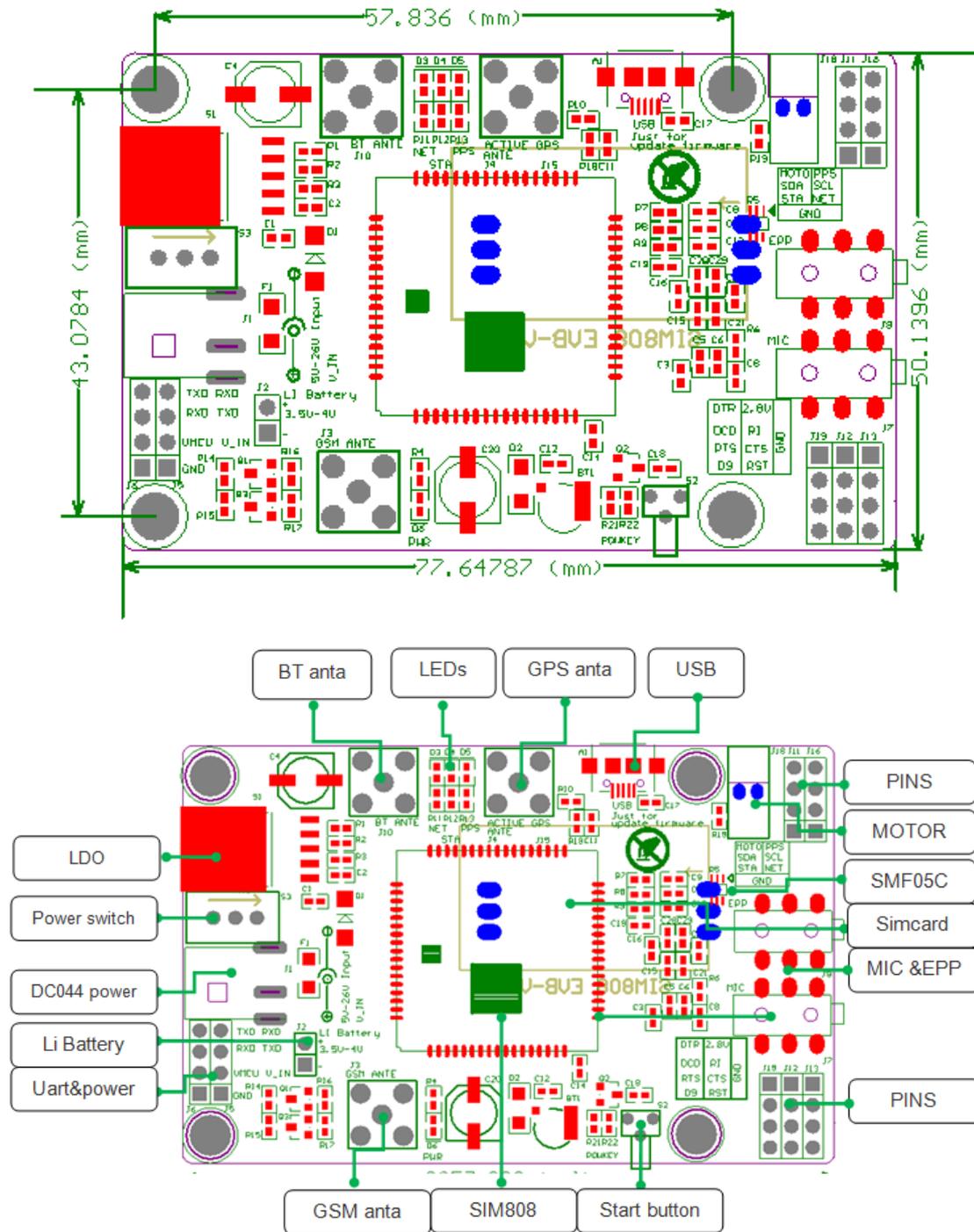


## What is on Board?

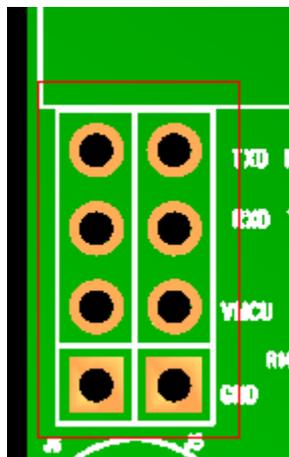


1. **Three power input interface:** DC044 interface and V\_IN and a lithium battery interface.

