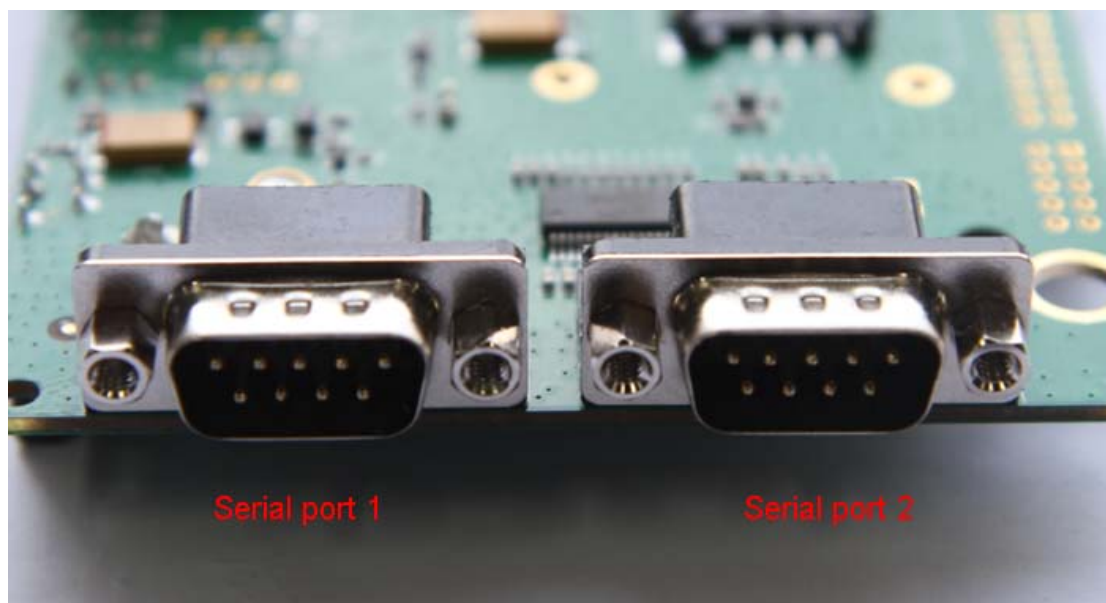
Figure 9: GSM part serial ports

Serial Port 1

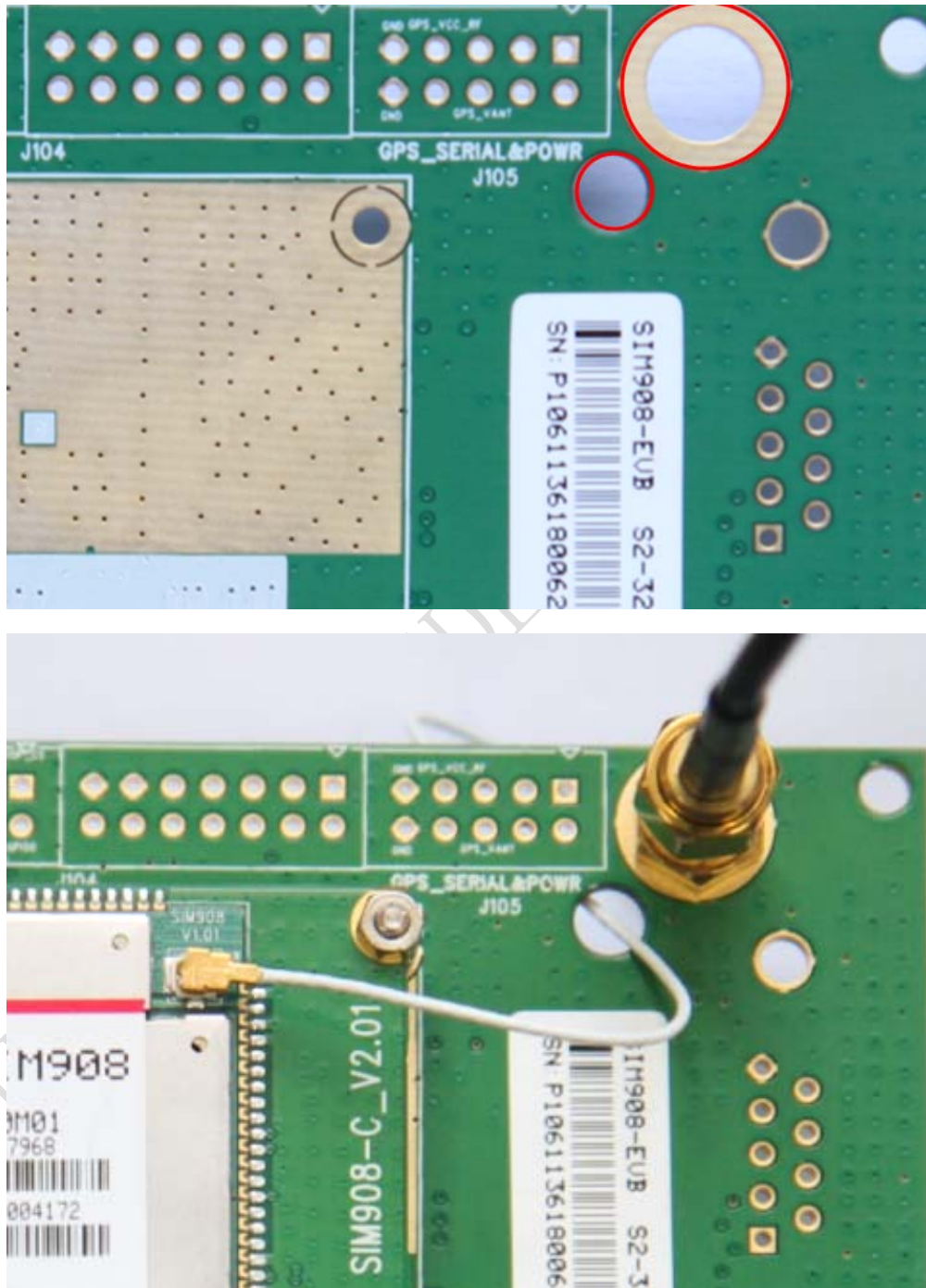| Pin	Signal	I/O	Description
1	DCD	O	Data carrier detection
2	TXD	O	Transmit data
3	RXD	I	Receive data
4	DTR	I	Data Terminal Ready
5	GND		GND
7	RTS	I	Request to Send
8	CTS	O	Clear to Send
9	RI	O	Ring Indicator

Serial Port 2

Pin	Signal	I/O	Description
2	DEBUG_TX	O	Transmit data
3	DEBUG_RX	I	Receive data
5	GND		GND

