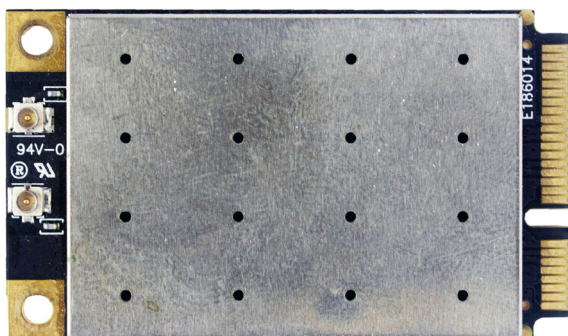# Dual Band 2x2 MIMO 802.11n Mini PCIe Module
## Designed for Long Range 2.4GHz Band Wireless Access Points

**Model: WLE200N2-23**

### KEY FEATURES

- Qualcomm Atheros AR9283
- 2.4GHz Single-band 2x2 MIMO spatial multiplexing technique
- Max 23dBm output power (per chain)
- IEEE 802.11n compliant & backward compatible with 802.11b/g
- 2x2 MIMO Technology, up to 300Mbps
- Mini PCI Express edge connector
- Supports IEEE 802.11i encryption, 802.1X authentication
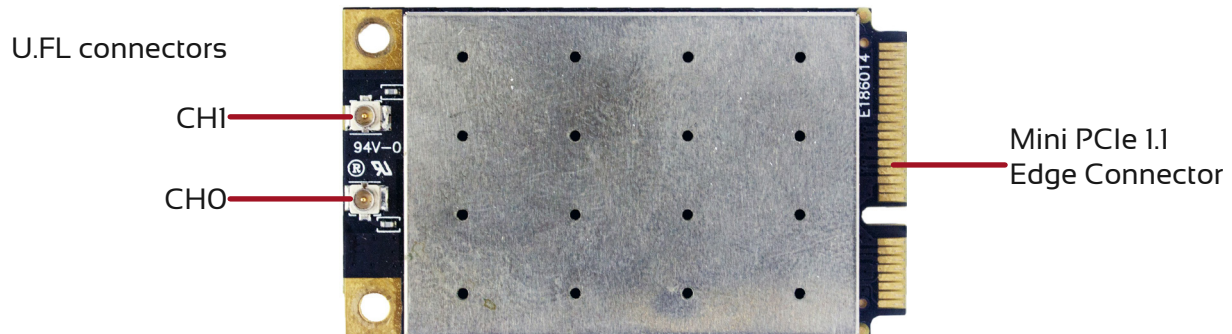- Supports IEEE 802.11d Global Harmonization Standard

