1. Overview

The 00WIMRA is a highly integrated single chip Module which has built in a 2x2 dual-band wireless LAN radio and Bluetooth radio.It supports IEEE 802.11a/b/g/n 11ac standard and provides the highest PHY rate up to 867Mbps,offering feature-rich wireless connectivity and reliable throughput from an extended distance.It includes Bluetooth EDR and LE radio which complies with Bluetooth v2.1+EDR,v3.0,and v5.0+BLE

The 00WIMRA integrates PA/LNA such that the number of the external components is reduced to minimum.Intelligent MAC design deploys a high efficient DMA engine and hardware data processing accelerators which offloads the host processor.

The 00WIMRA supports the 802.11i security standard and implements hardware acceleration for TKIP,CCMP and WAPI. The device also supports 802.11e Qos for video,voice,and multimedia applications.

The 00WIMRA can provide a comcurrent operation of Wi-Fi and Bluetooth over USB interace. An intelligent Wi-Fi/Bluetooth coexistence algorithm is implemented to reach the best Wi-Fi and Bluetooth radio performance.

2. Features

2.1 Platform

- ■ Embedded high-performance 32-bit RISC microprocessor
- ■ Highly integrated RF with 55nm CMOS technology
- ■ Integrate high efficiency switching regulator
- ■ 40MHz crystal clock support with low power operation in sleep mode
- ■ Best-in-class active and idle power consumption performance
- ■ Fully Compliance with USB v2.0 specification
- ■ Iternal thermal sensor for temperature compensation and thermal protection.
- ■ Self calibration.
- ■ Advanced FDD/TDD mode Wi-Fi/Bluetooth coexistence scheme.
- ■ Wi-Fi and Bluetooth over USB.

2.2 WLAN

- IEEE 802.11a/b/g/n 11ac compliant

- Support 20MHz,40MHz,80MHz in 5GHz band,and   20MHz,40MHz bandwidth in 2.4GHz band.

- Embedded high-performance 32-bit RISC microprocessor

- Dual-band 2T2R mode with data rate up to 867Mbps

- Support STBC,LDPC,MRC,and transmit Beamforming

- Greenfield,mixed mode,legacy modes support

- Frame aggregation

- Integrated LNA,PA,and T/R switch

- Optional external LNA and PA support.

- IEEE 802.11d/e/h/i/k/r/w support

- Security support for WGA WPA/WPA2 personal,WPS2.0,WAPI

- Supports 802.11w proteced managed frames

- QoS support of WFA WMM,WMM PS

- Supports Wi-Fi Direct

- Fully compliance with USB v2.0 High-speed mode

- Wake on WLAN

2.3 Bluetooth

- Bluetooth specification v2.1+EDR

- Bluetooth v5.0 Low Energy(LE)

- Standard HCI interface over USB super-speed,high-speed and full-speed mode

- Integrated BALUN and PA with 9dBm transmit power

- Best-in-class BT/Wi-Fi coexistence performance

- Scatternet support:Up to 4 piconets simultaneously with background inquiry/page scan

- Up to 3 simulaneous active ACL links

- Support SCO and SCO link with re-transmission

- Support wide-band speech and hardware accelerated SBC codec for A2DP streaming

- Packet loss concealment

- Channel assessment or AFH

- 3DD support

3. General Specification

Model	00WIMRA
Product Name	WI-Fi 11a/b/g/n ac 2T2R +BT5.0 Module
Major Chipset	MT7668AUN
Standard	802.11a/b/g/n/ac
Data Transfer Rate	1,2,5.5,6,11,12,18,22,24,30,36,48,54,60, 90,120,300,480,540,max867 Mbps,
Modulation Method	BPSK/ QPSK/ 16-QAM/ 64-QAM
Frequency Band	2.4~2.4835 GHz ISM Band 5.180~5.240GHz/5.745~5.825GHz
Spread Spectrum	IEEE 802.11b: DSSS (Direct Sequence Spread Spectrum)IEEE802.11g/n:OFDM(Orthogonal Frequency Division Multiplexing)
RF Output Power	2.4GHz: $11n >= 13dBm$，$11g >= 14dBm$，$11b < 20dBm$ 5GHz: $11n >= 13dBm$，$11a >= 13dBm, 11ac >= 11dbm$;
BT RF Output Power	$0 < BT RF <= 5 dBm$
Operation Mode	Ad hoc, Infrastructure
WLAN Receiver Sensitivity	2.4G: 11b CCK11(PER<8%) < -85dBm , 11g OFDM54(PER<10%) < -75dBm , 11n HT20 MCS7(PER<10%) < -73dBm , 11n HT40 MCS7(PER<10%) < -70dBm 5G : 11a 54Mbps(PER<10%)< -73dBm, 11n HT20 MCS7(PER<10%) < -71dBm , 11n HT40 MCS7(PER<10%) < -68dBm 11ac VHT80 MCS9(PER<10%) < -58dBm
BT Receiver Sensitivity	86 @ BER=0.1% for GFSK (1Mbps) 86 @ BER=0.01% for π/4-DQPSK (2Mbps) 80 BER=0.01% for 8DPSK (3Mbps)
Operation Range	Up to 180 meters in open space
OS Support	Win7 32/64,Win8 32/64,Android
Security	WEP, TKIP, AES, WPA, WPA2
Interface	USB 2.0
Power Consumption	DC3.3V Max 882mA
Operating Temperature	-20~ +60° C ambient temperature

