

Radio module

WLM200N5-24 MINIPCI

2 x 2 802.11N MIMO mini-PCI



Features

- 5GHz IEEE draft 802.11n compliant and backward compatible with 802.11a
- 2x2 MIMO spatial multiplexing technique
- 5GHz band for high-end multimedia application
- Deliver 10 times the throughput and widen twice the range of legacy 802.11a
- Support up to 300Mbps physical data rates
- Transmission Power Control (TPC)
- Dynamic Frequency Selection (DFS)
- Multi-Country Roaming Support (IEEE802.11d)
- 2 X MMCX Antenna Connector
- Maximum 24dBm output Power

Technical Specifications										
Chipset	Atheros AR9220									
Host Interface	PCI Interface v2.3 (Type III-A Mini PCI form factor)									
Operating Voltage	3.3 VDC									
Power Consumption	7W									
Antenna Connector	2 x MMCX Antenna Connector									
Data Rate	IEEE 802.11a :	54Mbps	48Mbps	36Mbps	24Mbps	18Mbps	12Mbps	9Mbps	6Mbps	
	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.)										
Frequency Range	IEEE 802.11a	5.150 ~ 5.350 GHz, 5.470 ~ 5.725GHz, 5.725 ~ 5.850 GHz (US & Canada)								
		5.150 ~ 5.350 GHz, 5.470 ~ 5.725GHz, 5.725 ~ 5.875 GHz (Europe)								
		5.150 ~ 5.250 GHz, 5.250 ~ 5.350GHz, 5.470 ~ 5.725GHz (Japan)								
	IEEE 802.11n	5.150 ~ 5.350 GHz, 5.470 ~ 5.725GHz, 5.725 ~ 5.850 GHz (US & Canada)								
		5.150 ~ 5.350 GHz, 5.470 ~ 5.725GHz, 5.725 ~ 5.875 GHz (Europe)								
		5.150 ~ 5.250 GHz, 5.250 ~ 5.350GHz, 5.470 ~ 5.725GHz (Japan)								
Modulation Techniques	OFDM: BPSK, QPSK, 16 QAM, 64QAM									
Radio & EMC Certificate	<p>FCC Part 15.407 (5.150--5.350GHz & 5.470--5.725GHz & 5.725 ~ 5.825GHz), FCC Part 15.247 (5.725 ~ 5.850GHz), 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 CFR Title 47 Part 15 Subpart B: Class B ANSI C63.4 FCC OET 65 Limited module level approval</p> <p>ETSI, EN 301 893, EN 302 502, EN 301 489- 1/17, EN 50392, EN 55022, EN 55024, EN 61000-3-2/3, EN 61000-4-3/4/5/6/11</p>									
ROHS	Compatible									
Environment Specifications	Operating: -20°C to 70°C Storage: -40°C to 90°C									
Humidity	5% to 95% (non-condensing)									
Dimension	59.6 x 51 x 14.5mm									

