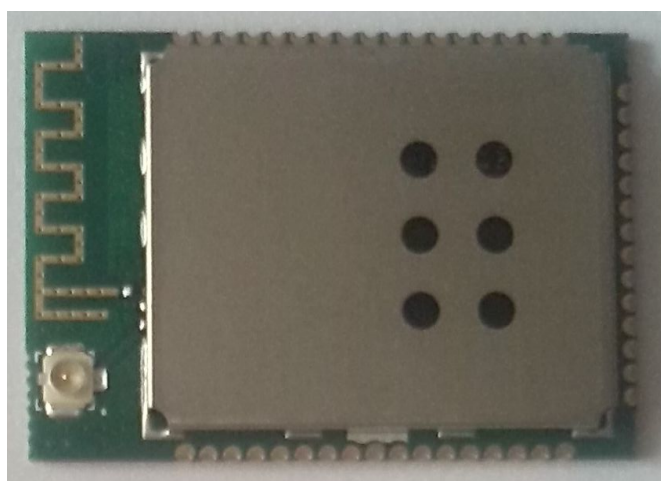


# LSD Science & Technology Co., LTD.

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## **LSD4WF-2MD05102** **WiFi Module Date Sheet**



**Product Name: WiFi Module**  
**Product Type: LSD4WF-2MD05102**  
**File Version: V1.4**

Version Number	Revision Content	Data
V1.0	First Release	31.07.15
V1.1	Working temperature range correction:add furnace temperature curve	24.09.15
V1.2	Update size chart,company address	08.10.15
V1.4	Add electric current parameter	06.05.16

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## Preface

Thank you for using the Wi-Fi Module provided by LSD Science & Technology Co., LTD. Please read this data sheet carefully before using. The company is not responsible for the property or personal injury which was caused by customer improper operation. Please read the technical specifications in data sheet for reference during product research and development. Before the declaration, the company has the right to modify the data sheet according to the need to development.

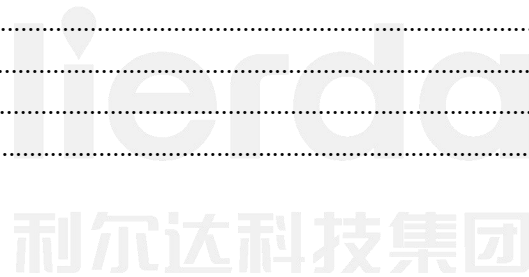


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## 1 Product introduction

### 1.1 Product overview

LSD4WF-2MD05102 is a highly integrated WiFi single chip module, it supports 150Mbps physical layer transmission rate. It is fully compliant with IEEE 802.11n and 802.11b/g standards. It provides excellent standard and transmission area, and also provides feature-rich wireless connectivity solutions.

The optimized RF architecture and baseband algorithm can provide excellent RF performance and low power consumption performance. The integrated MAC design could be configured to an efficient DMA engine and hardware data processing unit.

LSD4WF-2MD05102 provides standard basic functions in safety area, service quality and international standards. It also provides good performance for terminal users in a variety of applications.

### 1.2 Function Characteristics

- Support IEEE802.11 b/g/n client
- Integrated ARM-CM3 microchip
- Integrated MAC, Multi IO, highly integrated RF architecture
- 1T1R mode supports 150Mbps physical layer transmission rate
- Out stamp holes connection
- Support transparent mode and test mode
- Support WiFi direct connection
- Transmission power control in every packet
- Include PCB antenna and external antenna interface
- Integrated MCU, supports customized firmware and functions

### 1.3 Application Area

- Smart home, Smart appliance
- Electronic product with network function: E-book, printer, digital photo frame

- Industrial remote sensing,telemetry communication
- Home wireless security,the monitoring platform,equipment room power supply,wireless remote control alarm system for fan device.
- Personal navigation device,set-top box GPS
- POS system,PDA and other wireless intelligent terminal,medical instrument.
- The electronic bus stop board,intelligent traffic dispatching system.

