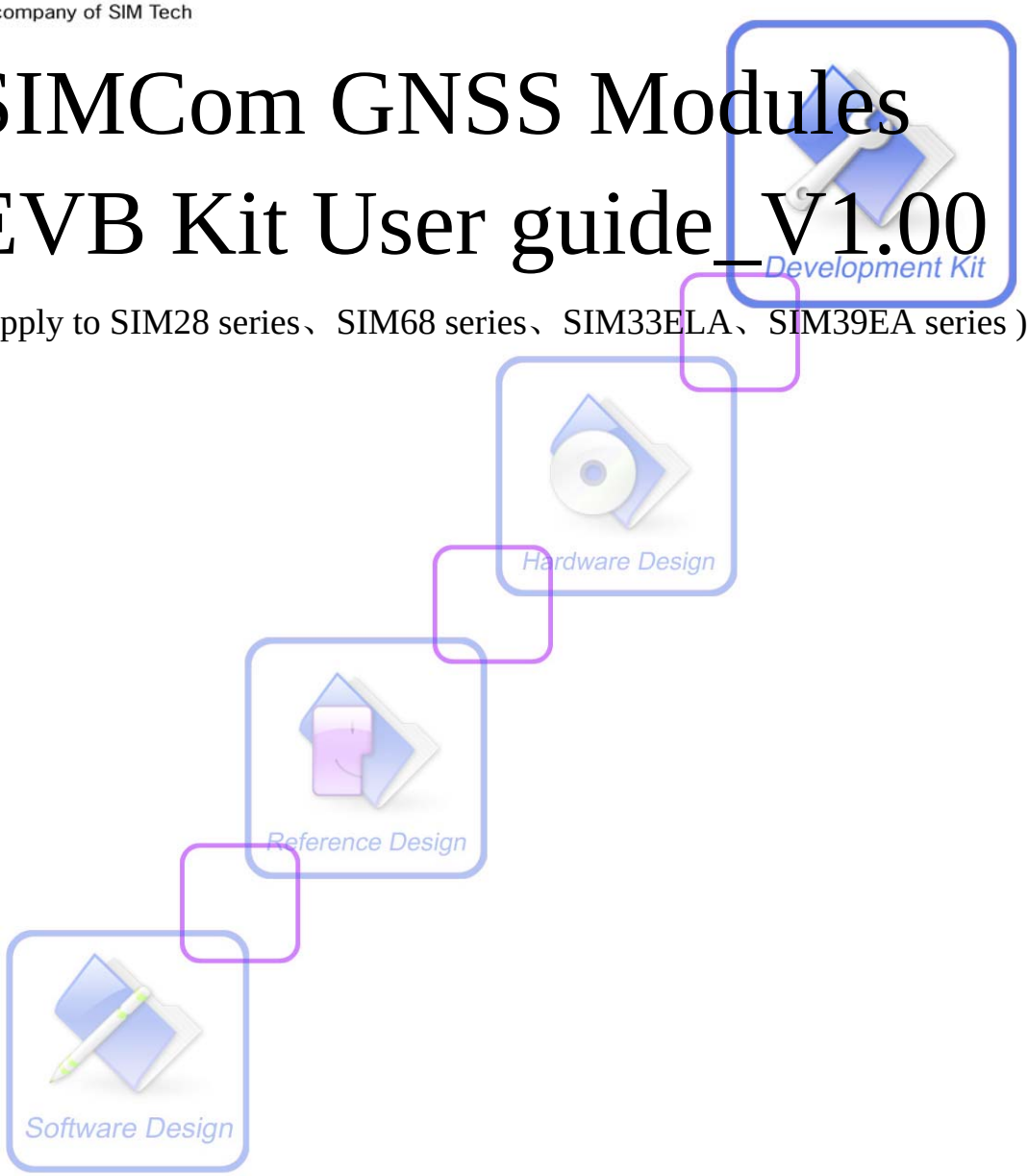
SIMCom GNSS Modules EVB Kit User guide_V1.00

(Apply to SIM28 series、SIM68 series、SIM33ELA、SIM39EA series)



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Version History

Data	Version	Description of change	Author
2012-12-11	1.00	Origin	Honggang. Ma
2014-5-20	1.00	Modify the document for SIMcom GNSS modules	Chengbing.wu

1. Introduction

This document introduces the usage of SIM68 EVB kit, it applies to most of SIMCom GNSS Modules. User can get useful information about the SIM68 EVB quickly through this document.

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

2. SIM68_EVB Overview

2.1 Detailed description of SIM68-EVB

The chapter introduces the functions of each component.

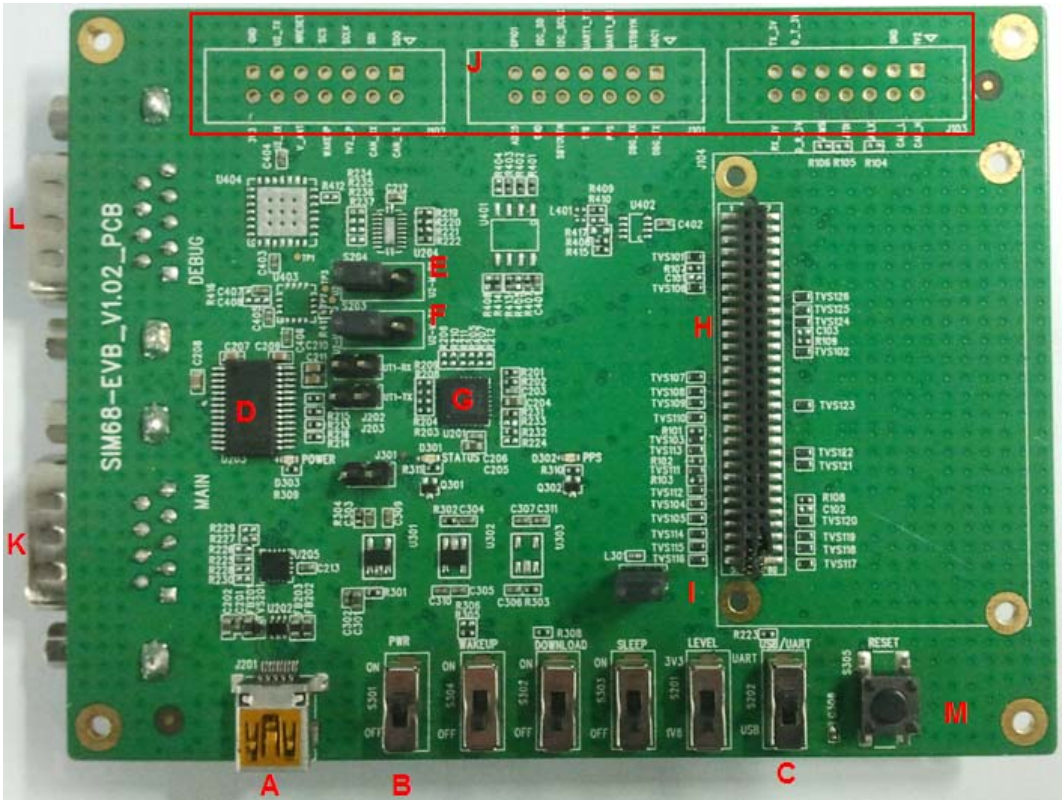

Figure 1: SIM68-EVB components function

A: USB interface, support USB communication with SIMcom GNSS module, and also power the SIM68-EVB.

