



# User Manual

Model name:HR8811AUU3

FCC ID:2ADV3-HR8811AUU3

## Product Specification

IEEE 802.11 a/b/g/n 1T/1R Band USB Module

|              |                       |
|--------------|-----------------------|
| Project Name | 2.4G & 5G WiFi module |
| Model NO     | HR8811AUU3            |

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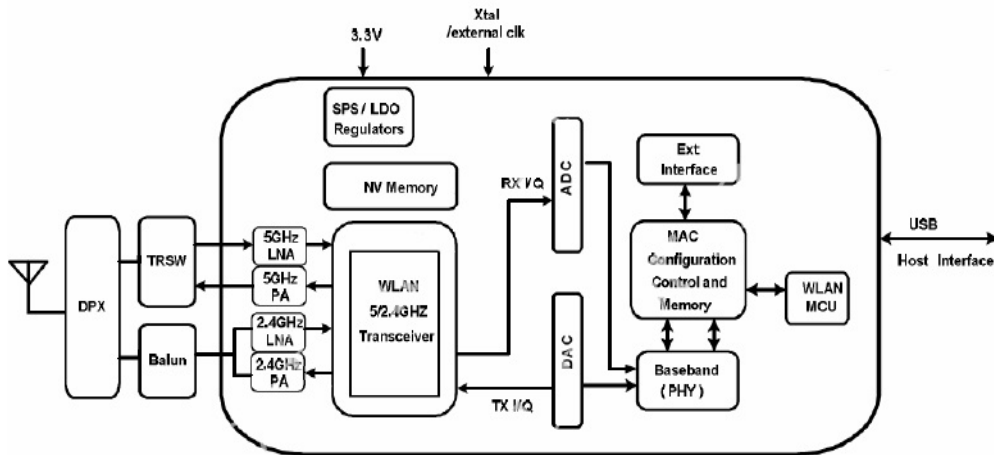
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## 1. Introduction

This document is to specify the product requirements for 802.11a/b/g/n USB Module. This Card is based on Realtek RTL8811AU chipset that complied with IEEE 802.11a/b/g/n compatible WLAN

### 1.1 Overview

The general hardware for the module is shown in Figure 1.



### 1.2 Features

- Compatible with IEEE 802.11a standard to provide wireless 54Mbps data rate.
- Compatible with IEEE 802.11g standard to provide wireless 54Mbps data rate.
- Compatible with IEEE 802.11b standard to provide wireless 11Mbps data rate.
- Compatible with IEEE 802.11n standard to provide wireless 150Mbps data rate.
- Operation at 2.4~2.5GHz and 5.745~5.825GHz frequency band to meet worldwide regulations
- Supports infrastructure networks via Access Point and ad-hoc network via peer-to-peer communication
- Supports IEEE 802.11i(WPA and WPA2),WAPI,. enhanced security

## 2. GENERAL SPECIFICATION

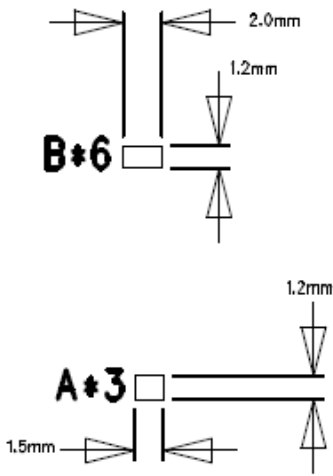
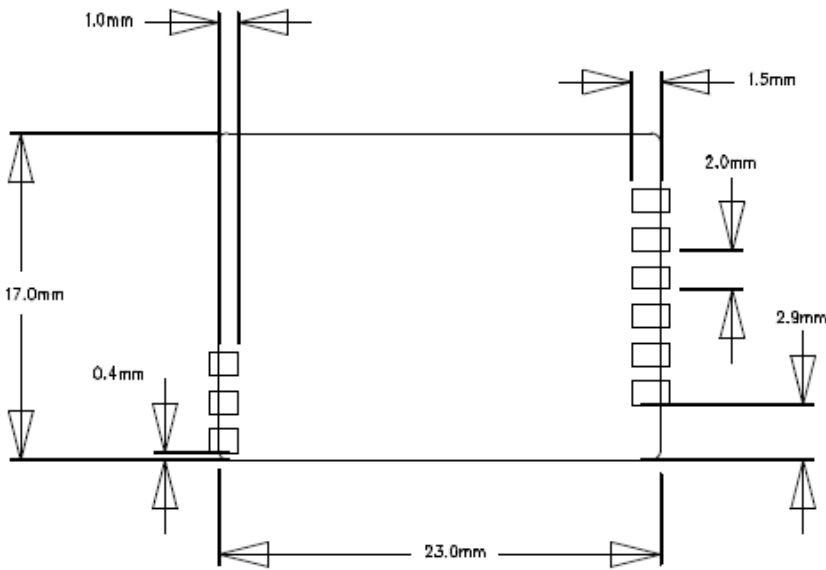
### 2.1 WiFi Specifications

