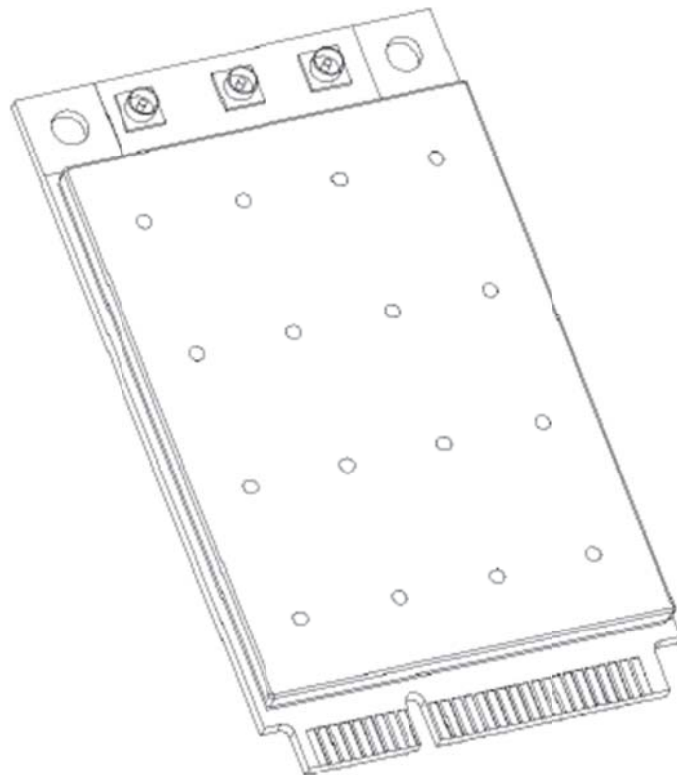


RWM001A

User Manual



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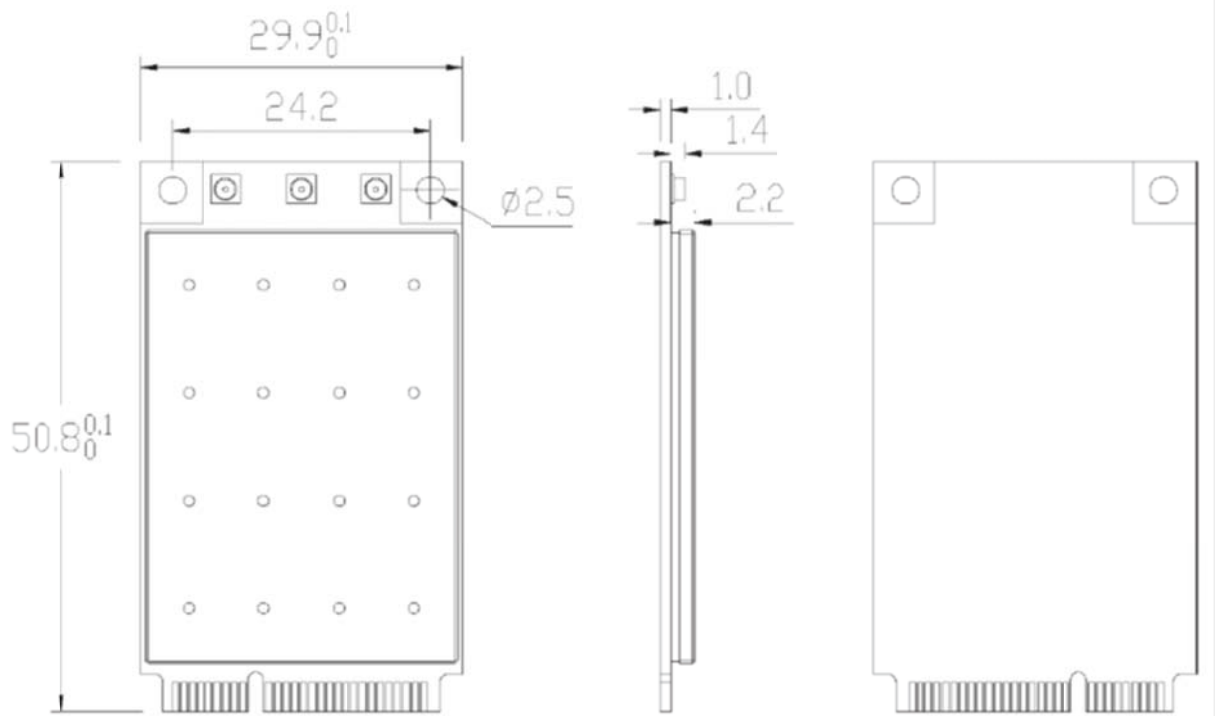
1. Features

- Qualcomm-Atheros QCA9880
- XB140 Reference Design
- IEEE 802.11ac compliant & backward compatible with 802.11a/b/g/n
- 3 x 3 MIMO Technology & up to 1.3 Gbps
- MiniPCI Express 1.1 interface