Note that: The range of DC044 and the V\_IN pin voltage input is 5 - 26V, when use the 5V as the power, be sure that the power supply can provide 2A current. The range of voltage of Lithium battery input power is 3.5 - 4.2V.

2. **Switch:** It is used to open / close the input power supply for the module. When in use, please confirm the toggle switched to the OPEN state (near the board inside).
3. **SMA antenna interface:** there is a GSM antenna interface, a GPS antenna interface onboard and a BT antenna interface.
4. **Start button:** When the board is power on, the LED (PWR) will light up. After a long press (about 2 second) on this button, the other three LEDs will be light. And one of them starts to flash; this suggests that SIM808 is beginning to work now. When the power supply, GSM and GPS antenna and SIM card are connected to the module correctly, the LED will be flash slowly (3Second de 1second light), that indicates that the module is registered to the network, and you can make a call or do something else.
5. **TTL serial interface:** a TTL level interface. Notice that: The pin of VMCU is used to control the high level of TTL UART, so as to realize to match between 1.25V/3.3V /5V systems. For example, if you want to use the 51 MCU to control this board, the pin of VMCU should be connected the DC5V. And if use the STM32 MCU, the pin of VMCU should be connected the DC3.3V. The pins of RXD is the RXD of SIM808 and the pins of TXD is the TXD of SIM808. The pin of V\_IN can connect the Power, the function of this pin has the same function of DC044.
6. **USB interface:** This interface is just use to update the firmware of SIM808 module.

### The Pins distribution of UART TTL interface is:



TXD	RXD
RXD	TXD
VMCU	V_IN
GND	GND

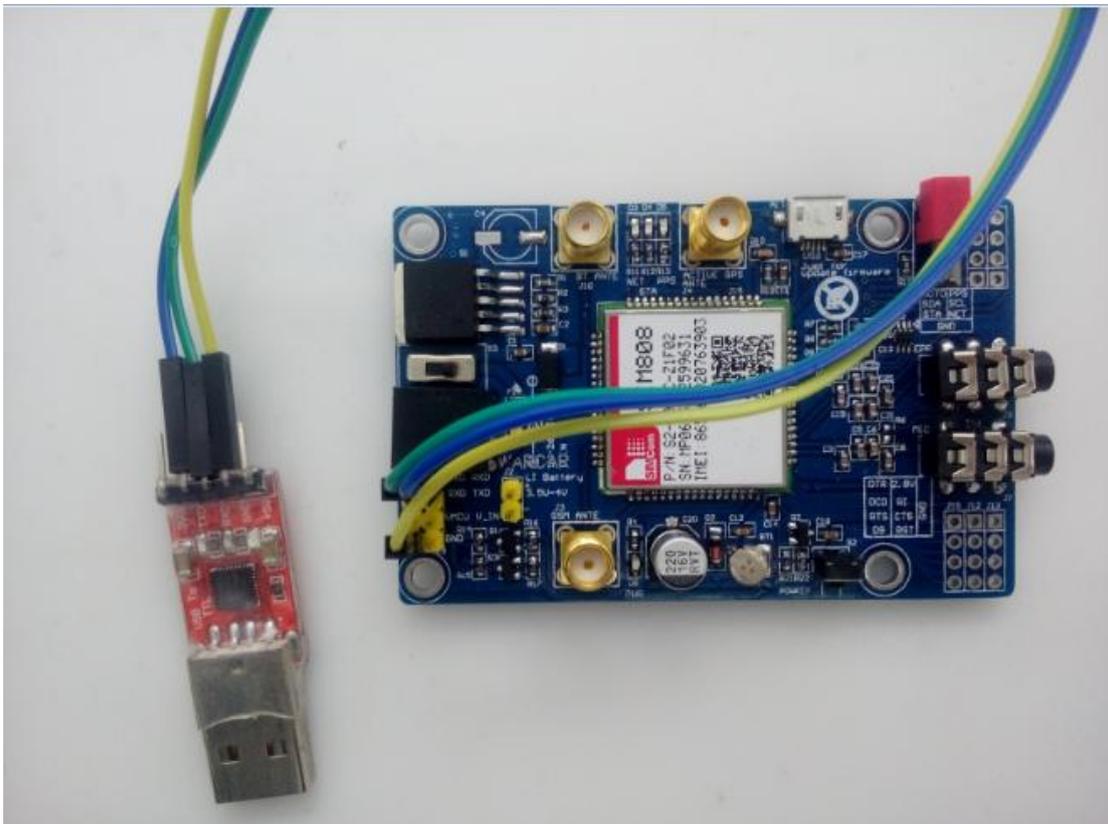
## Operation Description:

