Radio module

WLM200N2-26 MINIPCI

2 x 2 802.11N Single-band MIMO mini-PCI

Features

- 2.4GHz IEEE 802.11n draft compliant and backward compatible with 802.11b/g

- Single-band 2x2 MIMO spatial multiplexing technique

- Atheros XSPAN family chipset

- Deliver 10 times the throughput and widen twice the range of legacy 802.11b/g

- Support up to 300Mbps physical data rates

- Transmission Power Control (TPC)
- Multi-Country Roaming Support (IEEE802.11d)

- 2 X MMCX Antenna Connector

- Maximum 26dBm output Power

- Support Linux OS

- Wireless Encryption and Authentication are supported

Technical Specifications								
Chipset	AR9223							
Host Interface	PCI Interface v2.3 (Type III-A Mini PCI form factor)							
Operating Voltage	3.3 VDC							
Power Consumption	6.0 W							
Antenna Connector	2 x MMCX Antenna Connector							
Standards	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	Max. 65Mbps(72.2Mbps physical) @ MCS7:1Nss					
			Max. 130Mbps(144.4Mbps physical) @MCS15:2Nss					
		40MHz	Max. 135Mbps(150Mbps physical) @MCS7:1Nss					
			Max. 270Mbps(300Mbps physical)@MCS15:2Nss					
Frequency Range	IEEE 802.11b/g	2.412GHz ~ 2.462GHz (US & Canada)						
		2.412GHz ~ 2.472GHz (Europe)						
		2.412GHz ~ 2.484GHz (Japan)						
	IEEE 802.11n:	Please refer to 802.11b/g						
Modulation Techniques	OFDM: BPSK, QPSK, 16 QAM, 64QAM DSSS: DBPSK, DQPSK, CCK							
Security	64/128-bit WEP, TKIP, AES, IEEE802.1x authentication							
Radio & EMC Certificate	FCC Part 15.247 (2.400 ~ 2.4835GHz), FCC CFR Title 47 Part 15 Subpart C: Section 15.207 FCC CFR Title 47 Part 15 Subpart C: Section 15.209 FCC CFR Title 47 Part 15 Subpart C: 15.215(c) FCC OET 65 Limited module level approval ETSI, EN 300 328, EN 301 489- 1/17, EN 50392, EN 55022, EN 55024, EN 61000-3-2/3, EN 61000-4-3/4/5/6/11							
ROHS Compliance	Yes							
Environment Specifications	Operating: -20°C to 70°C Storage: -20°C to 90°							
Humidity	5% to 95% (non-condensing)							
Dimension	59.6 x 51 x 8 mm							

WLM 200N2 MIMO MINIPCI CARD RADIO OPERATING FREQUENCE 2.412-2.484GHz							
TX SPECIFICATIONS				**TX SPECIFICATIONS**			
	DataRate	TX Power	Tolerance		DataRate	TX Power	Tolerance
802.11b	11Mbps	26dBm	±2dB	**802.11g**	6-24Mbps	26dBm	±2dB
	5.5Mbps	26dBm	±2dB		36Mbps	26dBm	±2dB
	2Mbps	26dBm	±2dB		48Mbps	22dBm	±2dB
	1Mbps	26dBm	±2dB		54Mbps	21dBm	±2dB
2.4Ghz 11n HT20	MCS 0	23dBm	±2dB	**2.4Ghz 11n HT40**	MCS 0	22dBm	±2dB
	MCS 1	23dBm	±2dB		MCS 1	22dBm	±2dB
	MCS 2	23dBm	±2dB		MCS 2	22dBm	±2dB
	MCS 3	23dBm	±2dB		MCS 3	22dBm	±2dB
	MCS 4	23dBm	±2dB		MCS 4	22dBm	±2dB
	MCS 5	22dBm	±2dB		MCS 5	22dBm	±2dB
	MCS 6	21dBm	±2dB		MCS 6	21dBm	±2dB
	MCS 7	20dBm	±2dB		MCS 7	20dBm	±2dB
	MCS 8	23dBm	±2dB		MCS 8	22dBm	±2dB
	MCS 9	23dBm	±2dB		MCS 9	22dBm	±2dB
	MCS 10	23dBm	±2dB		MCS 10	22dBm	±2dB
	MCS 11	23dBm	±2dB		MCS 11	22dBm	±2dB
	MCS 12	23dBm	±2dB		MCS 12	22dBm	±2dB
	MCS 13	22dBm	±2dB		MCS 13	22dBm	±2dB
	MCS 14	21dBm	±2dB		MCS 14	21dBm	±2dB
	MCS 15	20dBm	±2dB		MCS 15	20dBm	±2dB