| Features                                                                                                                                                    | Descriptions                                                                                                                                                                                        |                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Main Chipset                                                                                                                                                | Realtek RTL8811AU                                                                                                                                                                                   |                                                                                                                                                                                  |
| Operating Frequency                                                                                                                                         | 2.4G: 2.4000GHz~2.4835GHz<br>5G: 5.745GHz~5.825GHz                                                                                                                                                  |                                                                                                                                                                                  |
| Host Interface                                                                                                                                              | USB 2.0                                                                                                                                                                                             |                                                                                                                                                                                  |
| WIFI Standard                                                                                                                                               | iEEE802.11a/b/g/n                                                                                                                                                                                   |                                                                                                                                                                                  |
| Modulation                                                                                                                                                  | 802.11b: QPSK , BPSK , 16QAM ,64QAM with OFDM<br>802.11 g/n: BPSK , QPSK , 16QAM ,64QAM with OFDM<br>802.11a: QPSK , BPSK , 16QAM ,64QAM with OFDM                                                  |                                                                                                                                                                                  |
| PHY Data rates                                                                                                                                              | 802.11a: 6,9,12,18,24,36,48,54Mbps<br>802.11b: 11,5.5,2,1 Mbps<br>802.11g: 6,9,12,18,24,36,48,54Mbps<br>802.11n: up to 150Mbps                                                                      |                                                                                                                                                                                  |
| Transmit Output Power                                                                                                                                       | 802.11b 11.91 dBm<br>802.11g 10.58 dBm<br>802.11n20 9.41 dBm<br>802.11n40 8.97 dBm<br>802.11a 11.67 dBm                                                                                             |                                                                                                                                                                                  |
| Receiver Sensitivity<br>Bandwidth: 20MHz<br>(Typical Sensitivity at each RF chain at Which Frame(1000-byte PDUs)Error Rate=10% and at room Temp.25 degreeC) | 802.11b@8% PER<br>1Mbps≤-83dBm<br>2Mbps≤-80dBm<br>5.5Mbps≤-79dBm<br>11Mbps≤-76dBm                                                                                                                   |                                                                                                                                                                                  |
|                                                                                                                                                             | 802.11g@10% PER<br>6Mbps ≤-82dBm<br>9Mbps ≤-81dBm<br>12Mbps ≤-79dBm<br>18Mbps ≤-77dBm<br>24Mbps ≤-74dBm<br>36Mbps ≤-70dBm<br>48Mbps ≤-66dBm<br>54Mbps ≤-65dBm                                       |                                                                                                                                                                                  |
|                                                                                                                                                             | 802.11n@10% PER<br>2.4GHz Band/HT20<br>● -82dBm at MCS0<br>● -79dBm at MCS1<br>● -77dBm at MCS2<br>● -74dBm at MCS3<br>● -70dBm at MCS4<br>● -66dBm at MCS5<br>● -65dBm at MCS6<br>● -64dBm at MCS7 | 2.4GHz Band/HT40<br>● -79dBm at MCS0<br>● -76dBm at MCS1<br>● -74dBm at MCS2<br>● -71dBm at MCS3<br>● -67dBm at MCS4<br>● -63dBm at MCS5<br>● -62dBm at MCS6<br>● -61dBm at MCS7 |
|                                                                                                                                                             | 5GHz Band/HT20<br>● -82dBm at MCS0<br>● -79dBm at MCS1<br>● -77dBm at MCS2                                                                                                                          |                                                                                                                                                                                  |

|                                        |                                                                                                                                                                            |                      |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
|                                        | <ul style="list-style-type: none"> <li>• -74dBm at MCS3</li> <li>• -70dBm at MCS4</li> <li>• -66dBm at MCS5</li> <li>• -65dBm at MCS6</li> <li>• -64dBm at MCS7</li> </ul> |                      |
|                                        | 802.11a@10% PER<br>6Mbps ≤-82dBm<br>9Mbps ≤-81dBm<br>12Mbps ≤-79dBm<br>18Mbps ≤-77dBm<br>24Mbps ≤-74dBm<br>36Mbps ≤-70dBm<br>48Mbps ≤-66dBm<br>54Mbps ≤-65dBm              |                      |
| Operation Range                        | Up to 150meters in open space                                                                                                                                              |                      |
| RF Antenna                             | External Antenna                                                                                                                                                           |                      |
| OS Support                             | Windows XP,Vista.Win7                                                                                                                                                      |                      |
| Security                               | WEP,TKIP,AES,WPA,WPA2                                                                                                                                                      |                      |
| Dimension                              | L23.0mm*W17.0mm*T3.0mm                                                                                                                                                     |                      |
| Power Consumption<br>3.3V Power supply | LINK                                                                                                                                                                       | 200mA                |
|                                        | TX 2.4G                                                                                                                                                                    | 20M:240mA; 40M:220mA |
|                                        | TX 5G                                                                                                                                                                      | 300mA                |
|                                        | RX                                                                                                                                                                         | 210mA                |