### 1.4 Structure diagram

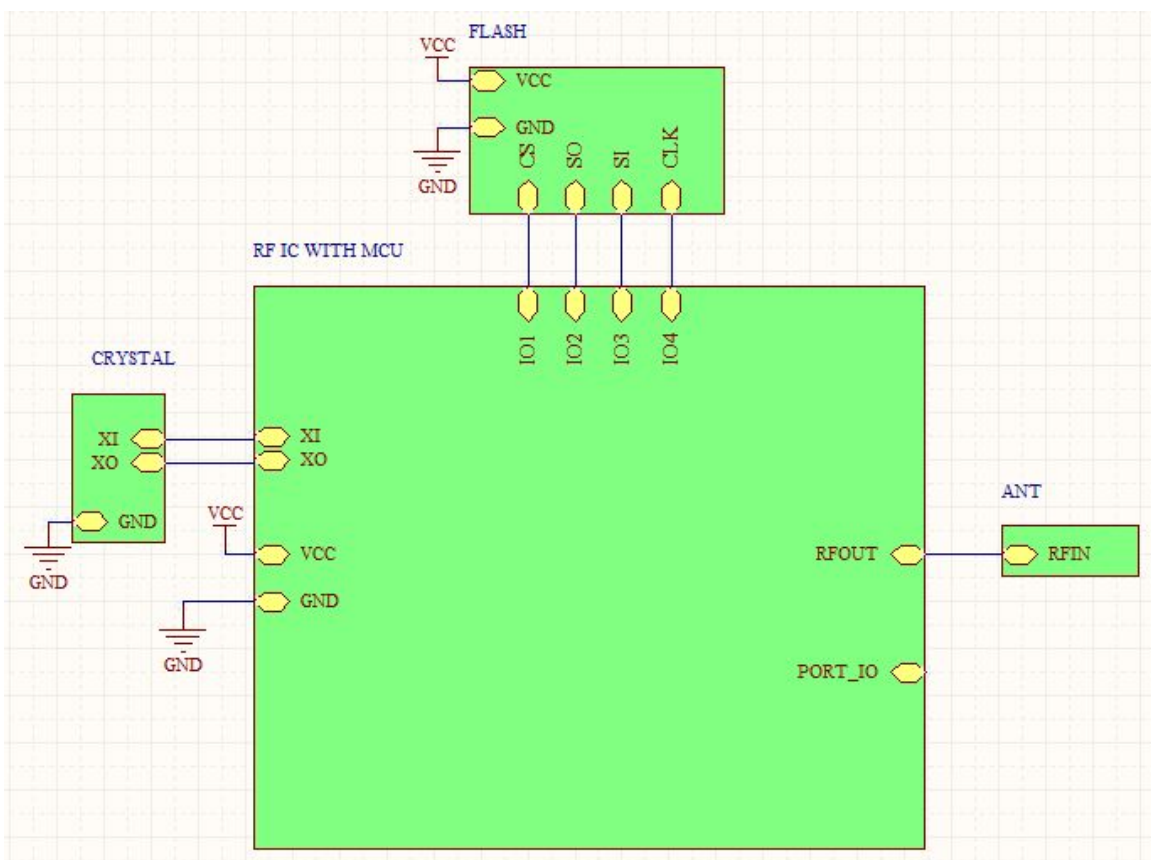


Figure 1 structure diagram

## 2 Module Parameters

### 2.1 WiFi Features

Parameter	Specification
Interface	Stamp interface
WLANs	Accord with IEEE 802.11b/g/n
Modulation Mode	802.11g/n---OFDM(BPSK,QPSK,16QAM,64QAM)

	802.11b---CCK 11Mbps,5.5Mbp, QPSK 2Mbps , BPSK 1Mbps
Frequency range	2.4GHz WiFi Band
Operation frequency	2.4GHz 802.11 b/g/n:2412-2462MHz
Frequency error	< $\pm 25$ ppm @room temperature +25°C
Operation channel	2.4GHz 802.11 b/g/n20:1-11CH 802.11 n40:3-9 CH
RF Power	14.3-15.9dBm (802.11 CCK,11Mbps) 12.8-13.5dBm (802.11 OFDM,54Mbps) 13.0-13.7dBm (802.11 HT20,MCS7) 11.2-11.6dBm (802.11 HT40,MCS7)
Antenna	PCB Plate antenna(default), External IPX antenna
Acceptance sensitivity	-85dBm (Typ)@ 11M(802.11b CCK,8% PER) -73dBm (Typ)@ 54M(802.11g OFDM,10% PER) -68dBm (Typ)@ MCS7(802.11n OFDM with 20MHz ,10% PER) -64dBm (Typ)@ MCS7(802.11n OFDM with 40MHz ,10% PER)
Humidity	20%-90% non-condensing
Size	(W) 23.1× (L) 32.8× (H) 3.2mm

