



Radio module

WLM200N5-26 ESD MINIPCI

5GHz Single-Band 802.11n MIMO 2 x 2 miniPCI

Features

- Atheros XSPAN family chipset
- IEEE 802.11n compliant and backward compatible with 802.11a
- Enhanced sensitivity
- Optimized isolation path
- Superior thermal performance
- Maximum output power 26dBm@802.11a / 28dBm MIMO aggregate
- Built-in ESD Protection with ESD/EMP Immunity Threshold: 15KeV^①
- Transmission Power Control (IEEE 802.11h TPC)
- Dynamic Frequency Selection (DFS)
- Multi-Country Roaming Supported (IEEE802.11d Global Harmonization Standard)
- 2 x MMCX connectors allowing for improved mechanical stability and low loss

Technical Specifications			
Chipset	Atheros AR9220		
Host Interface	32-bit mini-PCI Type IIIA+ (6.55mm longer than IIIA type)		
Operating Voltage	3.3 VDC		
Power Consumption	11a Cont. Tx @6M	4.9W	
	11na Cont. Tx@HT20 MCS0	4.3W	
	11na Cont. Tx@HT40 MCS0	4.8W	
	11a Cont. Rx	2.5W	
	Standby	0.8W	
Antenna Connector	2 x MMCX 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/n:	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, 64-QAM		
RoHS Compliance	Yes		
Temperature Range	Operating: -20°C to 70°C Storage: -40°C to 90°C		
Humidity	Operating: 5% to 95% (non-condensing) Storage: Max.90% (non-condensing)		
Dimension	59.6mm x 57.5mm x 7.5mm		

WLM200N5-26 ESD MIMO MINIPCI CARD RADIO							
TX SPECIFICATIONS							
	DataRate	TX Power		Tolerance			
802.11a	6-24Mbps	26dBm		±2dB			
	36Mbps	25dBm		±2dB			
	48Mbps	24dBm		±2dB			
	54Mbps	23dBm		±2dB			
	DataRate	TX Power (per chain)	Tolerance		DataRate	TX Power (per chain)	Tolerance
5GHz 11n HT 20	MCS 0/8	25dBm	±2dB	5GHz 11n HT 40	MCS 0/8	24dBm	±2dB
	MCS 1/9	25dBm	±2dB		MCS 1/9	24dBm	±2dB
	MCS 2/10	23.5dBm	±2dB		MCS 2/10	22.5dBm	±2dB
	MCS 3/11	23.5dBm	±2dB		MCS 3/11	22.5dBm	±2dB
	MCS 4/12	22.5dBm	±2dB		MCS 4/12	22dBm	±2dB
	MCS 5/13	22dBm	±2dB		MCS 5/13	20.5dBm	±2dB
	MCS 6/14	21dBm	±2dB		MCS 6/14	20.5dBm	±2dB
	MCS 7/15	20dBm	±2dB		MCS 7/15	17dBm	±2dB
RX SPECIFICATIONS							
	Data Rate	Sensitivity (2 chains)	Tolerance		Data Rate	Sensitivity (2 chains)	Tolerance
802.11a	6M	-96dBm	±2dB	802.11a	24M	-89dBm	±2dB
	9M	-96dBm	±2dB		36M	-86dBm	±2dB
	12M	-95dBm	±2dB		48M	-82dBm	±2dB
	18M	-93dBm	±2dB		54M	-79dBm	±2dB
5GHz 11n HT 20	MCS0	-95dBm	±2dB	5GHz 11n HT 40	MCS0	-92dBm	±2dB
	MCS1	-93dBm	±2dB		MCS1	-90dBm	±2dB
	MCS2	-90dBm	±2dB		MCS2	-87dBm	±2dB
	MCS3	-89dBm	±2dB		MCS3	-84dBm	±2dB
	MCS4	-85dBm	±2dB		MCS4	-81dBm	±2dB
	MCS5	-81dBm	±2dB		MCS5	-77dBm	±2dB
	MCS6	-79dBm	±2dB		MCS6	-76dBm	±2dB
MCS7	-75dBm	±2dB	MCS7	-74dBm	±2dB		