B: S301, Power switch, push up to power the EVB and module, push down to power off.

C: S202, NMEA output select. Push up to choose USB port. Push down to close.

D: UART to RS232 transceiver

E, F: Select for receiving NMEA data from A or K. Jump the left and middle needle is select A

port, jump the middle and right needle is select K port.

G: UART to USB transceiver.

H: 60 PIN connect to TE board of the navigation SIMcom GNSS module

I: J302, the jumper of VANT which is the source of active of antenna.(Internal to the antenna power supply module doesn't need)

J: Test point area. (Customer should contact SIMCom if the test point is needed).

K: Main UART port for the NMEA output.

L: Debug UART port, reserved.

M: Reset button (for Parts of module).

2.2 USB Interface

There is one Mini-USB interface on SIM68-EVB, which is transferred to UART by a USB to UART chip CP2103 on the EVB board. User need to install CP2103 driver in their PC first, then connect the EVB board to the PC by a USB cable, and push S301 up to power the SIM68-EVB.

Please download the latest CP2103 driver according to the PC's OS from the following link: ***http://www.silabs.com/products/mcu/pages/usbtouartbridgevcpdrivers.aspx*** or contact SIMCom for support.

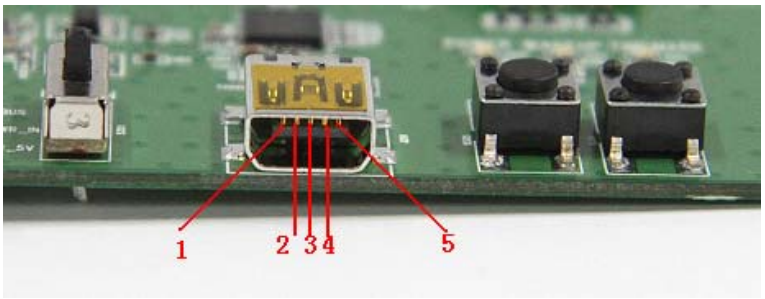

Figure 2: USB interface

Table 1: USB pin definition

PIN Number	Signal	I/O	Description
1	VBUS	I	5V input
2	D-	I/O	Data minus
3	D+	I/O	Data plus
4,5	GND		GND

3. Illustration of testing

User need to install CP2103 driver in their PC first before using SIM68-EVB.
Please download the latest CP2103 driver according to the PC's OS from the following link: ***http://www.silabs.com/products/mcu/pages/usbtouartbridgevcpdrivers.aspx*** or contact SIMCom for support.

3.1 An example of USB driver installation

Step1.exectue Setup file (CP210x_VCP_Win_XP_S2K3_Vista_7)

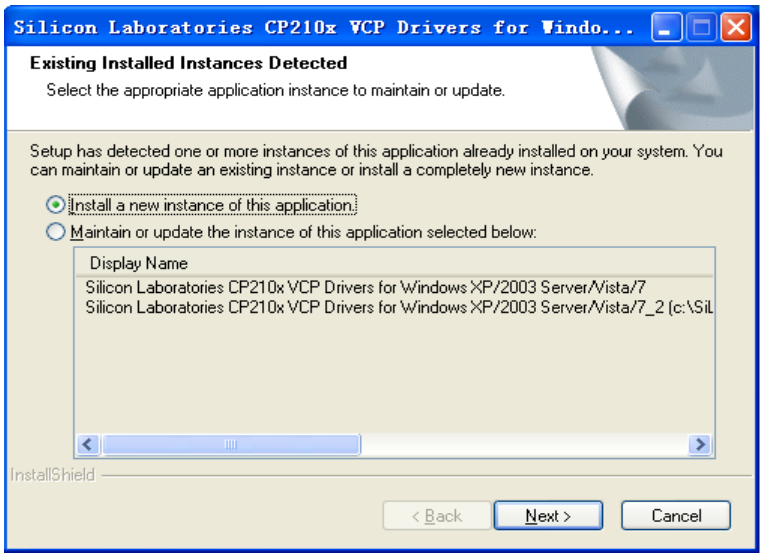

Figure 3: USB driver installation step1

Step2.select “next” button then “next”

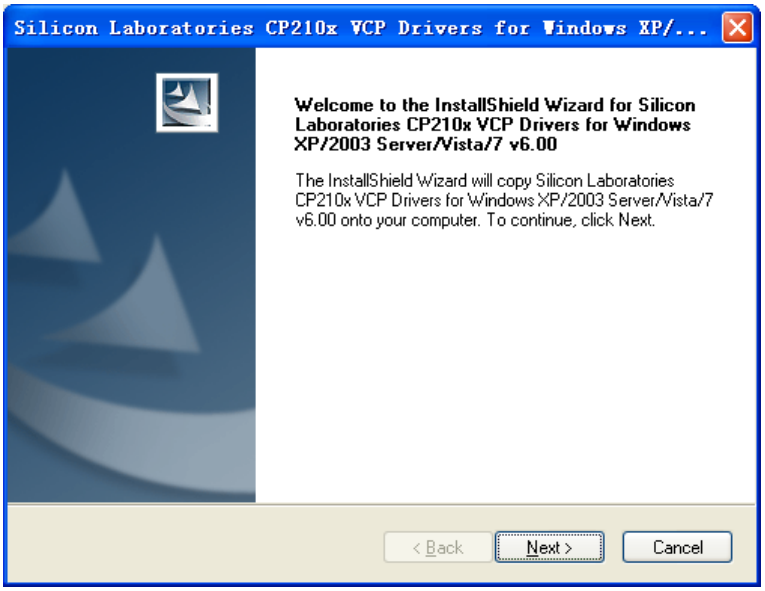

Figure 4: USB driver installition step2

Step3. Accept the license agreement and “next”