### 1. Preparation:

- ✓ SIM808 SHIELD
- ✓ DC9V adapter
- ✓ USB-TTL module or other tools.
- ✓ PC software

### 2. Hardware configurations

2.1 Connect the USB-TTL to the UART interface like this:



USB-TTL	SIM808
TXD	RXD
RXD	TXD
GND	GND

2.2 Insert the valid SIM card to the SIMCARD holder.

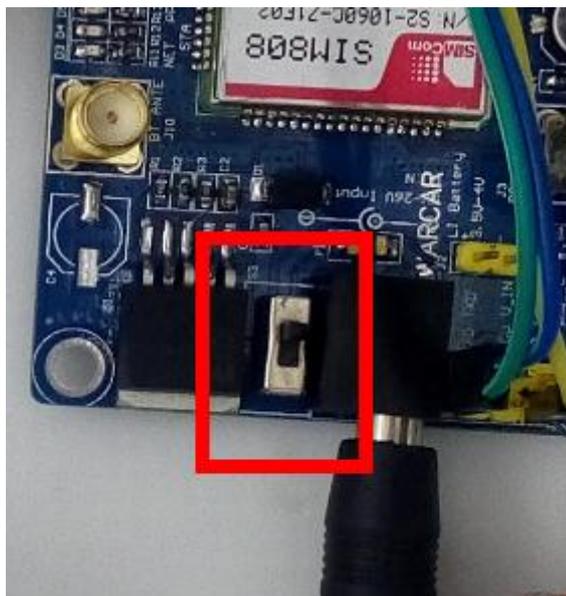
2.3 Connect the GPS antenna and GSM antenna to the board like this:



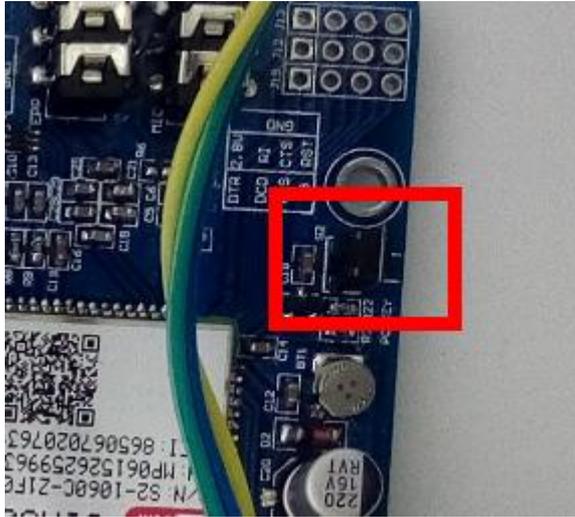
Connect the power adapter to the DC044 Interface like this:



2.4 Change the switch like this.



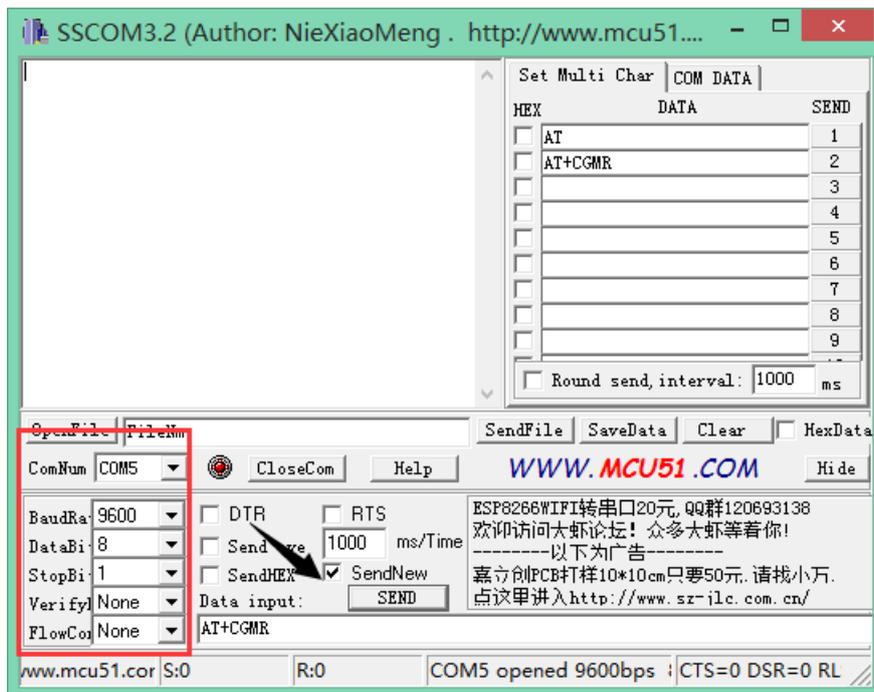
2.6 Press the POWKEY button for 2 second, the SIM808 module will work and the other 3 LEDs will light.



3. We will illustrate the usage of the module with an example of how to operate under GSM mode in the following section.

3.1 We should connect the TTL-USB to the UART interface and press the POWKEY button for 2 second. When the four LEDs is lighting, it indicates that module is working, we can send AT command to control it.

3.2 Start the *sscom.exe* serial tool on PC, and perform operations as followed.



In this example, the ComNum is set to COM5. In practical application, please right click the icon

MyComputer->Property->Device Manager, in order to check corresponding port number.

3.3 Fill in the Data input box with AT COMMAND, and click the button Send to transmit the command. The data receive box displays the return values from the corresponding serial port, as following Figure shows.