Storage Temperature	-40～ 85°C ambient temperature
Humidity	5 to 90 % maximum (non-condensing)
Dimension	15.8x27x0.8mm (LxWxH)

4. DC Characteristics

4.1 WLAN current consumption

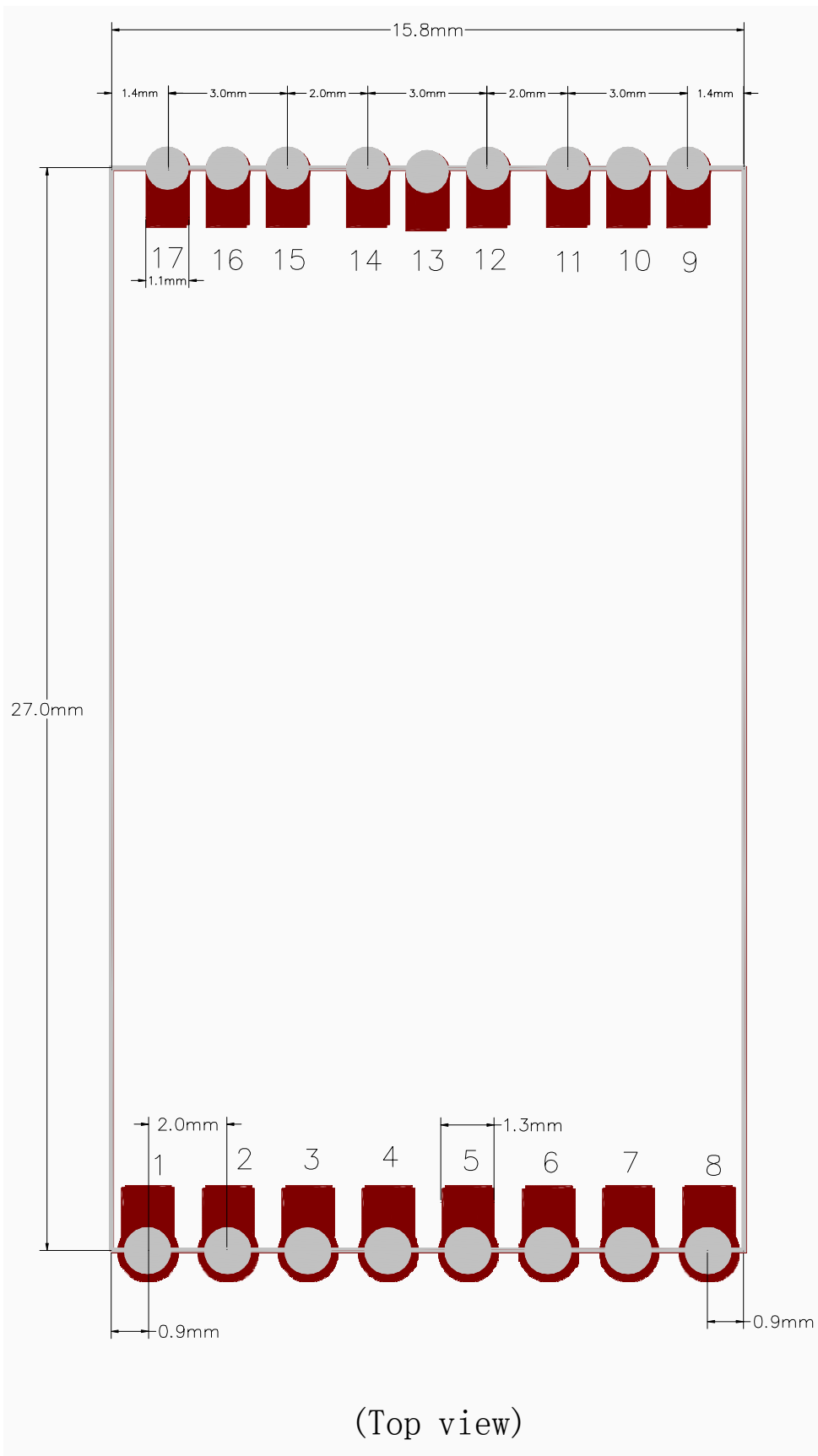| Description	TYP	Unit
Sleep mode	1.5	mA
2GHz RX Active,HT40,MCS15	296	mA
5GHz RX Active,HT80,MCS9	372	mA
RX Power saving,DTIM=1	65	mA
RX Listen	236	mA
2GHz TX HT40,mcs15 @17dBm	672	mA
2GHz TX HT40,mcs8 @20dBm	756	mA
5GHz TX HT80,mcs9 @15dBm	792	mA
5GHz TX HT80,mcs0 @17.5dBm	882	mA
2GHz TX CCK,11Mbps @20dBm	464	mA