## 2.2 Electrical Characteristics

Parameter	Minimum	Typical	Maximum	Unit
Working Voltage	3.0	3.3	3.6	V
Quiescent Current	/	20	/	mA
TX Current	/	250	/	mA
RX Current	/	70	/	mA

## 2.3 Temperature Characteristics

Parameter	Minimum	Maximum	Unit
Working Temperature	-20	40	°C
Storage Temperature	-20	40	°C

### 3 Hardware structure

#### 3.1 Product size

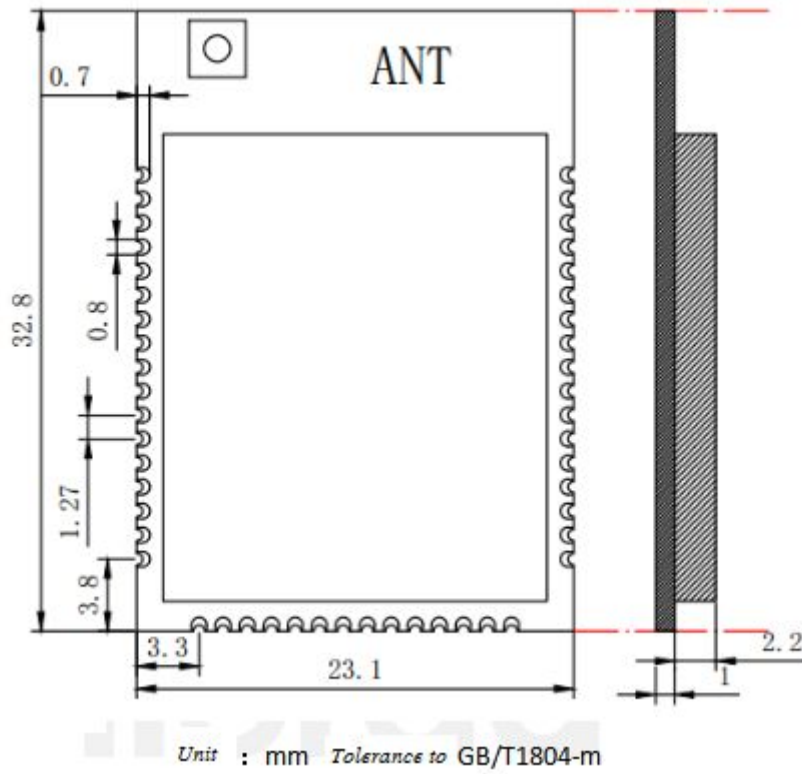


Figure 2 Module size chart

#### 3.2 Pin definition

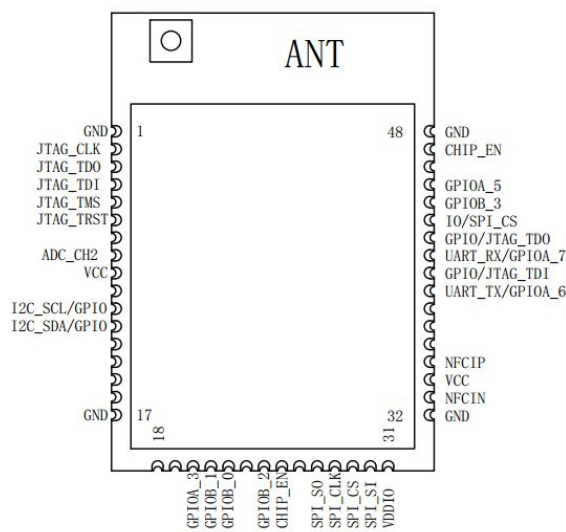


Figure 3 Module pin function diagram



Pin	Definition	Function
1	GND	Ground pin
2	jtag_clk/gpio	JTAG/IO Multiplexing port
3	jtag_tdo/pwm3	JTAG/IO Multiplexing port
4	jtag_tdi/pwm1	JTAG/IO Multiplexing port
5	jtag_tms/pcm0_in	JTAG/IO Multiplexing port
6	jtag_trst/pwm0	JTAG/IO Multiplexing port
8	ADC_CH2	ADC Sampling pin
9	VCC	Power supply(DC_3.3V)
