



PCIe MINI CARD WLE200N2-23

WIRELESS-BGN 23DBM 2X2 NETWORK MINI PCIE ADAPTER

Features

- Atheros XSPAN family chipset
- IEEE 802.11n compliant and backward compatible with 802.11b/g
- 2.4GHz Single-band 2 x 2 MIMO spatial multiplexing technique
- Maximum output power 23dBm@802.11b/g -26dBm MIMO aggregate
- Supports up to 300Mbps physical data rates
- Delivers up to 10 times the throughput and nearly twice the range of legacy 802.11b/g networks
- Transmission Power Control (IEEE 802.11h TPC)
- Supports spatial multiplexing and maximal ratio combining (MRC)
- Multi-Country Roaming Supported (IEEE802.11d Global Harmonization Standard)
- 2 x U.FL Antenna Connector
- Complaint with PCI-Express Mini Card 1.1 Standard
- Supports 802.11x authentication, 64/128/152Bit WEP, IEEE802.11i encryption

Technical Specifications											
Chipset	AR9283										
Host Interface	PCI –Express 1.1 Standard										
Operating Voltage	3.3 VDC										
Power Consumption	2.6W										
Antenna Connector	2 x U.FL 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	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 802.11b/g/n:	2.412GHz ~ 2.462GHz (US & Canada) 2.412GHz ~ 2.472GHz (Europe) 2.412GHz ~ 2.484GHz (Japan)									
Modulation Techniques	OFDM: BPSK, QPSK, 16 QAM, 64QAM DSSS: DBPSK, DQPSK, CCK										
ROHS Compliance	Yes										
Environment Specifications	Operating: -20°C to 70°C Storage: -40°C to 90°C										
Humidity	5% to 95% (non-condensing)										
Dimension	50.95mm x 30 mm x 3.2 mm (H x W x D)										

WLE200N2-23 PCIe Mini CARD RADIO									
TX SPECIFICATIONS									
	DataRate	TX Power (per chain)	TX Power (2 chains)	Tolerance		DataRate	TX Power (per chain)	TX Power (2 chains)	Tolerance
802.11b	11Mbps	23dBm	26dBm	±2dB	802.11g	6-24Mbps	23dBm	26dBm	±2dB
	5.5Mbps	23dBm	26dBm	±2dB		36Mbps	22dBm	25dBm	±2dB
	2Mbps	23dBm	26dBm	±2dB		48Mbps	21dBm	24dBm	±2dB
	1Mbps	23dBm	26dBm	±2dB		54Mbps	19dBm	22dBm	±2dB
	DataRate	TX Power (per chain)	TX Power (2 chains)	Tolerance		DataRate	TX Power (per chain)	TX Power (2 chains)	Tolerance
2.4GHz 11n HT20	MCS 0/8	23dBm	26dBm	±2dB	2.4GHz 11n HT40	MCS 0/8	20dBm	23dBm	±2dB
	MCS 1/9	23dBm	26dBm	±2dB		MCS 1/9	18dBm	21dBm	±2dB
	MCS 2/10	23dBm	26dBm	±2dB		MCS 2/10	18dBm	21dBm	±2dB
	MCS 3/11	23dBm	26dBm	±2dB		MCS 3/11	18dBm	21dBm	±2dB
	MCS 4/12	20dBm	23dBm	±2dB		MCS 4/12	18dBm	21dBm	±2dB
	MCS 5/13	19dBm	22dBm	±2dB		MCS 5/13	18dBm	21dBm	±2dB
	MCS 6/14	18dBm	21dBm	±2dB		MCS 6/14	17dBm	20dBm	±2dB
	MCS 7/15	15dBm	18dBm	±2dB		MCS 7/15	14dBm	17dBm	±2dB
RX SPECIFICATIONS									
	DataRate	Sensitivity (2 chains)	Tolerance		DataRate	Sensitivity (2 chains)	Tolerance		
802.11g	6 Mbps	-96dBm	±2dB	802.11g	24Mbps	-90dBm	±2dB		
	9 Mbps	-96dBm	±2dB		38Mbps	-87dBm	±2dB		
	12 Mbps	-95dBm	±2dB		48Mbps	-83dBm	±2dB		
	18 Mbps	-93dBm	±2dB		54Mbps	-81dBm	±2dB		
2.4GHz 11n HT20	MCS0	-96dBm	±2dB	2.4GHz 11n HT40	MCS0	-92dBm	±2dB		
	MCS1	-94dBm	±2dB		MCS1	-90dBm	±2dB		
	MCS2	-91dBm	±2dB		MCS2	-87dBm	±2dB		
	MCS3	-87dBm	±2dB		MCS3	-86dBm	±2dB		
	MCS4	-85dBm	±2dB		MCS4	-84dBm	±2dB		
	MCS5	-82dBm	±2dB		MCS5	-82dBm	±2dB		
	MCS6	-81dBm	±2dB		MCS6	-81dBm	±2dB		
MCS7	-79dBm	±2dB	MCS7	-77dBm	±2dB				