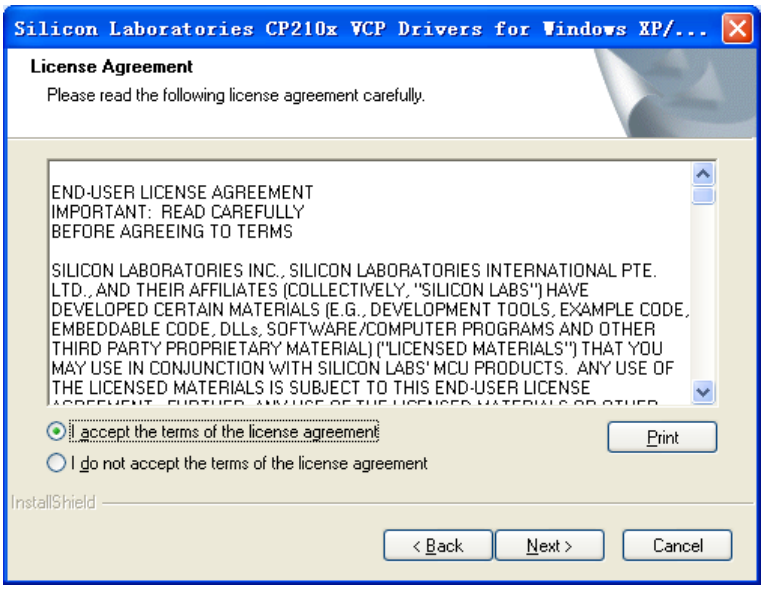

Figure 5: USB driver installation step3

Step4. Choose Driver Destination Location

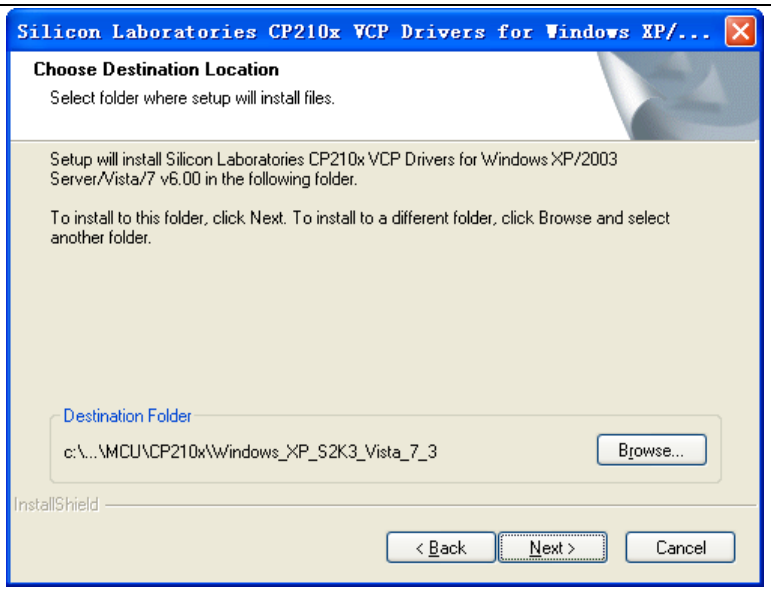

Figure 6: USB driver installation step4

Step5. Confirm Installation, select “Install” button

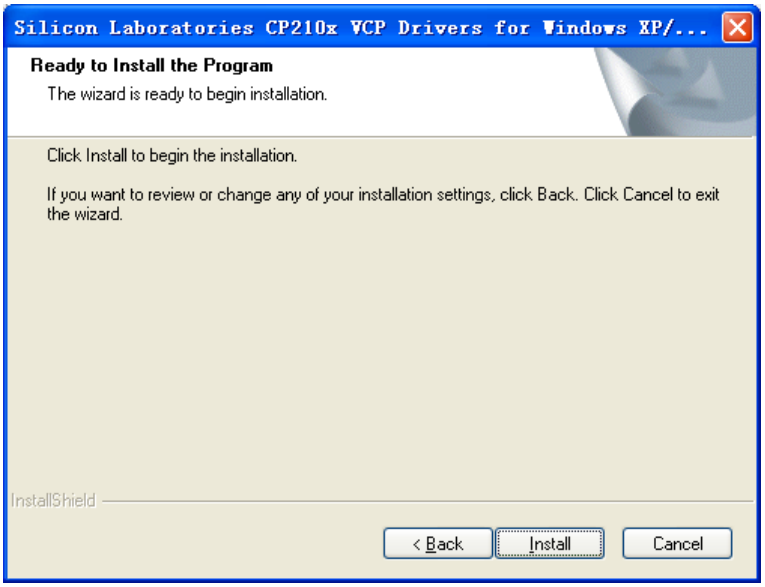

Figure 7: USB driver installition step5

Step6. Launch the CP210x VCP Driver Installer

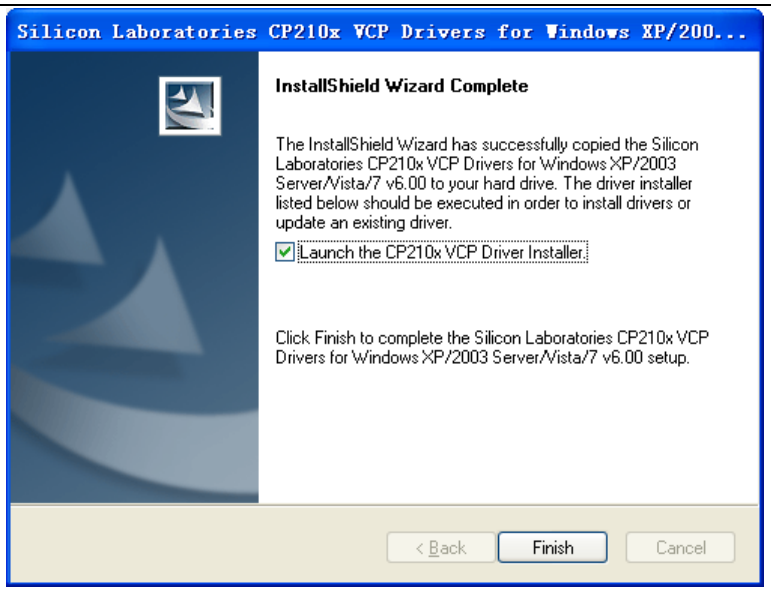

Figure 8: USB driver installition step6

Step7. Select “Install” button

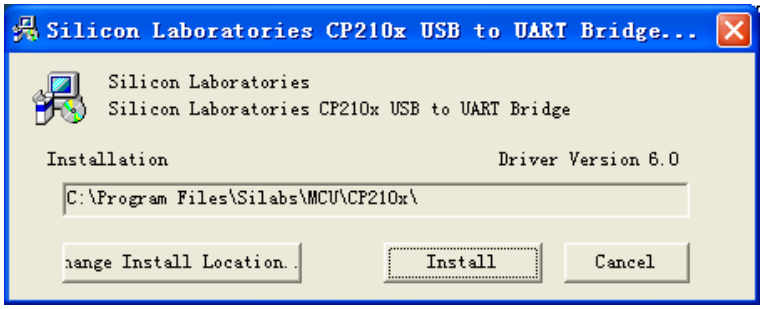

Figure 9: USB driver installation step7

Step8. Installation completed.