11	I2C1_SCL/GPIO	I2C/IOMultiplexing port
12	I2C1_SDA/GPIO	I2C/IOMultiplexing port
17	GND	Ground pin
20	GPIOA_3	IO Port
21	GPIOB_1	Module internal debugging pin(Suspended)
22	GPIOB_0	Module internal debugging pin(Suspended)
24	GPIOB_2	IC Working mode selection(Suspended)
25	CHIP_EN	IC Enable pin
27	spi0_so /pwm3	SPI/PWM Multiplexing port
28	spi0_clk/pwm1	SPI/PWM Multiplexing port
29	spi0_cs/pwm0	SPI/PWM Multiplexing port
30	spi0_si/pwm2	SPI/PWM Multiplexing port
31	VDDIO	Power supply(DC_3.3V)
32	GND	Ground pin
33	NFCIN_1	NFC Function pin
34	VCC	Power supply(DC_3.3V)
35	NFCIP_1	NFC Function pin
39	UART_TX/GPIOA_6	UART port/IO port
40	GPIO/JTAG_TDI	IO/JTAG Multiplexing port
41	UART_RX/GPIOA_7	UART port/IO port
42	GPIO/JTAG_TDO	IO/JTAG Multiplexing port
43	IO/SPI_CS	IO □/SPI Multiplexing port
44	GPIOB_3	IO port
45	GPIOA_5	IO port
47	CHIP_EN	IC Enable pin
48	GND	Ground pin

