WIFI Module

Model Number: BL-R8812AF1-A

Product Descrition：

BL-R8822BU1-A module design is based on Realtek BL-R8812AF1-A solution, The BL-R8812AF1-A is a highly integrated single chip which has built in a 2x2 dual-band wireless LAN radio. The Module is a highly integrated MAC/BBP and 2.4/5GHz PA/LNA single chip which supportsa 433.3Mbps PHY rate. The Module is designed to support standard-based features in the areas of security, quality of service, and international regulations, giving end users the greatestperformance anytime and in any circumstance. This documentation describes the engineering requirements specification.

Product Specification

For 2.4 GHz ISM Band of Wi-Fi	
Frequency Band:	2400 MHz to 2483.5 MHz
Frequency Range:	2412 MHz to 2472 MHz
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n-HT20, IEEE 802.11n-HT40
Type of Modulation:	IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM(64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT20: OFDM(64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT40: OFDM(64-QAM, 16-QAM, QPSK, BPSK)
Data Rate:	IEEE 802.11b: Up to 11 Mbps IEEE 802.11g: Up to 54 Mbps IEEE 802.11n-HT20: Up to MCS15 IEEE 802.11n-HT40: Up to MCS15
Number of Channels:	IEEE 802.11b: 13 IEEE 802.11g: 13 IEEE 802.11n-HT20: 13 IEEE 802.11n-HT40: 9
Channel Separation:	5 MHz
Antenna Type:	PCB Antenna
Antenna Gain:	5 dBi
Maximum Peak Power:	IEEE 802.11b: 20±2 dBm IEEE 802.11g: 20±12dBm IEEE 802.11n-HT20: 16.5±2 dBm IEEE 802.11n-HT40: 16.5±2 dBm

For 5 GHz U-NII Bands of Wi-Fi	
Frequency Bands:	5150 MHz to 5250 MHz (U-NII-1)
	5250 MHz to 5350 MHz (U-NII-2A)
	5470 MHz to 5725 MHz (U-NII-2C)
	5 725 MHz to 5 850 MHz (U-NII-3)
Frequency Ranges:	5180 MHz to 5240 MHz
	5260 MHz to 5320 MHz
	5500 MHz to 5700 MHz
	5 745 MHz to 5 825 MHz
Support Standards:	IEEE 802.11a/n/ac
TPC Function:	Not Support
DFS Operational mode:	Slave without radar Interference detection function

Type of Modulation:	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK)
	IEEE 802.11n: OFDM(64QAM, 16QAM, QPSK, BPSK)
	IEEE 802.11ac: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)
Channel Spacing:	IEEE 802.11a/n-HT20/ac-VHT20: 20 MHz
	IEEE 802.11n-HT40/ac-VHT40: 40 MHz
	IEEE 802.11ac-VHT80: 80 MHz
Data Rate:	IEEE 802.11a: Up to 54 Mbps
	IEEE 802.11n-HT20: Up to MCS15
	IEEE 802.11n-HT40: Up to MCS15
	IEEE 802.11ac-VHT20: Up to MCS8
	IEEE 802.11ac-VHT40: Up to MCS9
	IEEE 802.11ac-VHT80: Up to MCS9
Number of Channels:	5150 MHz to 5250 MHz: 4 for IEEE 802.11a/n-HT20/ac-VHT20 2 for IEEE 802.11n-HT40)/ac-VHT40 1 for IEEE 802.11acVHT80
	5250 MHz to 5350 MHz: 4 for IEEE 802.11a/n-HT20/ac-VHT20 2 for IEEE 802.11n-HT40)/ac-VHT40 1 for IEEE 802.11acVHT80
	5470 MHz to 5725 MHz: 11 for IEEE 802.11a/n-HT20/ac-VHT20 5 for IEEE 802.11n-HT40/ac-VHT40 2 for IEEE 802.11ac-VHT80
	5725 MHz to 5850 MHz: 5 for IEEE 802.11a/n-HT20/ac-VHT20 2 for IEEE 802.11n-HT40/ac-VHT40 1 for IEEE 802.11ac-VHT80
Antenna Type:	PCB Antenna
Antenna Gain:	5150 MHz to 5250 MHz: 5 dBi
	5250 MHz to 5350 MHz: 5 dBi
	5470 MHz to 5725 MHz: 5 dBi
	5725 MHz to 5850 MHz: 5 dBi