Figure 10: USB driver installation step8

Step9. After completing CP2103 driver installation, connect SIM68-EVB to PC by the bus cable, and set S301 switch to VBUS, then “Silicon Labs CP210x USB to UART Bridge (COMX)” will appear in the device manager:

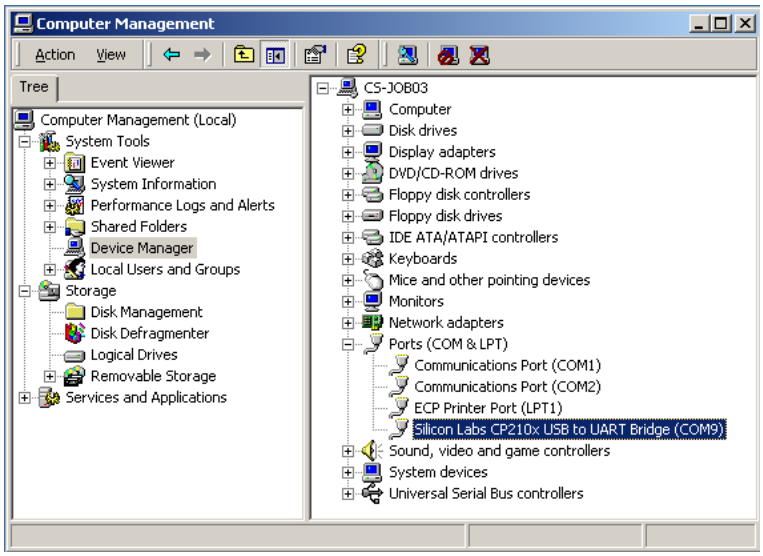

Figure 11: USB driver installation step9

3.2 Connecting and run

To test the SIM68V/R module, the following operations are needed:

1. Install CP2103 driver.
2. Install GPS test tool.
3. Connect the active antenna to the RF connector, and insert SIM68V/R-TE to module connector.
4. Connect the SIM68-EVB to PC with USB cable.
5. Push up the power switch of S301.
6. Push up the switch of S202 to select UART signal.
7. Open GPS test tool to test.

4. SIMCom GPS Testing Tool

This chapter gives a detailed introduction of testing tool “SIMCom GPS Demo”. Please contact SIMCom to get the newest version of GPS Testing tool.

4.1 Port setting

In the testing tool interface, open the “setting” window according to the following path: Module-->Properties.

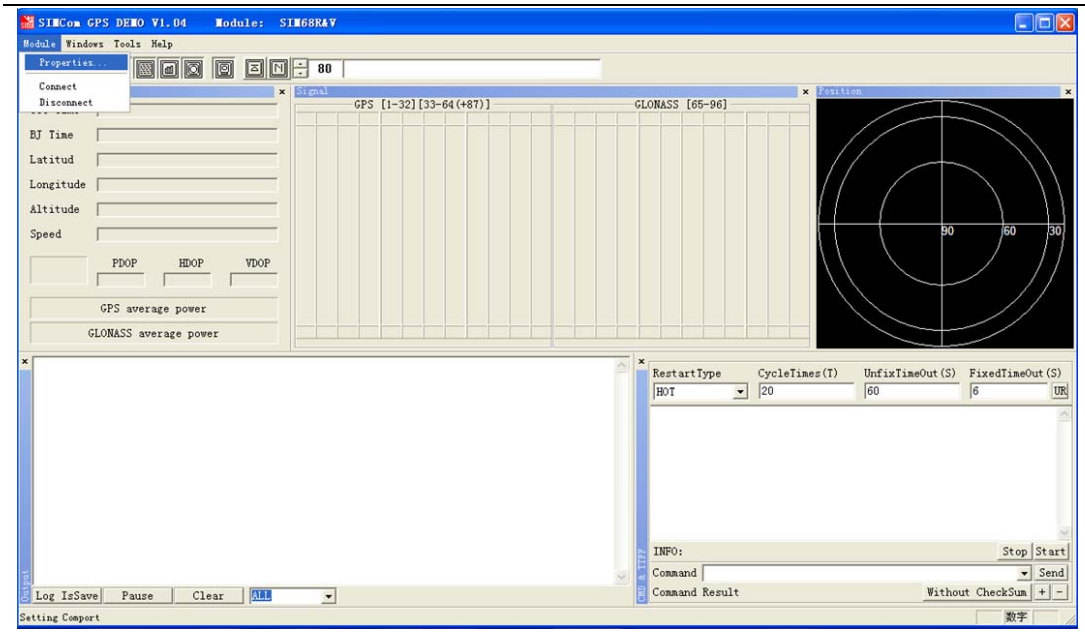

Figure 12: Testing tool interface

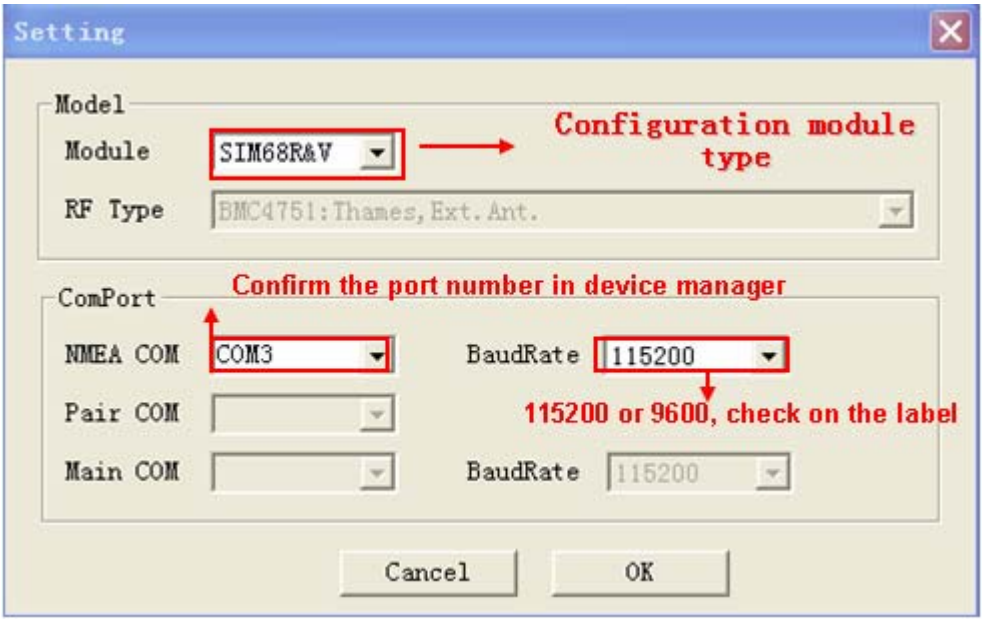

Figure 13: Setting Window

In the “NMEA COM” drop down list choose the corresponding com mentioned before. The baudrate is 115200 or 9600. Then click OK.

4.2 Click to RUN

Click the button “Run Comport” to run the module.