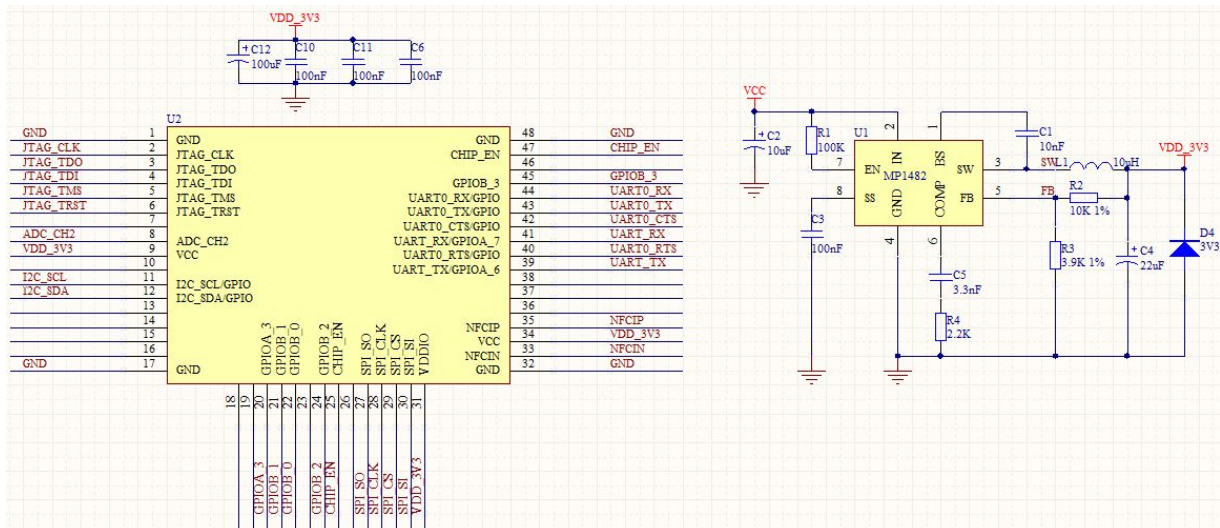
### 3.3 Label specification



Figure 4 Label instructions

## 4 Application reference

### 4.1 Reference design



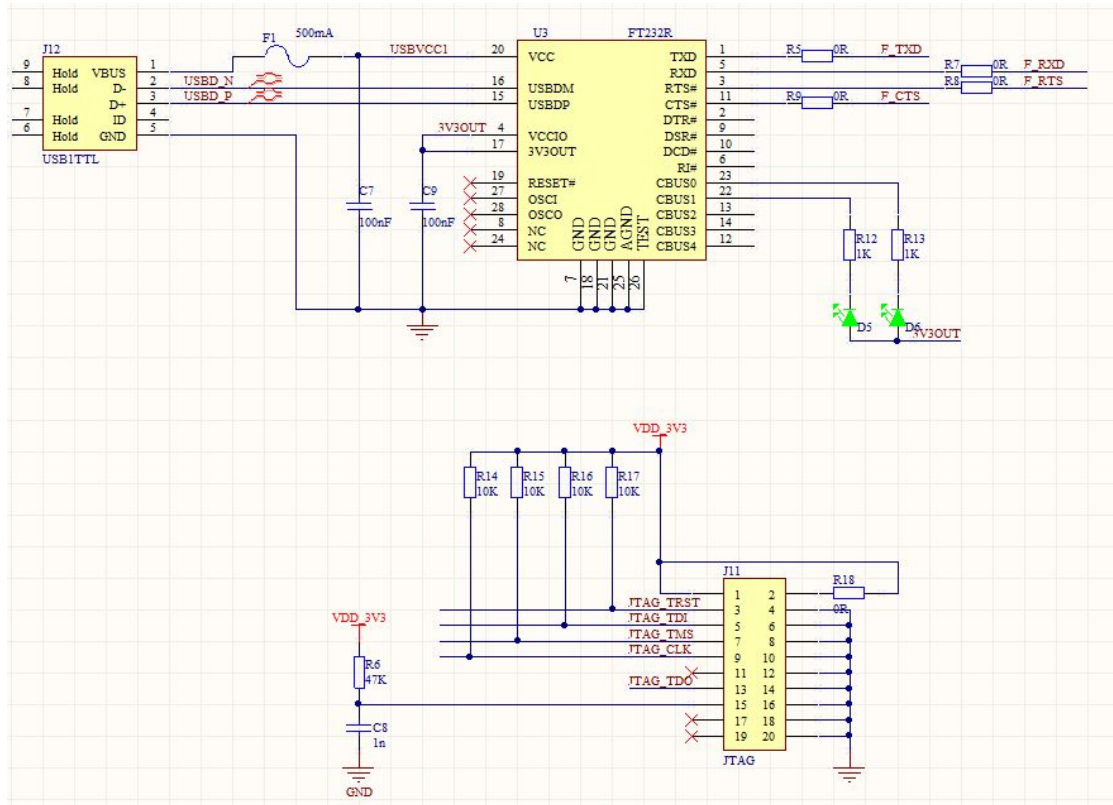


Figure 5 Reference design

Remarks: recommended DCDC Power chip, supply current is greater than 800mA

### 4.2 Module secondary welding reference temperature curve

焊炉设定	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Z9	Z10
上温区设定	150	150	180	180	180	195	210	240	250	240
下温区设定	150	150	180	180	180	195	210	240	250	240