Note: All result is measured at the antenna port and VDD33 is 3.3V

4.2 Bluetooth current consumption

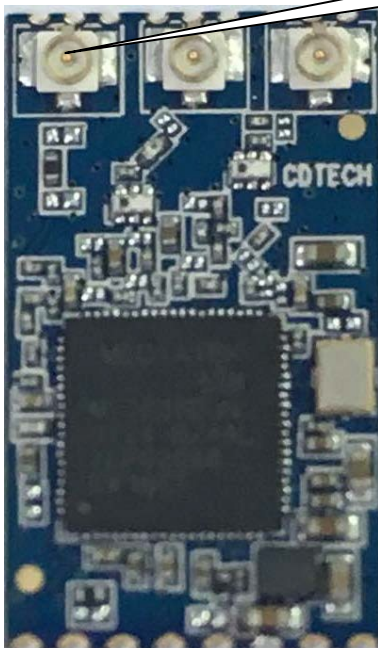| Description	TYP	Unit
Sleep mode	1.5	mA
Bluetooth continuous transmit(TX output power:9dBm)	69	mA
Bluetooth continuous receive	44	mA
Bluetooth SCO connection, HV3 packets+sniff mode+scan (Page scan internal=1.28sec,inquiry scan interval=2.56s,sniff interval=500ms)	32	mA
Bluetooth page scan+inquiry scan (Page scan interval=1.28s,inquiry scan interval=2.56s)	2	mA
Bluetooth page scan (Page scan interval=1.28s)	2	mA

Note:All result is measured at the antenna port and VDD33 is 3.3V

5. Pin Description and PCB size

15.8mm

1.4mm 3.0mm 2.0mm 3.0mm 2.0mm 3.0mm 1.4mm

17 16 15 14 13 12 11 10 9

1.1mm

27.0mm

2.0mm 1.3mm

1 2 3 4 5 6 7 8

0.9mm 0.9mm

(Top view)

| NO.	Nam	Description
1	BTWAKE	Bluetooth wake
2	GND	Ground connections
3	UDP	USB positive differential data lines
4	UDM	USB negative differential data lines
5	RST	reset
6	3.3V	Power supply 3.3V is required
7	WFWOW	WIFI wake
8	3D -GLASS	Platform 60 hz synchronization signal is given
9	GND	Ground connections
10	WF-RF0	WIFI-RF signal
11	GND	Ground connections
12	GND	Ground connections
13	WF-RF1	WIFI-RF signal
14	GND	Ground connections
15	GND	Ground connections
16	BT-RF	Blue tooth ANT
17	GND	Ground connections

6. Modular photo

PCBA physical photo　　BT-RF
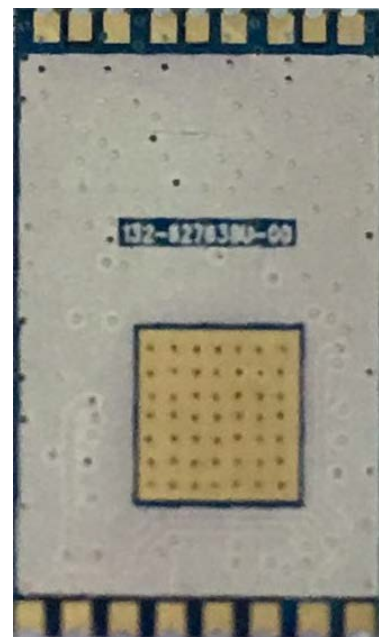
7. Recommended Reflow Profile

Referred IPC/JEDEC standard.