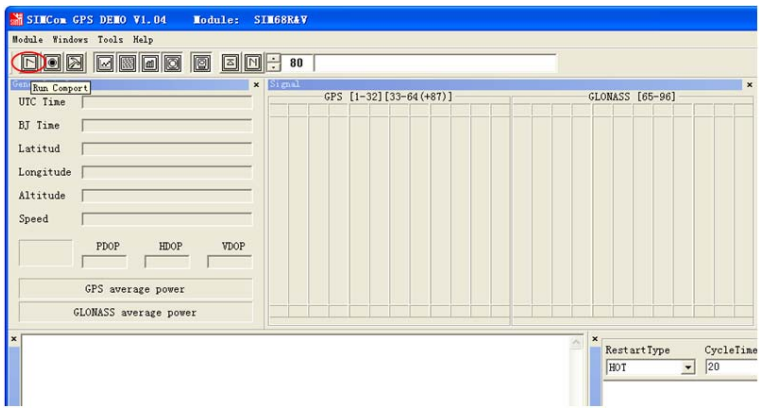

Figure 14: Click to Run

The module will run as the following figure:

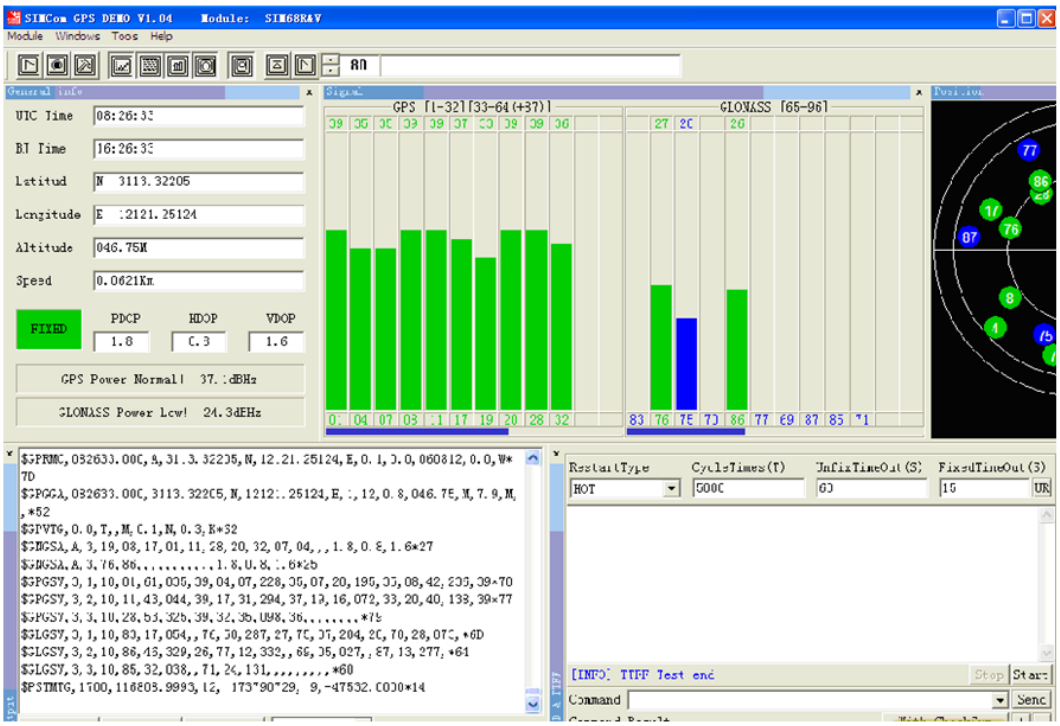

Figure 15: The Module is running

After position has been fixed, the GPS information can be viewed in the “General info” window. In the “Signal” window, satellite signal has been tracked as showing, GPS on the left side and GLONASS on the right side. The NEMA message can be accessed on the bottom window, and it will be saved as txt file in the GPS testing tool directory, with start time as its name.

4.3 TTFF Test

The test configure should be set before each TTFF test. It is in the right bottom of the tool interface.

The restart type (hot, warm or cold) could be selected in the drop down list of “Restart type”. Fill in the next three blank (“Cycletimes” for the testing times, “Unfixtimeout” for the max time limit of each test and “Fixedtimeout” for the time waiting before next TTFF test) and press the start button.

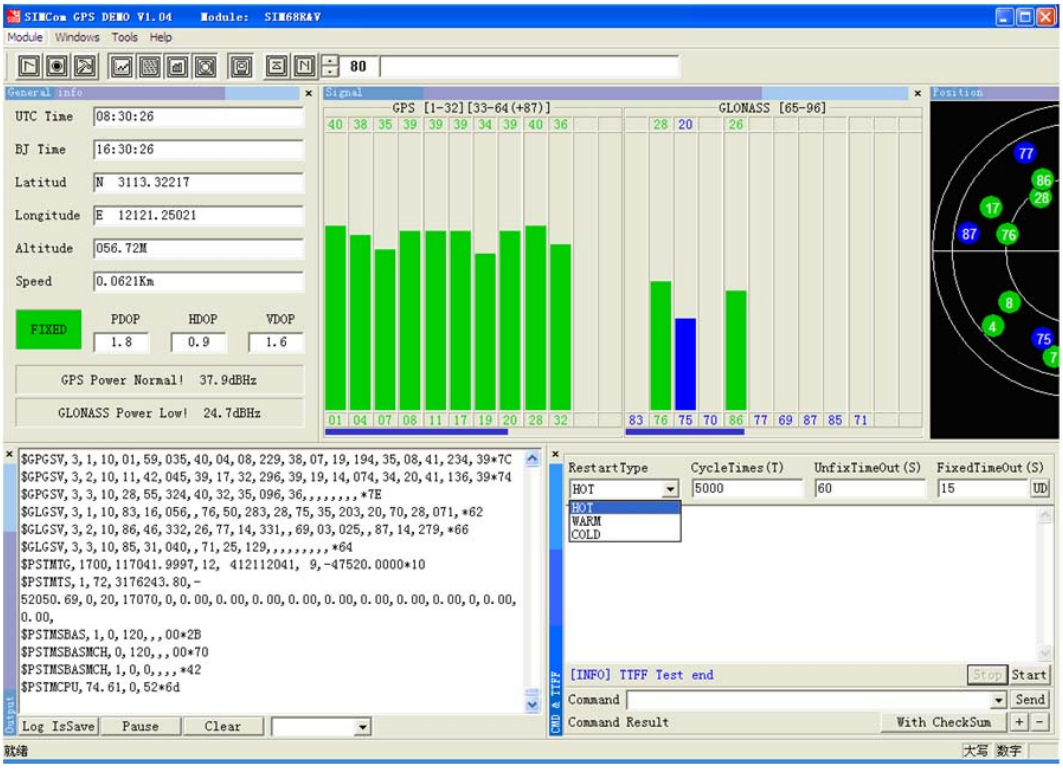

Figure 16: Setting TTFF testing configuration

The result of each TTFF will be shown in the window, each TTFF shorter than the “UnfixTimeOut” is labeled as Pass.