3.6 Operating status LED

3.6.1 GSM part
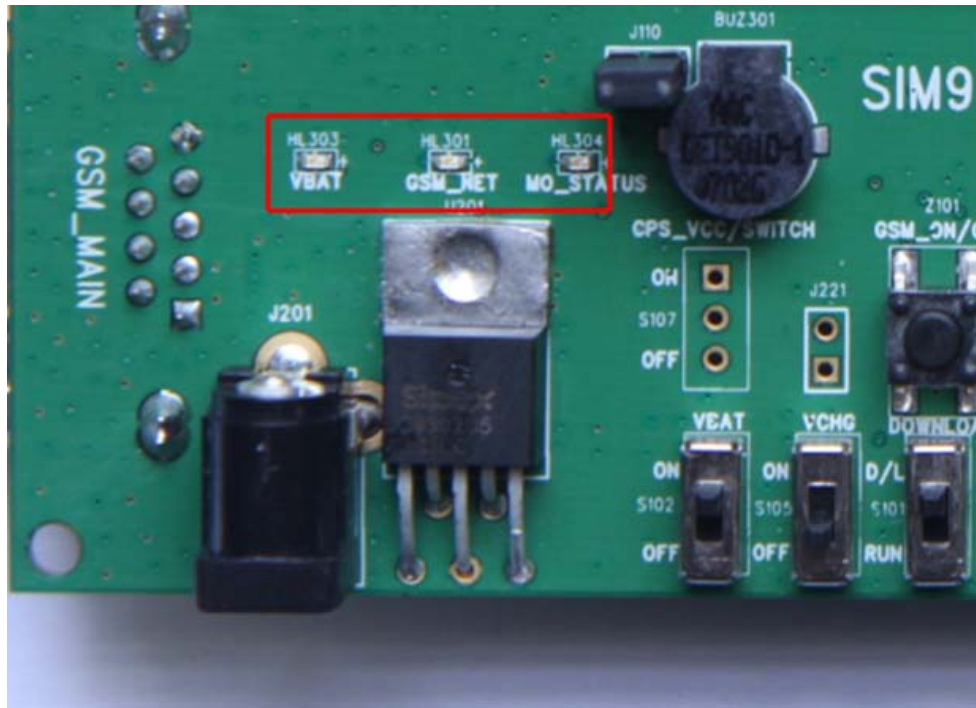
Figure 10: GSM part LED

Name	Description	STATUS
VBAT_LED	VBAT ON/OFF indicator	Bright: VBAT ON; Extinct: VBAT OFF
GSM_NET_LED	GSM_NET status indicator	Blinking at a certain frequency according to various GSM net status
MO_STATUS_LED	GSM part status indicator	Not used, will be configured in our latter software.

3.6.2 Debug indicator
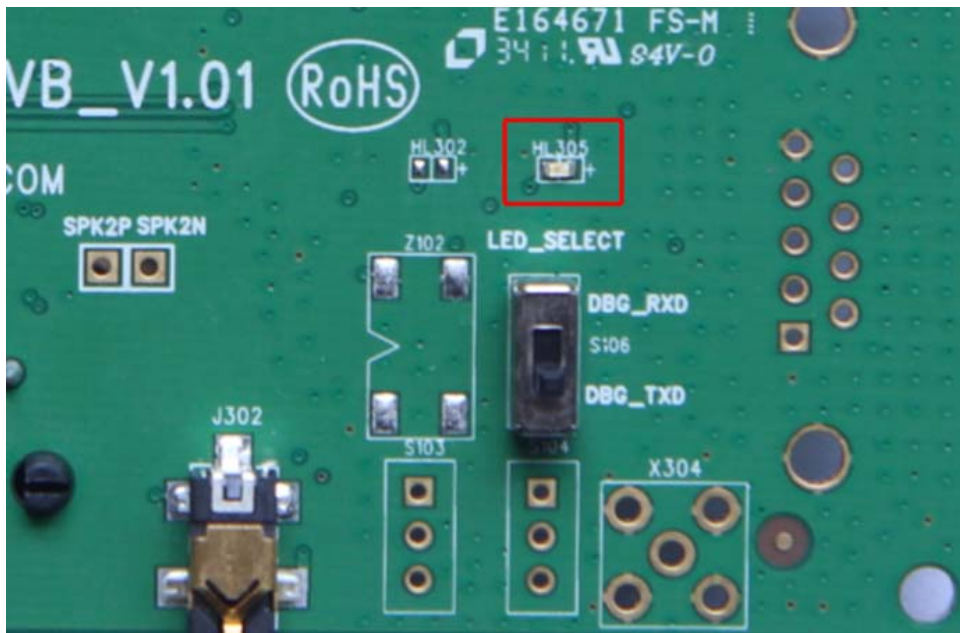
Figure 11: Debug port LED

Name	Description	STATUS
Debug_RXD/TXD_LED	Run or download indicator	Run normally: Blinking at 1Hz Download: Blinking rapidly

