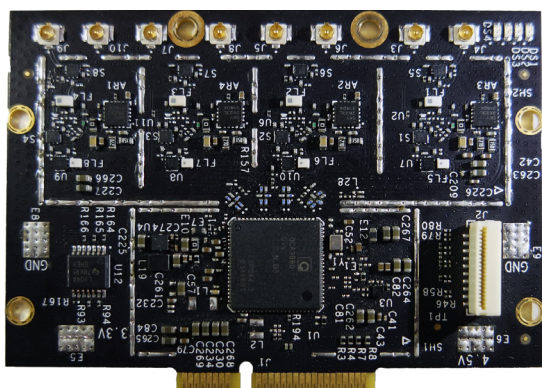# Single Band 2.4GHz 4x4 MU-MIMO 802.11n MiniPCI-e Module
Designed for High Bandwidth Enterprise Wireless Access Points

Model: WLE1200V2-22

KEY FEATURES

- Qualcomm Atheros QCA9980
- CUS260 Reference Design
- 2.4GHz max 22dBm output power (per chain)
- IEEE 802.11n compliant & backward compatible with 802.11b/g
- 4x4 MU-MIMO Technology, up to 600Mbps
- MiniPCI Express 2.0 interface
- Multi-user MIMO (MU-MIMO) beamformer
- Supports Spatial Multiplexing, Cyclic-Delay Diversity (CDD), Low-Density Parity Check (LDPC) Codes, Maximal Ratio Combining (MRC), Space Time Block Code (STBC)
- Supports IEEE 802.11d, e, h, i, k, r, v time stamp, and w standard
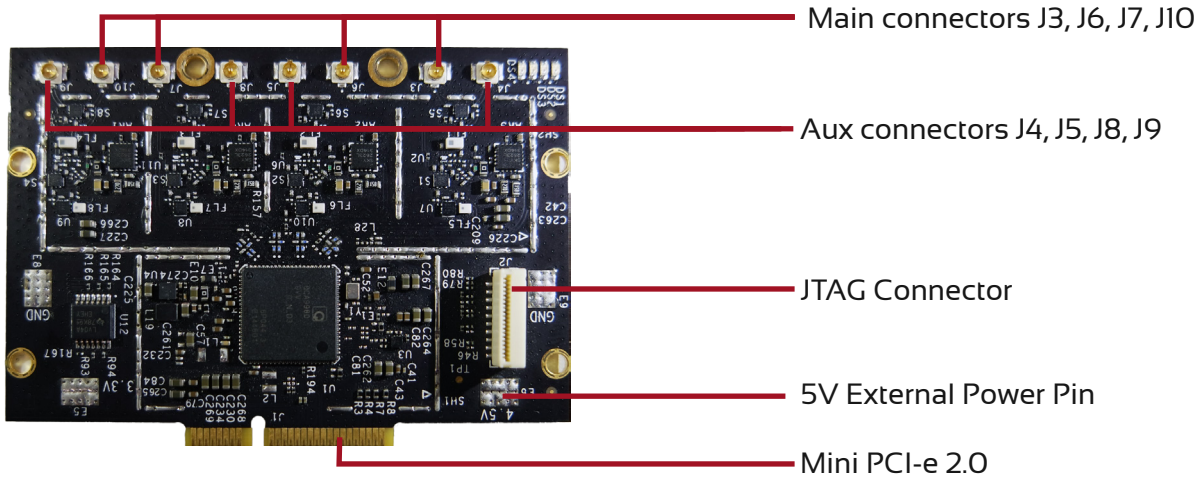- Cards are individually calibrated for Quality Assurance

Specifications

Chipset	QCA9980
Host Interface	MiniPCI-Express 2.0 Standard
Operating Voltage	5V (from PCIe slot or external 5V pin)
Antenna Connector	8x U.FL
Frequency Range	2.412 ~ 2.472 GHz
Power Consumption	15W (Max)
Supported Operating System	CompexWRT or OpenWRT/LEDE
Modulation Techniques	OFDM: BPSK, QPSK, 16-QAM, 64-QAM DSSS: DBPSK, DQPSK, CCK
Temperature Range	Operating: -20ºC to 70ºC Storage: -40ºC to 90ºC
Humidity	Operating: 5% to 95% (non-condensing) Storage: Max. 90% (non-condensing)
Dimensions (W x H x D)	70.3 x 51.0 x 5.5 mm

