



SIM8230G

User Manual

5G Module

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1 Introduction

1.1 Product Outline

The SIM8230G adopts the Qualcomm's chipsets which includes SDX35. It supports 5G NR, LTE-FDD and LTE-TDD, meet 3GPP Rel-17 NR RedCap and Release 15 LTE standalone only. Users can flexibly choose different models to meet the diversified market demands.

With a physical dimension of 30.0mm * 30.0mm * 2.5mm, SIM8230G module can meet almost all requirements for M2M applications. It is an SMD type module and can be embedded in applications through its 164 LCC+LGA pins, these rich interfaces include USB2.0, PCIe, SDIO, SGMII, EBI (for LCD), SIM card, digital audio (I2S or PCM), ADCs, I2C, SPI, UART, GPIOs, three antennas for 4G/5G and GNSS.

Standard	SIM8230G
5G NR	n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n30/n38/n40/n41/n48/n66/n70/n71/n77/n78
LTE FDD	B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B30/B66/B71
LTE TDD	B34/B38/B39/B40/B41/B42/B43/B48
GNSS(optional)	GPS, GLONASS, Galileo, NavIC, and BeiDou support

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/IC 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-8XY0001”

“Contains IC: 23761-8XY0001”

The FCC ID/IC ID can be used only when all FCC/IC compliance requirements are met.

Antenna Installation

- (1) The antenna must be installed such that 20cm 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/IC authorization is no longer considered valid and the FCC ID/IC 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/IC authorization.

Antenna Type: external antenna	Max Gain (dBi)
LTE Band 2/ NR Band n2: 1850 ~ 1910 MHz	8.00
LTE Band 4: 1710 ~ 1755 MHz	5.00
LTE Band 5/: 824 ~ 849 MHz	11.56
NR Band n5: 824 ~ 849 MHz	11.57
LTE Band 7/ NR Band n7: 2500 ~ 2570 MHz	8
LTE Band 12/: 699 ~ 716 MHz	10.85
NR Band n12: 699 ~ 716 MHz	10.86
LTE Band 13: 777 ~ 787 MHz	11.31
LTE Band 14/ NR Band n14: 788 ~ 798 MHz	11.38
LTE Band 25/ NR Band n25: 1850 ~ 1915MHz	8
LTE Band 26: 814 ~ 824MHz	11.51
NR Band n26: 814 ~ 824MHz	11.52
LTE Band 26: 824 ~ 849MHz	11.56
NR Band n26: 824 ~ 849MHz	11.57
LTE Band 30: 2305 ~ 2315 MHz	1.48
LTE Band 38/NR Band n38: 2570 ~ 2620 MHz	8
LTE Band 41/NR Band n41: 2496 ~ 2690MHz	8
LTE Band 42: 3450 ~ 3550 MHz	5
LTE Band 43: 3600 ~ 3700 MHz	2
LTE Band 48: 3550 ~ 3700 MHz	2
LTE Band 66/NR Band n66: 1710 ~ 1780 MHz	5
LTE Band 71/NR Band n71: 663 ~ 698 MHz	10.63
NR Band n70: 1695 to 1710 MHz	5
NR Band n77/78: 3450 to 3550 MHz/ 3700 to 3800 MHz	4

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 and Part 96 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 20cm 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.

