

User Manual

WLAN Module

Model Name: WCBN4511R(12)

Liteon P/N

AAZ100310D0

Version 1.2

Author: Kaysa Lee

Change History

Revision	Date	Author	Change List
Version 1.0	2015 / 10 / 10	Kaysa Lee	Initial release
Version 1.1	2015 / 11 / 09	Kaysa Lee	Add VID/PID information
Version 1.2	2016 / 08 / 01	Kaysa Lee	Update Product Picture

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1 PRODUCT OVERVIEW

1.1 DESCRIPTION

WCBN4511R is a 2x2 11ac WLAN module which using MTK Chipset MT7612U

1.2 FEATURES

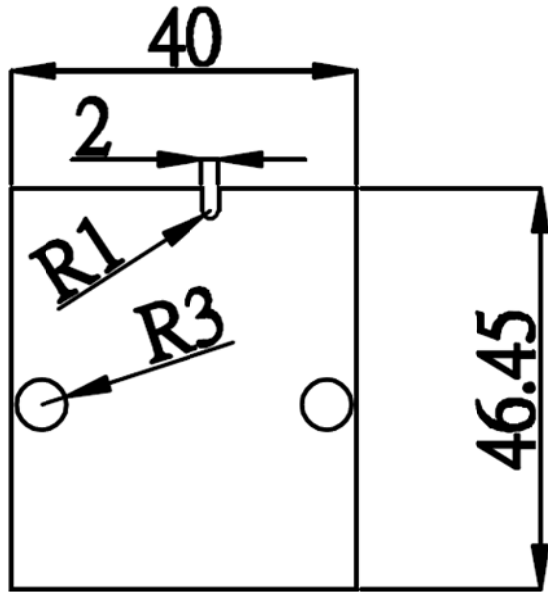
- Operate at 2.4GHz / 5GHz band
- 866Mbps PHY Rate Support
- 2T2R Mode
- USB 2.0 support for data rates up to 12Mbps full speed and 480Mbps high speed
- IEEE standards support: IEEE 802.11a/b/g and 802.11n
- 802.11i- WEP 64/128, AES, TKIP
- RoHS compliance
- Low Halogen compliance