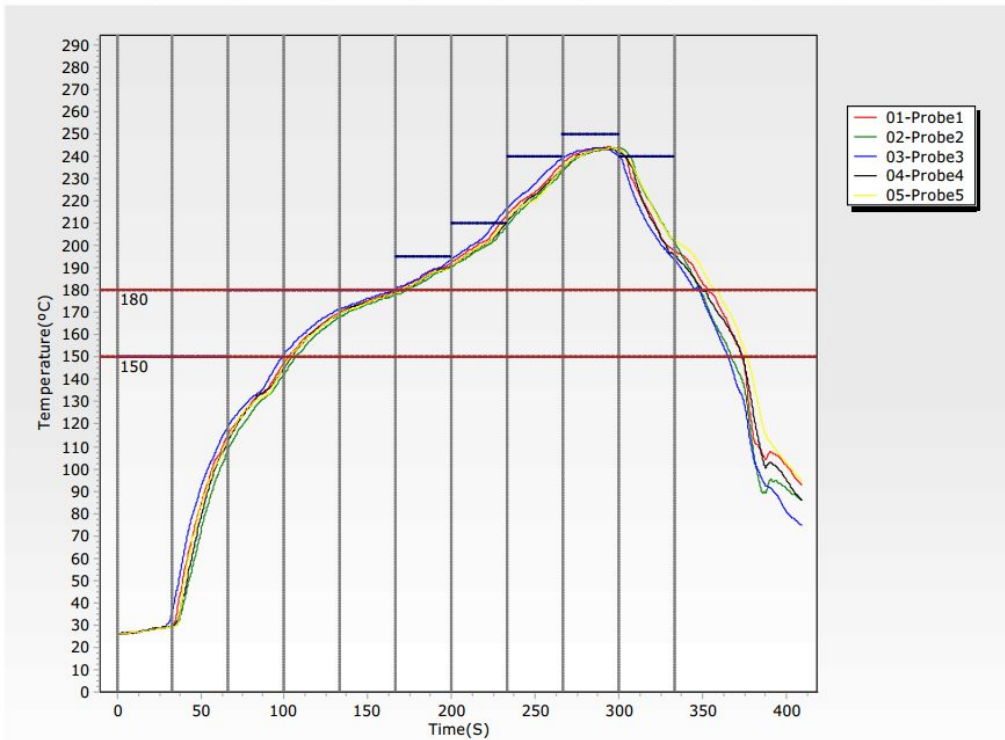


Figure 6 Reference temperature curve

## 5 Packaging

### 5.1 Outer carton

Using outer carton by the size of 354\*250\*362mm, include inner box.

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Figure 7 Outer carton assembly drawing ®

## 5.2 Inner box

The inner box size is 352\*348\*56mm, every box contained a tape evacuated with an antistatic bag, which also contained 500pcs module.



Figure 8 Inner box





Figure 9 Evacuated tape with antistatic bag®

### 5.3 Tape & reel

Every tape contained 500pcs module.



Figure 10 Rolling wheel

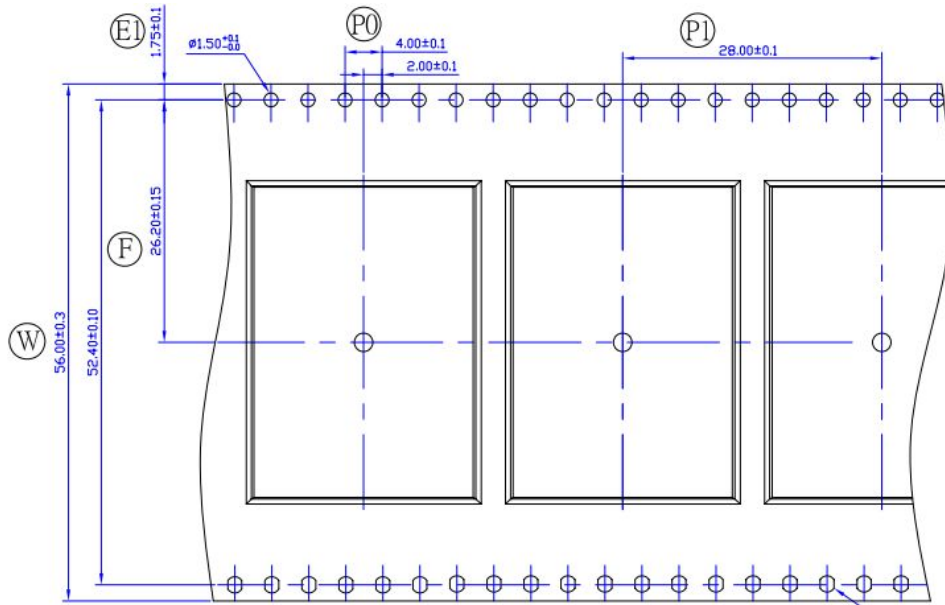


Figure 11 Tape size

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## Maintenance

1.Power rating: Input DC3.3V

2.Declaration of Conformity

Lierda Science & Technology Group Co., Ltd hereby declares that this Wifi Module is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.a copy of the original declaration of conformity may be found or obtained at <http://www.lierda.com/>

# C €0700

## FCC Caution.

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.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: 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 or more 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.

The distance between user and device should be no less than 20cm.

The Wifi module is designed to comply with the FCC statement. FCC ID is N8NLS4WF2MD05102. The host system using Wifi module, should have label indicated it contain modular's FCC ID N8NLS4WF2MD05102.