

# Product Specifications

Revision	V1.0		
Date	2022-11-25		
Model Name	WK882H-B0-B		
Product Name	2.4G Wi-Fi & BLE IoT Module		
Bilian Approve Field			
Engineer	QC	Sales	
Customer Approve Field			
Engineer	QC	Manufactory	Pruchasing

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# Revision History

Date	Document Revision	Product Revision	Description
2022/11/25	1.0	1.0	Preliminary release

## 1. Introduction

### 1.1 General Description

WK882H-B0-B Patch module is a WiFi and BLE dual mode module independently developed by Welkin Technology. The module has high integration, easy to use and abundant peripheral applications. Module Wifi function features, WiFi support standard 2.4GHz 802.11b /g/n protocol, bandwidth is 20MHz, support STA/AP/STA+AP operation mode, complete TCP/IP protocol stack, support AT Command operation. Module Bluetooth BLE function features, BLE support standard Bluetooth LE 5.1 protocol, remote support(125Kbps, 500Kbps) and high speed transmission (2Mbps).

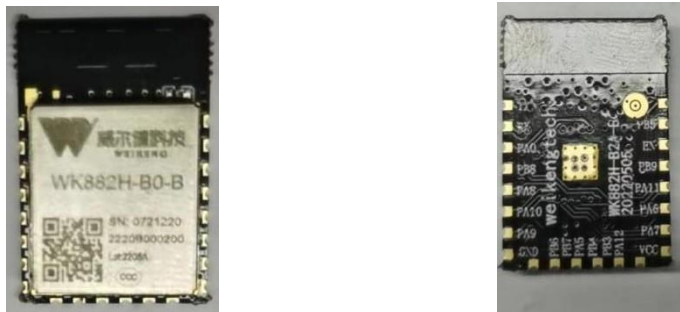


Figure 1

## 1.2Feature

- Operation Frequency:2412MHz-2462MHz
- IEEE Standards : 2.4GHz 802.11 b/g/n
- Wireless data rate can reach up to
- Bluetooth support
- Power Supply  $3.3V \pm 0.3V$

## 1.3Applications

- AIOT
- Consumer Electronics
- Optical module
- GPS

## 2. Functional Block Diagram

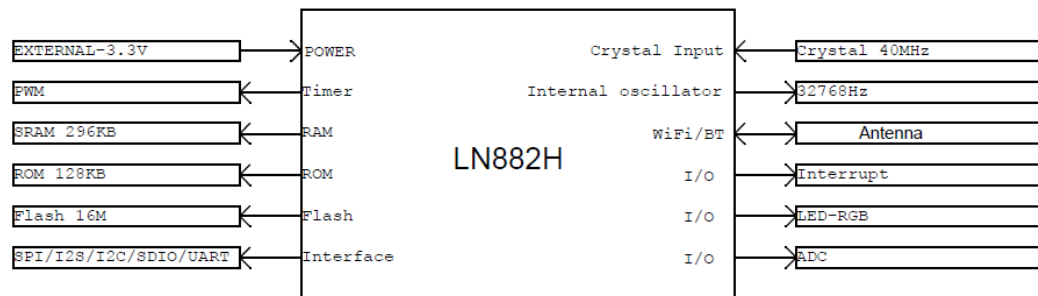


Figure 2

## 3. WiFi Subsystem

### 3.1 General Specifications

Item	Description
Product Name	WK882H-B0-B
Main Chip	LN882
Host Interface	Uart
IEEE Standards	IEEE 802.11 b/g/n, Bluetooth
Operating Frequencies	2412MHz-2462MHz 2402MHz-2480MHz
Modulation	802.11b: DSSS 802.11g:OFDM 802.11n:64-QAM for 2.4GWIFI GFSK for BLE
Wireless Data Rate	802.11b: 11M 802.11g : 54M 802.11n: MCS7
Rx Sensitivity	-94dBm
Tx Power	16dBm for 2.4GWIFI, 1.0dBm for BLE
Antenna Type	On-Board Antenna
Power Supply	3.0V-3.6V
Clock Source	40MHz
Work Temperature	-10°C--+70°C
Storage Temperature	-40°C--+85°C

### 3.2 Receiver Characteristics

Parameter	Condition	Min.	Typ	Max	Unit
Sensitivity					
11b, 1M	FER<8%, 1024bytes		-94		dBm
11b, 11M	FER<8%, 1024bytes		-88		dBm
11g, 6M	FER<10%, 1024bytes		-90		dBm
11g, 54M	FER<10%, 1024bytes		-74		dBm
11n, MCS0	FER<10%, 1024bytes		-90		dBm
11n, MCS7	FER<10%, 1024bytes		-71		dBm
Maximum Input level					
11b	FER<8%, 1024bytes		4		dBm
11g	FER<10%, 1024bytes		-6		dBm
11n	FER<10%, 1024bytes		-6		dBm
Operating power consumption					
11b			63		mA
11g			68		mA
11n			68		mA