## Specifications

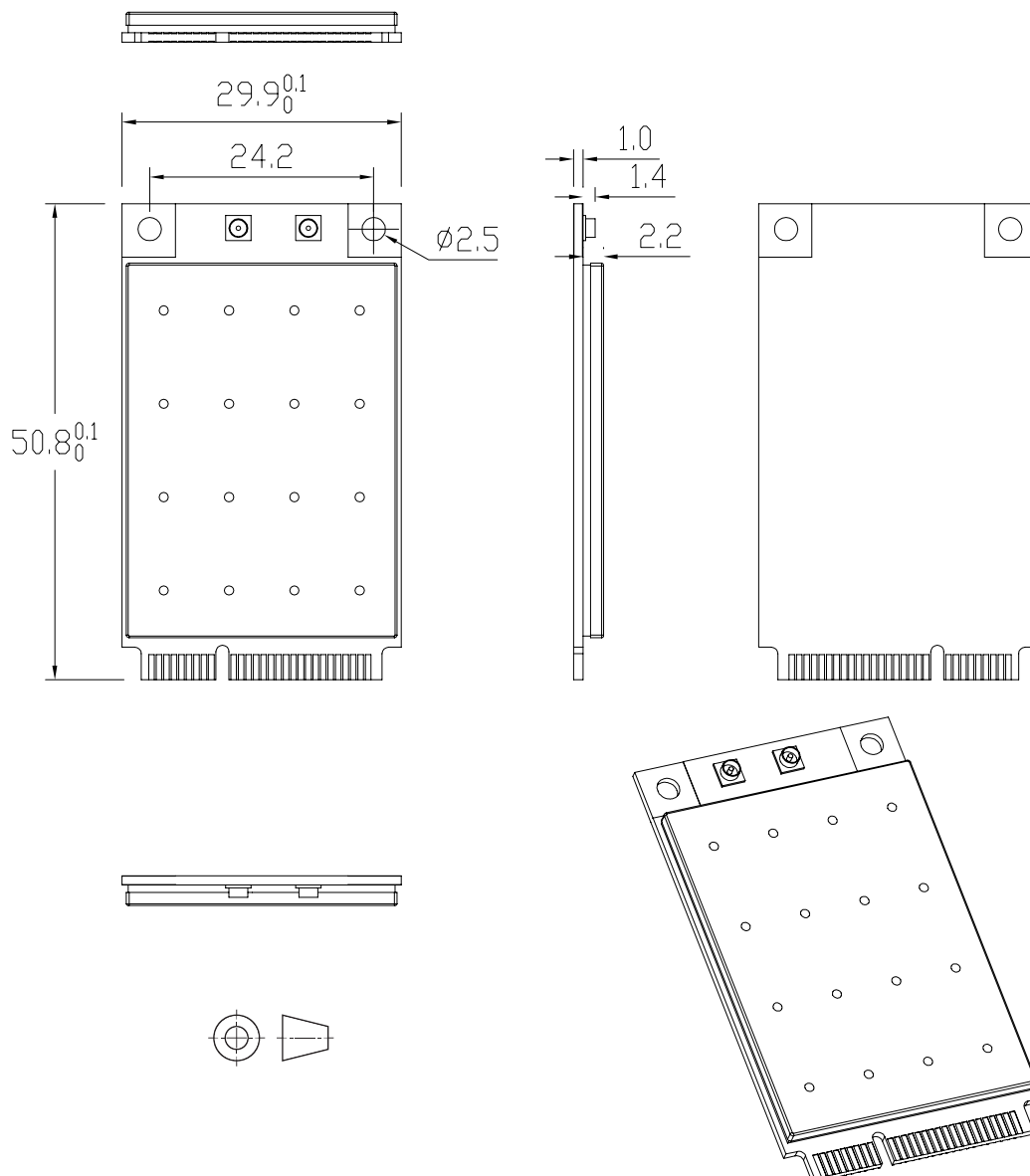| | |
|---|---|
| Chipset | AR9283 |
| Host Interface | PCI Express 1.1 Standard |
| Operating Voltage | 3.3V DC |
| Antenna Connector | 2x U.FL |
| Frequency Range | 2.4GHz: 2.412 ~ 2.484 GHz |
| Certification | RoHS Compliant |
| Power Consumption | 2.5W |
| Modulation Techniques | OFDM: BPSK, QPSK, 16-QAM, 64-QAM<br>DSSS: DBPSK, DQPSK, CCK |
| Temperature Range | Operating: -20°C to 70°C<br>Storage: -40°C to 90°C |
| Humidity | Operating: 5% to 95% (non-condensing)<br>Storage: Max. 90% (non-condensing) |
| Dimensions (W x H x D) | 30 x 50.95 x 3.2 mm |

