



MINIPCI RADIO CARD

WLM200N5-26 ESD

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
- 4.9GHz support (Optional) ^①
- 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 ^②
- 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 @ 800G1, 72.2Mbps @ 400G1 (Max.) 2Nss: 130Mbps @ 800G1, 144.4Mbps @ 400G1 (Max.)							
		40MHz	1Nss: 135Mbps @ 800G1, 150Mbps @ 400G1 (Max.) 2Nss: 270Mbps @ 800G1, 300Mbps @ 400G1 (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 (per chain)		TX Power (2 chains)		Tolerance							
802.11a		6-24Mbps		26dBm		29dBm		±2dB							
		36Mbps		24dBm		27dBm		±2dB							
		48Mbps		23dBm		26dBm		±2dB							
		54Mbps		21dBm		24dBm		±2dB							
	DataRate	TX Power (per chain)		TX Power (2 chains)		Tolerance									
5GHz 11n HT 20	MCS 0/8	25dBm		28dBm		±2dB		5GHz 11n HT 40	MCS 0/8	24dBm		27dBm		±2dB	
	MCS 1/9	25dBm		28dBm		±2dB			MCS 1/9	24dBm		27dBm		±2dB	
	MCS 2/10	24dBm		27dBm		±2dB			MCS 2/10	23dBm		26dBm		±2dB	
	MCS 3/11	24dBm		27dBm		±2dB			MCS 3/11	23dBm		26dBm		±2dB	
	MCS 4/12	22dBm		25dBm		±2dB			MCS 4/12	22dBm		25dBm		±2dB	
	MCS 5/13	20.5dBm		23.5dBm		±2dB			MCS 5/13	20.5dBm		23.5dBm		±2dB	
	MCS 6/14	20.5dBm		23.5dBm		±2dB			MCS 6/14	20dBm		23dBm		±2dB	
	MCS 7/15	20dBm		23dBm		±2dB			MCS 7/15	19dBm		22dBm		±2dB	
	MCS 7/15	19dBm@5.825GHz		22dBm		±2dB			MCS 7/15	18dBm@5.795GHz		21dBm		±2dB	
RX SPECIFICATIONS															
	DataRate	Sensitivity (2 chains)		Tolerance			DataRate	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					

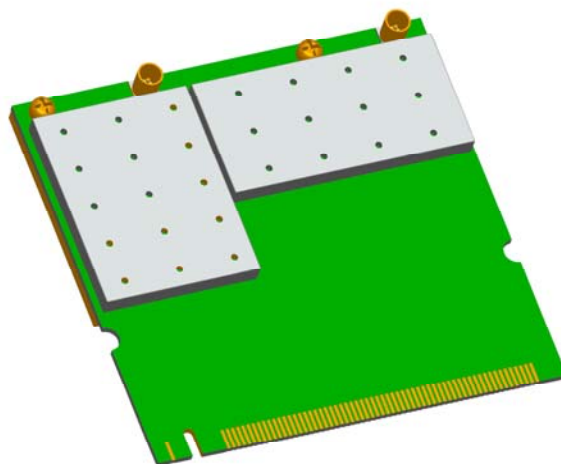
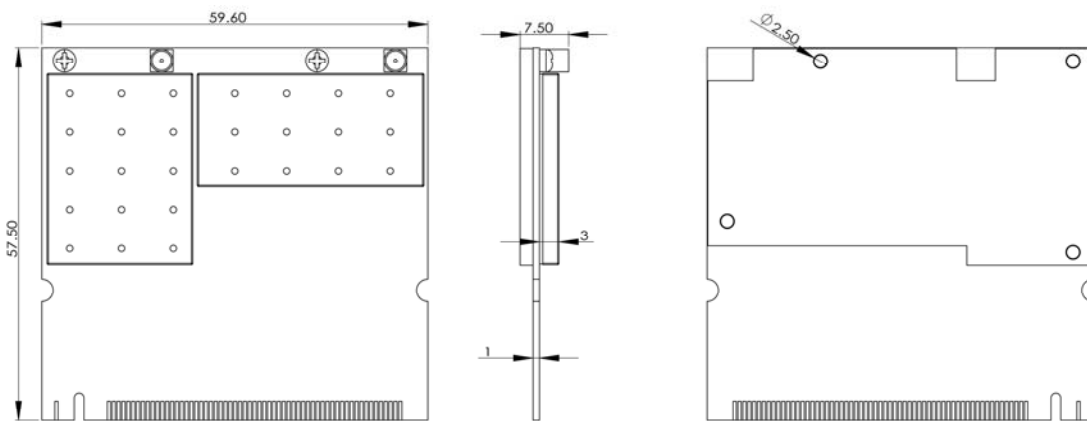
ESD CABLE SPECIFICATION	
Cable Dimensions	26cm length
Terminal Material	Copper
Attachment Procedure	End of ESD Cable tied to Earth Ground

