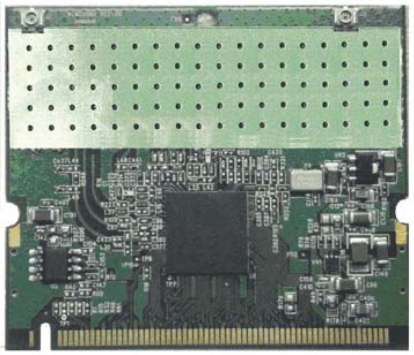
WLM200NX MINIPCI

2 x 2 802.11N MIMO mini-PCI Modules



WLM200NX MiniPCI network adapter provides leading 802.11a/b/g/n performance, supporting up to 300Mbps physical data rates and 200Mbps of actual user throughput on both the uplink and downlink. With the dual-band design you will enjoy universal connectivity to any 802.11 device through your wireless AP or wireless Router.

Built on Atheros chipset, it can be used with all draft IEEE 802.11n compatible WLANs, and is ideally suited to be integrated into a wide range of OEM devices.

Features

- 2.4/5GHz IEEE 802.11a/b/g/n standard
- Output Power of up to 20dBm @ a/b/g/n Band
- Support for up to 2x2 MIMO with spatial multiplexing
- Four times the throughput of 802.11b/g and 802.11a
- Wireless Encryption and Authentication Supported
- Transmission Power Control (TPC)
- Enhanced performance with Atheros XSPAN technology Optimized for higher throughput at long range
- High Performance (up to 300Mbps physical data rates and 200Mbps of actual throughput) with Low Power Consumption
- Multi-Country Roaming Support (IEEE802.11d)
- 2 X U.FL Antenna Connector
- Suitable for Embedded System or OEM Project
- Affordable and Ideal for a Variety of Applications
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Technical Specifications										
Chipset	AR9220									
Host Interface	PCI Interface v2.3 (Type III-B Mini PCI form factor)									
Operating Voltage	3.3 VDC									
Power Consumption	2.4W									
Antenna Connector	2 x U.FL Antenna Connector									
Data Rate	IEEE 802.11a :	54Mbps	48Mbps	36Mbps	24Mbps	18Mbps	12Mbps	9Mbps	6Mbps	
	IEEE 802.11b :	11Mbps	5.5Mbps	2Mbps	1Mbps					
	IEEE 802.11g :	54Mbps	48Mbps	36Mbps	24Mbps	18Mbps	12Mbps	9Mbps	6Mbps	automatically
		Fallback to 5.5Mbps, 2Mbps, 1Mbps								
	IEEE 802.11n :	20MHZ	1Nss: 65Mbps @ 800GI, 72.2Mbps @ 400GI (Max.)							
			2Nss: 130Mbps @ 800GI, 144.4Mbps @ 400GI (Max.)							
		40MHz	1Nss: 135Mbps @ 800GI, 150Mbps @ 400GI (Max.)							
			2Nss: 270Mbps @ 800GI, 300Mbps @ 400GI (Max.)							
Modulation Techniques	OFMD: BPSK, QPSK, 16 QAM, 64QAM DSSS: DBPSK, DQPSK, CCK									
Security	64/128-bit WEP, TKIP, AES, IEEE802.1x authentication									
Certificate	FCC, CE									
ROHS Compliance	Yes									
Environment Specifications	Operating: -20ºC to 70ºC Storage: -65ºC to 100º									
Humidity	5% to 95% (non-condensing)									
Dimension	59.6 x 51 x 3 mm									

WLM200NX MIMO MINIPCI CARD RADIO

TX SPECIFICATIONS

	DataRate	TX Power	Tolerance
802.11a	6-24Mbps	18dBm	±2dB
	36Mbps	18dBm	±2dB
	48Mbps	17dBm	±2dB
	54Mbps	16dBm	±2dB
802.11g	6-24Mbps	20dBm	±2dB
	36Mbps	19.5dBm	±2dB
	48Mbps	18.5dBm	±2dB
	54Mbps	17dBm	±2dB

TX SPECIFICATIONS

	DataRate	TX Power	Tolerance
802.11b	1Mbps	20dBm	±2dB
	2Mbps	20dBm	±2dB
	5.5Mbps	20dBm	±2dB
	11Mbps	20dBm	±2dB
802.11n	2.4GHz	HT20 @800GI(400GI): +16 ~ +20dBm	
		HT40 @800GI(400GI): +14 ~ +18dBm	
	5GHz	HT20 @800GI(400GI): +10 ~ +18dBm	

RX SPECIFICATIONS（802.11b）

	Data Rate	Sensitivity (Typical/Maximum 2Rx)	Tolerance
802.11b	1M	-96/-92Bm	±2dB
	5.5M	-94/-90dBm	±2dB
	11M	-91/-87dBm	±2dB

RX SPECIFICATIONS(802.11a)

	Data Rate	Sensitivity (Typical/Maximum 2Rx)	Tolerance
802.11a	6M	-95/-91dBm	±2dB
	9M	-95/-91dBm	±2dB
	12M	-95/-91dBm	±2dB
	18M	-94/-90dBm	±2dB
	24M	-90/-86dBm	±2dB
	36M	-87/-83dBm	±2dB
	48M	-83/-79dBm	±2dB
	54M	-82/-78dBm	±2dB

