

# **Wireless Network Card Series**

## **User's Guide**

# WMIR-269GN

## 802.11b/g/n Mini-PCI Module

### Ralink RT2880, 2T2R

#### ■ SPECIFICATION

Chipset		
CPU/Mac/BB Processor	Ralink RT2880	
RF Chip	Ralink RT2820	
Memory		
8Mbytes SDRAM		
Host Interface		
32-bit mini-PCI (Non-standard)		
LED Indicator		
Power / Activity		
Radio		
Antenna	3x I-pex Connectors (2T/2R) [CON0:Tx0/Rx0, CON1:Tx1/Rx1, CON2:RX2]	
Operating Frequency	■ 2.400 ~ 2.484GHz(Subject to Local Regulations)	
Modulation	IEEE 802.11b : (DSSS) ● 5.5/11 Mbps(CCK), ● 2 Mbps(DQPSK), ● 1 Mbps(DBPSK)	
	IEEE 802.11g : (OFDM/DSSS) ● 48/54 Mbps(QAM-64), ● 24/36 Mbps(QAM-16), ● 12/18 Mbps(QPSK), ● 6/9Mbps (BPSK)	
	IEEE 802.11n : (OFDM/DSSS) ● QAM-64, ● QAM-16, ● QPSK, ● BPSK	
Output Power(peak power)	11g: 24 dBm 11b: 21 dBm 11N HT20: 25 dBm 11N HT40: 24.5 dBm	
Receive Sensitivity	802.11b:	
	-90dBm@1Mbps, ±2dB	-88dBm@2Mbps, ±2dB
	-86dBm@5.5Mbps, ±2dB	-83dBm@11Mbps, ±2dB
	802.11g:	
	-86dBm@6Mbps, ±2dB	-84dBm@9Mbps, ±2dB
	-82dBm@12Mbps, ±2dB	-80dBm@18Mbps, ±2dB
	-78dBm@24Mbps, ±2dB	-75dBm@36Mbps, ±2dB
-72dBm@48Mbps, ±2dB	-70dBm@54Mbps, ±2dB	

	802.11n		
	MCS	HT20	HT40
Receive Sensitivity	0	-85dBm, ±2dB	-83dBm, ±2dB
	1	-83dBm, ±2dB	-81dBm, ±2dB
	2	-81dBm, ±2dB	-79dBm, ±2dB
	3	-80dBm, ±2dB	-76dBm, ±2dB
	4	-78dBm, ±2dB	-72dBm, ±2dB
	5	-74dBm, ±2dB	-69dBm, ±2dB
	6	-71dBm, ±2dB	-65dBm, ±2dB
	7	-67dBm, ±2dB	-62dBm, ±2dB
	8	-85dBm, ±2dB	-83dBm, ±2dB
	9	-83dBm, ±2dB	-81dBm, ±2dB
	10	-80dBm, ±2dB	-78dBm, ±2dB
	11	-78dBm, ±2dB	-75dBm, ±2dB
	12	-75dBm, ±2dB	-71dBm, ±2dB
	13	-71dBm, ±2dB	-69dBm, ±2dB
	14	-68dBm, ±2dB	-64dBm, ±2dB
	15	-65dBm, ±2dB	-61dBm, ±2dB

Power consumption	<b>TX:</b> 950mA@2Tx(Max.)	<b>RX:</b> 800mA@3Rx(Max.)	
Operating Voltage	DC 3.3V ± 5%	CPU Core Voltage	1.2Vdc
Driver	Linux		
Environmental			
	Temperature	Humidity	
Operating	0 ~ 50°C	20% to 85% Non-Condensing	
Storage	-20 ~ 80°C	10% to 90% Non-Condensing	
Physical Specification			
Dimensions	59.6x61.5x4.8 mm		
Weight	15g		

## **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.

### **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 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

**This device is intended only for OEM integrators under the following conditions:**

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna,
- 3) For all products market in US, OEM has to limit the operation channels in CH1 to CH11 for 2.4G band by supplied firmware programming tool. OEM shall not supply any tool or info to the end-user regarding to Regulatory Domain change.

As long as 3 conditions above are met, further transmitter test will not be required.

However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

**IMPORTANT NOTE:** In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

**End Product Labeling**

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm 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: RYK-WMIR269GN".

**Manual Information To the End User**

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user' s manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

**Canadian Regulatory Wireless Notice**

This device complies with RSS-210 of the Industry Canada Rules. 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

**IMPORTANT NOTE:****Canada Radiation Exposure Statement:**

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