

## Dual Band 2x2 MIMO 802.11n Mini PCIe Module Designed for Dual Band Wireless Access Points

**Model: WLE200NX / WLE200NX-I**



### KEY FEATURES

- Qualcomm Atheros AR9280
- Atheros XB92 Reference Design
- Dual-band 2x2 MIMO spatial multiplexing technique
- 2.4GHz max 18dBm & 5GHz max 17dBm output power (per chain)
- IEEE 802.11n compliant & backward compatible with 802.11b/g
- 2x2 MIMO Technology, up to 300Mbps
- Mini PCI Express 1.1 interface
- Supports WPA2 encryption (IEEE 802.11i) and 802.1X authentication
- Supports Transmit Power Control (IEEE 802.11h)
- Dynamic Frequency Selection (DFS)
- Supports additional regulatory domains (IEEE802.11d)

## Specifications

Chipset	AR9280
Host Interface	Mini PCI-Express 1.1 Standard
Operating Voltage	3.3V DC
Antenna Connector	2x U.FL
Frequency Range	2.4GHz: 2.412 ~ 2.484 GHz 5GHz: 5.150 ~ 5.875 GHz
Certification	FCC & CE Certified, RoHS Compliant
Power Consumption	3.7W (Max)
Modulation Techniques	OFDM: BPSK, QPSK, 16-QAM, 64-QAM
Temperature Range (for WLE200NX)	Operating: -20°C to 70°C Storage: -40°C to 90°C
Industrial Grade Temperature Range (for WLE200NX-I)	Operating: -40°C to 70°C Storage: -40°C to 90°C
Humidity	Operating: 5% to 95% (non-condensing) Storage: Max. 90% (non-condensing)
Dimensions (H x W x D)	50.95 x 30 x 3.2 mm