### 3.3 Transmitter Characteristics

Parameter	Condition	Min.	Typ	Max	Unit
Output power					
11b, 1M DSSS	Maximum RMS output power measured		19		dBm
11g, 54M OFDM	Maximum RMS output power measured		16		dBm
11n, MCS7	Maximum RMS output power measured		15		dBm
Power consumption					
11b	Continuous transmitting		280		mA
11g	Continuous transmitting		260		mA
11n	Continuous transmitting		260		mA

## 4. Bluetooth Subsystem

### 4.1 Supported Features

- Bluetooth LE 5.1
- 2.4GHz ISM BAND
- Data rate: 1M/2Mbps, 125k/500kbp
- BLE long range
- BLE advertising extension
- Up to 10dBm output with flexible external matching solution
- -96dBm sensitivity in BLE 1Mbps mode

Module Bluetooth BLE function features, BLE support standard Bluetooth LE 5.1 protocol, remote support (125Kbps, 500Kbps) and high speed transmission (2Mbps).



## 5. Pin Assignmengt

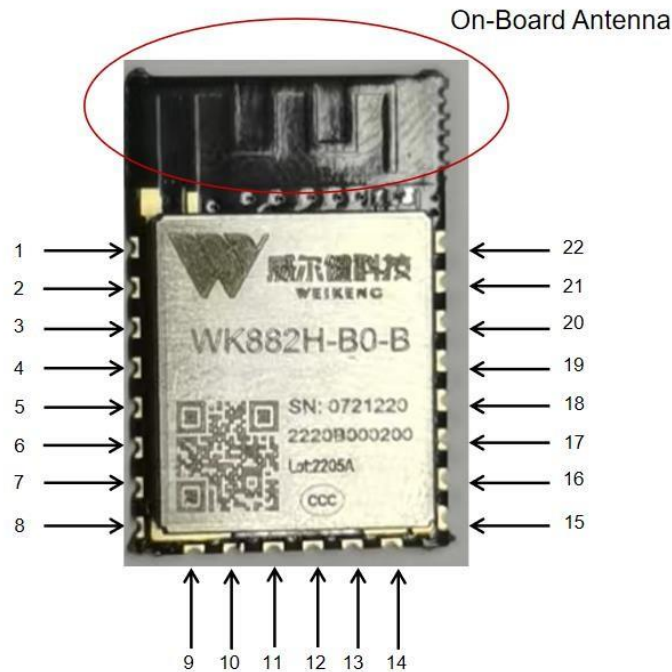


Figure 3

1	RST	Reset
2	ADC	Analog-to-Digital
3	EN	Chip enable
4	IO16	GPIO16/ When receiving RST pin, it can wake up deep sleep
5	IO14	GPIO14/HSPI_CLK
6	IO12	GPIO12/HSPI_MISO
7	IO13	GPIO13/HSPI_MOSI/UART0_CTS
8	VCC	Power supply
9	CS0	SPI_Selection
10	MISO	SPI_MISO
11	IO9	SPI_HOLD
12	IO10	SPI_WP
13	MOSI	SPI_MOSI
14	SCLK	SPI_SCLK
15	GND	Connect GND
16	IO15	GPIO15/MTDO/HSPICS/UART0_RTS
17	IO2	GPIO2/UART1_TXD
18	IO0	GPIO0; Download :External pull down ;Active :Suspended or externally elevated
19	IO4	GPIO4
20	IO5	GPIO5/IR_R
21	RXD	UART0_RXD/GPIO3
22	TXD	UART0_TXD/GPIO1