3. Mechanical Specification

3.1 Outline Drawing(unit: mm)



#### 4. Environmental Requirements

##### 4.1 Operating& Storage Conditions

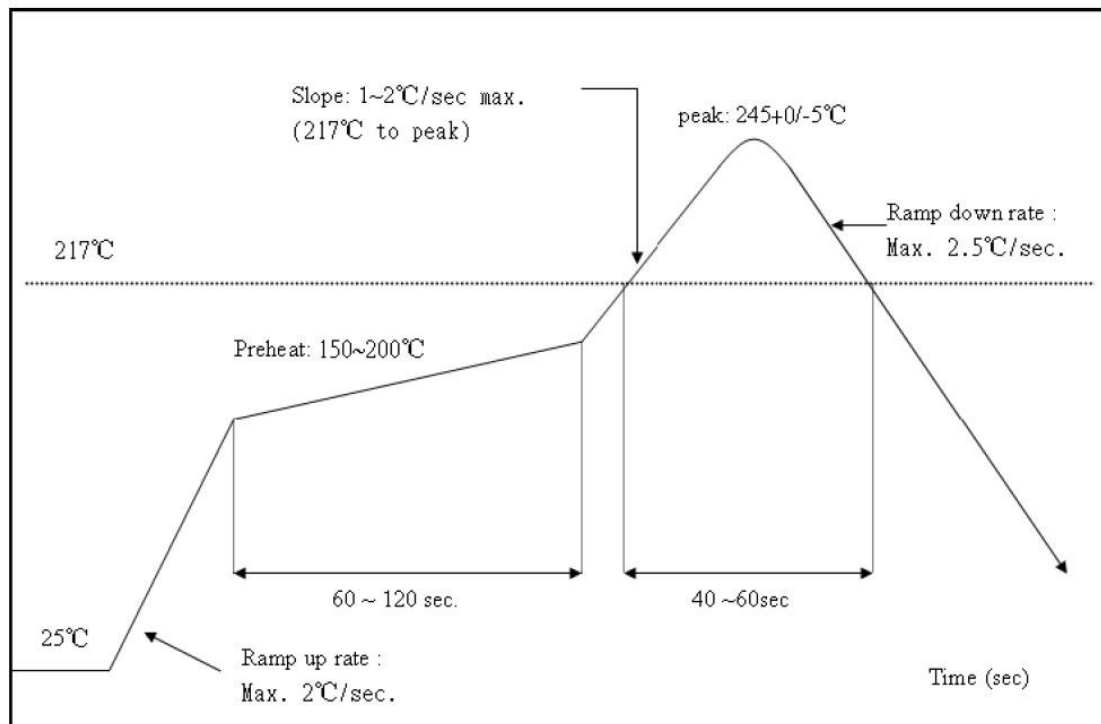
|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| Operating                         | Temperature: -5°C to +55°C                  |
|                                   | Relative Humidity: 10-90% (non-condensing)  |
| Storage                           | Temperature: -40°C to +80°C (non-operating) |
|                                   | Relative Humidity: 5-90% (non-condensing)   |
| MTBF (Mean Time Between Failures) | Over 150,000hours                           |

##### 4.2 Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature : <250°C

Number of Times : ≤2 times



##### 4.3 Patch WIFI modules installed before the notice:

WIFI module installed note:

1. Please press 1 : 1 and then expand outward proportion to 0.7 mm, 0.12 mm thickness When open a stencil

2. Take and use the WIFI module, please insure the electrostatic protective measures.

3. Reflow soldering temperature should be according to the customer the main size of the products, such as the temperature set at 250 + 5 °C for the MID motherboard.

About the module packaging, storage and use of matters needing attention are as follows:

1. The module of the reel and storage life of vacuum packing: 1). Shelf life: 8 months, storage environment conditions: temperature in: < 40 °C, relative humidity: < 90% r.h.

2. The module vacuum packing once opened, time limit of the assembly:

1) check the humidity display value should be less than 30% (in blue), such as: 30% ~ 40% (pink), or greater than 40% (red) the module have been moisture absorption.

2) factory environmental temperature humidity control: ≤ 30% °C, ≤ 60% r.h..

3) Once opened, the workshop the preservation of life for 168 hours.

3. Once opened, such as when not used up within 168 hours:

1) The module must be again to remove the module moisture absorption.

2) The baking temperature: 125 °C, 8 hours.

3) After baking, put the right amount of desiccant to seal packages.

FCC Caution.

§ 15.19 Labelling requirements.

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 including interference that may cause undesired operation.

§ 15.21 Changes or modification warning

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

§ 15.105 Information to the user.

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.

\* RF warning for Portable device:

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.

Antenna Required

Use unique connector antenna port impedance specification is 50 ohms. Antenna required PIFA antenna and not to use non-approved antenna. Antenna model is HR8811AUU3 and the brand is N/A

Note: the antenna gain are : 0dBi for the 2.4Ghz band; 0dBi for the 5Ghz band

The 2.4G & 5G WiFi module is designed to comply with the FCC statement. FCC ID is 2ADV3-HR8811AUU3

The host system using 2.4G & 5G WiFi module , should have label indicated it contain modular's

FCC ID 2ADV3-HR8811AUU3

This radio module must not be installed to co-locate and operating simultaneously with other radios in host system , additional testing and equipment authorization may be required to operating simultaneously with other radio.