PRODUCT SPECIFICATION

802.11a/b/g/n/ac, 2T2R Wireless LAN USB2.0 Module

WN4510L

Realtek RTL8812AU

Version 1.0

User Manual

CONTENT

FCC WARING STATEMENT

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

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.

CAUTION:

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

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.

RF exposure warning

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated in accordance with provided instructions and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID: PPQ-WN4510L ”

Information for the OEMs and Integrators

The following statement must be included with all versions of this document supplied to an
OEM or integrator, but should not be distributed to the end user.
1) This device is intended for OEM integrators only.
2) Please see the full Grant of Equipment document for other restrictions.

This device is operation in 5.15 – 5.25GHz frequency range, then restricted in indoor use only, Outdoor operations in the 5150~5250MHz is prohibit.

This device is slave equipment, the device is not radar detection and not ad-hoc operation in the DFS band.

IC WARING STATEMENT

Canada, avis d'Industry Canada (IC)

Cet appareil numérique de classe B est conforme aux normes canadiennes ICES-003 et RSS-210.
Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférence et (2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.

Radio Frequency (RF) Exposure Information

The radiated output power of the Wireless Device is below the Industry Canada (IC) radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

This device has also been evaluated and shown compliant with the IC RF Exposure limits under mobile exposure conditions. (antennas are greater than 20cm from a person's body).

Informations concernant l'exposition aux fréquences radio (RF)

La puissance de sortie émise par l'appareil de sans fil est inférieure à la limite d'exposition aux fréquences radio d'Industry Canada (IC). Utilisez l'appareil de sans fil de façon à minimiser les contacts humains lors du fonctionnement normal.

Ce périphérique a également été évalué et démontré conforme aux limites d'exposition aux RF d'IC dans des conditions d'exposition à des appareils mobiles (les antennes se situent à moins de 20 cm du corps d'une personne).

PRODUCT FEATURES

- Operate at ISM frequency Band (2.4/5GHz)
- IEEE Standards Support, 802.11a, 802.11b, 802.11g, 802.11n,and 802.11ac
- USB 2.0 support for date rates up to 12Mbps full speed and 480Mbps high speed
- Enterprise level security supporting: WEP 64/128, WPA, WPA2, WAPI
- Support 2 transmission and 2 receiving, transmission rate can up to 300Mbps (Physical Rate) in 802.11n; and 866.7Mbps in 802.11ac
- Wi-Fi Direct supports wireless peer to peer applications
- RoHS compliance
- Low Halogen compliance