4 Test interface
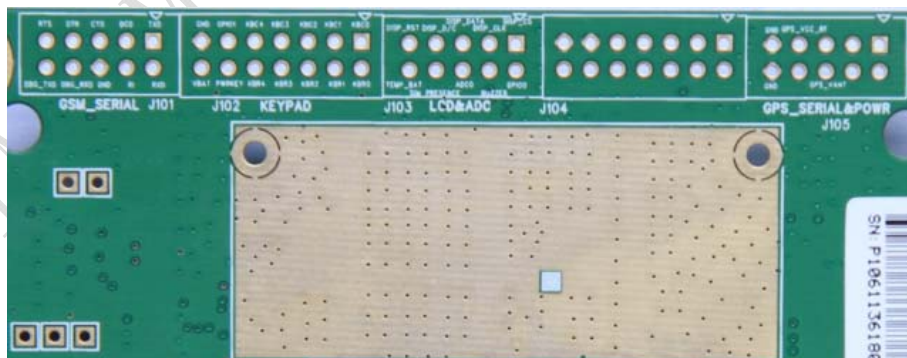
Figure 12: Test interface overview

4.1 GSM serial ports
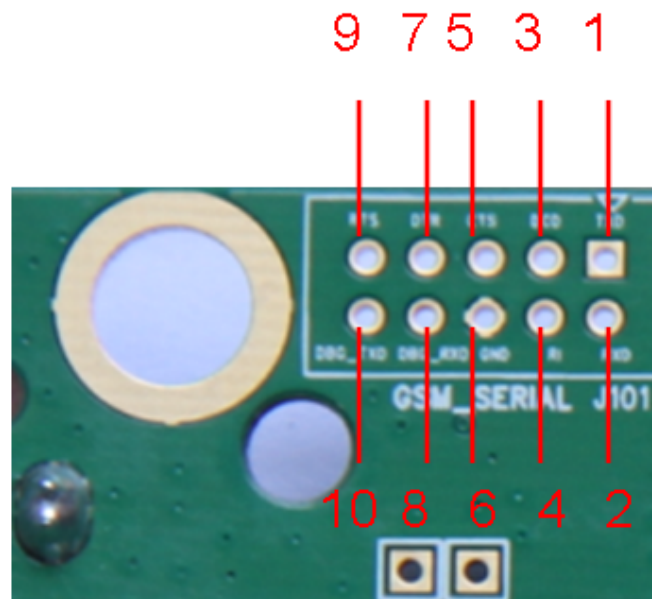
Figure 13: GSM serial ports

Pin	Signal	I/O	Description
1	TXD	O	Transmit data
2	RXD	I	Receive data
3	DCD	O	Data carrier detection
4	RI	O	Ring Indicator
5	CTS	O	Clear to Send
6	GND		GND
7	DTR	I	Data Terminal Ready
8	DEBUG_RX	I	Receive data
9	RTS	I	Request to Send
10	DEBUG_TX	O	Transmit data

4.2 LCD & ADC
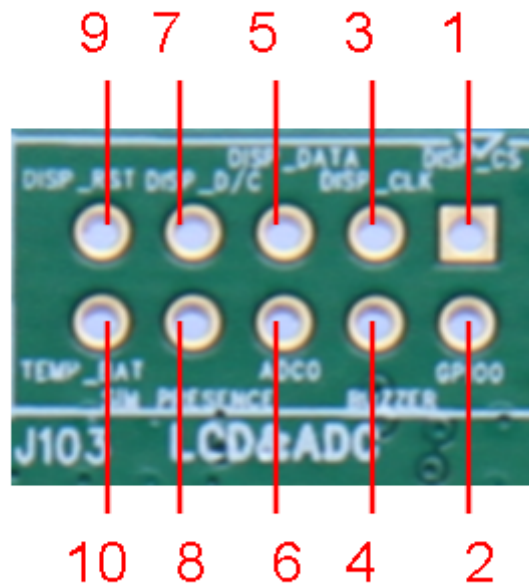
Figure 14: LCD & ADC interface

Pin	Signal	I/O	Description
1	DISP_CS	O	Display enable output
2	GPIO0	I/O	GPIO port
3	DISP_CLK	O	Display clock output
4	BUZZER	O	Buzzer output.
5	DISP_DATA	I/O	Display data line
6	ADC0	I	Adc input
7	DISP_D/C	O	Display data or address select
8	SIM_PRESENCE	I	SIM Card Detection
9	DISP_RESET	O	Display reset outplay
10	TEMP_BAT	I	For measure the batter temperature

4.3 GPS serial ports and power
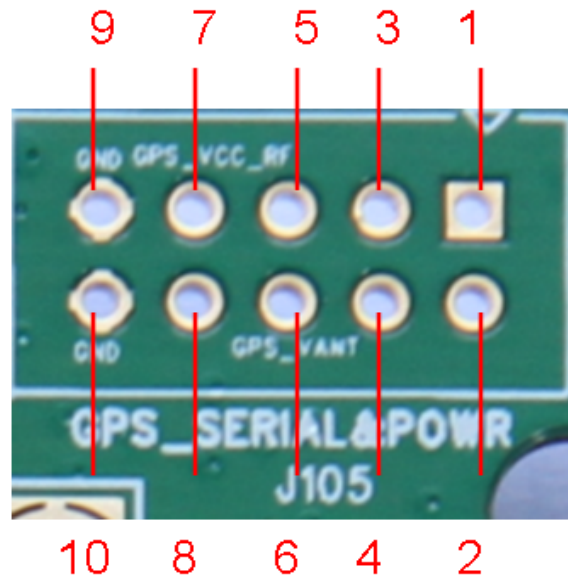
Figure 15: GPS serial port

Pin	Signal	I/O	Description
5	GPS_VCC_RF	O	Power supply for 3V active antenna.
6	GPS_VANT	I	External DC power supply for an active antenna.
9	GND		GND
10	GND		GND

5 EVB and accessory equipment

At normal circumstance, the EVB and its accessory are equipped as the following figure:

Figure 16: EVB and accessory equipment

6 Illustration

6.1 GSM part

6.1.1 Running

(1) Connect the SIM908 module to the 60pins connector on the SIM908 EVB, insert the 5V DC source adapter, switch shifter S101 on the RUN state, shifter S102 on the ON state;
Connect the GSM antenna to the SIM908 module using an antenna transmit line, insert SIM card into the SIM card interface, and insert headphone or handset into relevant interface.

(2) Press the GSM_ON/OFF button Z101 for about 2 seconds, then the GSM part of SIM908 is powered on.

Note: You will see the light GSM_NET on the EVB glittering at a certain frequency corresponding to various states, then you can judge whether the EVB and SIM908 is running or not. No function and test can be executed when we have not connected necessary accessories.