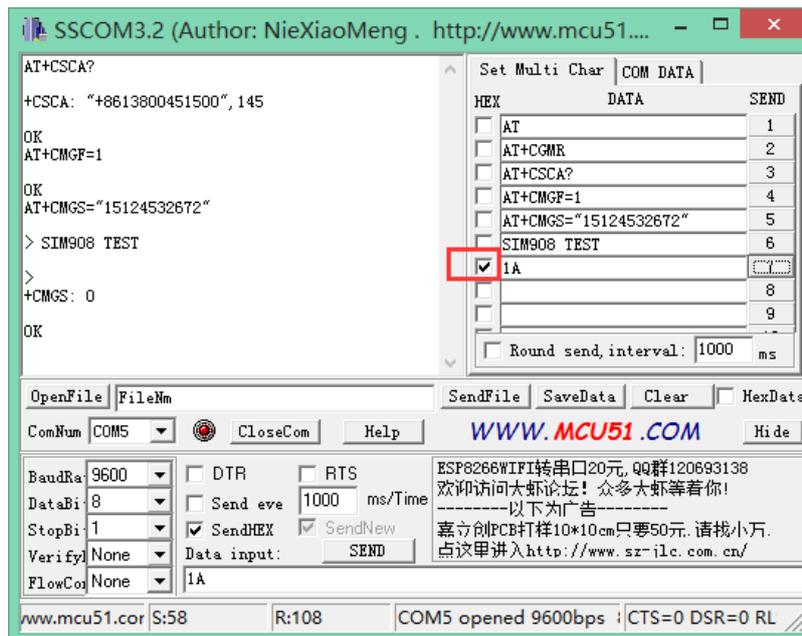
## 4 GSM debugging

4.1 Connect the USB-TTL to the GPRS UART interface

4.2 Common command descriptions for message transmission

Commands	Descriptions	Return values
AT	Make sure the module is working properly	AT OK
AT+CSCA?	Get the core number of message	+csc:"*****"
AT+CMGF=1	Select SMS message format	AT+CMGF=1 OK
AT+CMGS="15124532672"	Set the message transmission number and send SMS message. After receiving the symbol >, the message	>

	Hello World!(*) can be sent out	
SIM808 test	The context of message	SIM808 test
1A	This is a terminator. Before sending it out, you should check the option Send As Hex	
	Send successfully	+CMGS:* OK



(For more detailed information about AT commands, please refer to SIM808\_AT+Command+Manual\_V1.01)

## 5 GPS debugging

5.1 Switching to GPS mode from GSM mode: We should connect the TTL-USB to the *GPRS* UART interface. Send the following commands:

- AT+CGNSPWR=1 (turn on GPS power supply)
- AT+CGNSTST=1 (get the GPS data)



## 6.2 Receive the NMEA0183 GPS data:

We connect the TTL-USB to the UART interface. And we will get the data as the fig.5.2 shows.

Notices:

1. User should send the commands listed above to turn on GPS power supply before receiving the GPS data.
2. If you do not know what is the NMEA0183 data, please search it on the internet.
3. In the application of GPS function, we can send AT+CGNSINF=\* (\* represent specific figures, please see the AT instruction set) command to get the GPS information through the