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.

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

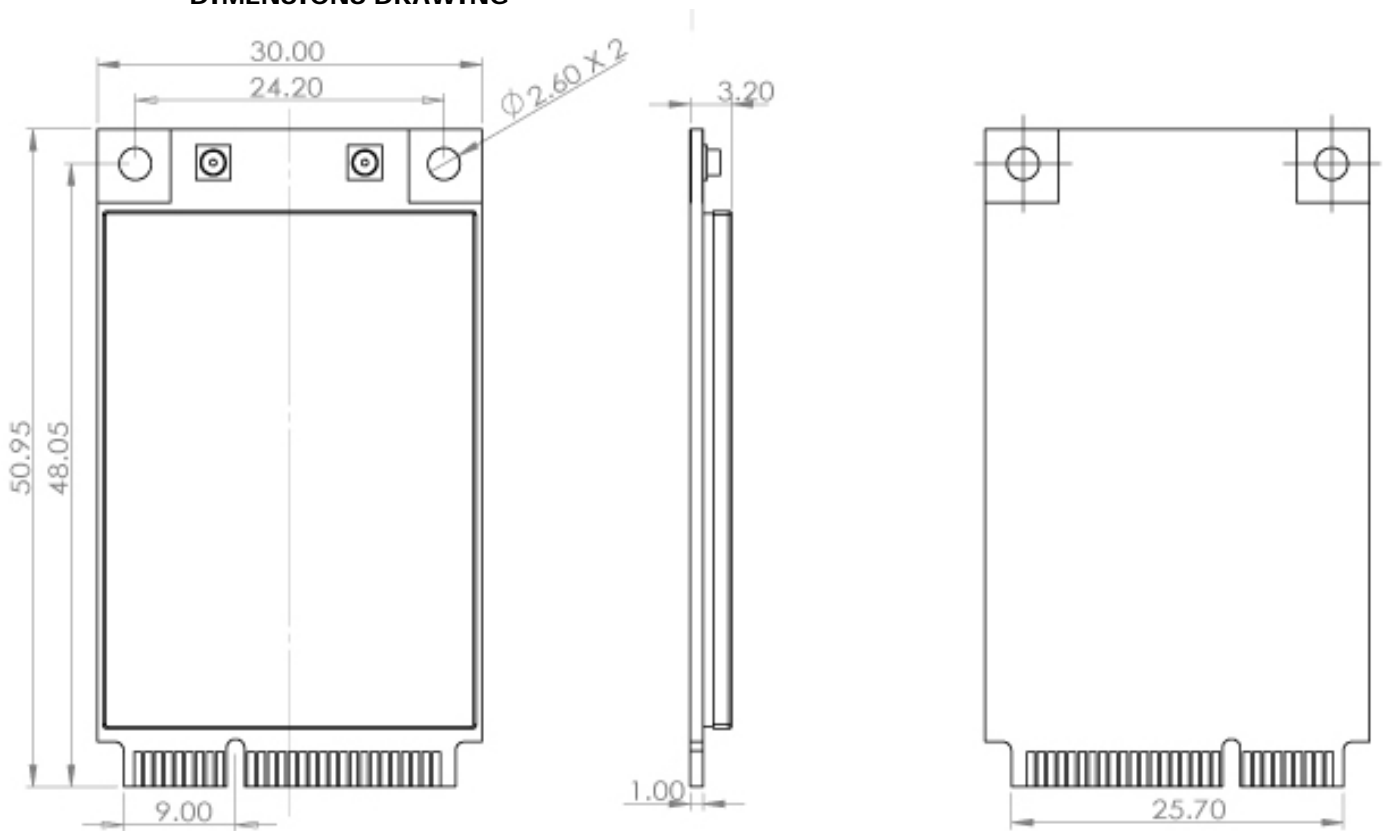
FCC ID: TK4WLE200N2-23

Ordering Informaion

Model Code	Form Factor	CARD INFORMATIONS
WLE200N2-23 7A0000	Full Size	802.11 b/g/n PCIe mini card

- ① Configurations are subject to change without notice
Please contact Complex sales representatives for other available configurations

DIMENSIONS DRAWING



WLM FAMILY SERIES OF 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 (AR5006X)
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	22dBm@48Mbps
						13dBm@54Mbps	17dBm@54Mbps	20dBm@54Mbps
802.11b	20dBm@1-11Mbps	23dBm@1-11Mbps	23dBm@1-11Mbps	26dBm@1-11Mbps	30dBm@1-11Mbps	20dBm@1-11Mbps	23dBm@1-11Mbps	-
	20dBm@6-24Mbps	23dBm@6-24Mbps	23dBm@6-24Mbps	26dBm@6-24Mbps	30dBm@6-24Mbps	20dBm@6-24Mbps	23dBm@6-24Mbps	-
802.11g	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								
802.11a						-93dBm @ 6Mbps	-93dBm @ 6Mbps	-96dBm @ 6Mbps
						-72dBm @ 54Mbps	-72dBm @ 54Mbps	-76dBm @ 54Mbps
802.11b	-96dBm @ 6Mbps	-96dBm @ 6Mbps	-93dBm @ 6Mbps	-93dBm @ 6Mbps	-96dBm @ 6Mbps	-96dBm @ 6Mbps	-96dBm @ 6Mbps	-96dBm @ 6Mbps