Last Updated: 18/01/17

## RF Performance Table

| | Data Rate | TX Power (per chain) | TX Power (2 chains) | Tolerance |
|---|---|---|---|---|
| 2.4GHz 802.11b | 1Mbps | 23dBm | 26dBm | ±2dB |
| | 2Mbps | 23dBm | 26dBm | ±2dB |
| | 5.5Mbps | 23dBm | 26dBm | ±2dB |
| | 11Mbps | 23dBm | 26dBm | ±2dB |
| 2.4GHz 802.11g | 6Mbps | 23dBm | 26dBm | ±2dB |
| | 9Mbps | 23dBm | 26dBm | ±2dB |
| | 12Mbps | 23dBm | 26dBm | ±2dB |
| | 18Mbps | 23dBm | 26dBm | ±2dB |
| | 24Mbps | 23dBm | 26dBm | ±2dB |
| | 36Mbps | 22dBm | 25dBm | ±2dB |
| | 48Mbps | 20dBm | 23dBm | ±2dB |
| | 54Mbps | 19dBm | 22dBm | ±2dB |
| 2.4GHz 802.11n HT20 | MCS 0 | 23dBm | 26dBm | ±2dB |
| | MCS 1 | 23dBm | 26dBm | ±2dB |
| | MCS 2 | 23dBm | 26dBm | ±2dB |
| | MCS 3 | 22dBm | 25dBm | ±2dB |
| | MCS 4 | 21dBm | 24dBm | ±2dB |
| | MCS 5 | 20dBm | 23dBm | ±2dB |
| | MCS 6 | 19dBm | 22dBm | ±2dB |
| | MCS 7 | 18dBm | 21dBm | ±2dB |
| 2.4GHz 802.11n HT40 | MCS 0 | 23dBm | 26dBm | ±2dB |
| | MCS 1 | 23dBm | 26dBm | ±2dB |
| | MCS 2 | 23dBm | 26dBm | ±2dB |
| | MCS 3 | 22dBm | 25dBm | ±2dB |
| | MCS 4 | 21dBm | 24dBm | ±2dB |
| | MCS 5 | 20dBm | 23dBm | ±2dB |
| | MCS 6 | 19dBm | 22dBm | ±2dB |
| | MCS 7 | 18dBm | 21dBm | ±2dB |

| | Data Rate | RX Specifications Sensitivity | Tolerance |
|---|---|---|---|
| 2.4GHz 802.11b | 1Mbps | -96dBm | ±2dB |
| | 2Mbps | -96dBm | ±2dB |
| | 5.5Mbps | -95dBm | ±2dB |
| | 11Mbps | -93dBm | ±2dB |
| 2.4GHz 802.11g | 6Mbps | -96dBm | ±2dB |
| | 9Mbps | -96dBm | ±2dB |
| | 12Mbps | -95dBm | ±2dB |
| | 18Mbps | -93dBm | ±2dB |
| | 24Mbps | -90dBm | ±2dB |
| | 36Mbps | -87dBm | ±2dB |
| | 48Mbps | -83dBm | ±2dB |
| | 54Mbps | -81dBm | ±2dB |
| 2.4GHz 802.11n HT20 | MCS 0 | -96dBm | ±2dB |
| | MCS 1 | -94dBm | ±2dB |
| | MCS 2 | -91dBm | ±2dB |
| | MCS 3 | -87dBm | ±2dB |
| | MCS 4 | -85dBm | ±2dB |
| | MCS 5 | -82dBm | ±2dB |
| | MCS 6 | -81dBm | ±2dB |
| | MCS 7 | -79dBm | ±2dB |
| 2.4GHz 802.11n HT40 | MCS 0 | -92dBm | ±2dB |
| | MCS 1 | -90dBm | ±2dB |
| | MCS 2 | -87dBm | ±2dB |
| | MCS 3 | -86dBm | ±2dB |
| | MCS 4 | -84dBm | ±2dB |
| | MCS 5 | -82dBm | ±2dB |
| | MCS 6 | -81dBm | ±2dB |
| | MCS 7 | -77dBm | ±2dB |

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## Connector Map

U.FL connectors

CH1

CH0

Mini PCIe 1.1
Edge Connector

## Mechanical Dimensions

$29.9^{0.1}_{0}$

24.2

$50.8^{0.1}_{0}$

∅2.5

1.0

1.4

2.2

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## Ordering Configuration

| Item Code | Chipset | Form Factor | Card Information |
|---|---|---|---|
| WLE200N2-23 7A0000 | AR9283 | Standard size card | 2x2 802.11b/g/n 2.4GHz Mini PCIe card |

## Packaging Information

| Packaging Type | Dimensions | Weight | Dimensional Weight |
|---|---|---|---|
| Carton Box (250 units) | 422 x 410 x 240 mm | 4.59 kg | 8.5 kg |

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