PRODUCT SPECIFICATIONS

MAIN CHIPSET

MAC/ Baseband/ RF: Realtek 8812AU-VS-CG

FUNCTIONAL SPECIFICATIONS

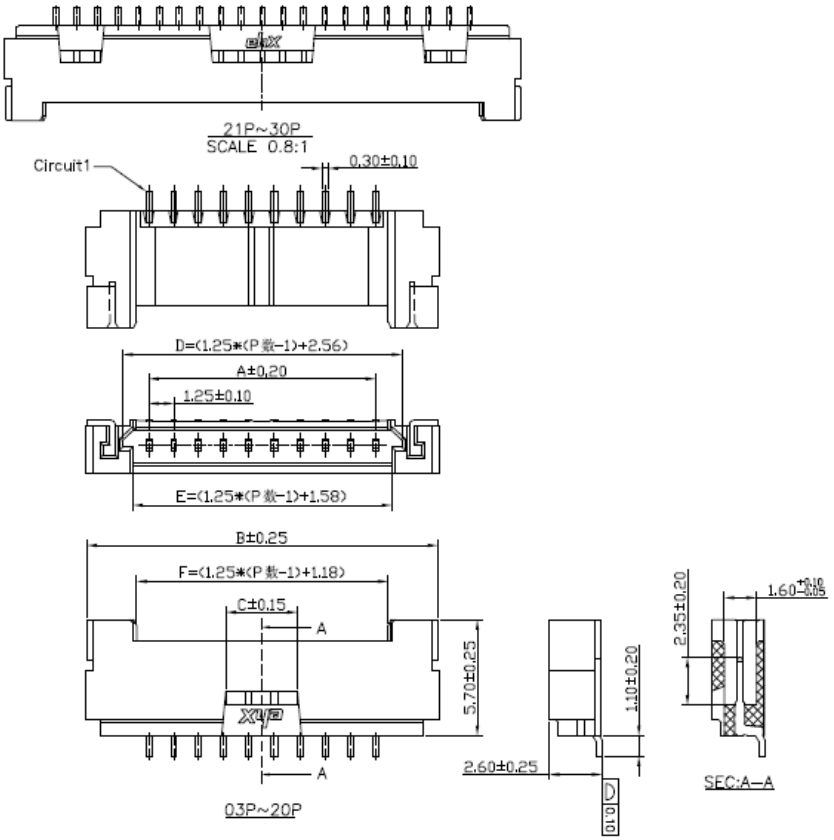
WiFi Function	
Standard	IEEE802.11a; IEEE802.11b; IEEE 802.11g; IEEE 802.11n; IEEE802.11ac
Bus Interface	Universal Serial Bus (USB2.0)
Data Rate	***802.11a:*** 54, 48, 36, 24, 18, 12, 9, 6 Mbps ***802.11b:*** 11, 5.5, 2, 1 Mbps ***802.11g:*** 54, 48, 36, 24, 18, 12, 9, 6 Mbps ***802.11n:*** MCS 0 to 15 for HT20MHz MCS 0 to 15 for HT40MHz ***802.11ac:*** MCS 0 to 8 for HT20MHz MCS 0 to 9 for HT40MHz MCS 0 to 9 for HT80MHz
Media Access Control	CSMA/CA with ACK
Modulation Techniques	***802.11a:*** 54, 48, 36, 24, 18, 12, 9, 6 Mbps ***802.11b***: CCK, DQPSK, DBPSK ***802.11g***: 64QAM, 16QAM, QPSK, BPSK ***802.11n***: 64QAM, 16QAM, QPSK, BPSK ***802.11ac***: 256QAM, 64QAM, 16QAM, QPSK, BPSK
Network Architecture	Ad-hoc mode (Peer-to-Peer) Infrastructure mode
Operation Channel	***5GHz*** 12: – United States 19: – Europe 8: – Japan ***2.4GHz*** 11: (Ch. 1-11) – United States 13: (Ch. 1-13) – Europe 14: (Ch. 1-14) – Japan
Frequency Range	***802.11a/ac*** 5.15~5.85 GHz ***802.11bg*** 2.400 ~ 2.4835 GHz
Transmit Output Power – 2x2 (Tolerance: ±1.5dBm)	***802.11a:*** 15 dBm@6Mbps 13 dBm@54Mbps

	802.11b: 16 dBm@1Mbps 16 dBm@11Mbps ***802.11g:*** 16 dBm@6Mbps 14 dBm@54Mbps ***802.11n(2.4GHz):*** **20MHz:** 16dBm@MCS0 13dBm@MCS7 13dBm@MCS15 **40MHz:** 16dBm@MCS0 13dBm@MCS7 13dBm@MCS15 ***802.11n(5GHz):*** **20MHz:** 15dBm@MCS0 13dBm@MCS7 **40MHz:** 15dBm@MCS0 13dBm@MCS7 ***802.11ac:*** **20MHz:** 13dBm@MCS8 **40MHz:** 13dBm@MCS9 **80MHz:** 13dBm@MCS9
Receiver Sensitivity	***802.11a:*** -85 dBm@6Mbps -70 dBm@54Mbps ***802.11b:*** -83 dBm@11Mbps ***802.11g:*** -86 dBm@6Mbps -70 dBm@54Mbps ***802.11n(2.4GHz):*** **20MHz** -69 dBm@MCS7 **40MHz** -66 dBm@MCS7 ***802.11n(5GHz):*** **20MHz** -69 dBm@MCS7 **40MHz** -66 dBm@MCS7 ***802.11ac:*** **20MHz** -63 dBm@MCS8 **40MHz** -60 dBm@MCS9 **80MHz** -57 dBm@MCS9
Security	WPA, WPA2, WPS, WEP 64/128, IEEE 802.1x, IEEE 802.11i

Operating Voltage	5V ±10% I/O supply voltage
OS Supported	Microsoft Windows Win7/Win8/Win8.1/Linux
Power Consumption	***TX Mode:*** TBD ***RX Mode:*** TBD ***Standby Mode:*** TBD ***RF off:*** TBD
Antenna Type	Metal Antenna