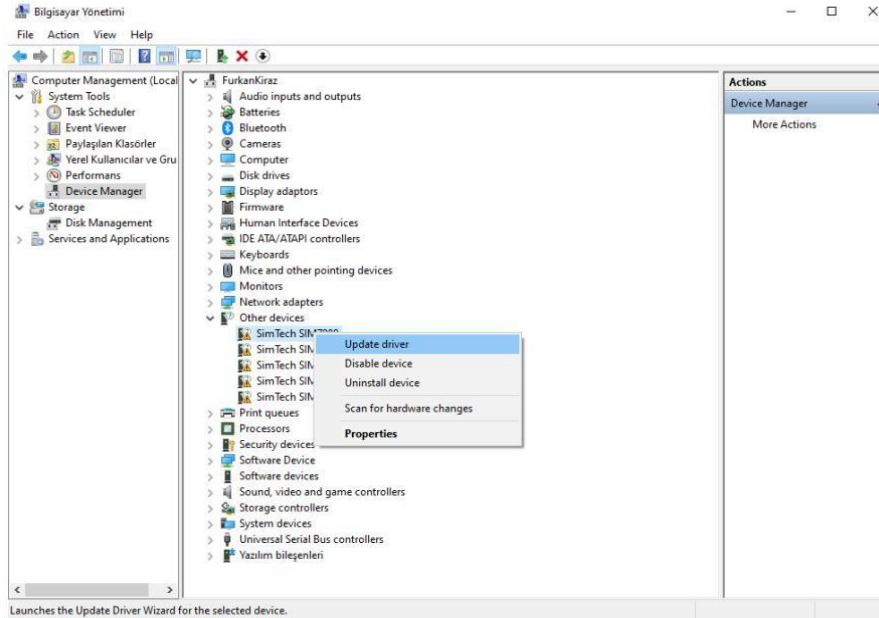
Radiation Exposure Statement

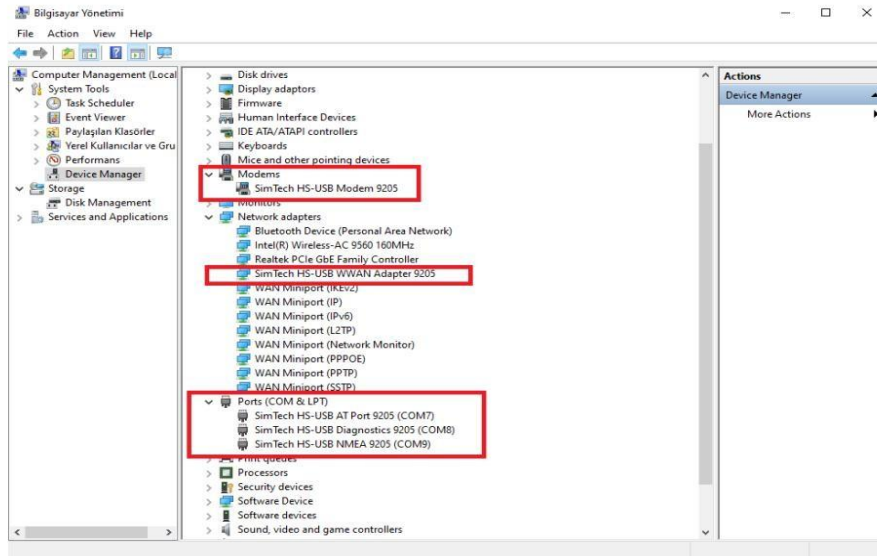
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

2 Operation Description

2.1 Driver installation and usage

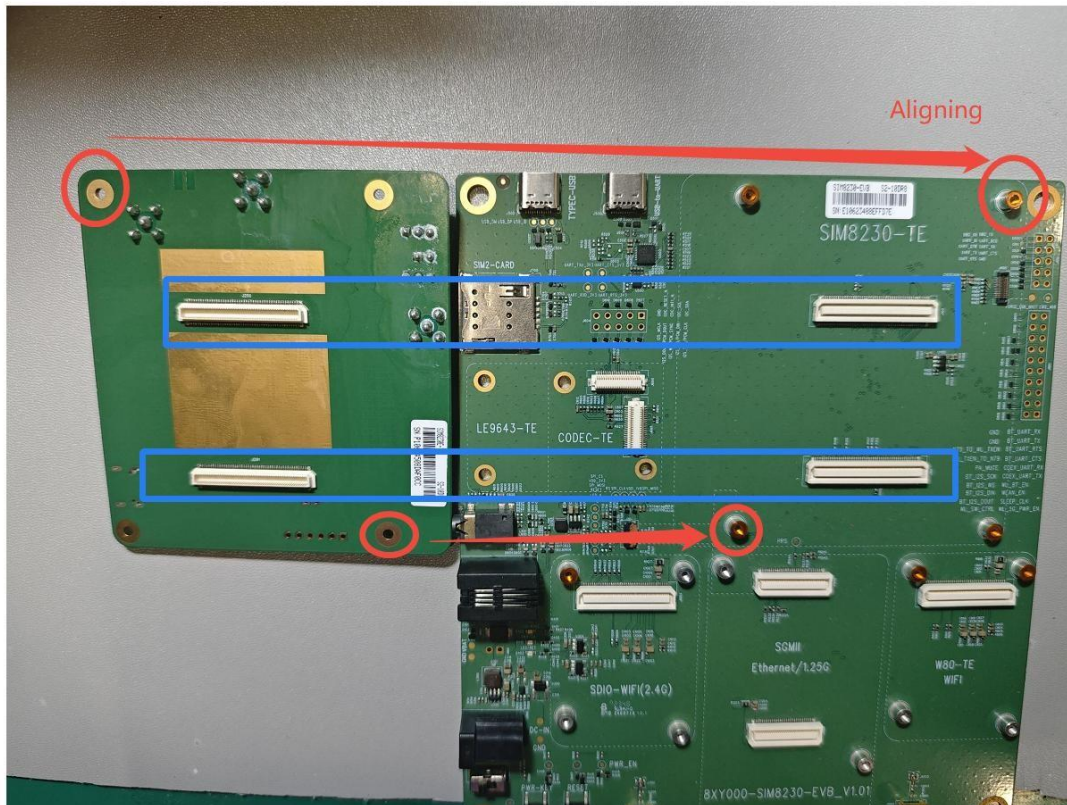
Insert a USB cable into the USB port to install the driver. It is used to send AT commands. After the installation is complete, the corresponding serial port will appear in computer management.