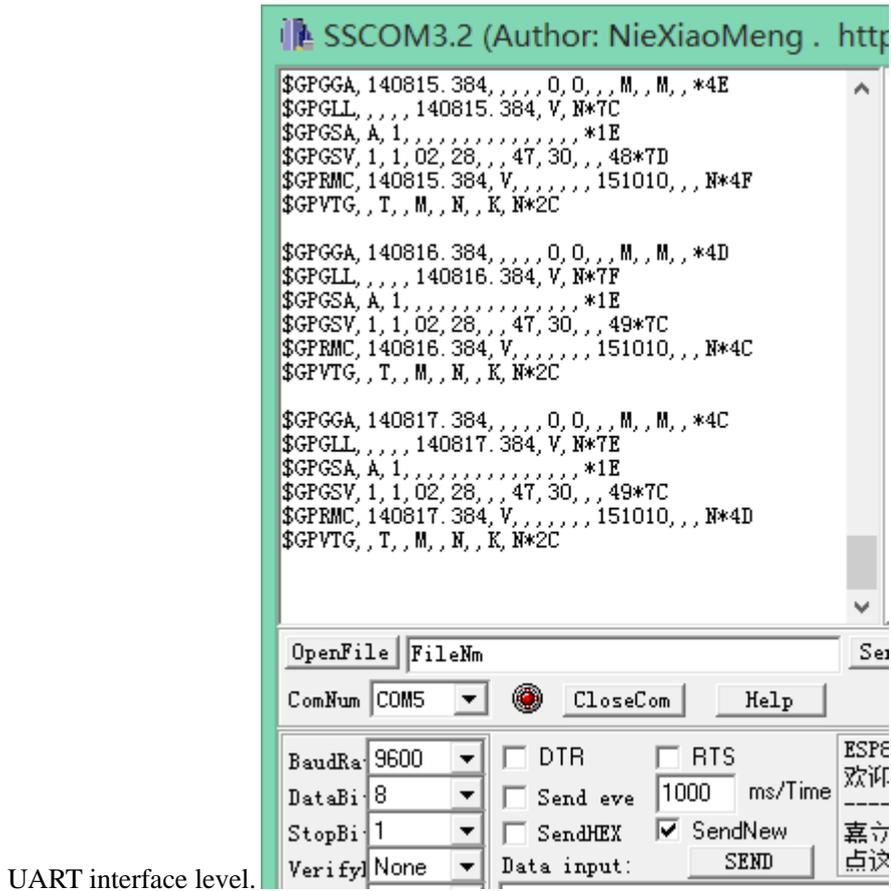


Fig.5.2 Receiving the GPS data

## 5.2 Checking GPS information with NEMA GPS Demo

- 1) Start the software NEMA GPS DEMO V2.2, as Figure 7 shows.

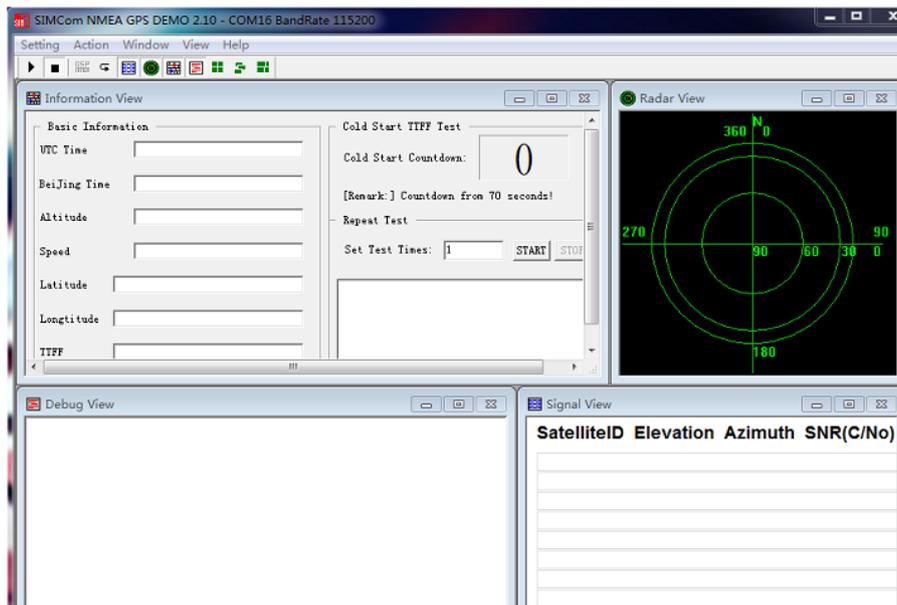


Figure 7: NEMA GPS Demo

- 2) Open corresponding port: setting->port Setting, and set the port and Baud rate: 9600 (If the Baud rate of the module is modified to a certain value by sending

AT+CGPSIPR command, the modified Baud rate should be used in here).

- 3) Select Action->run. Then, you can see the relative GPS information, as Figure 8 shows.