1.3 GENERAL SPECIFICATIONS

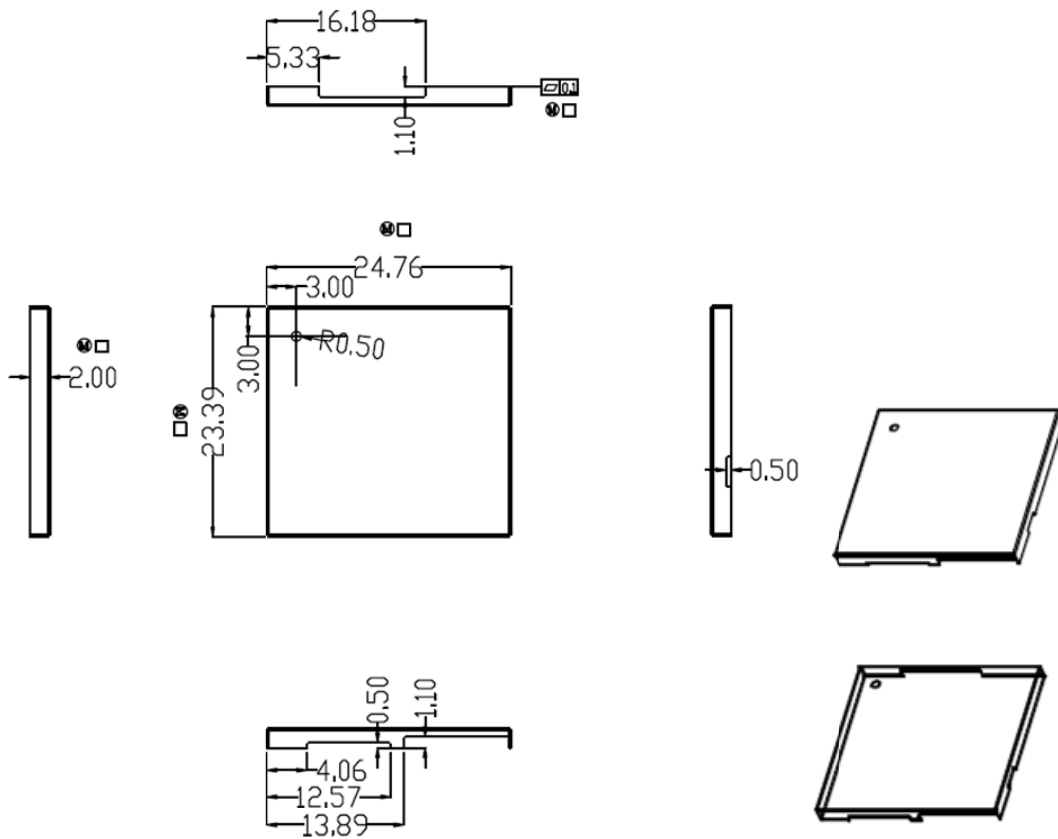
Main Chipset	MT7612UN
Standard	IEEE 802.11ac/b/g/n
Bus Interface	USB 2.0
Form Factor	40mm x 46.5mm x 6.4mm
Data Rate	WiFi: 802.11b: CCK, DQPSK, DBPSK 802.11a, 802.11g: 64QAM, 16QAM, QPSK, BPSK 802.11n: 64QAM, 16QAM, QPSK, BPSK 802.11ac: 256QAM, 64QAM, 16QAM, QPSK, BPSK
Frequency Range	2.400 ~ 2.4835 GHz 5.150 ~ 5.85GHz
Receive Sensitivity	WiFi: 11b @ 11Mbps: (Max.) : -85dBm , (Typical) : -89.5dBm (PER<8%) 11g @ 54Mbps: (Max.) : -69dBm , (Typical) : -76dBm (PER<10%) 11n @ MCS7 (2.4g HT20): (Max.) : -67dBm , (Typical) : -74.5dBm (PER<10%) 11n @ MCS7 (5g HT20): (Max.) : -67dBm , (Typical) : -73.5dBm (PER<10%) 11n @ MCS7 (5g HT40): (Max.) : -64dBm , (Typical) : -70dBm (PER<10%)
Temperature & Humidity	Normal Test Condition: 25 +/- 2deg.C , 65 +/- 2% RH Operating: -10 to 70 deg.C Storage: -40 to 85 deg.C

Operating Voltage	5V \pm 10% I/O supply voltage
Antenna Type	Metallic Antenna x 2 (WiFi)

1.4 BOARD OUTLINE



1.5 SHIELDING



1.6 WTB USB I/F CONNECTOR(1.25MM PITCH)

Material :
 Insulation: Nylon 9T UL 94V-0, Color Nature
 Contact : Phosphor Bronze
 Fixed Tab : Phosphor Bronze with Tin Plated

ORDERING CODE:
C140 ** M 1 H R0 -NH
 ① ② ③ ④ ⑤ ⑥ ⑦

① SERIES NO.:
 ② NO. OF CIRCUITS:
 ③ CONTACTS TYPE: M= SMT
 ④ PLATING OPTION:
 1= MATTE TIN OVER NICKEL PLATED
 ⑤ TAIL STYLE: H= RIGHT ANGLE
 ⑥ OPTION: R0= TAPE & REEL PACKING
 ⑦ -NH= FOR LEAD FREE IR PROCESSES AND HALOGEN-FREE

Circuits	Dimension		
	A	B	C
2	1.25(.049)	5.75(.226)	3.85(.152)
3	2.50(.098)	7.00(.276)	5.10(.201)
4	3.75(.148)	8.25(.325)	6.35(.250)
5	5.00(.197)	9.50(.374)	7.60(.299)
6	6.25(.246)	10.75(.423)	8.85(.348)
7	7.50(.295)	12.00(.472)	10.10(.398)
8	8.75(.344)	13.25(.522)	11.35(.447)
9	10.00(.394)	14.50(.571)	12.60(.496)
10	11.25(.443)	15.75(.620)	13.85(.545)
11	12.50(.492)	17.00(.669)	15.10(.594)
12	13.75(.541)	18.25(.719)	16.35(.644)
13	15.00(.591)	19.50(.768)	17.60(.693)
14	16.25(.640)	20.75(.817)	18.85(.742)
15	17.50(.689)	22.00(.866)	20.10(.791)
18	21.25(.837)	25.75(1.014)	23.85(.939)
20	23.75(.935)	28.25(1.112)	26.35(1.037)