6.1.2 Connecting Net and calling

(1) Connect the serial port line to the GSM_MAIN serial port, open the HyperTerminal (AT command windows) on your personal computer, the location of the HyperTerminal for Windows XP is START →All programmes→ Accessories→ communications →HyperTerminal.
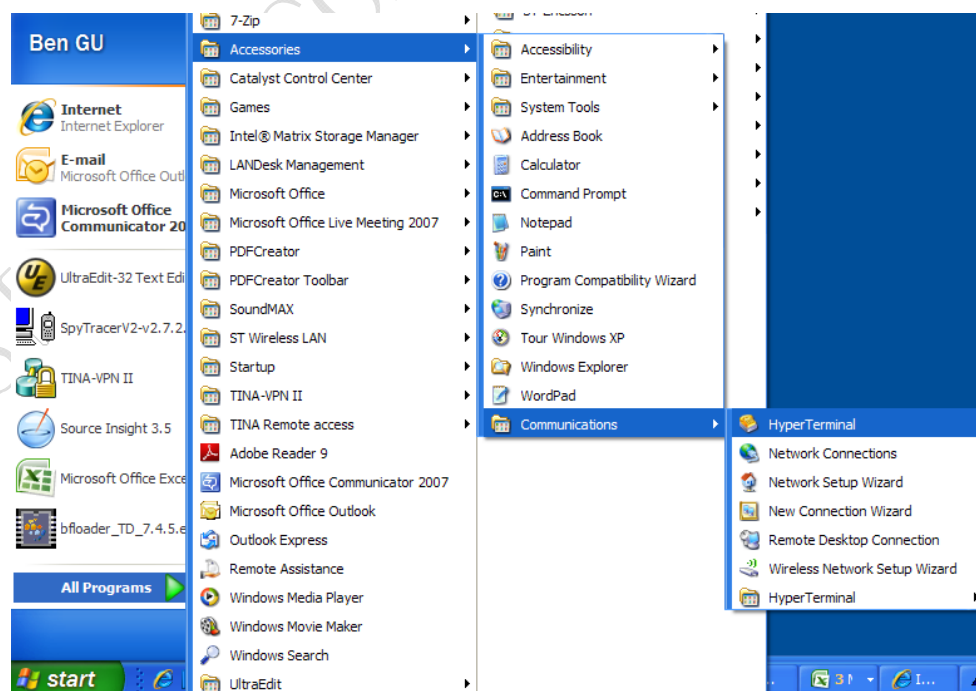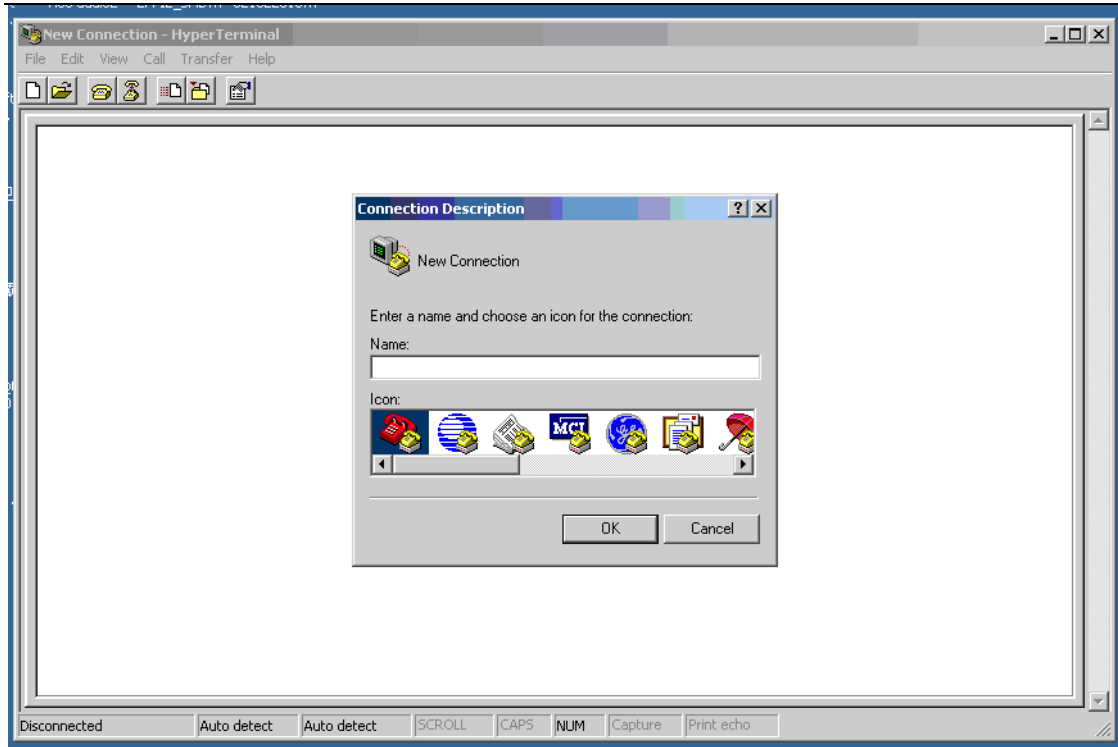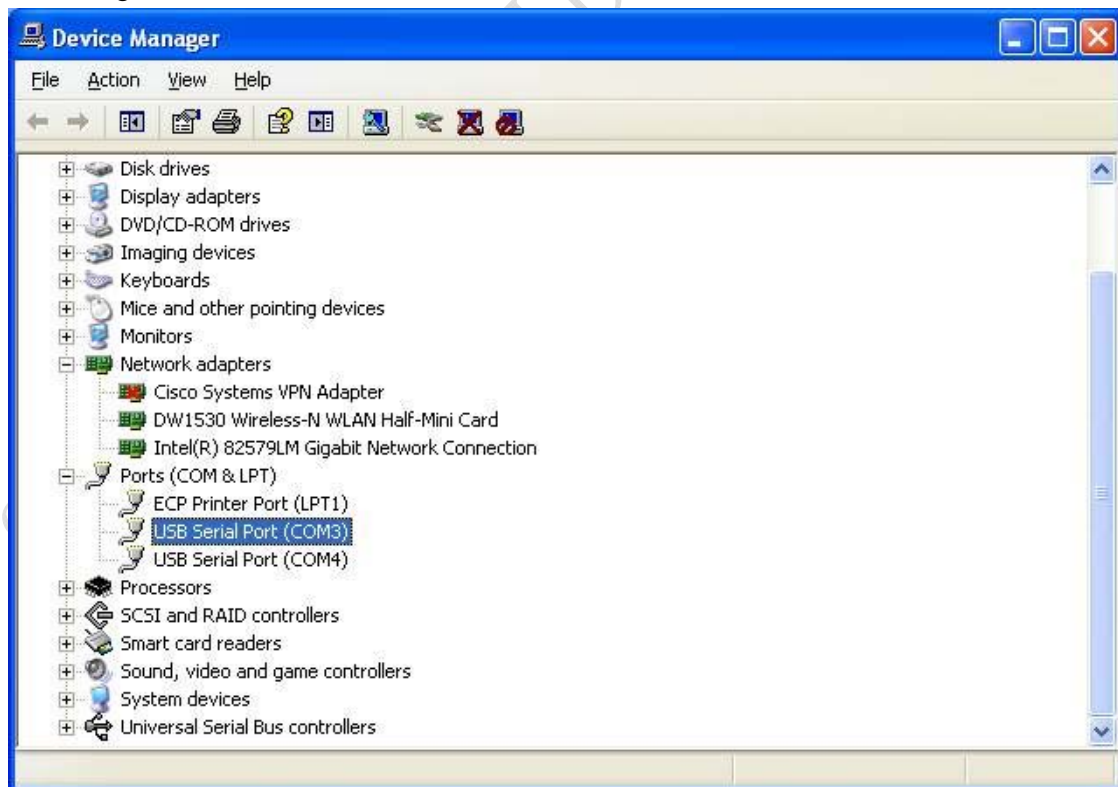

Figure 17: open Hyper Terminal

Figure 18: name Hyper Terminal

(2) Set the correct baud rate and COM number. The default baud rate of SIM908 is 57600 bps, and the COM number based on which port your serial port line insert in, conform it in the device manager, customers should select such as COM1，COM3 or COMx etc.

