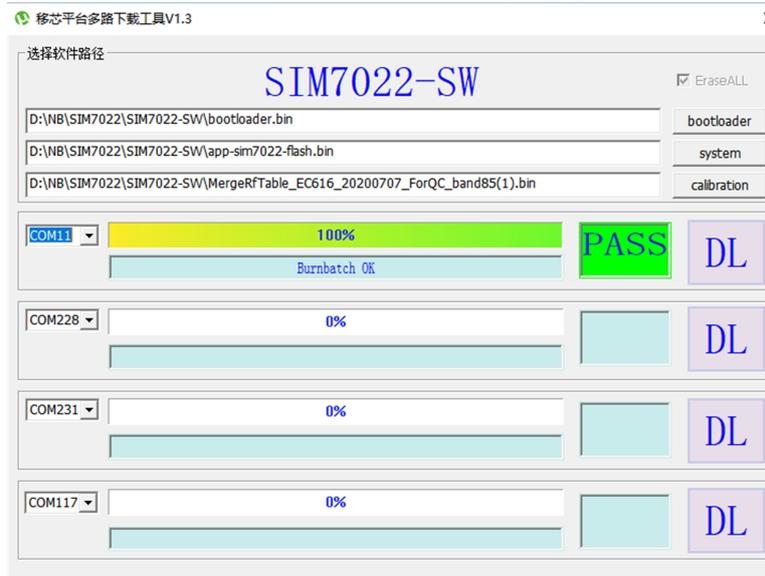


Feature 24: software download interface

6. After the update is successful, turn SW1 down to OFF state, then turn SW101 back to ON state, and then power on.



Feature 25: software download complete

3.4 AT Command Communication

AT commands currently have incomplete functions that need to be continuously updated after subsequent development. The content of this chapter is still being updated based on the actual debugging situation.

3.4.1 UART Serial Communication

The serial data frame format and serial baud rate of the SIM7022 module are as follows.

1. Set the serial data frame format

SIM7022 supports multiple serial data frame formats. The default data frame format is 8 data bits, 1 stop bit, and no parity bit.

Table 15: UART frame format

UART frame format	Supported formats
Data bit	8bit, 7bit
Stop bit	1bit
Parity bit	Odd, Even, None

2. Set the serial port baud rate

SIM7022 supports a variety of common baud rates. The factory default baud rate of the standard module is 115200, and it supports automatic baud rate adaptation. You can use AT+IPR to set the baud rate.

Table 16: UART baud rate support

UART baud rate support	Supported rate
Serial communication baud rate	4800,9600,19200,38400,57600,115200,230400 ,460800,921600 230400,460800,921600
Serial port adaptive baud rate	4800,9600,19200,38400,57600,115200

Common baud rate instructions for serial ports:

Table 17: UART common baud rate operations

UART common baud rate operations	Related instructions
Query the current baud rate	AT+IPR?
Set the boot default baud rate	AT+IPR=
Set temporary baud rate to match automatically	AT+IPR=0

4 Appendix

4.1 Reference Documents

Table 18: Reference documents

Number	File name	Describe
[1]	SIM7022 Hardware Design	SIM7022 Hardware Design Manual
[2]	SIM7022 Series_AT Command Manual	SIM7022 AT Command Manual

4.2 Terminology and Explanation

Table 19: Terminology and explanation

Terminology	Explanation
LED	Light Emitting Diode
LTE	Long Term Evolution
NC	Not connect
PSM	Power saving mode
RF	Radio Frequency
(U)SIM	(Universal) Subscriber Identity Module
UART	Universal Asynchronous Receiver Transmitter