Back View

Halogen-Free Lead Free Process RoHS Compliant

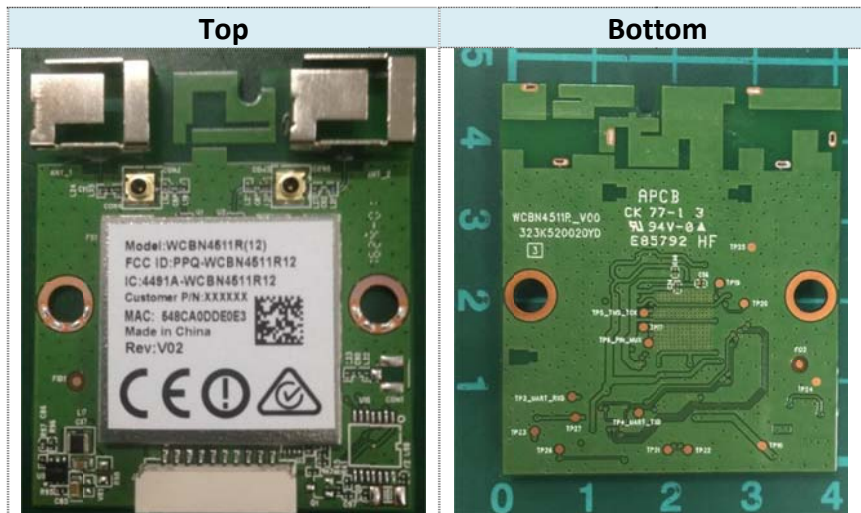
△				DATE	UNIT: mm / inch	TITLE: 1.25MM(.049")	潮沓股份有限公司 Cvilux Corporation
△			DRAWN BY:		TOLERANCE UNLESS OTHERWISE SPECIFIED	RIGHT ANGLE SMT TYPE HEADER	
△			ENGINEER:		X ± 0.25/010 X' ± 3	MATERIAL:	DRAWING NO. C14001S1 PART NO. C140**M1HR0-NH
△			CHECKED BY:		XX ± 0.20/008 X' ± 0.5	FINISH:	
SIM	NAME	DATE	REVISIONS	APPROVED BY:		SCALE	S / 1 SHEET 1 OF 1

1.7 PIN CONFIGURATION

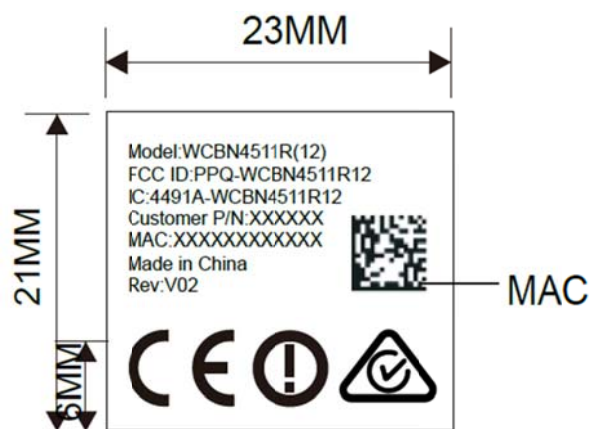
Pin	Name	description
1	WLAN_REG_ON	Low Active to Disable regulator(5V->3.3V)
2	BT_HOST_WAKE	no use for MT7612
3	+5V	5V input
4	USB_D-	USB Signal (D-)
5	USB_D+	USB Signal (D+)
6	GND	Ground
7	GND	Ground
8	3D_SYNC	no use for MT7612
9	RST_N	IC Reset
10	WLAN_DEV_WAKE	Input GPIO to wake up device

2 Appearance, Marking

2.1 Appearance



2.2 Label



3 Package

3.1 Packing Spec

ITEM	P/N	DESCRIPTION	QTY
1		Carton Sheet	12/400
2		Clamshell cover	10/400
3		Product	1
4		Clamshell	10/400
5		Carton	1/400
6	MM10B01380D	Carton Label	1/400
7	509110108927	環保標籤	1/400

DEG									
0.5	±0.02	±0.05	±0.10		°	±0.1			
5-10	±0.05	±0.10	±0.15		°	±0.3			
10-50	±0.10	±0.15	±0.20		°	±0.5			
50-100	±0.15	±0.20	±0.25		°	±0.5			
100	±0.15	±0.20	±0.25		°	±0.5			

A 3	UNIT	SCALE	SHEET	MODEL No.				
	MM	FREE	1 of 1	PART NAME	DUMMY PACKAGE			
APPROVED	CHECKED	DESIGNED	PART No.	REV	A1			
		BruceZhong			光寶科技股份有限公司 LITE-ON TECHNOLOGY CORP.			