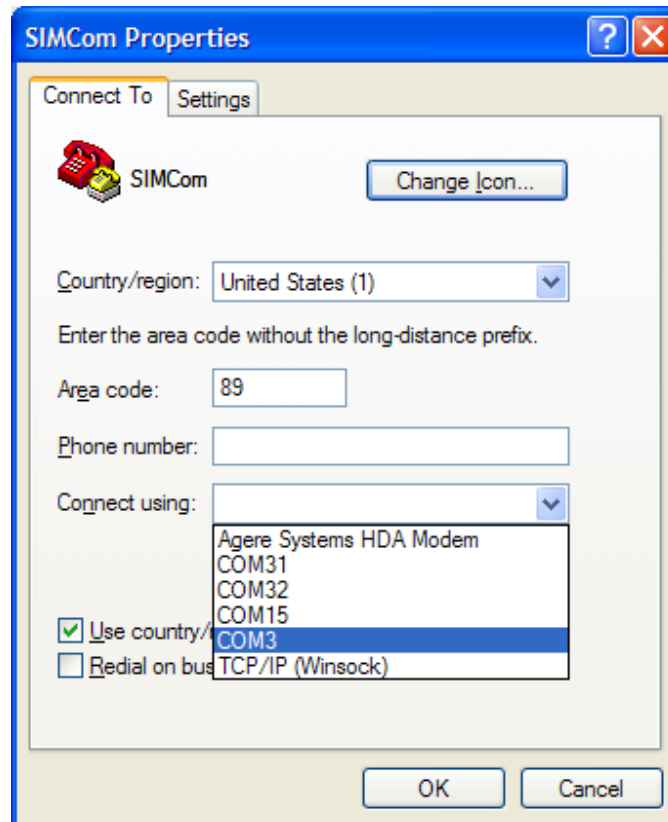**Figure 19: confirm port number**

(3)Choose the correct port number:

Figure 20: select port number

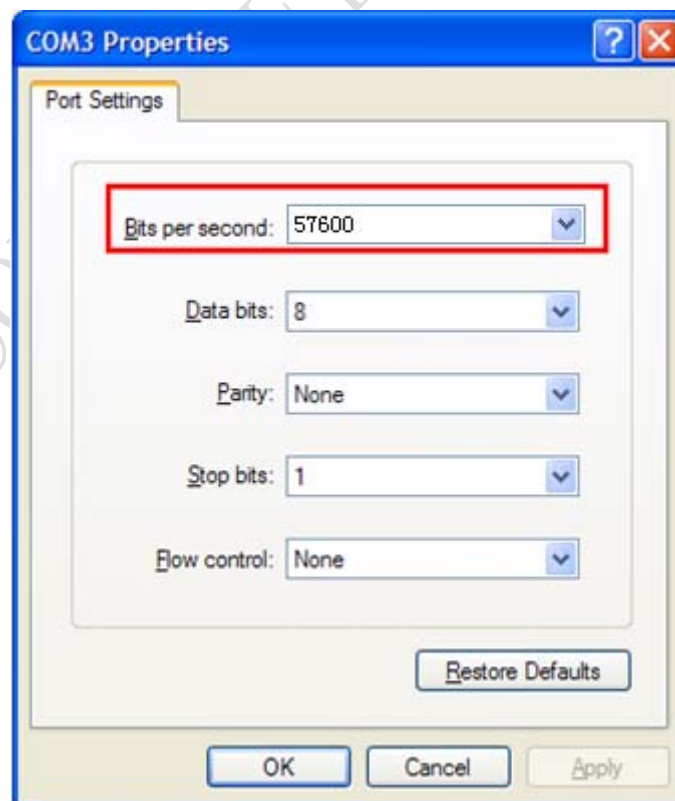(4)Set baud rate（default is 57600, no flow control）:

Figure 21: set baud rate

(5) Typing the AT commands in the HyperTerminal, and then the SIM908 module will execute its corresponding function. For detail AT commands related with GSM part please refer to *SIM908_AT Command Manual_V1.01.*

6.1.3 Downloading

SIM908 module shares the same flash loader with SIM900 which is a similar product also from SIMCom.

Connect the serial port cable to the GSM_MAIN serial port, plug 5V DC adapter, Shifter S101 on the D/L state（S102 is off now）, run the download program and press the ![START] key, then switch S102 to the on state, and then the download procedure is executing immediately.
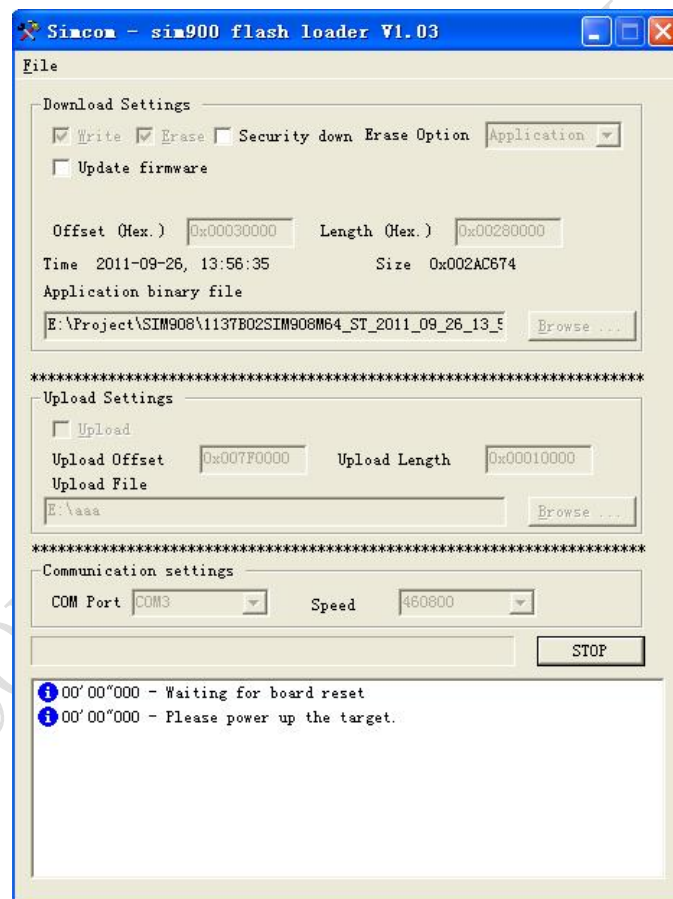
Figure 22: SIM908 flash loader

Notes: customers must pay attention to the sequence of the operation, run the download program and press the start key is the first step, then switch S102 follow the description above, so the module and PC tool can make a handshake successful and execute download procedure.

6.1.4 Turn off

Press the GSM_ON/OFF button Z101 for about 1 second, the GSM part of SIM908 will be turned off, and the GSM_NET led indicator will extinct.

6.1.5 Charging

Connect the SIM908 module to the 60pin connector interface and the external battery to charging interface, which have been provided on the EVB. Insert the direct current source adapter; switch shifter S102 on the OFF state, shifter S105 on the ON state, then the SIM908 will go to the charging state.