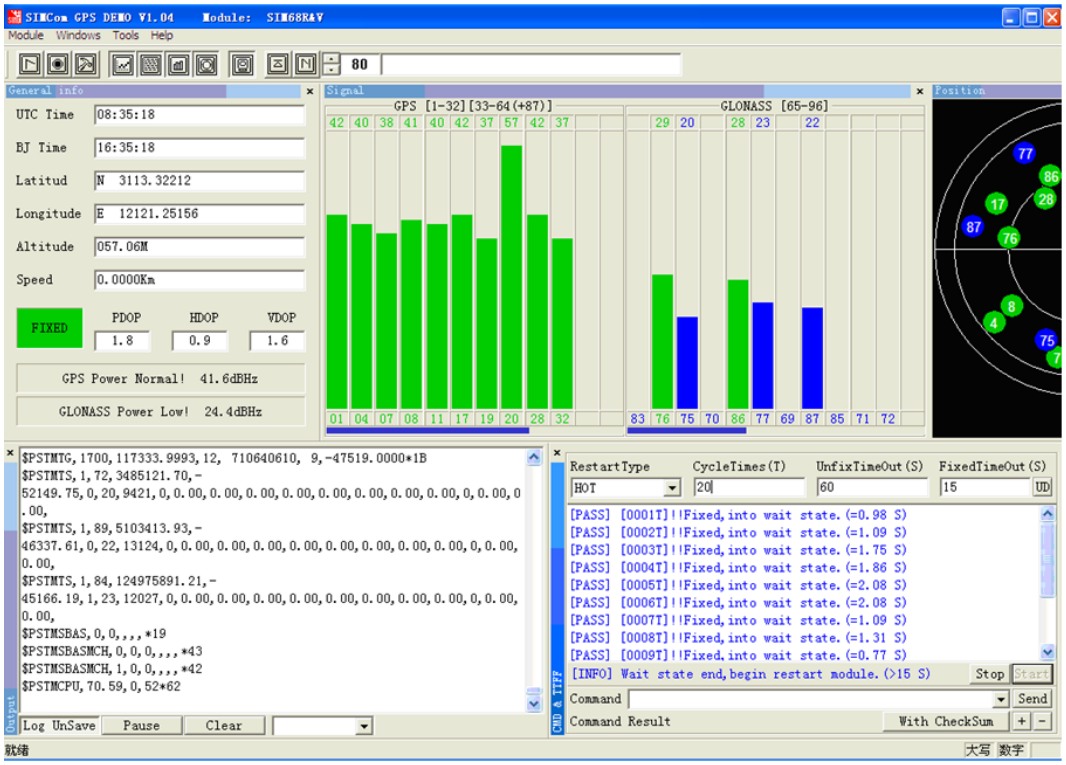

Figure 17: TTFF Test Result

4.4 PMTK command input

SIMcom GNSS module supports some kinds of modes that must be enabled by PMTK commands as mentioned in the HD document, GPS Demo provides an access to send PMTK command to module, as the following figure shows, customer can refer to *SIM28@SIM68R@SIM68V_NMEA Messages Specification_V1.01* to get the detailed information of PMTK list.

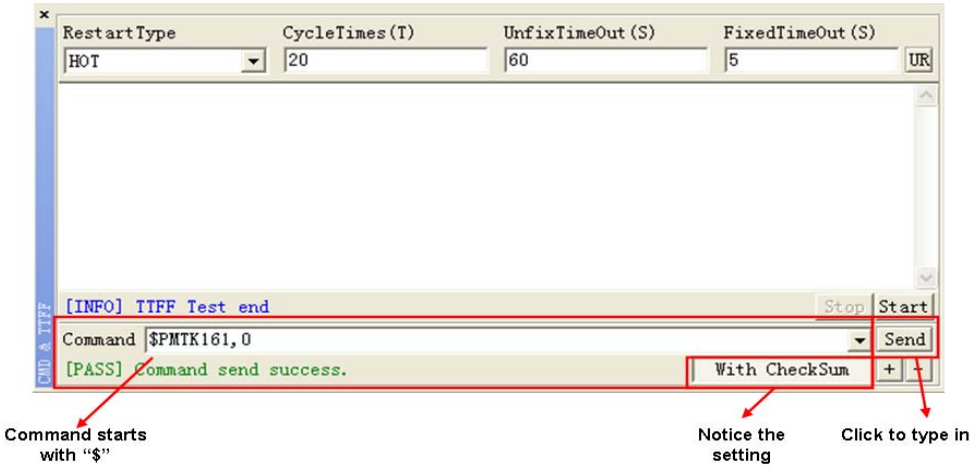

Figure 18: Command window

5. Firmware update

To update the SIMcom GNSS module software, the following operations are needed:

1. Install the tool of “Power Flash”.
2. Connect the SIM68-EVB to PC with USB cable.
3. Setting the jumper “N” and “O” as figure 1 shows.
4. Switch on S202 to select UART signal.
5. Switch on the power switch S301.

Step1. Customer should open the tool Power Flash, the following figure shows the interface of power flash.

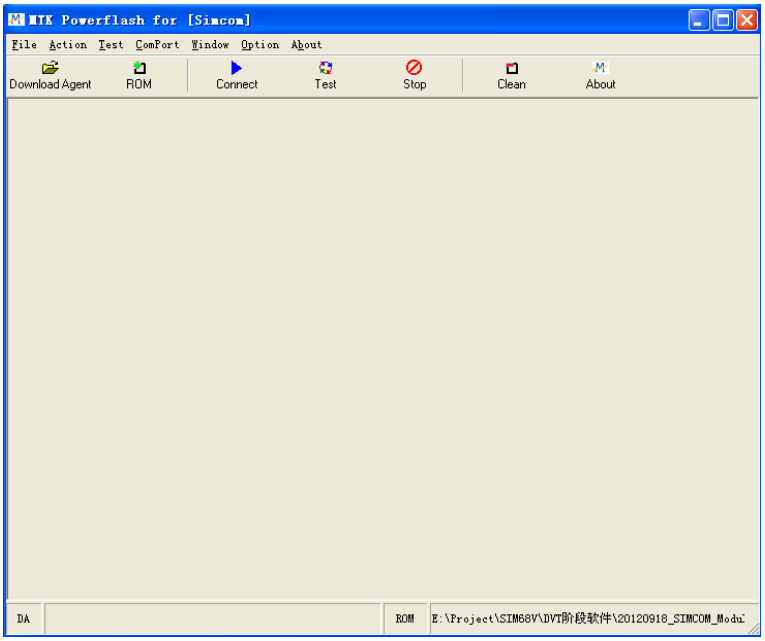

Figure 19: power flash main UI

Step 2.Using the combination key “CTRL+ALT+T” to set the port, the password is “123456”.