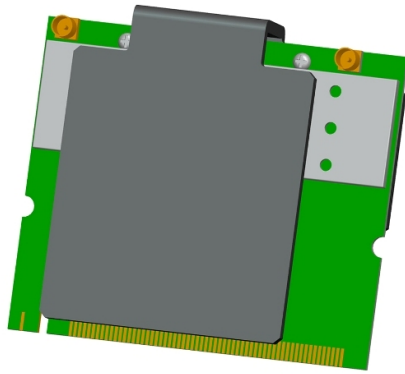
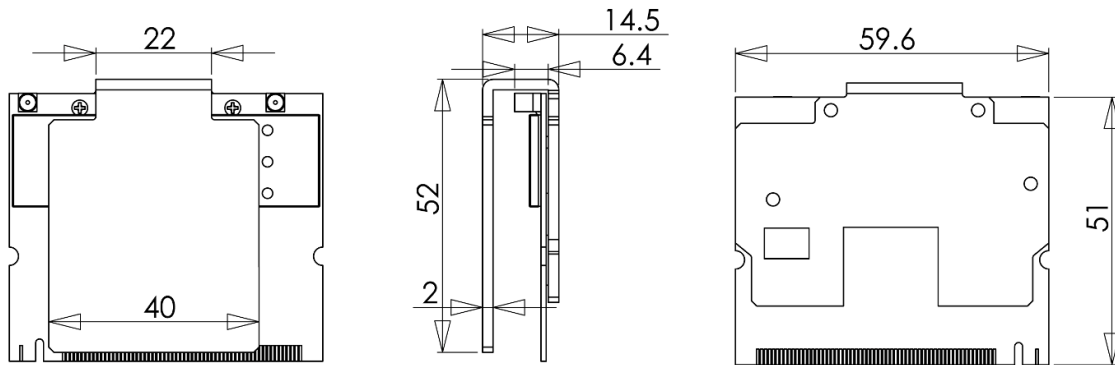
WLM 200N5-24dBm MIMO MINIPCI CARD RADIO							
TX SPECIFICATIONS							
	DataRate		TX Power		Tolerance		
802.11a	6-24Mbps		24dBm		±2dB		
	36Mbps		23dBm		±2dB		
	48Mbps		22dBm		±2dB		
	54Mbps		20dBm		±2dB		
	DataRate	TX Power	Tolerance		DataRate	TX Power	Tolerance
5Ghz 11n HT 20	MCS 0	22dBm	±2dB	5Ghz 11n HT 40	MCS 0	22dBm	±2dB
	MCS 1	22dBm	±2dB		MCS 1	22dBm	±2dB
	MCS 2	22dBm	±2dB		MCS 2	22dBm	±2dB
	MCS 3	22dBm	±2dB		MCS 3	22dBm	±2dB
	MCS 4	20dBm	±2dB		MCS 4	20dBm	±2dB
	MCS 5	18.5dBm	±2dB		MCS 5	18.5dBm	±2dB
	MCS 6	18.5dBm	±2dB		MCS 6	18.5dBm	±2dB
	MCS 7	15.5dBm	±2dB		MCS 7	15.5dBm	±2dB
	MCS 8	22dBm	±2dB		MCS 8	22dBm	±2dB
	MCS 9	22dBm	±2dB		MCS 9	22dBm	±2dB
	MCS 10	22dBm	±2dB		MCS 10	22dBm	±2dB
	MCS 11	22dBm	±2dB		MCS 11	22dBm	±2dB
	MCS 12	20dBm	±2dB		MCS 12	20dBm	±2dB
	MCS 13	18.5dBm	±2dB		MCS 13	18.5dBm	±2dB
	MCS 14	18.5dBm	±2dB		MCS 14	18.5dBm	±2dB
MCS 15	15.5dBm	±2dB	MCS 15	15.5dBm	±2dB		
RX SPECIFICATIONS							
	Data Rate	Sensitivity (Maximum/Typical 2Rx)	Tolerance		Data Rate	Sensitivity (Maximum/Typical 2Rx)	Tolerance
802.11a	6M	-95/-91dBm	±2dB	802.11a	24M	-90/-86dBm	±2dB
	9M	-95/-91dBm	±2dB		36M	-87/-83dBm	±2dB
	12M	-95/-91dBm	±2dB		48M	-83/-79dBm	±2dB
	18M	-94/-90dBm	±2dB		54M	-82/-78dBm	±2dB
5Ghz 11n HT 20	MCS0	-95/-91dBm	±2dB	5Ghz 11n HT 40	MCS0	-91/-87dBm	±2dB
	MCS1	-94/-90dBm	±2dB		MCS1	-90/-86dBm	±2dB
	MCS2	-92/-88dBm	±2dB		MCS2	-88/-84dBm	±2dB
	MCS3	-88/-84dBm	±2dB		MCS3	-85/-81dBm	±2dB
	MCS4	-85/-81dBm	±2dB		MCS4	-82/-78dBm	±2dB
	MCS5	-81/-77dBm	±2dB		MCS5	-78/-74dBm	±2dB
	MCS6	-80/-76dBm	±2dB		MCS6	-77/-73dBm	±2dB
	MCS7	-77/-73dBm	±2dB		MCS7	-74/-70dBm	±2dB
	MCS8	-94/-90dBm	±2dB		MCS8	-91/-87dBm	±2dB
	MCS9	-92/-87dBm	±2dB		MCS9	-88/-84dBm	±2dB
	MCS10	-89/-85dBm	±2dB		MCS10	-86/-82dBm	±2dB
	MCS11	-86/-82dBm	±2dB		MCS11	-83/-79dBm	±2dB
	MCS12	-83/-79dBm	±2dB		MCS12	-80/-76dBm	±2dB
	MCS13	-78/-74dBm	±2dB		MCS13	-75/-71dBm	±2dB
	MCS14	-77/-73dBm	±2dB		MCS14	-73/-69dBm	±2dB
MCS15	-74/-69dBm	±2dB	MCS15	-70/-66dBm	±2dB		