Peak Temperature : <250°C

Number of Times :   es2 tim
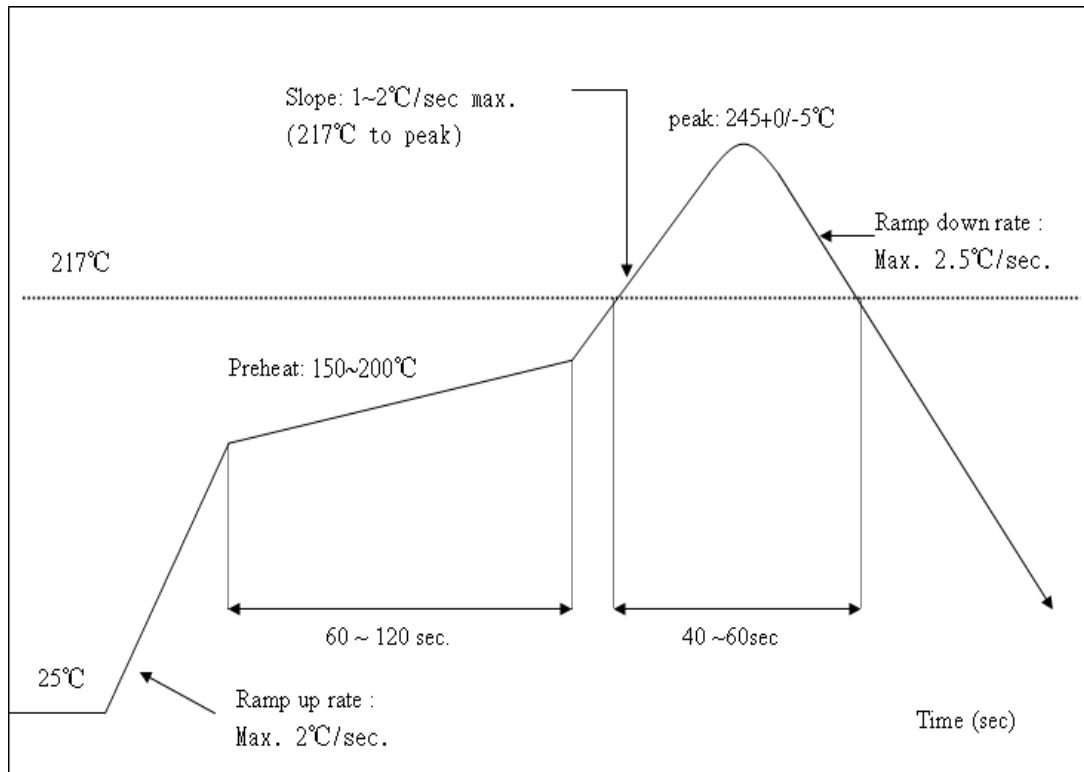
* Note: compatibility of the connected devices must be confirmed before use. For detailed instructions, please refer to the instructions for each product.

Specifications：

Standard specification for WiFi：IEEE 802.11a/b/g/n/ac

Data rate for WiFi：802.11b：1，2，5.5，11Mbps

802.11g：6，9，12，18，24，36，48，54Mbps

802.11n（HT20）：MCS0~15，at most 150Mbps

802.11a：6，9，12，18，24，36，48，54Mbps

802.11ac：(HT80) at most 866.7Mbps

Standard specification for Bluetooth：BT2.1+EDR/BT3.0+HS/BT4.2+LE

Data rate for Bluetooth：GFSK，π/4-DQPSK，8DPSK，at most 3Mbps

Size (long x width x high)：18x27x2.6mm

Interface：USB2.0

Frequency and channel：2.4GHz~2.5GHz，（1~13 CH for Worldwide）

：5150-5250,5725-5850MHz

*Note: If the design and specifications are changed, no notice shall be given.; the specifications vary from area to area; the transmission speed varies depending on the distance between the products, the number of obstacles, the product configuration, the radio wave condition and the product you use; the transmission may also be interrupted because of the bad radio waves condition; The standard value of transmission speed is the maximum value of wireless standard theory, rather than the actual speed of data transmission.

FCC STATEMENT

1.   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.

2.   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.

FCC 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

Installation Guidance

The final host / module combination may also need to be evaluated against the FCC Part 15B criteria for unintentional radiators in order to be properly authorized for operation as a Part 15 digital device.

The user's manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

To ensure compliance with all non-transmitter functions the host manufacturer is responsible for ensuring compliance with the module(s) installed and fully operational. For example, if a host was previously authorized as an unintentional radiator under the Declaration of Conformity procedure without a transmitter certified module and a module is added, the host manufacturer is responsible for ensuring that the after the module is installed and operational the host continues to be compliant with the Part 15B unintentional radiator requirements.