RX SPECIFICATIONS				**RX SPECIFICATIONS**			
	DataRate	Sensitivity （Maximum/Typical 2Rx）	Tolerance		DataRate	Sensitivity （Maximum/Typical 2Rx）	Tolerance
802.11g	6 Mbps	-96/-92dBm	±2dB	**802.11b**	1 Mbps	-96/-92dBm	±2dB
	9 Mbps	-96/-92dBm	±2dB		5.5Mbps	94/-90dBm	±2dB
	12 Mbps	-96/-92dBm	±2dB		11 Mbps	-91/-87dBm	±2dB
	18 Mbps	-95/-91dBm	±2dB				
	24Mbps	-92/-88dBm	±2dB				
	38Mbps	-89/-85dBm	±2dB				
	48Mbps	-85/-81dBm	±2dB				
	54Mbps	-83/-79dBm	±2dB				
802.11 b/g/n H20	MCS0	-96/-92dBm	±2dB	**802.11 b/g/n H40**	MCS0	-90/-86dBm	±2dB
	MCS1	-95/-91dBm	±2dB		MCS1	-90/-86dBm	±2dB
	MCS2	-93/-89dBm	±2dB		MCS2	-89/-85dBm	±2dB
	MCS3	-90/-86dBm	±2dB		MCS3	-87/-82dBm	±2dB
	MCS4	-87/-81dBm	±2dB		MCS4	-84/-79dBm	±2dB
	MCS5	-83/-76dBm	±2dB		MCS5	-79/-75dBm	±2dB
	MCS6	-81/-76dBm	±2dB		MCS6	-78/-74dBm	±2dB
	MCS7	-79/-73dBm	±2dB		MCS7	-75/-71dBm	±2dB
	MCS8	-95/-91dBm	±2dB		MCS8	-90/-86dBm	±2dB
	MCS9	-93/-89dBm	±2dB		MCS9	-89/-85dBm	±2dB
	MCS10	-90/-86dBm	±2dB		MCS10	-87/-83dBm	±2dB
	MCS11	-87/-83dBm	±2dB		MCS11	-84/-80dBm	±2dB
	MCS12	-84/-80dBm	±2dB		MCS12	-81/-77dBm	±2dB
	MCS13	-79/-75dBm	±2dB		MCS13	-76/-72dBm	±2dB
	MCS14	-77/-73dBm	±2dB		MCS14	-74/-68dBm	±2dB
	MCS15	-75/-71dBm	±2dB		MCS15	-71/-67dBm	±2dB

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

ORDERING CONFIGURATIONS

CODES	SPEED	Carton Dimension
WLM200N2-26 6AA1100	Up to 300 Mbps physical data rates	For 50pcs (pcs/ctn), 0.40m * 0.22m * 0.085m / 0.006 = 1.5KG
WLM200N2-26 6AA1300	Up to 300 Mbps physical data rates	For 250pc (pcs/ctn), 0.45m * 0.45m * 0.24m / 0.006 = 8.1KG

① Configurations are subjected to change without notice

COMPLIANCE INFORMATION

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. Product that is a radio transmitter is labeled with FCC ID.

FCC Caution*:*

(1) Exposure to Radio Frequency Radiation. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be collocated 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.

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

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

(4) Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

NOTE:

(1) This device is approved for OEM installation with specified antennas as listed in this Manual. It is the responsibility of the Installer to comply with the separation distance for satisfying RF exposure compliance.

(2) This device only could work when being installed into "client devices" which could not transmit automatically, such as Notebook P.C. , with the software driver limit.

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.

**WARNING:** This Wireless Mini PCI Adapter does not support ad-hoc mode Function

IMPORTANT NOTE REGARDING ANTENNA USE

Antenna Use (Point to Multipoint)

2x2 Operation

Chain1   Chain2

DIMENSIONS DRAWING
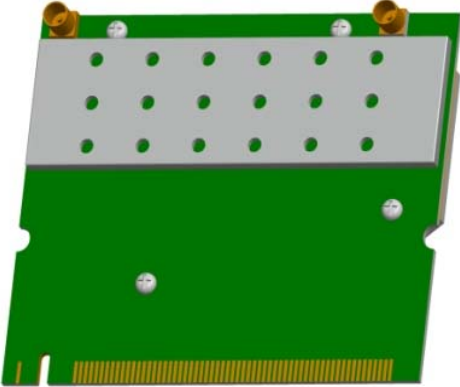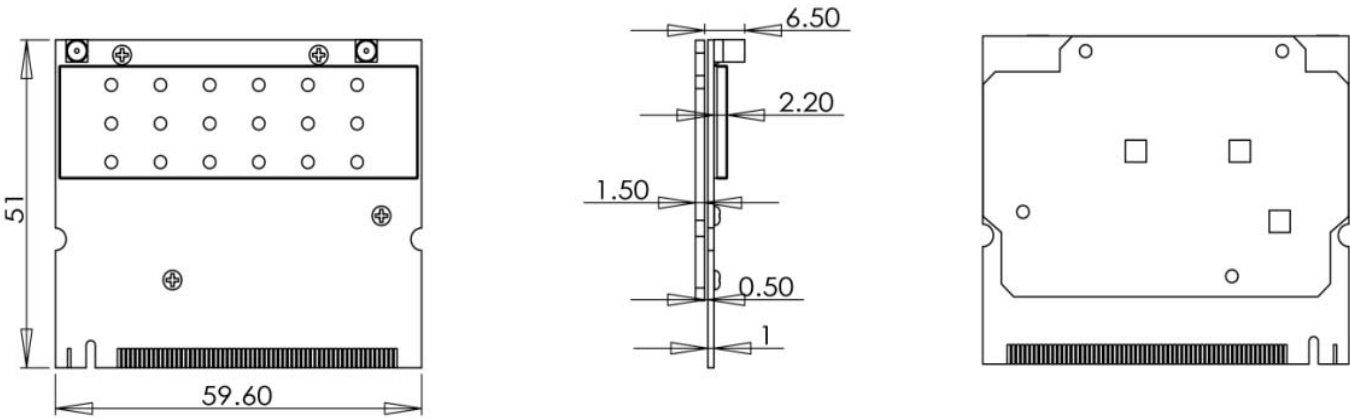
WLM FAMILY SERIES OF MINIPCI