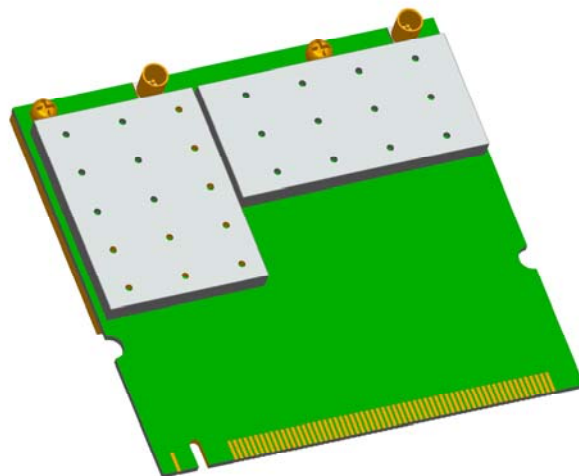
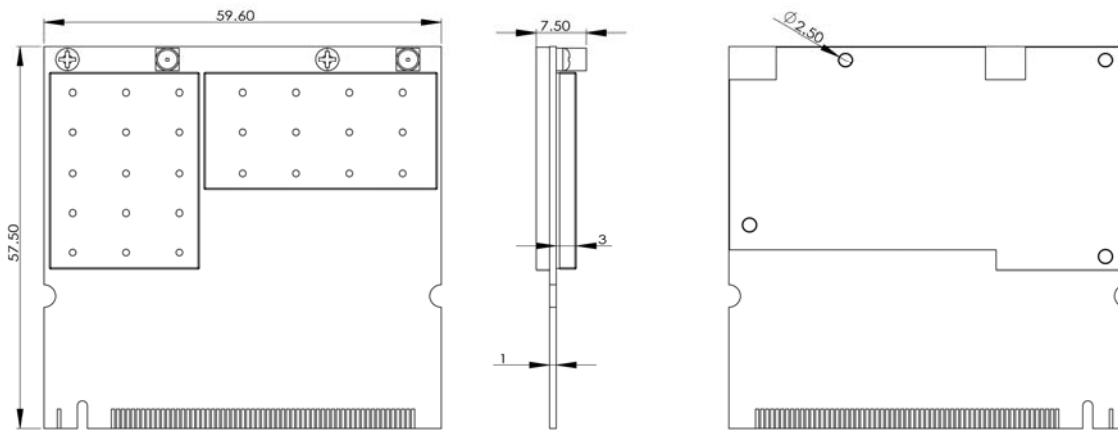
ESD CABLE SPECIFICATION	
Cable Dimensions	26cm length
Terminal Material	Copper
Attachment Procedure	End of ESD Cable tied to Earth Ground

Ordering Information ^②

CODES	Connectors type	Carton Dimension
WLM200N5-26ESD 7B0000	MMCX	For 50pcs (pcs/ctn), 0.40m * 0.22m * 0.085m / 0.006 = 1.5KG For 250pc (pcs/ctn), 0.45m * 0.45m * 0.24m / 0.006 = 8.1KG

- ① Module grounding cable included
- ② Configurations are subject to change without notice
Please contact Complex sales representatives for other available configurations

Dimensions Drawing



WLM SERIES 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 Mini PCI Form Factor)					PCI Interface v2.3 (Type III-A Mini PCI Form Factor)		PCI Interface v2.3 (Type III-B Mini PCI Form Factor)			PCI Interface v2.3 (Type III/A Mini PCI Form Factor)		
Receiver Sensitivity	802.11g -94dBm @ 6Mbps < -73dBm @ 54Mbps 802.11b -94dBm @ 6Mbps -91dBm @ 11Mbps		802.11g -96dBm @ 6Mbps < -83dBm @ 54Mbps 802.11b -96dBm @ 6Mbps -91dBm @ 11Mbps			802.11g -96dBm @ 6Mbps < -83dBm @ 54Mbps 802.11b -96dBm @ 6Mbps -91dBm @ 11Mbps		802.11g -94dBm @ 6Mbps < -73dBm @ 54Mbps 802.11b -94dBm @ 6Mbps -91dBm @ 11Mbps 802.11a -94dBm @ 6Mbps < -73dBm @ 54Mbps			-94dBm @6Mbps -73dBm @54Mbps	Refer to datasheet	Refer to datasheet
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)						
Input Power	3.3V DC												
Operating Temperature	-20°C to 70°C												

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