Ordering Information^③

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
WLM200N5-26ESD 7B0000-4.9	MMCX	

- ① Depends on Order Configuration
- ② Module grounding cable included
- ③ Configurations are subject to change without notice
Please contact Compex sales representatives for other available configurations

Dimensions Drawing



WLM SERIES MINIPCI

WLM54 series miniPCI (legacy a/b/g card)								
MODEL	WLM 54G-20dBm	WLM 54G-23dBm	WLM 54G-23 ESD	WLM 54G-26dBm	WLM54G-30 ESD	WLM 54AG – 20dBm	WLM 54AG – 23dBm	WLM 54A – 26 ESD
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)	AR 5413/5414 (AR5006X/XS)	AR 5413/5414 (AR5006X/XS)	AR5414 (AR5006XS)
SPEED	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 54/108Mbps	UP TO 108Mbps
OUTPUT POWER						20dBm@6-24Mbps	23dBm@6-24Mbps	26dBm@6-24Mbps
802.11a	-	-	-	-	-	17dBm@36Mbps	21dBm@36Mbps	24dBm@36Mbps
	-	-	-	-	-	16dBm@48Mbps	19dBm@48Mbps	22Bm@48Mbps
	-	-	-	-	-	13dBm@54Mbps	17dBm@54Mbps	20dBm@54Mbps
	-	-	-	-	-	-	-	-
802.11b	20dBm@1-11Mbps	23dBm@1-11Mbps	23dBm@1-11Mbps	26dBm@1-11Mbps	30Bm@1-11Mbps	20dBm@1-11Mbps	23dBm@1-11Mbps	-
802.11g	20dBm@6-24Mbps	23dBm@6-24Mbps	23dBm@6-24Mbps	26dBm@6-24Mbps	30dBm@6-24Mbps	20dBm@6-24Mbps	23dBm@6-24Mbps	-
	19dBm@36Mbps	22dBm@36Mbps	22dBm@36Mbps	25dBm@36Mbps	28dBm@36Mbps	18dBm@36Mbps	21dBm@36Mbps	-
	17dBm@48Mbps	19dBm@48Mbps	19dBm@48Mbps	24dBm@48Mbps	27dBm@48Mbps	17dBm@48Mbps	19dBm@48Mbps	-
	16dBm@54Mbps	17dBm@54Mbps	17dBm@54Mbps	23dBm@54Mbps	25dBm@54Mbps	15dBm@54Mbps	17dBm@54Mbps	-
Receiver Sensitivity						-93dBm @ 6Mbps	-93dBm @ 6Mbps	-96dBm @ 6Mbps
802.11a	-	-	-	-	-	-72dBm @ 54Mbps	-72dBm @ 54Mbps	-76dBm @ 54Mbps
802.11b	-96dBm @ 6Mbps	-96dBm @ 6Mbps	-93dBm @ 6Mbps	-93dBm @ 6Mbps	-96dBm @ 6Mbps	-96dBm @ 6Mbps	-96dBm @ 6Mbps	-
802.11g	-90dBm @11Mbps	-90dBm @11Mbps	-90dBm @11Mbps	-90dBm @11Mbps	-90dBm @11Mbps	-90dBm @11Mbps	-90dBm @11Mbps	-
	-93dBm @ 6Mbps	-93dBm @ 6Mbps	-93dBm @ 6Mbps	-93dBm @ 6Mbps	-93dBm @ 6Mbps	-93dBm @ 6Mbps	-93dBm @ 6Mbps	-
	-74dBm @ 54Mbps	-74dBm @ 54Mbps	<-72dBm @ 54Mbps	<-72dBm @ 54Mbps	-74dBm @ 54Mbps	-96dBm @ 6Mbps	-96dBm @ 6Mbps	-
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)		
Interface	PCI Interface v2.3 (Type III-B Mini PCI Form Factor)							32-bit mini-PCI Type IIIA+ (1.85mm longer than IIIA type)
Input Power	3.3V DC							
Operating Temperature	-20°C to 70°C							