4.3 Safety Warning

Table 20: safety warning

Marks	Requirements
	When in a hospital or other health care facility, observe the restrictions about the use of mobiles. Switch the cellular terminal or mobile off, medical equipment may be sensitive and not operate normally due to RF energy interference.
	Switch off the cellular terminal or mobile before boarding an aircraft. Make sure it is switched off. The operation of wireless appliances in an aircraft is forbidden to prevent interference with communication systems. Forgetting to think much of these instructions may impact the flight safety, or offend local legal action, or both.
	Do not operate the cellular terminal or mobile in the presence of flammable gases or fumes. Switch off the cellular terminal when you are near petrol stations, fuel depots, chemical plants or where blasting operations are in progress. Operation of any electrical equipment in potentially explosive atmospheres can constitute a safety hazard.
	Your cellular terminal or mobile receives and transmits radio frequency energy while switched on. RF interference can occur if it is used close to TV sets, radios, computers or other electric equipment.
	Road safety comes first! Do not use a hand-held cellular terminal or mobile when driving a vehicle, unless it is securely mounted in a holder for hands free operation. Before making a call with a hand-held terminal or mobile, park the vehicle.
	GSM cellular terminals or mobiles operate over radio frequency signals and cellular networks and cannot be guaranteed to connect in all conditions, especially with a mobile fee or an invalid SIM card. While you are in this condition and need emergent help, please remember to use emergency calls. In order to make or receive calls, the cellular terminal or mobile must be switched on and in a service area with adequate cellular signal strength. Some networks do not allow for emergency call if certain network services or phone features are in use (e.g. lock functions, fixed dialing etc.). You may have to deactivate those features before you can make an emergency call. Also, some networks require that a valid SIM card be properly inserted in the cellular terminal or mobile.

OEM/Integrators Installation Manual

Important Notice to OEM integrators 1. This module is limited to OEM installation ONLY. 2. This module is limited to installation in mobile or fixed applications, according to Part 2.1091(b). 3. The separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and different antenna configurations 4. For FCC Part 15.31 (h) and (k): The host manufacturer is responsible for additional testing to verify compliance as a composite system. When testing the host device for compliance with Part 15 Subpart B, the host manufacturer is required to show compliance with Part 15 Subpart B while the transmitter module(s) are installed and operating. The modules should be transmitting and the evaluation should confirm that the module's intentional emissions are compliant (i.e. fundamental and out of band emissions). The host manufacturer must verify that there are no additional unintentional emissions other than what is permitted in Part 15 Subpart B or emissions are complaint with the transmitter(s) rule(s). The Grantee will provide guidance to the host manufacturer for Part 15 B requirements if needed.

Important Note

notice that any deviation(s) from the defined parameters of the antenna trace, as described by the instructions, require that the host product manufacturer must notify to Simcom that they wish to change the antenna trace design. In this case, a Class II permissive change application is required to be filed by the USI, or the host manufacturer can take responsibility through the change in FCC ID (new application) procedure followed by a Class II permissive change application

End Product Labeling

When the module is installed in the host device, the FCC ID label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily re-moved. If not, a second label must be placed on the outside of the final device that contains the following text: "Contains FCC ID: 2AJYU-8EC0001" "The FCC ID can be used only when all FCC compliance requirements are met.

Antenna

- (1) The antenna must be installed such that 20 cm is maintained between the antenna and users,
- (2) The transmitter module may not be co-located with any other transmitter or antenna.

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization. To comply with FCC regulations limiting both maximum RF output power and human exposure to RF radiation, maximum antenna gain (including cable loss) must not exceed

Test Mode	Antenna Gain (dBi)	Test Mode	Antenna Gain (dBi)
LTE B2	7.30	LTE B14	4.30
LTE B4	4.30	LTE B17	4.30
LTE B5	4.30	LTE B25	7.30
LTE B12	4.30	LTE B26	4.30
LTE B13	4.30	LTE B66	4.30

Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual

Federal Communication Commission Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

List of applicable FCC rules

This module has been tested and found to comply with part 22, part 24, part 27, part 90 requirements for Modular Approval.

The modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital circuitry), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

This device is intended only for OEM integrators under the following

conditions: (For module device use)

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.