ORDERING CONFIGURATIONS^①

CODES	SPEED	Carton Dimension
WLM200N5-24 6AA1100	Up to 300 Mbps physical data rates	For 50pcs (pcs/ctn), 0.40m * 0.22m * 0.085m / 0.006 = 1.5KG
WLM200N5-24 6AA1300	Up to 300 Mbps physical data rates	For 250pc (pcs/ctn), 0.45m * 0.45m * 0.24m / 0.006 = 8.1KG

- Configurations are subjected to change without notice

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	WLM54G-30dBm	WLM200N2	WLM200N2-26dBm	WLM 54AG - 20dBm	WLM 54AG - 23dBm	WLM 54A - 26dBm	WLM200NX	WLM200N5-26
CHIPSET	AR 2413/2414 (AR5005G/GS)	AR 2413/2414 (AR5005G/GS)	AR 2413/2414 (AR5005G/GS)	AR 2413/2414 (AR5005G/GS)	AR 2413/2414 (AR5005G/GS)	AR9223	AR9223	AR 5413/5414 (AR5006X/XS)	AR 5413/5414 (AR5006X/XS)	AR5414 (AR5006XS)	AR9220	AR9220
SPEED	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 300Mbps physical data rates	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
OUTPUT POWER (Average)												
802.11a								20dBm@6-24Mbps	23dBm@6-24Mbps	26dBm@6-24Mbps	20dBm@6-24Mbps	26dBm@6-24Mbps
								17dBm@36Mbps	21dBm@36Mbps	24dBm@36Mbps	17dBm@36Mbps	26dBm@36Mbps
								16dBm@48Mbps	19dBm@48Mbps	22dBm@48Mbps	16dBm@48Mbps	25dBm@48Mbps
								13dBm@54Mbps	17dBm@54Mbps	20dBm@54Mbps	13dBm@54Mbps	19dBm@54Mbps
802.11b	20dBm@1-11Mbps	23dBm@1-11Mbps	26dBm@1-11Mbps	28dBm@1-11Mbps	30dBm@1-11Mbps	20dBm@1-11Mbps	26dBm@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	30dBm@6-24Mbps	20dBm@6-24Mbps	26dBm@6-24Mbps	20dBm@6-24Mbps	23dBm@6-24Mbps		20dBm@6-24Mbps	
	19dBm@36Mbps	22dBm@36Mbps	25dBm@36Mbps	26dBm@36Mbps	28dBm@36Mbps	19.5dBm@36Mbps	26dBm@36Mbps	18dBm@36Mbps	21dBm@36Mbps		18dBm@36Mbps	
	17dBm@48Mbps	19dBm@48Mbps	24dBm@48Mbps	25dBm@48Mbps	27dBm@48Mbps	18.5dBm@48Mbps	22dBm@48Mbps	17dBm@48Mbps	19dBm@48Mbps		17dBm@48Mbps	
	16dBm@54Mbps	17dBm@54Mbps	22dBm@54Mbps	23dBm@54Mbps	25dBm@54Mbps	17dBm@54Mbps	21dBm@54Mbps	15dBm@54Mbps	17dBm@54Mbps		15dBm@54Mbps	
Interface	PCI Interface v2.3 (Type III-B/A Mini PCI Form Factor)											
Receiver Sensitivity	802.11g -93±2dBm @ 6Mbps < -72±2dBm @ 54Mbps			802.11b -93±2dBm@ 6Mbps -90±2dBm @ 11Mbps			802.11a -93±2dBm @ 6Mbps < -72±2dBm @ 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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