CONNECTOR SPEC

No. of Contacts	DIMENSIONS		
	A	B	C
2	1.25	7.45	3.50
3	2.50	8.70	3.50
4	3.75	9.95	3.50
5	5.00	11.20	3.50
6	6.25	12.45	3.50
7	7.50	13.70	3.50
8	8.75	14.95	3.50
9	10.00	16.20	3.50
10	11.25	17.45	3.50
11	12.50	18.70	5.00
12	13.75	19.95	5.00
13	15.00	21.20	5.00
14	16.25	22.45	5.00
15	17.50	23.70	5.00
20	23.75	29.95	5.00
25	30.00	36.20	6.00
30	36.25	42.45	6.00



Ordering Code: S1315 – XX R V X – S03– K
① ②③ ④ ⑤ ⑥

① Series NO.

② Circuits number

③ R: Right Angle

④ V: Prefix "V" means lead free plating

⑤ Plating Code:

Definition			Code
◎ Tin plated:			A
◎ Gold plated:			
flash	B	15μ"	F
10μ"	E	30μ"	J
◎Duplex plating:			
flash	K	15μ"	P
10μ"	N	30μ"	U

⑥ Packing:
Null: Tube
K: Reel
C: FILM+REEL

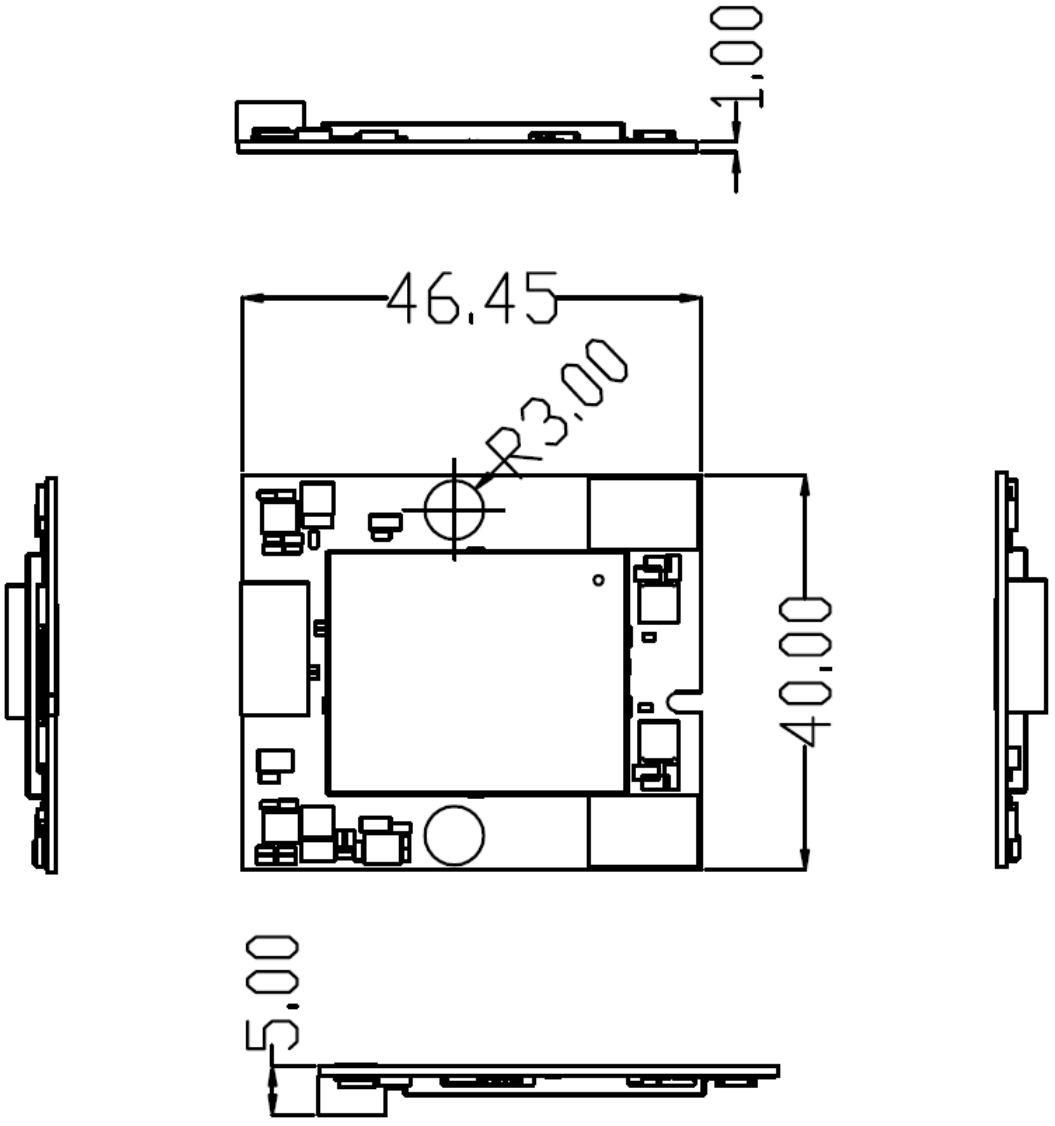
NOTES: (UNLESS OTHERWISE SPECIFIED)