	b / g (2.4GHz)					a / b / g (2.4/5GHz)					
MODEL	WLM 54G-20dBM	WLM 54G-23dBm	WLM 54G-26dBm	WLM 54G-28dBm	WLM200N2	WLM 54AG – 20dBm	WLM 54 AG – 23dBm	WLM 54A – 26dBm	WLM200NX	WLM200N5-24	WLM200N5-26
CHIPSET	AR 2413/2414 (AR5005G/GS)	AR 2413/2414 (AR5005G/GS)	AR 2413/2414 (AR5005G/GS)	AR 2413/2414 (AR5005G/GS)	AR9223	AR 5413/5414 (AR5006X/XS)	AR 5413/5414 (AR5006X/XS)	AR5414(AR5006XS)	AR9220	AR9220	AR9220
SPEED	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 300Mbps physical data rates	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 108Mbps	UP TO 300Mbps physical data rates	UP TO 300Mbps physical data rates	UP TO 300Mbps physical data rates
OUTPUT POWER (Average)											
802.11a	-	-	-	-	-	-	23dBm@6-24Mbps	26dBm@6-24Mbps	0dBm@6-24Mbps	24dBm@6-24Mbps	26dBm@6-24Mbps
						17dBm@36Mbps	21dBm@36Mbps	24dBm@36Mbps	17dBm@36Mbps	24dBm@36Mbps	26dBm@36Mbps
						16dBm@48Mbps	19dBm@48Mbps	22Bm@48Mbps	16dBm@48Mbps	23Bm@48Mbps	25Bm@48Mbps
						13dBm@54Mbps	17dBm@54Mbps	20dBm@54Mbps	13dBm@54Mbps	17dBm@54Mbps	19dBm@54Mbps
802.11b	20dBm@1-11Mbps	23dBm@1-11Mbps	26dBm@1-11Mbps	28dBm@1-11Mbps	20dBm@1-11Mbps	20dBm@1-11Mbps	23dBm@1-11Mbps		20dBm@1-11Mbps		
802.11g	20dBm@6-24Mbps	23dBm@6-24Mbps	26dBm@6-24Mbps	28dBm@6-24Mbps	20dBm@6-24Mbps	20dBm@6-24Mbps	23dBm@6-24Mbps		20dBm@6-24Mbps		
	19dBm@36Mbps	22dBm@36Mbps	25dBm@36Mbps	26dBm@36Mbps	20dBm@36Mbps	18dBm@36Mbps	21dBm@36Mbps		18dBm@36Mbps		
	17dBm@48Mbps	19dBm@48Mbps	24dBm@48Mbps	25dBm@48Mbps	16dBm@48Mbps	17dBm@48Mbps	19dBm@48Mbps		17dBm@48Mbps		
	16dBm@54Mbps	17dBm@54Mbps	22dBm@54Mbps	23dBm@54Mbps	15dBm@54Mbps	15dBm@54Mbps	17dBm@54Mbps		15dBm@54Mbps		
Interface	PCI Interface v2.3 (Type III-A/B Mini PCI Form Factor)										
Receiver Sensitivity	802.11g < -90dBm @ 6Mbps 802.11b < -92dBm@ 6Mbps 802.11a < -90dBm @ 6Mbps < -70dBm @ 54Mbps < -87dBm @11Mbps < -70dBm @ 54Mbps										
Operating Channels	IEEE 802.11g: 11 Channel (US & Canada) 13 Channel (Europe) 14 Channel (Japan)					IEEE 802.11a: 13 Channel (US & Canada) 19 Channel (Europe) 10 Channel (Japan)					
Power	3.3VDC										
Operating Temperature	-20°C to 70°C										

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