## 6. Typical Application Circuit

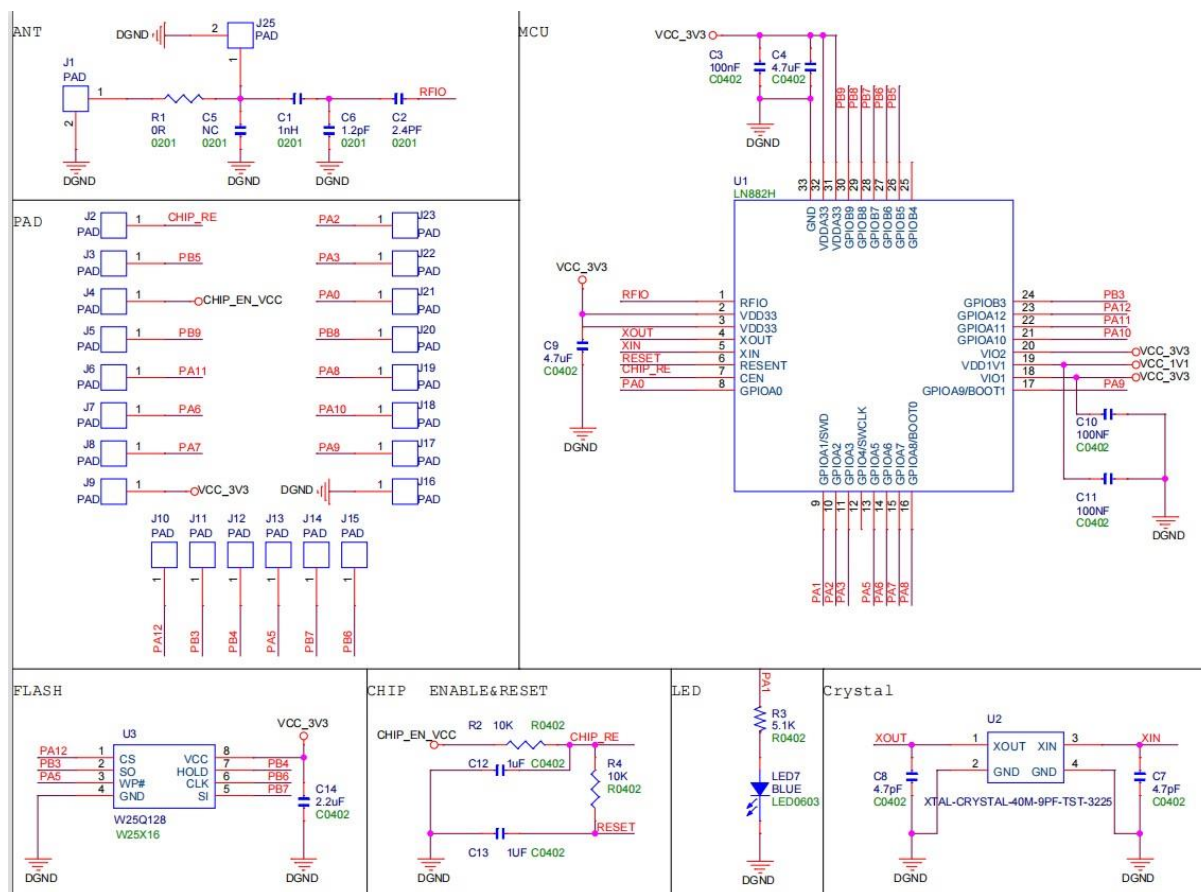


Figure 4

## 7. Mechanical Specifications

Module dimension Typical (L\*W\*H) 23\*16\*3.1 (mm) , Tolrance:  
 $\pm 0.15\text{mm}$

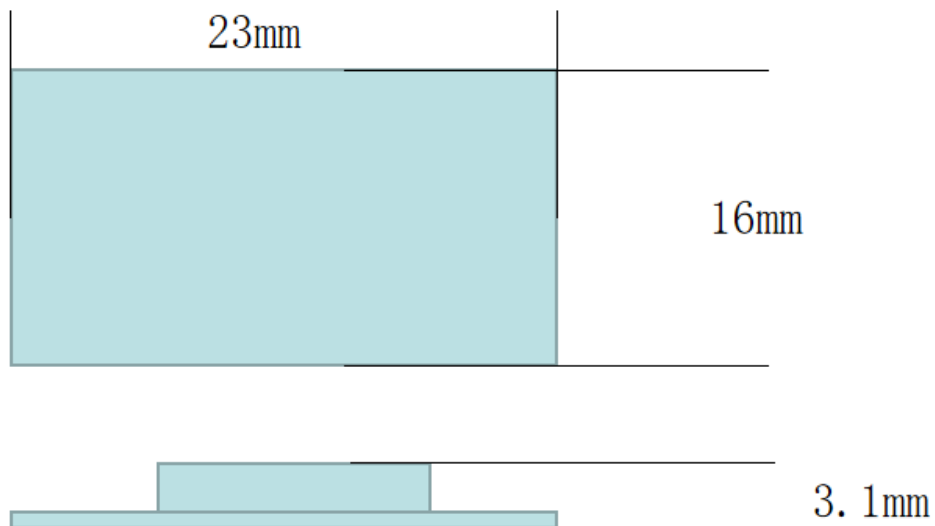


Figure 5

## 8. Others

### 8.1 Package Information



Figure 6

### 8.2 Storage Temperation and Humidity

1. Storage Condition: Moisture barrier bag must be stored under 30°C, humidity under 85%RH.

The calculated shelf life for the dry packed product shall be a 12 months form the bag seal date. Humidity indicator cards must be blue, <30%.