## RF Performance Table

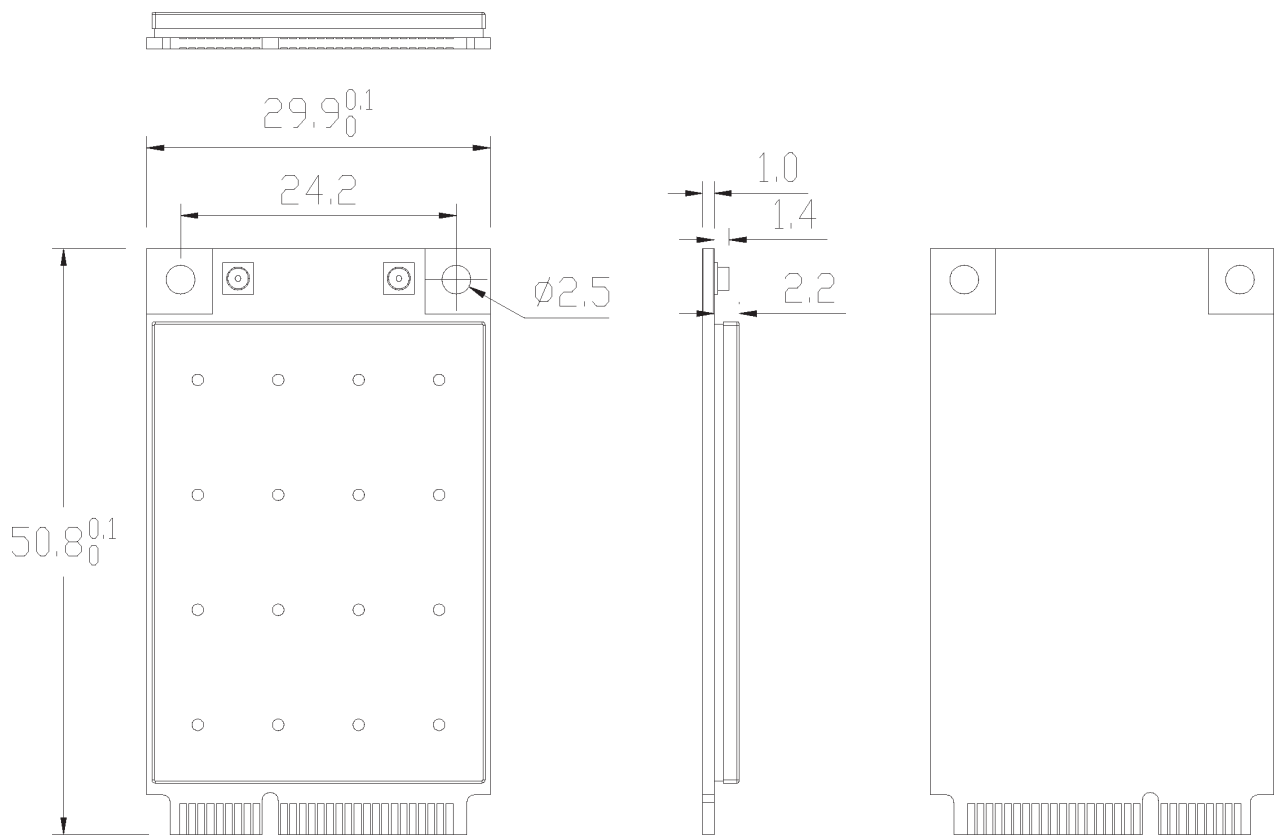
	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
2.4GHz 802.11b	1Mbps	18dBm	21dBm	±2dB
	2Mbps	18dBm	21dBm	±2dB
	5.5Mbps	18dBm	21dBm	±2dB
	11Mbps	18dBm	21dBm	±2dB
2.4GHz 802.11g	6Mbps	17dBm	20dBm	±2dB
	9Mbps	17dBm	20dBm	±2dB
	12Mbps	17dBm	20dBm	±2dB
	18Mbps	17dBm	20dBm	±2dB
	24Mbps	17dBm	20dBm	±2dB
	36Mbps	17dBm	20dBm	±2dB
	48Mbps	16dBm	19dBm	±2dB
	54Mbps	15dBm	18dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	17dBm	20dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB
	MCS 3	17dBm	20dBm	±2dB
	MCS 4	17dBm	20dBm	±2dB
	MCS 5	17dBm	20dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB
	MCS 7	10dBm	13dBm	±2dB
2.4GHz 802.11n HT40	MCS 0	17dBm	20dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB
	MCS 3	17dBm	20dBm	±2dB
	MCS 4	17dBm	20dBm	±2dB
	MCS 5	17dBm	20dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB
	MCS 7	9dBm	12dBm	±2dB
5GHz 802.11a	6Mbps	17dBm	20dBm	±2dB
	9Mbps	17dBm	20dBm	±2dB
	12Mbps	17dBm	20dBm	±2dB
	18Mbps	17dBm	20dBm	±2dB
	24Mbps	17dBm	20dBm	±2dB
	36Mbps	15dBm	18dBm	±2dB
	48Mbps	13dBm	16dBm	±2dB
	54Mbps	12dBm	15dBm	±2dB
5GHz 802.11n HT20	MCS 0	17dBm	20dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB
	MCS 3	17dBm	20dBm	±2dB
	MCS 4	17dBm	20dBm	±2dB
	MCS 5	16dBm	19dBm	±2dB
	MCS 6	13dBm	16dBm	±2dB
	MCS 7	9dBm	12dBm	±2dB
5GHz 802.11n HT40	MCS 0	17dBm	20dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB
	MCS 3	17dBm	20dBm	±2dB
	MCS 4	17dBm	20dBm	±2dB
	MCS 5	16dBm	19dBm	±2dB
	MCS 6	13dBm	16dBm	±2dB
	MCS 7	9dBm	12dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11b	1Mbps	-94dBm	±2dB
	2Mbps	-94dBm	±2dB
	5.5Mbps	-94dBm	±2dB
	11Mbps	-92dBm	±2dB
2.4GHz 802.11g	6Mbps	-94dBm	±2dB
	9Mbps	-94dBm	±2dB
	12Mbps	-93dBm	±2dB
	18Mbps	-91dBm	±2dB
	24Mbps	-87dBm	±2dB
	36Mbps	-83dBm	±2dB
	48Mbps	-81dBm	±2dB
	54Mbps	-79dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	-94dBm	±2dB
	MCS 1	-93dBm	±2dB
	MCS 2	-91dBm	±2dB
	MCS 3	-86dBm	±2dB
	MCS 4	-84dBm	±2dB
	MCS 5	-81dBm	±2dB
	MCS 6	-78dBm	±2dB
	MCS 7	-73dBm	±2dB
2.4GHz 802.11n HT40	MCS 0	-90dBm	±2dB
	MCS 1	-88dBm	±2dB
	MCS 2	-86dBm	±2dB
	MCS 3	-83dBm	±2dB
	MCS 4	-80dBm	±2dB
	MCS 5	-76dBm	±2dB
	MCS 6	-74dBm	±2dB
	MCS 7	-72dBm	±2dB
5GHz 802.11a	6Mbps	-94dBm	±2dB
	9Mbps	-94dBm	±2dB
	12Mbps	-93dBm	±2dB
	18Mbps	-91dBm	±2dB
	24Mbps	-88dBm	±2dB
	36Mbps	-85dBm	±2dB
	48Mbps	-82dBm	±2dB
	54Mbps	-77dBm	±2dB
5GHz 802.11n HT20	MCS 0	-93dBm	±2dB
	MCS 1	-91dBm	±2dB
	MCS 2	-87dBm	±2dB
	MCS 3	-85dBm	±2dB
	MCS 4	-82dBm	±2dB
	MCS 5	-79dBm	±2dB
	MCS 6	-76dBm	±2dB
	MCS 7	-74dBm	±2dB
5GHz 802.11n HT40	MCS 0	-90dBm	±2dB
	MCS 1	-88dBm	±2dB
	MCS 2	-85dBm	±2dB
	MCS 3	-82dBm	±2dB
	MCS 4	-79dBm	±2dB
	MCS 5	-76dBm	±2dB
	MCS 6	-75dBm	±2dB
	MCS 7	-73dBm	±2dB