1.Temperature range: −25°C~+85°C
2.Voltage rating: 150V,AC,DC
3.Current rating: 1A
4.Contact resistance: 20mΩ Max.
5.Insulation resistance: 500M ΩMin.
6.Withstand voltage: 500V,AC/minute
7.Material: Housing: PA6T,UL94V−0,Natural
Contact: Phosphor Bronze, Gold plated
Clip: Brass, Gold plated

PIN ASSIGNMENT

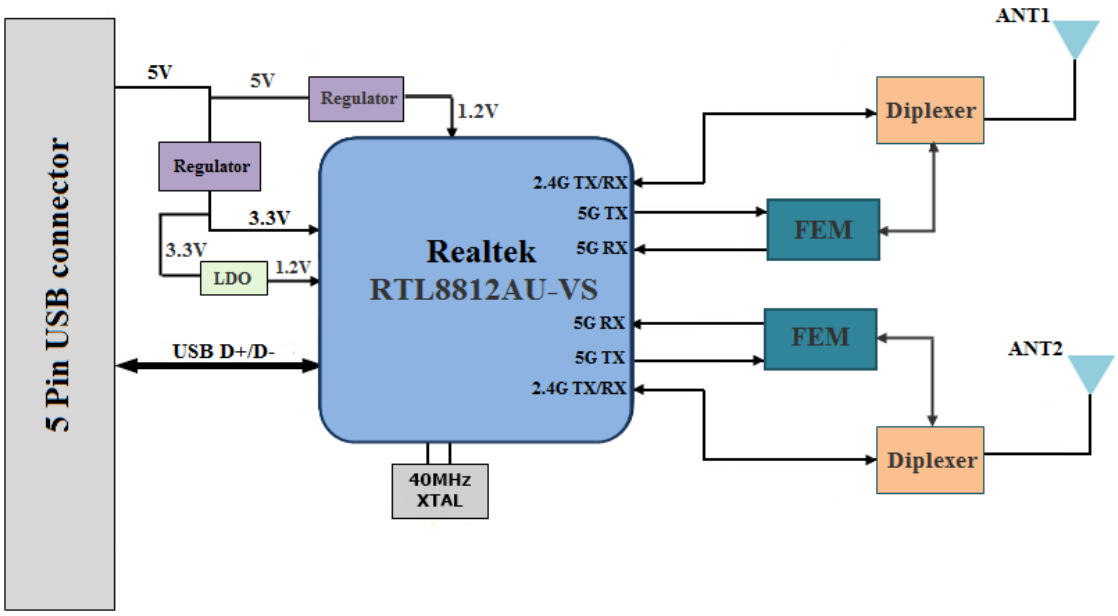
Pin.	Pin Define	Status
1	+5V	YES
2	USB_D-	YES
3	USB_D+	YES
4	GND	YES
5	RESET#	YES

MECHANICAL



Tolerance: ± 1.00mm
Unit: mm

BLOCK DIAGRAM



EEPROM INFORMATION

Reg Domain	World Wide_13
	0x7F
Vendor ID	0x0BDA
Product ID	0x881A

ENVIRONMENTAL

Operating

Operating Temperature: 0 to 70 °C
Relevant Humidity: 5-90% (non-condensing)

Storage

Temperature: -40 to 85 °C (-40 to 185 °F)
Relevant Humidity: 5-95% (non-condensing)