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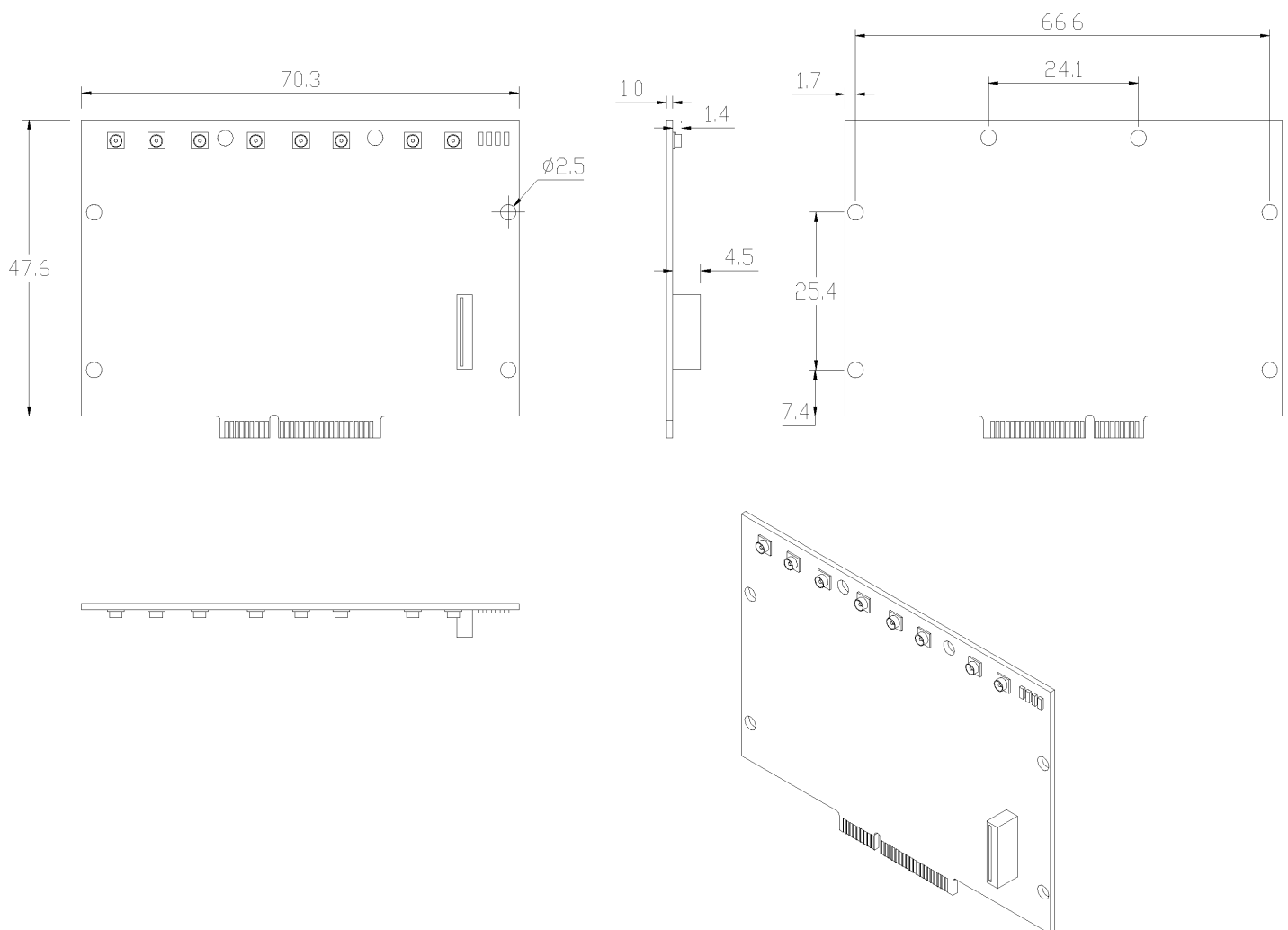
RF Performance Table