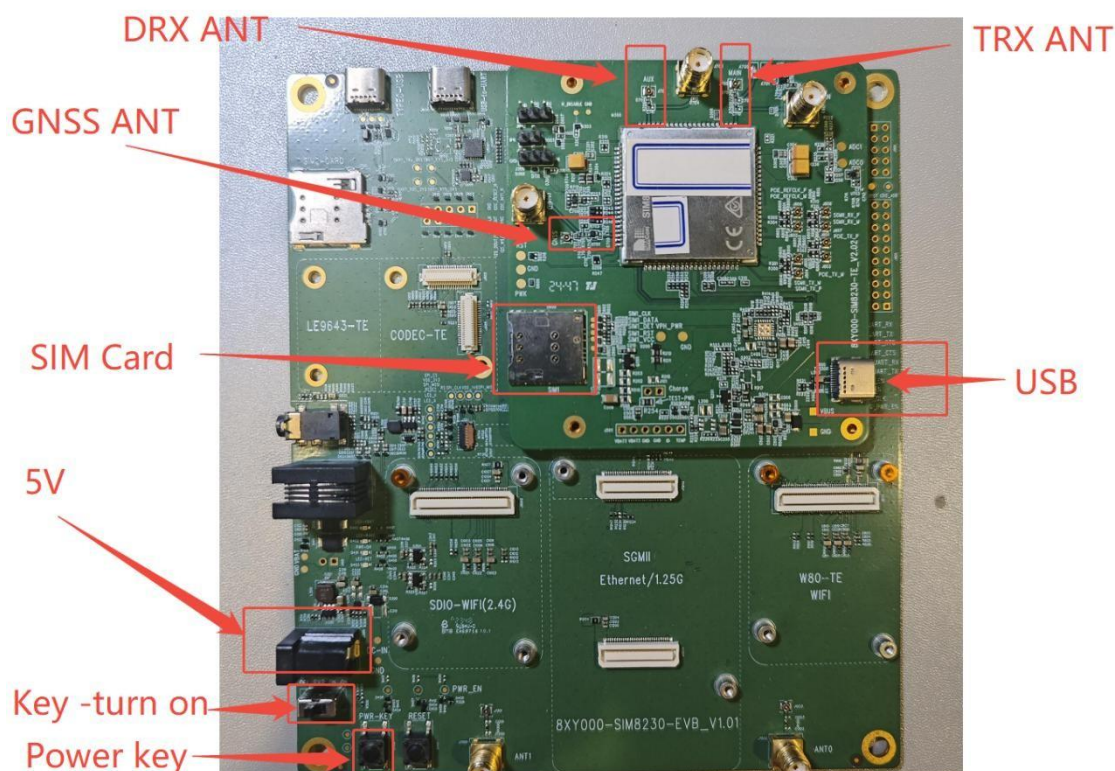




2.2 Power-on operation

Check whether the TE and EVB connections are correct, and then connect a 5V switching power supply. Turn on the switch and press the button for 3 to 5 seconds. You can send AT commands by connecting a USB cable.





2.3 AT instruction

RF common instructions,

AT+CFUN=0 //The RF circuit is turned off, response OK

AT+CFUN=1 //The RF circuit is turned on, response OK

AT+CPIN=? //Check the status of the SIM card, response READY

GNSS common instructions,

AT+CGPS=0// Close GPS

AT+CGPS=1// Open GPS

View detailed location information using NMEA port

For more AT commands, refer to the documentation "SIM82XX_SIM83XX Series_AT Command Manual".