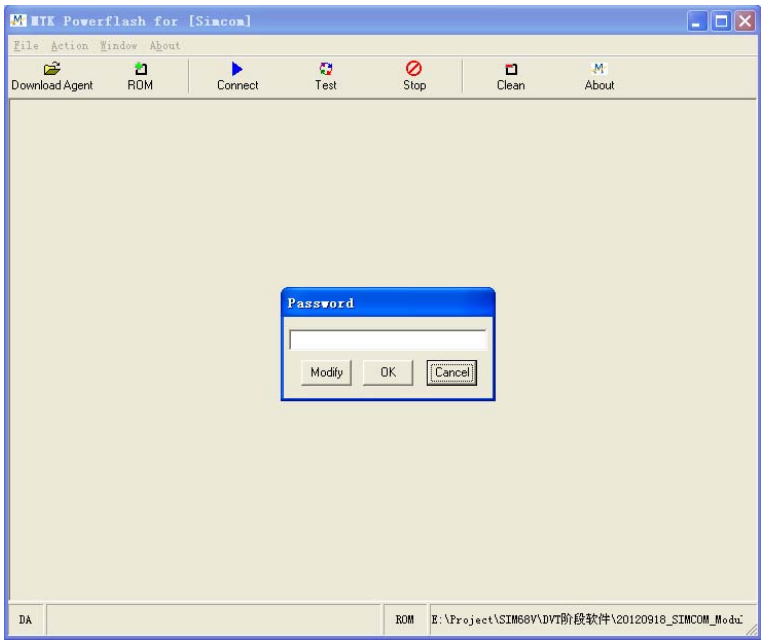

Figure 20: enter code

Step 3.The window UI has changed.

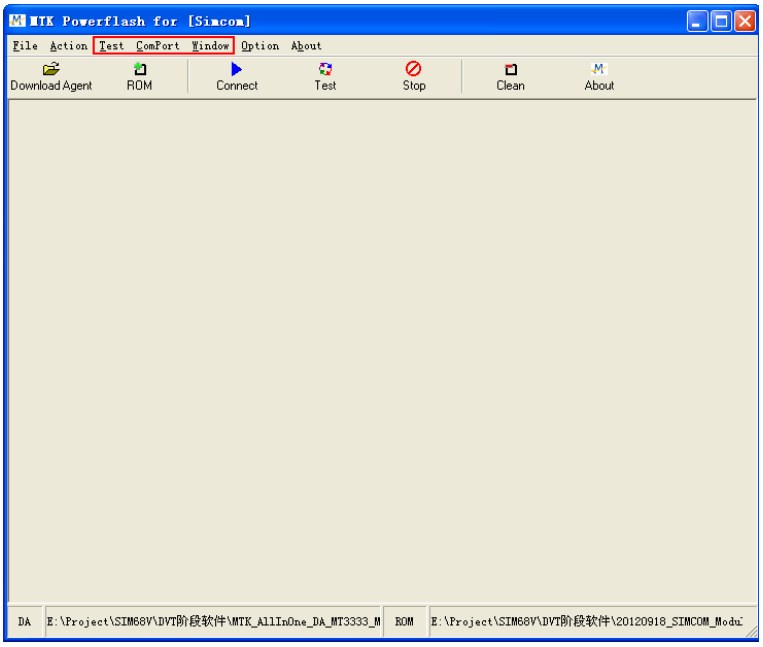

Figure 21: the main UI

Step 4.Setting the number of comport as following figure shows, here is the comport 3.

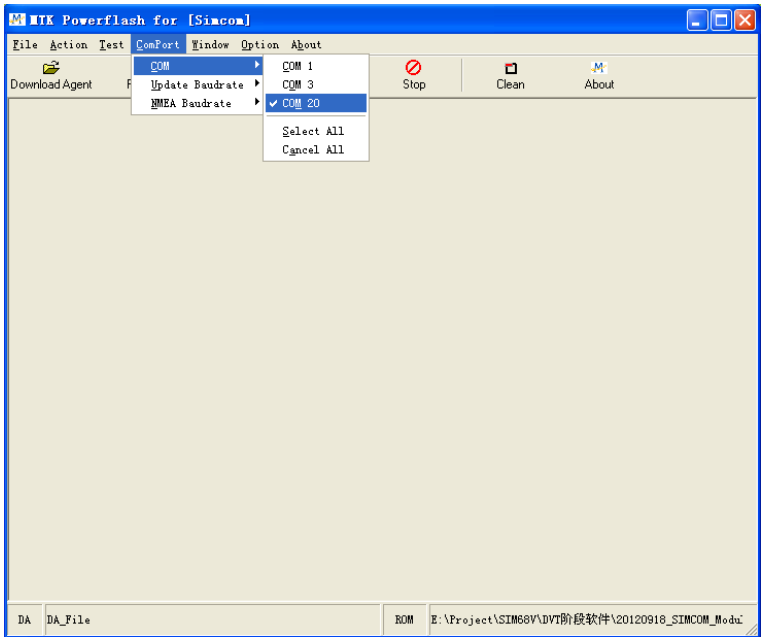

Figure 22: setting port

Step 5.Setting the update baudrate as 460800.

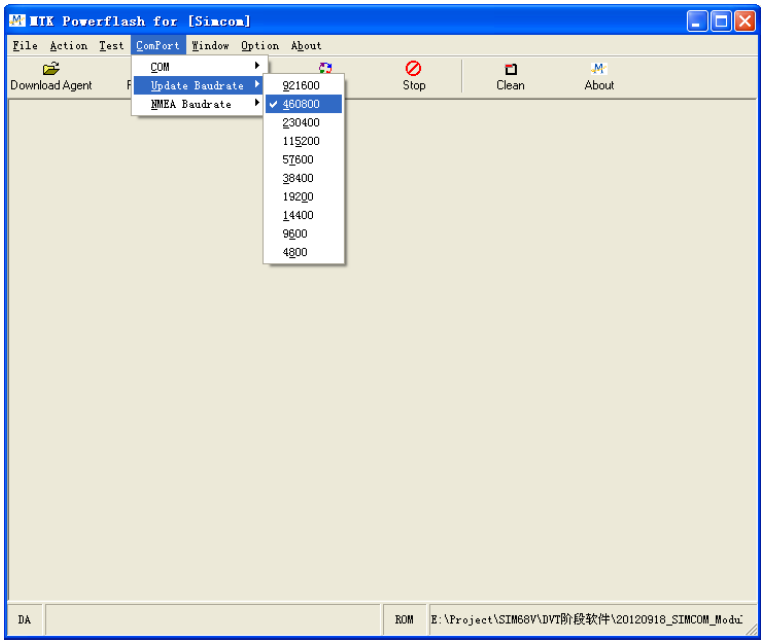

Figure 23: setting baudrate

Step 6.Load files to the power flash.