6.2 GPS part

SIMCom provides a GPS tool kit named "*SIMCom NMEA GPS DEMO*" to assist customers in the projects design, which provides an easy way to do some test about GPS. It has the same function as AT Command, this chapter will introduce these two methods briefly.

6.2.1 Running:

(1) Connect the module to the 60pins connector on the EVB, insert the 5V DC adapter, power on SIM908 EVB follow steps mentioned in chapter 6.1

(2) Connect SIM908 EVB to PC via two USB-Serial lines, connect to GSM_DEBUG and GSM_MAIN ports respectively.

(3) Click icon to start the tool, then click to configure , like the following figure shows, GPS COM select the GSM_DEBUG port number, and Baud rate is 115200, CMD COM select GSM_MAIN port number, the Baud rate is 57600. Customers can confirm the port number in device manager, click to finish configuration.
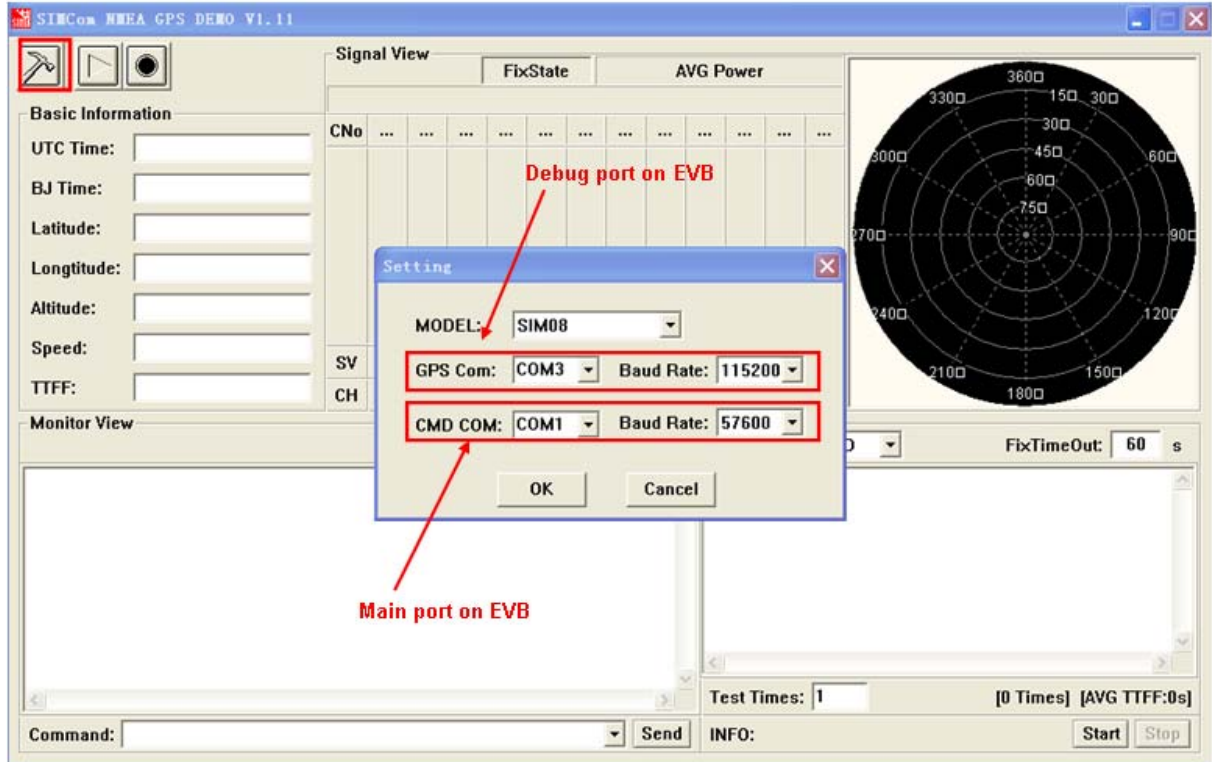
Figure 23: setting GPS tool

(4) Click ◢ to run, and if the $GPGGA/$GPGSA NMEA sentences appear in Monitor

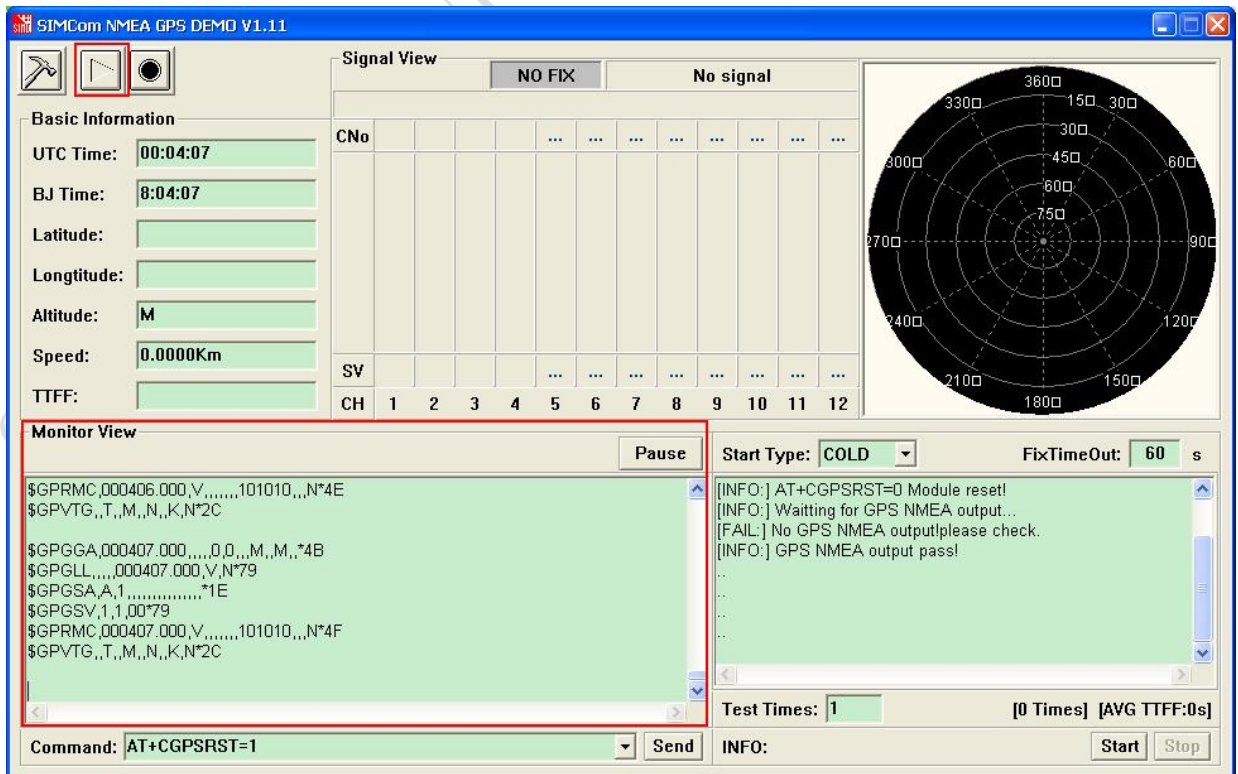View, the SIM908 is acquiring the GPS signal.