Data Rate		TX Power (per chain)	TX Power (4 chains)	Tolerance
2.4GHz 802.11b	1Mbps	22dBm	28dBm	±2dB
	2Mbps	22dBm	28dBm	±2dB
	5.5Mbps	22dBm	28dBm	±2dB
	11Mbps	22dBm	28dBm	±2dB
2.4GHz 802.11g	6Mbps	22dBm	28dBm	±2dB
	9Mbps	22dBm	28dBm	±2dB
	12Mbps	22dBm	28dBm	±2dB
	18Mbps	22dBm	28dBm	±2dB
	24Mbps	22dBm	28dBm	±2dB
	36Mbps	21dBm	27dBm	±2dB
	48Mbps	20dBm	26dBm	±2dB
	54Mbps	20dBm	26dBm	±2dB
2.4GHz 802.11n 20MHz	MCS 0	22dBm	28dBm	±2dB
	MCS 1	22dBm	28dBm	±2dB
	MCS 2	22dBm	28dBm	±2dB
	MCS 3	22dBm	28dBm	±2dB
	MCS 4	21dBm	27dBm	±2dB
	MCS 5	21dBm	27dBm	±2dB
	MCS 6	20dBm	26dBm	±2dB
	MCS 7	19dBm	25dBm	±2dB
	MCS 8	15dBm	21dBm	±2dB
2.4GHz 802.11n 40MHz	MCS 0	22dBm	28dBm	±2dB
	MCS 1	22dBm	28dBm	±2dB
	MCS 2	22dBm	28dBm	±2dB
	MCS 3	22dBm	28dBm	±2dB
	MCS 4	21dBm	27dBm	±2dB
	MCS 5	21dBm	27dBm	±2dB
	MCS 6	20dBm	26dBm	±2dB
	MCS 7	19dBm	25dBm	±2dB
	MCS 8	15dBm	21dBm	±2dB
	MCS 9	15dBm	21dBm	±2dB

Data Rate		RX Specifications Sensitivity	Tolerance
2.4GHz 802.11b	1Mbps	-95dBm	±2dB
	2Mbps	-93dBm	±2dB
	5.5Mbps	-90dBm	±2dB
	11Mbps	-88dBm	±2dB
2.4GHz 802.11g	6Mbps	-94dBm	±2dB
	9Mbps	-94dBm	±2dB
	12Mbps	-93dBm	±2dB
	18Mbps	-93dBm	±2dB
	24Mbps	-90dBm	±2dB
	36Mbps	-86dBm	±2dB
	48Mbps	-82dBm	±2dB
	54Mbps	-79dBm	±2dB
2.4GHz 802.11n 20MHz	MCS 0	-94dBm	±2dB
	MCS 1	-94dBm	±2dB
	MCS 2	-92dBm	±2dB
	MCS 3	-88dBm	±2dB
	MCS 4	-84dBm	±2dB
	MCS 5	-81dBm	±2dB
	MCS 6	-78dBm	±2dB
	MCS 6	-75dBm	±2dB
	MCS 7	-70dBm	±2dB
2.4GHz 802.11n 40MHz	MCS 0	-93dBm	±2dB
	MCS 1	-91dBm	±2dB
	MCS 2	-90dBm	±2dB
	MCS 3	-85dBm	±2dB
	MCS 4	-82dBm	±2dB
	MCS 5	-78dBm	±2dB
	MCS 6	-75dBm	±2dB
	MCS 7	-72dBm	±2dB
	MCS 8	-67dBm	±2dB
	MCS 9	-63dBm	±2dB

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Feature Guide

Main connectors J3, J6, J7, J10

Aux connectors J4, J5, J8, J9

JTAG Connector

5V External Power Pin

Mini PCI-e 2.0

Mechanical Dimensions

70.3

47.6

Ø2.5

1.0

1.4

4.5

66.6

24.1

1.7

25.4

7.4

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Packaging Content

Item	Quantity
WLE1200V2-22 Wireless Module	1

Ordering Configuration

Item Code	Chipset	Form factor	Card Information
WLE1200V2-CUS260-8A-TE	Atheros 9980	Wide size	4x4 11n 2.4GHz miniPCIe Radio

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