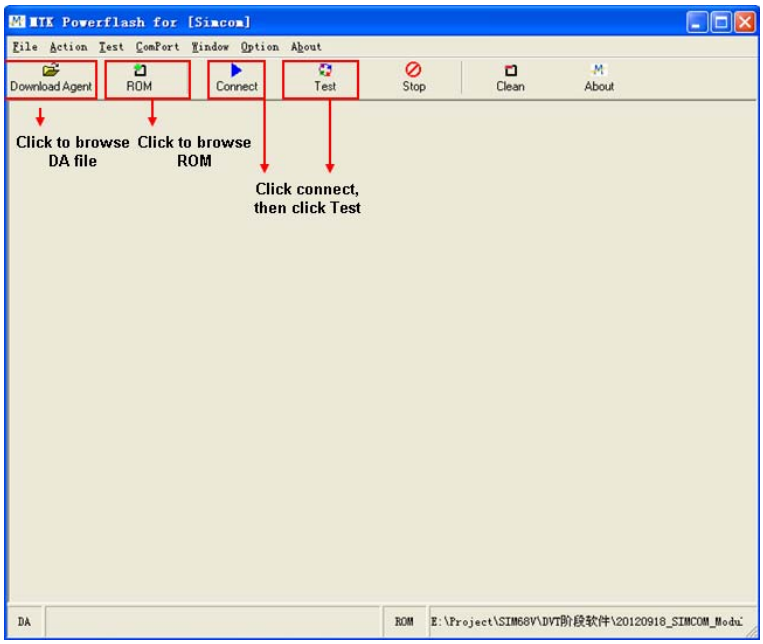

Figure 24: detailed settings

Step 7.The DA file is in downloading proceeding.

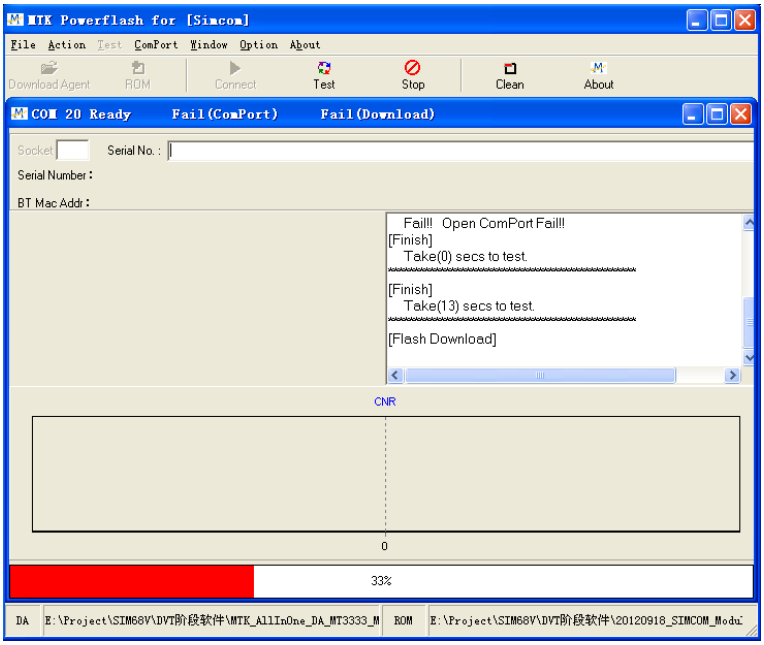

Figure 25: DA file in downloading proceeding

Step 8.The ROM is in downloading proceeding.

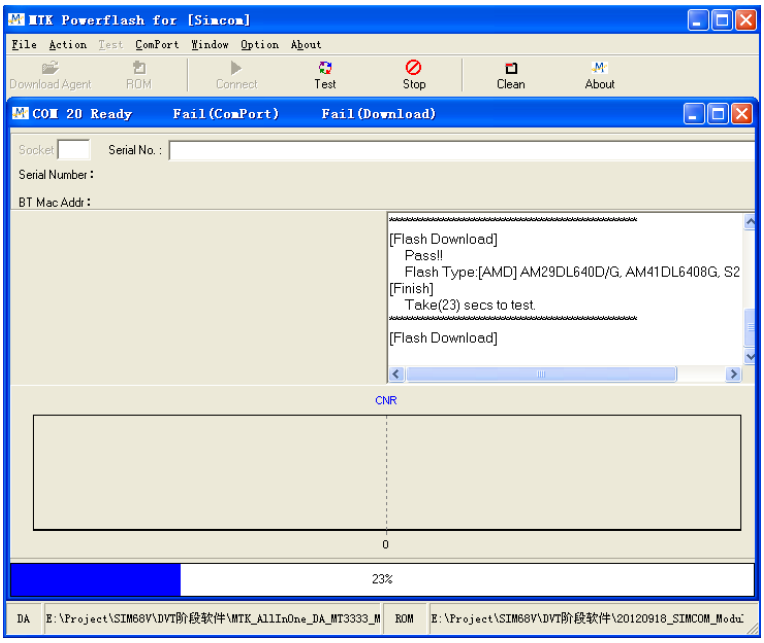

Figure 26: ROM file in downloading proceeding

Step 9.Firmware update succeeds.

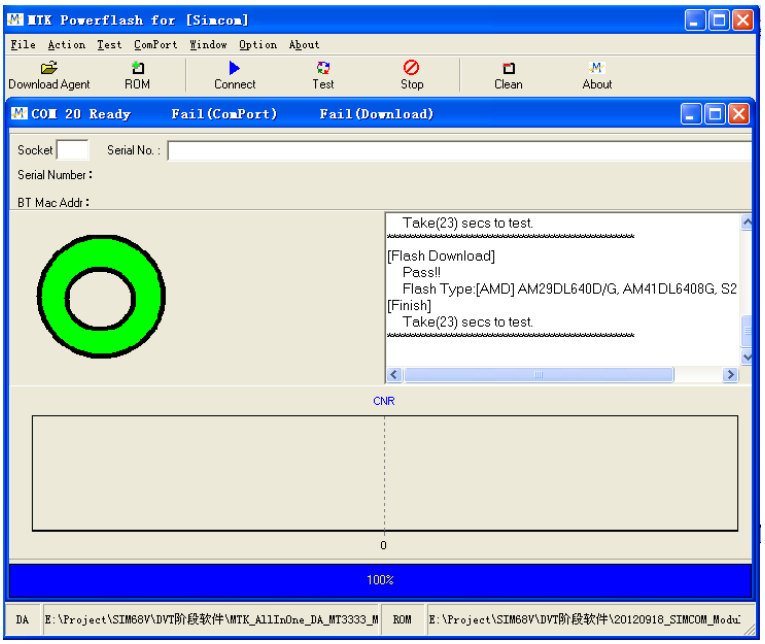

Figure 27: Firmware update succeeds

6 Acronyms and abbreviation

Table 2: Acronyms and abbreviations

Abbreviation	Description
DC	Direct Current
I/O	Input/Output
LED	Light Emitting Diode
SPI	Serial Peripheral Interface
USB	Universal Serial Bus
UART	Universal Asynchronous Receiver & Transmitter

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