2. Specification

Product Name	Wireless LAN Module	
Model Name	RWM001A	
CPU	Qualcomm QCA9880	
Host Interface	MiniPCI-Express 1.1 Standard	
Nominal Voltage	d.c. 3.3 V, 4.7 W max	
Support technology	802.11 a/b/g/n/ac	
Antenna connector type	3 x U.FL	
Frequency Range	2412 ~ 2472 MHz 5150 ~ 5250 MHz 5725 ~ 5825 MHz	
Modulations	OFDM: BPSK, QPSK, DBPSK, DQPSK, CCK, 16-QAM, 64-QAM, 256-QAM	
Data Rate (Maximum rate)	802.11a	Maximum 54Mbps
	802.11b	Maximum 11Mbps
	802.11g	Maximum 54Mbps
	802.11n	Maximum 450Mbps
	802.11ac	Maximum 1.3Gbps
Temperature	1) Operating : -20 ~ 70 °C 2) Storage : -40 ~ 90 °C	
Humidity	1) Operating : 5 ~ 95% 2) Storage : 90% (Max.)	
Dimensions (W x H x D)	50.95 x 30 x 3.2 mm	

3. Exterior of RWM001A



4. Component Map



4-1. GPIO Pin Mapping

GPIO Pin	Function	GPIO Pin	Function
GPIO_0	WLAN_DISABLE_L	GPIO_1	LED_WLAN_L
GPIO_2	MCI_CLK_IN	GPIO_3	MCI_CLK_OUT
GPIO_4	MCI_DATA_OUT	GPIO_5	MCI_DATA_IN
GPIO_19	FEM_VRX		

4-2. miniPCIe Slot Pin Assignment

Top side		Bottom side	
1	WAKE_L	2	+3.3V
3	NC	4	GND
5	NC	6	NC
7	CLKREQ_L	8	MCI_CLK_IN
9	GND	10	MCI_CLK_OUT
11	REFCLK-	12	MCI_DATA_OUT
13	REFCLK+	14	MCI_DATA_IN
15	GND	16	NC
Mechanical key			
17	NC	18	GND
19	NC	20	W_DISABLE_L
21	GND	22	RESET
23	PERn0	24	+3.3V

Top side		Bottom side	
25	PERp0	26	GND
27	GND	28	NC
29	GND	30	NC
31	PETn0	32	NC
33	PETp0	34	GND
35	GND	36	NC
37	GND	38	NC
39	+3.3V	40	GND
41	+3.3V	42	NC
43	GND	44	LED_WLAN_L
45	NC	46	BT_LED
47	test point	48	NC
49	NC	50	GND
51	NC	52	+3.3V

5. RF Performance Table

RF Type	Data Rate	TX power
2.4 GHz 802.11b	1 Mbps	17 dBm
	2 Mbps	
	5.5 Mbps	
	11 Mbps	
2.4 GHz 802.11g	6 Mbps	16 dBm
	9 Mbps	
	12 Mbps	
	18 Mbps	
	24 Mbps	
	36 Mbps	
	48 Mbps	
	54 Mbps	
2.4 GHz 802.11n HT20	MCS 0	16 dBm
	MCS 1	
	MCS 2	
	MCS 3	
	MCS 4	
	MCS 5	
	MCS 6	
	MCS 7	
2.4 GHz 802.11 HT40	MCS 0	13 dBm
	MCS 1	
	MCS 2	
	MCS 3	
	MCS 4	
	MCS 5	
	MCS 6	
	MCS 7	

RF Type	Data Rate	TX power
5 GHz 802.11a	6 Mbps	15 dBm
	9 Mbps	
	12 Mbps	
	18 Mbps	
	24 Mbps	
	36 Mbps	
	48 Mbps	
	54 Mbps	
5 GHz 802.11n/ac HT20	MCS 0	15 dBm
	MCS 1	
	MCS 2	
	MCS 3	
	MCS 4	
	MCS 5	
	MCS 6	
	MCS 7	
MCS 8		
5 GHz 802.11n/ac HT40	MCS 0	13 dBm
	MCS 1	
	MCS 2	
	MCS 3	
	MCS 4	
	MCS 5	
	MCS 6	
	MCS 7	
	MCS 8	
	MCS 9	
5 GHz 802.11ac HT80	MCS 0	11 dBm
	MCS 1	
	MCS 2	
	MCS 3	
	MCS 4	
	MCS 5	
	MCS 6	
	MCS 7	
	MCS 8	
	MCS 9	

6. User Information

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.

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. This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

IC Statement

This Class B digital apparatus complies with Canadian ICES-003.

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.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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

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 20cm between the radiator & your body.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

IMPORTANT NOTE:

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.

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 IC RSS-102 radiation exposure limits set forth for a 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.

Industry Canada Caution

This device complies with Industry Canada licence-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'IndustrieCanada 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.