2. Products require baking before mounting if humidity indicator cards reads >30%temp<30°C, humidity<70%RH, over 96 hours.

Baking condition:125°C, 12hours.

Baking times:1 time.

### 8.3 Recommended Reflow Profile

Reflow Sodlring shall be done according to the soleder reflow profile ,Typical Solder Reflow Profliie is illustrated in Figure 7. The peak temperature is 245°C.

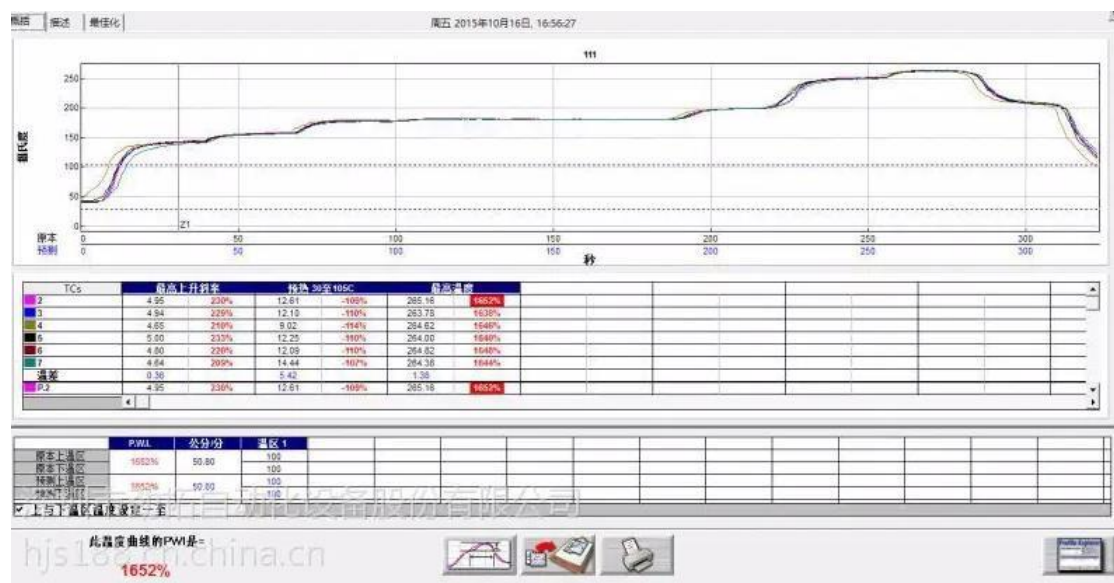


Figure 7

**FCC 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.

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 important announcement

Important Note:

**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 and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Country Code selection feature to be disabled for products marketed to the US/Canada.

This device is intended only for OEM integrators under the following conditions:

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 the three conditions above are met, further transmitter testing 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.

**Important Note:**

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.

**End Product Labeling**

The final end product must be labeled in a visible area with the following"

Contains FCC ID: **2A9FJ-WK882H-B0-B**"

**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.

## **Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01**

### **2.2 List of applicable FCC rules**

CFR 47 FCC PART 15 SUBPART C has been investigated. It is applicable to the modular transmitter

### **2.3 Specific operational use conditions**

This module is stand-alone modular. If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system.

### **2.4 Limited module procedures**

Not applicable

### **2.5 Trace antenna designs**

Not applicable

### **2.6 RF exposure considerations**

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.

### **2.7 Antennas**

This radio transmitter **FCC ID:2A9FJ-WK882H-B0-B** has been approved by Federal Communications Commission to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Antenna No.	Model No. of antenna:	Type of antenna:	Gain of the antenna (Max.)	Frequency range:
BT/2.4GWIFI	/	PCB Antenna	1.81dBi for 2402-2480MHz;	

### **2.8 Label and compliance information**

The final end product must be labeled in a visible area with the following"

Contains **FCC ID: 2A9FJ-WK882H-B0-B** ".

### **2.9 Information on test modes and additional testing requirements**

Host manufacturer is strongly recommended to confirm compliance with FCC requirements for the transmitter when the module is installed in the host.

### **2.10 Additional testing, Part 15 Subpart B disclaimer**

Host manufacturer is responsible for compliance of the host system with module installed with all other applicable requirements for the system such as Part 15 B.