## Connector Map



## Mechanical Dimensions



## Packaging Content

Item	Quantity
WLE200NX Wireless Module	1

## Ordering Configuration

Item Code	Model	PA	Form factor	Card Information
WLE200NX 7A0000	WLE200NX	SE5516A	Full size card	802.11 a/b/g/n Mini PCIe card
WLE200NX 7A0000	WLE200NX-I	SE5516A	Full size card	802.11 a/b/g/n Mini PCIe card

## Packaging Information

Packaging Type	Dimensions	Weight	Dimensional Weight
Carton Box (250 units)	422 x 410 x 240 mm	4.65 kg	8.46 kg

## COMPLIANCE INFORMATION

### FCC NOTICE

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Connect the computer into an outlet on a circuit different from that to which the receiver is connected.
- Increase the separation between the computer and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

**Caution:** Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

**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.

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

### RF exposure warning

The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment.

The equipment must not be co-located or operating in conjunction with any other antenna or transmitter.

**FCC ID: TK4WLM200NX**

**IMPORTANT NOTE: EQUIPMENT MANUFACTURERS  
COMPEX FOR DISPLAYING WLM200NX MODULAR FCC  
ID ON FINAL INTEGRATED**

OEM integration instructions:

This device is intended only for OEM integrators under the following conditions :

The module is only limited to installation in mobile applications. The antenna must be installed such that 20 cm is maintained between the antenna and users, and the transmitter module may not be co-located with any other transmit or antenna. The module shall be only used with the integral antenna(s) that has been originally tested and certified with this module.

As long as 3 conditions above are met further transmitter test will not be required.

However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirement with this module installed (for example digital device emission PC peripheral requirements etc.)

End product labeling:

This transmitter module is authorization only for use in device where the antenna may be installed such that 20cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following:“Contains Transmitter Module FCC ID: TK4WLE200NX or Contains FCC ID: TK4WLE200NX ”.

**FCC ID: TK4WLM200NX**

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COMPEX FOR DISPLAYING WLM200NX MODULAR FCC  
ID ON FINAL INTEGRATED**