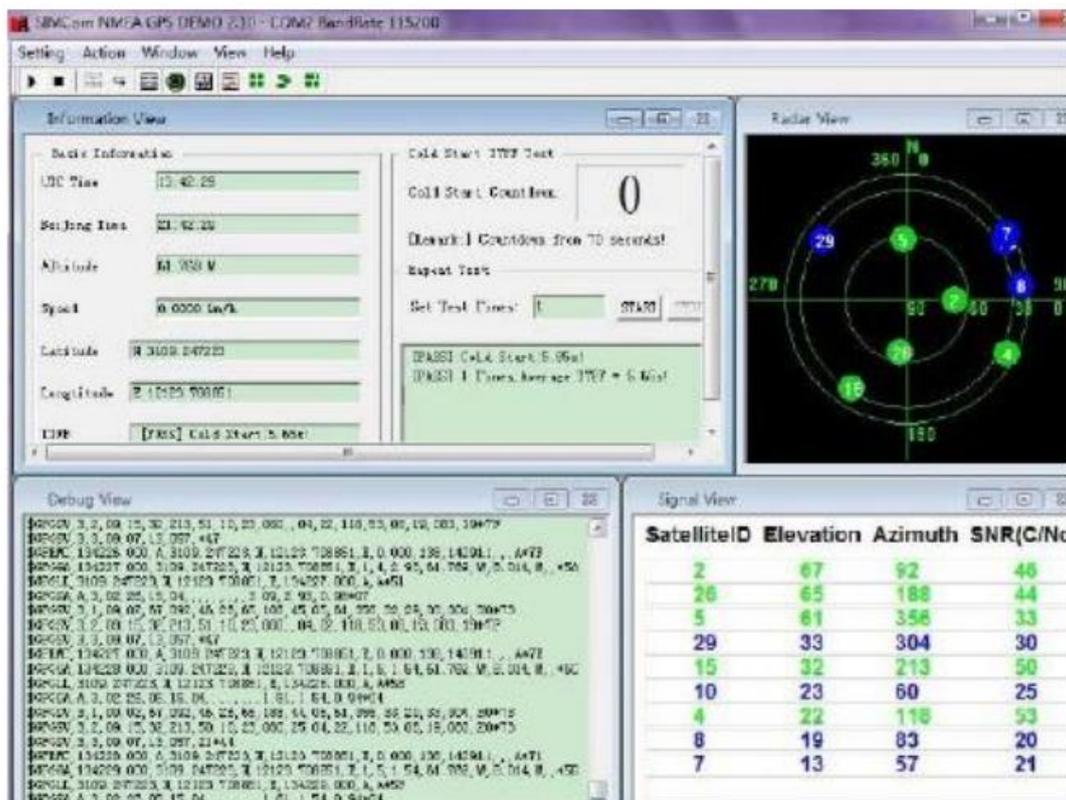


Figure 8: Checking GPS information

## 7. GPRS debugging

### 6.1 Selecting GSM serial control port.

First we should connect the TTL-USB to the UART interface.

1. Configure virtual server on local PC. Virtual server defines the mapping relationships between WAN service port and LAN servers. Any access to this WAN service port will be retargeted to corresponding local network server which is assigned by IP address (For more detailed information, please refer to your router manuals).
2. Set port number: 12345 (it can be set to any number but existing port number. In this example, it is set to 12345).
3. Set PC intranet IP address (To obtain the intranet IP address of your PC, you can run a CMD command on your PC to enter MS-DOS (Win XP) or Command Prompt (Win 7 or higher version OS), and input the command ipconfig to check

the IPv4 address. In this example, the intranet IP address of PC is 192.168.1.104.

## 6.2 GPRS configuration

The GPRS configuration can be performed by sending out following commands sequentially.

Commands	AT command descriptions
AT+CSQ	Signal quality report
AT+CSTT="CMNET"	Set wireless access point to CMNET
AT+CIICR	Bring up wireless connection with GPRS or CSD
AT+CIFSR	Get local IP address
AT+CDNSGIP=www.sim.com	Query the IP address of the given domain name

Table 7: GPRS command configuration

Checking WAN IP address (hereafter “Extranet IP address”) the extranet IP address can be obtained by entering the relative IP address into the search engine directly or inquiring to your network service provider. In this example, the WAN IP address is 222.125.175.28. Then, send out the following commands sequentially, to perform GPRS debugging testing.

Commands	AT command descriptions
AT+CIPSTART="TCP", "222.125.175.28", "12345"	The extranet IP address should be set according to actual condition. In this example, the extranet IP address is 222.125.175.28, and port number is 12345
AT+CIPSEND	Send SMS message. After receiving the symbol >, the message ABCDEF(*) can be sent out
1A	This is a terminator. Before sending it out, you should check the option Send As Hex
AT+CIPCLOSE	Close TCP or UDP connection
AT+CIPSHUT	Deactivate GPRS PDP context

(\*)After sending the message ABCDEF, you should check the option Send As Hex, and then send the command 1A to indicate the message to be sent is end. In this case, the message you input will be delivered actually.

Table 8: GPRS debugging commands

**(For more detailed information about AT commands, please refer to SIM808\_AT+Command+Manual\_V1.01)**