RX SPECIFICATIONS（802.11g）

	Data Rate	Sensitivity (Typical/Maximum 2Rx)	Tolerance
802.11g	6M	-96/-92dBm	±2dB
	9M	-96/-92dBm	±2dB
	12M	-96/-92dBm	±2dB
	18M	-95/-91dBm	±2dB
	24M	-92/-88dBm	±2dB
	36M	-89/-85dBm	±2dB
	48M	-85/-81dBm	±2dB
	54M	-83/-79dBm	±2dB

802.11 a/n HT20	MCS0	-95/-91dBm	±2dB		**802.11 b/g/n HT20**	MCS0	-96/-92dBm	±2dB
	MCS1	-94/-90dBm	±2dB			MCS1	-95/-91dBm	±2dB
	MCS2	-92/-88dBm	±2dB			MCS2	-93/-89dBm	±2dB
	MCS3	-88/-84dBm	±2dB			MCS3	-90/-86dBm	±2dB
	MCS4	-85/-81dBm	±2dB			MCS4	-87/-81dBm	±2dB
	MCS5	-81/-77dBm	±2dB			MCS5	-83/-76dBm	±2dB
	MCS6	-80/-76dBm	±2dB			MCS6	-81/-76dBm	±2dB
	MCS7	-77/-73dBm	±2dB			MCS7	-79/-73dBm	±2dB
	MCS8	-94/-90dBm	±2dB			MCS8	-95/-91dBm	±2dB
	MCS9	-92/-87dBm	±2dB			MCS9	-93/-89dBm	±2dB
	MCS10	-89/-85dBm	±2dB			MCS10	-90/-86dBm	±2dB
	MCS11	-86/-82dBm	±2dB			MCS11	-87/-83dBm	±2dB
	MCS12	-83/-79dBm	±2dB			MCS12	-84/-80dBm	±2dB
	MCS13	-78/-74dBm	±2dB			MCS13	-79/-75dBm	±2dB
	MCS14	-77/-73dBm	±2dB			MCS14	-77/-73dBm	±2dB
	MCS15	-74/-69dBm	±2dB			MCS15	-75/-71dBm	±2dB
802.11 a/n HT40	MCS0	-91/-87dBm	±2dB		**802.11 b/g/n HT40**	MCS0	-90/-86dBm	±2dB
	MCS1	-90/-86dBm	±2dB			MCS1	-90/-86dBm	±2dB
	MCS2	-88/-84dBm	±2dB			MCS2	-89/-85dBm	±2dB
	MCS3	-85/-81dBm	±2dB			MCS3	-87/-82dBm	±2dB
	MCS4	-82/-78dBm	±2dB			MCS4	-84/-79dBm	±2dB
	MCS5	-78/-74dBm	±2dB			MCS5	-79/-75dBm	±2dB
	MCS6	-77/-73dBm	±2dB			MCS6	-78/-74dBm	±2dB
	MCS7	-74/-70dBm	±2dB			MCS7	-75/-71dBm	±2dB
	MCS8	-91/-87dBm	±2dB			MCS8	-90/-86dBm	±2dB
	MCS9	-88/-84dBm	±2dB			MCS9	-89/-85dBm	±2dB
	MCS10	-86/-82dBm	±2dB			MCS10	-87/-83dBm	±2dB
	MCS11	-83/-79dBm	±2dB			MCS11	-84/-80dBm	±2dB
	MCS12	-80/-76dBm	±2dB			MCS12	-81/-77dBm	±2dB
	MCS13	-75/-71dBm	±2dB			MCS13	-76/-72dBm	±2dB
	MCS14	-73/-69dBm	±2dB			MCS14	-74/-68dBm	±2dB
	MCS15	-70/-66dBm	±2dB			MCS15	-71/-67dBm	±2dB

DRIVER INFORMATION	
Driver	Linux Madwifi, WindowsXP , Windows 2000,Windwos Vista

① Configurations are subjected to change without notice

COMPLIANCE INFORMATION

FCC NOTICE

This device 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 device 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 device does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Connect the computer into an outlet on a circuit different from that to which the receiver is connected.
- Increase the separation between the computer and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

FCC Compliance Statement: 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.

This device must accept any interference received, including interference that may cause undesired operation.

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

RF exposure warning

The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment.

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

FCC ID: TK4WLM200NX

IMPORTANT NOTE: EQUIPMENT MANUFACTURERS COMPEX FOR DISPLAYING WLM200NX MODULAR FCC ID ON FINAL INTEGRATED

OEM integration instructions:

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

The module is only limited to installation in mobile applications. The antenna must be installed such that 20 cm is maintained between the antenna and users, and the transmitter module may not be co-located with any other transmit or antenna. The module shall be only used with the integral antenna(s) that has been originally tested and certified with this module.

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 requirement with this module installed (for example，digital device emission，PC peripheral requirements，etc.)

End product labeling:

This transmitter module is authorization 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 Transmitter Module FCC ID: TK4WLM200NX or Contains FCC ID: TK4WLM200NX”.

FCC ID: TK4WLM200NX

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