4 USB VID/ PID

WCBN4511R(12)	
VID	0x0E8D
PID	0x7612

FCC Statement:

Federal Communication 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 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 Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this 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.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

This device and its antenna(s) must not be co-located with any other transmitters except in accordance with FCC multi-transmitter product procedures.

IMPORTANT NOTE:

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 20 cm between the radiator & your body.

IMPORTANT NOTE:

This module is intended for OEM integrator. The OEM integrator is responsible for the

compliance to all the rules that apply to the product into which this certified RF module is integrated.

Additional testing and certification may be necessary when multiple modules are used.

20 cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 20 cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of 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.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: PPQ-WCBN4511R12 ". If the size of the end product is larger than 8x10cm, then the following FCC part 15.19 statement has to also be available on the label: This device complies with Part 15 of 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.

OEM Integrator Checklist

The party below will implement the LITE-ON Module in host systems in accordance with the instructions specified in this document and the documents referenced herein.

1. The OEM integrator will ensure the Module is integrated in a host systems using only the approved antenna model(s) described in this document.

2.4G : LITE-ON / WCBN4511R / PIFA Antenna / ANT-L Gain: 2.54dBi, ANT-R Gain: 0.93dBi

5G : LITE-ON / WCBN4511R / PIFA Antenna / ANT-L Gain: 2.94dBi, ANT-R Gain: 3.35dBi

2. The OEM integrator will ensure the antenna placement inside the host system will maintain the required spacing to end user for RF Exposure compliance, as specified in this document.

3. If other radios are integrated inside the host with the LITE-ON Module, the OEM integrator will contact its test lab, TCB or LITE-ON to determine if additional FCC compliance evaluation is required to meet FCC collocation rules.

4. The OEM integrator will ensure end user documentation will contain the specified regulatory wording and ensure the host system and the Module itself are labeled as specified in this document.

5. The OEM integrator will ensure the Module is programmed in the factory with compliant transmit power not exceeding the levels specified in this document.

LITE-ON requests that the OEM integrator acknowledge its receipt of this document and the above instructions. You may contact LITE-ON with any questions concerning this document or the responsibilities of the OEM integrator.

IC Statement:

This device complies with Industry Canada license-exempt RSS standard(s). 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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

For product available in the USA/Canada market, only channel 1~11 can be operated.

Selection of other channels is not possible.

Pour les produits disponibles aux États-Unis / Canada du marché, seul le canal 1 à 11 peuvent être exploités. Sélection d'autres canaux n'est pas possible.

This device and its antenna(s) must not be co-located with any other transmitters except in accordance with IC multi-transmitter product procedures.

Referring to the multi-transmitter policy, multiple-transmitter(s) and module(s) can be operated simultaneously without reassessment permissive change.

Cet appareil et son antenne (s) ne doit pas être co-localisés ou fonctionnement en association avec une autre antenne ou transmetteur.

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.

The maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate.

le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5725-5850 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.

Dynamic Frequency Selection (DFS) for devices operating in the bands 5250- 5350 MHz, 5470-5600 MHz and 5650-5725 MHz.

Sélection dynamique de fréquences (DFS) pour les dispositifs fonctionnant dans les bandes 5250-5350 MHz, 5470-5600 MHz et 5650-5725 MHz.

The maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit.
le gain maximal d'antenne permis pour les dispositifs utilisant les bandes 5250-5350 MHz et 5470-5725 MHz doit se conformer à la limite de p.i.r.e.

Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250-5350 MHz et 5650-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

Pour une utilisation en intérieur uniquement.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

This module is intended for OEM integrator. The OEM integrator is still responsible for the IC compliance requirement of the end product, which integrates this module.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 20 cm separation with the antenna while this end product is installed and operated. The end

user has to be informed that the IC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. 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.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains TX IC: 4491A-WCBN4511R12 ".