Maximum conducted output power (dBm):		**U-NII-1**	**U-NII-2A**	**U-NII-2C**	**U-NII-3**
	IEEE 802.11a:	6±2	6±2	6±2	6±2
	IEEE 802.11n-HT20:	6±2	4±2	5±2.5	2±2
	IEEE 802.11n-HT40:	6±2	4±2	5±2.5	2±2
	IEEE 802.11ac-VHT20	6±2	4±2	5±2.5	2±2
	IEEE 802.11ac-VHT40	6±2	4±2	5±2.5	2±2
	IEEE 802.11ac-VHT80:	6±2	4±2	5±2.5	2±2

2.4G WIFI-Operation Frequency Each of Channel	
IEEE 802.11b, IEEE 802.11g, IEEE 802.11n-HT20	**f = 2407 + 5k MHz, k = 1,…,13**
IEEE 802.11n-HT40	**f = 2407 + 5k MHz, k = 3,…,11**
Note: **f** is the operating frequency (MHz); **k** is the operating channel.	

5GWIFI-Operation Frequency Each of Channel				
	U-NII-1	**U-NII-2A**	**U-NII-2C**	**U-NII-3**
IEEE 802.11a, IEEE 802.11n-HT20,	**f = 5000 + 5k, k = 32 + 4n**			**f = 5000 + 5k, k = 145 + 4n**

IEEE 802.11ac-VHT20	n = 1,…, 4	n = 5,…, 8	n = 17,…, 27	n = 1,…, 5
IEEE 802.11n-HT40, IEEE 802.11ac-VHT40	f = 5000 + 5k, k = 30 + 8n			f = 5000 + 5k, k = 143 + 8n
	n = 1, 2	n = 1,…, 5	n = 9,…, 13	n = 1, 2
IEEE 802.11ac-VHT80	f = 5000 + 5k, k = 26 + 16n			f = 5000 + 5k, k = 155
	n = 1	n = 1, 2	n = 5, 6	

Note:
f is the operating frequency (MHz);
k is the operating channel.

NOTICE:

◆please keep this product and accessories attached to the places which children can't touch;
◆do not splash water or other liquid onto this product, otherwise it may cause damage;
◆do not put this product near the heat source or direct sunlight,
otherwise it may cause deformation or malfunction;
◆please keep this product away from flammable or naked flame;
◆please do not repair this product by yourself. Only qualified personnel can be repaired.

FCC Statement

- List of applicable FCC rules

This device complies with FCC part 15C : 15.247&15.407

- **Summarize the specific operational use conditions**

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter. And the module should be installed at a minimum distance of 20 cm away from person nearby. The host product manufacturer should state this information to the host instruction manual.

- **Trace antenna designs**

Not applicable.

- **RF exposure considerations**

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body.

- **Antennas**

- AntennaType: PCB Antenna
Antenna Gain:

2.4G WIFI：5.0 dBi
5.2G WIFI：5.0 dBi
5.2G WIFI：5.0 dBi
5.6G WIFI：5.0 dBi
5.8G WIFI：5.0 dBi

The antenna is permanently attached and not consideration of replacement.

- **Label and compliance information**

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.

Caution: The user is cautioned that 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.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: 2AQ5RWBL-8812AF1-A Or Contains FCC ID: 2AQ5RWBL-8812AF1-A".

- Information on test modes and additional testing requirements

Any final host product with the modular transmitter installed should be under test according to guidance given in KDB 996369 D04. To

enter test mode for module, REALTEK 11ac 8822 BU USB WLAN NIC Mass production kit software and command is necessary. When

something wrong happens in configuring test modes for host product with module, host product manufacturer should coordinate with module manufacturer for technical support. It is recommended that some investigative measurements should be taken to confirm that host product with module installed does not exceed the spurious emissions limits or band edge limits.

Additional testing, Part 15 Subpart B disclaimer

The modular transmitter is only FCC authorized for the specific rule parts (FCC Part 15.247&15.407) list 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. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed when contains digital circuity.

Canada Statement

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

(1) This device may not cause interference; and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage;

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

Le dispositif rencontre l'exemption des limites courantes d'évaluation dans la section 2.5 de RSS 102 et la conformité à l'exposition de RSS-102 rf, utilisateurs peut obtenir l'information canadienne sur l'exposition et la conformité de rf.

The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems

Les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;