	-90dBm @ 11Mbps	-90dBm @ 11Mbps	-90dBm @ 11Mbps	-90dBm @ 11Mbps	-90dBm @ 11Mbps	-90dBm @ 11Mbps	-90dBm @ 11Mbps	-90dBm @ 11Mbps
802.11g	-93dBm @ 6Mbps	-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	-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)							
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	-	-
	20dBm@6-24Mbps	26dBm@6-24Mbps	20dBm@6-24Mbps	-	-
802.11g	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
5G HT20			-93dBm@MCS0	-97dBm@MCS0	-95dBm@MCS0
			-74dBm@MCS7	-77dBm@MCS7	-75dBm@MCS7
5G HT40			-90dBm@MCS0	-92dBm@MCS0	-92dBm@MCS0
			-72dBm@MCS7	-74dBm@MCS7	-74dBm@MCS7
802.11b	-94dBm@1M	-94dBm@1M	-94dBm@1M	-	-
	-92dBm@11M	-92dBm@11M	-94dBm@11M	-	-
802.11g	-94dBm@6M	-94dBm@6M	-94dBm@6M	-	-
	-78dBm@54M	-74dBm@54M	-78dBm@54M	-	-
2.4G HT20	-93dBm@MCS0	-92dBm@MCS0	-93dBm@MCS0	-	-
	-76dBm@MCS7	-73dBm@MCS7	-74dBm@MCS7	-	-
2.4G HT40	-90dBm@MCS0	-90dBm@MCS0	90dBm@MCS0	-	-
	-73dBm@MCS7	-71dBm@MCS7	-72dBm@MCS7	-	-
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)				
Input Power	3.3V DC				
Operating Temperature	-20°C to 70°C				

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