Figure 24: power on GPS

AT Command can also run the GPS, Open HyperTerminal, type in "AT+CGPSPWR=1" to power on GPS, and "AT+CGPSRST=1" to reset GPS in cold start mode, cold start mode is recommended for first time reset. For detail AT Commands about GPS please refer to *SIM908_AT Command Manual_V1.01.*

No function and test can be executed when we have not connected necessary accessories.

Notes:There are two types of GPS antenna: One is active antenna, if the customer uses the active GPS antenna in the SIM908-EVB kit to demo GPS, for providing the power to the active GPS antenna, it is necessary to connect GPS_VANT with GPS_RF_VCC, the picture as below: The other is passive antenna, if customers want to use passive GPS antenna to demo GPS, there is no need to provide power to the antenna.
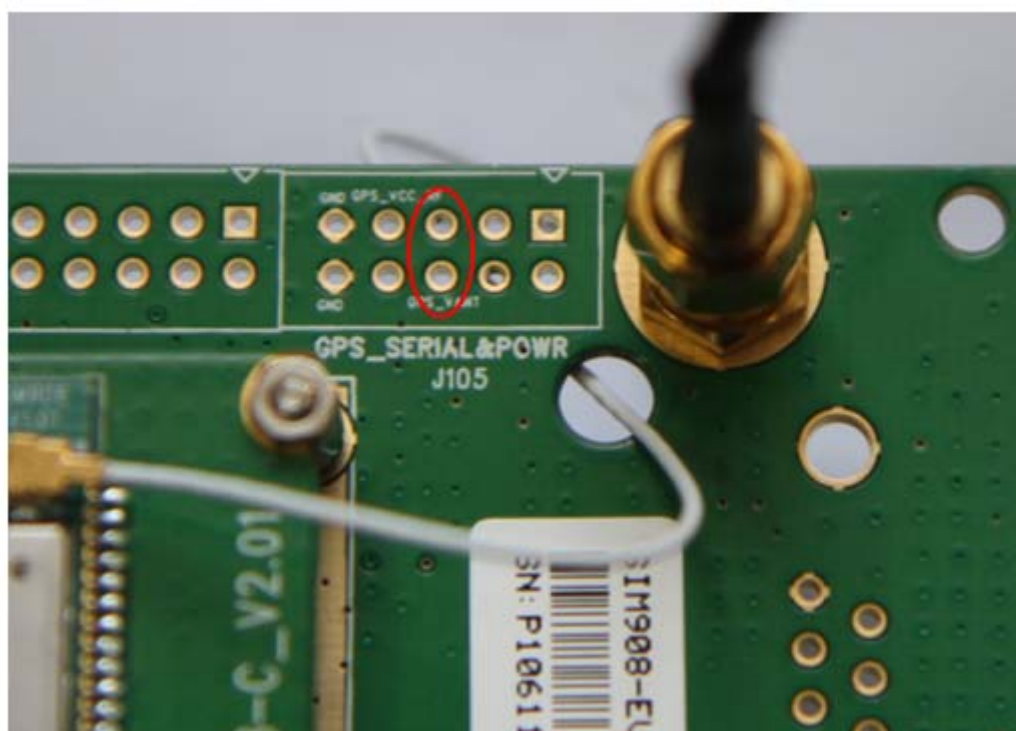
Figure 25: GPS_VANT and GPS_RF_VCC

6.2.2 Position fixed

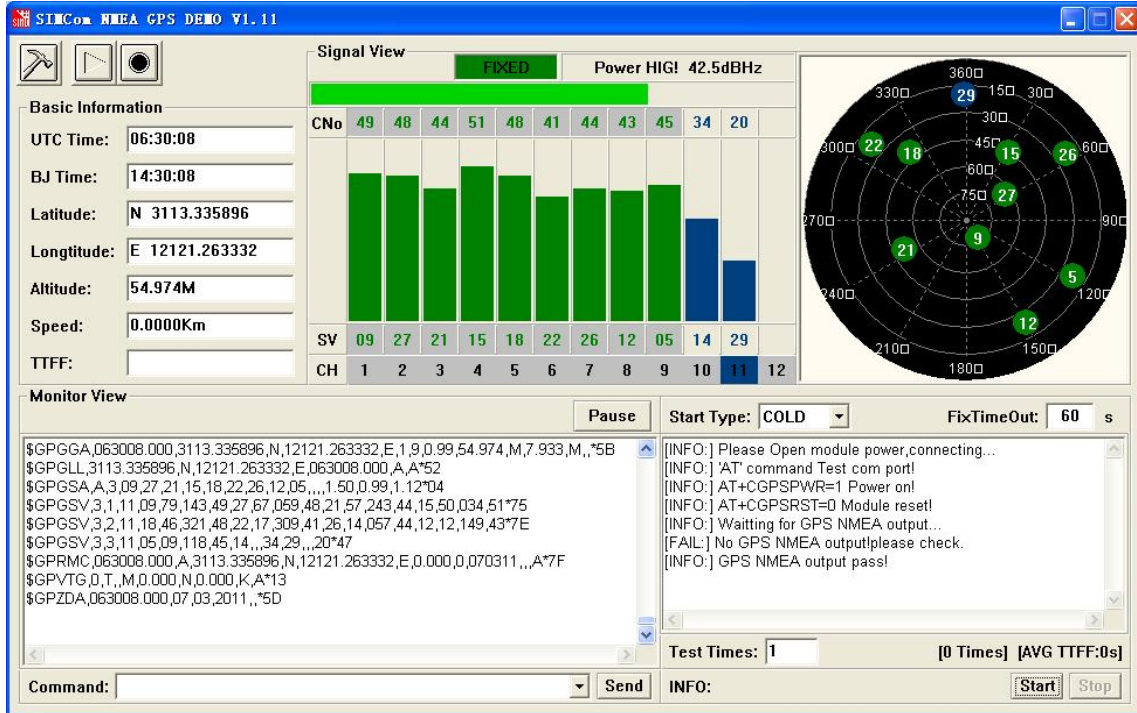After position has been fixed, the GPS information can be viewed in two methods: Monitor View and Signal View.