WLM200 series miniPCI (11n MIMO 2*2 card)					
MODEL	WLM200N2	WLM200N2-26dBm	WLM200NX	WLM200N5-23 ESD	WLM200N5-26 ESD
CHIPSET	AR9223	AR9223	AR9220	AR9220	AR9220
SPEED	UP TO 300Mbps physical data rates	UP TO 300Mbps physical data rates	UP TO 300Mbps physical data rates	UP TO 300Mbps physical data rates	UP TO 300Mbps physical data rates
OUTPUT POWER					
802.11a			18dBm@6-24Mbps	23dBm@6-24Mbps	26dBm@6-24Mbps
			18dBm@36Mbps	22dBm@36Mbps	24dBm@36Mbps
			17dBm@48Mbps	21dBm@48Mbps	23dBm@48Mbps
			16dBm@54Mbps	20dBm@54Mbps	21dBm@54Mbps
5G HT20			18dBm @MCS0	23dBm @MCS0	25dBm @MCS0
			12dBm @MCS7	17dBm @MCS7	20dBm @MCS7
5G HT40			16.5dBm @MCS0	21dBm @MCS0	24dBm @MCS0
			9dBm @MCS7	14dBm @MCS7	19dBm @MCS7
802.11b	20dBm@1-11Mbps	26dBm@1-11Mbps	20dBm@1-11Mbps		
802.11g	20dBm@6-24Mbps	26dBm@6-24Mbps	20dBm@6-24Mbps		
	20dBm@36Mbps	26dBm@36Mbps	19.5dBm@36Mbps		
	16dBm@48Mbps	22dBm@48Mbps	18.5dBm@48Mbps		
	15dBm@54Mbps	21dBm@54Mbps	17dBm@54Mbps		
2.4G HT20	17dBm @MCS0	23dBm @MCS0	18dBm @MCS0		
	14dBm @MCS7	20dBm @MCS7	15dBm @MCS7		
2.4G HT40	16dBm @MCS0	22dBm @MCS0	18dBm @MCS0		
	14dBm @MCS7	20dBm @MCS7	14.5dBm @MCS7		
Receiver Sensitivity					
802.11a			-94dBm@6M	-97dBm@6M	-96dBm@6M
			-77dBm@54M	-80dBm@54M	-79dBm@54M
			-93dBm@MCS0	-97dBm@MCS0	-95dBm@MCS0
			-74dBm@MCS7	-77dBm@MCS7	-75dBm@MCS7
5G HT20			-90dBm@MCS0	-92dBm@MCS0	-92dBm@MCS0
			-72dBm@MCS7	-74dBm@MCS7	-74dBm@MCS7
5G HT40					
802.11b	-94dBm@1M	-94dBm@1M	-94dBm@1M		
	-92dBm@11M	-92dBm@11M	-94dBm@11M		
	-94dBm@6M	-94dBm@6M	-94dBm@6M		
	-78dBm@54M	-74dBm@54M	-78dBm@54M		
802.11g	-93dBm@MCS0	-92dBm@MCS0	-93dBm@MCS0		
	-76dBm@MCS7	-73dBm@MCS7	-74dBm@MCS7		
	-90dBm@MCS0	-90dBm@MCS0	-90dBm@MCS0		
	-73dBm@MCS7	-71dBm@MCS7	-72dBm@MCS7		
2.4G HT20					
2.4G HT40					
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)		
Interface	PCI Interface v2.3 (Type III-A Mini PCI form factor)				32-bit mini-PCI Type IIIA+ (6.55mm longer than IIIA type)
Input Power	3.3V DC				
Operating Temperature	-20°C to 70°C				

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