Figure 26: Position fixed

6.2.3 TTFF Test

SIMCom NMEA DEMO TOOL supports SIM908 TTFF test. The TTFF information is shown in the following figure:
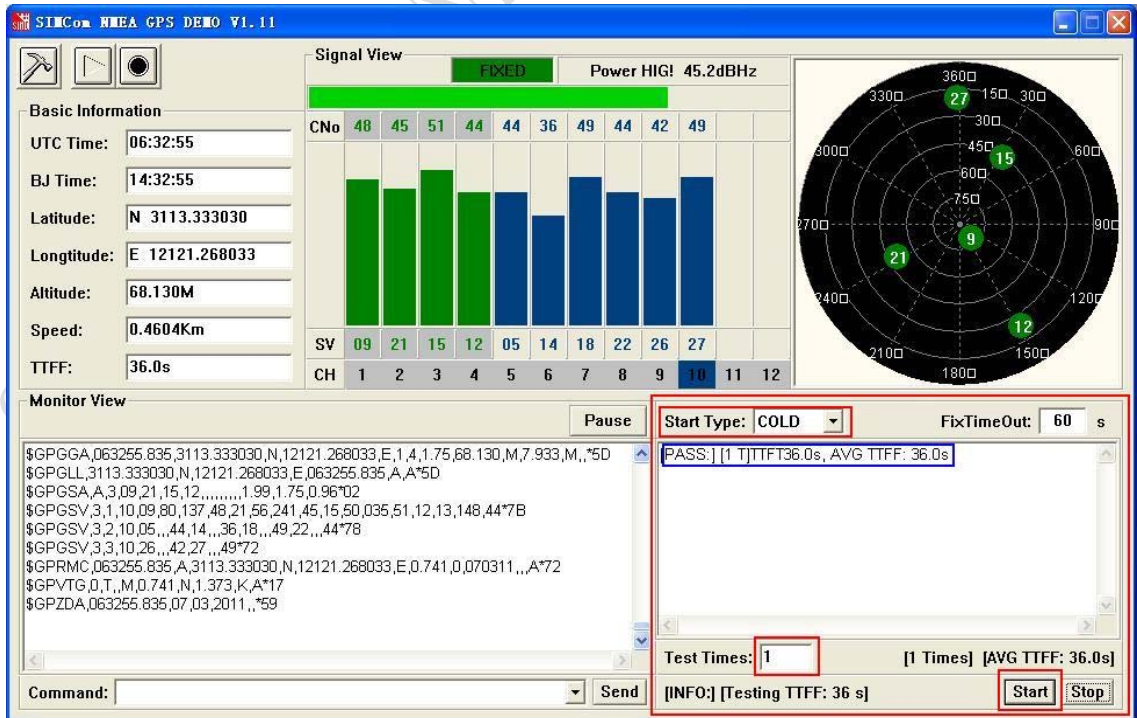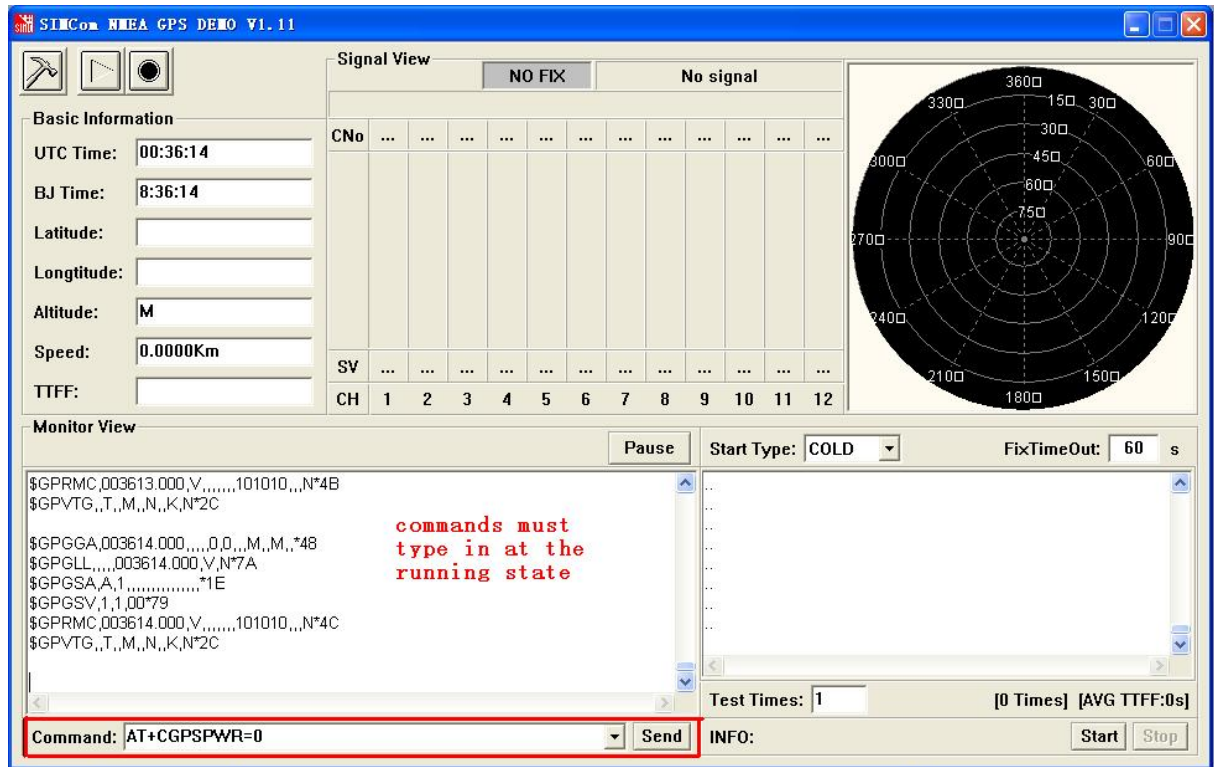

Figure 27: TTFF test

6.2.4 Turn off and Reset

(1) Turn off: SIMCom NMEA DEMO TOOL supports AT Command input at the running state, customers can turn off the GPS module by type in "AT+CGPSPWR=0", and click the

Send button to execute.

Figure 28: power off GPS part

Note: customers can also turn off GPS in Hyper Terminal with the same command.

(2) Reset: Similar with turn off operation, customers can type in "AT+CGPSRST=0" to reset GPS in cold start mode, cold start mode is recommended for first time reset

Contact us:
Shanghai SIMCom Wireless Solutions Ltd.
Add: SIM Technology Building，No.633，Jinzhong Road，Changning District，
Shanghai P.R. China 200335
Tel: +86 21 3252 3300
Fax: +86 21 3252 3301
URL: www.sim.com/wm/