Single Band 2.4GHz 4x4 802.11ac Wave 2 MiniPCIe WiFi Module

Designed for High Bandwidth Enterprise Wireless Access Points

Model: WLE1216V2-20

KEY FEATURES

- Qualcomm Atheros QCA9984
- 2.4GHz, 4x4 MU-MIMO OFDM Technology, up to 800Mbps physical data rate
- Single Band 2.4GHz 4x4 WiFi 5 (802.11ac Wave 2)
- MiniPCIe interface with PCIe 2.0
- Heat sink allows free air operation
- 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, j, k, r, u, v time stamp, w , and z standards

Specifications

Chipset	Qualcomm Atheros QCA9984 'Cascade' Series
System Memory	256Kbit serial I²C bus EEPROM
Reference Design	Qualcomm Atheros CUS260
Host Interface	MiniPCIe interface with PCIe 2.0
Operating Voltage	3.3V
Power Consumption	6.68W (Max)
Wireless	2.4GHz 802.11b/g/n/ac, max 20dBm per chain 4x U.FL Connectors
Frequency Range	2.412~2.472 GHz
Modulation Techniques	CCK, OFDM: BPSK, QPSK, 16-QAM, 64-QAM
Channel Spectrum Widths for WLAN	Supports 20/40MHz at 2.4GHz
ESD Sensitivity	Class 1B
Supported Operating System	CompexWRT or OpenWRT/LEDE
Certificate	FCC, IC & CE RED Certified, REACH amd RoHS Compliance
Environmental Temperature	Operating: -20ºC to 70ºC, Storage: -40ºC to 90ºC
Environmental Humidity, Non-Condensing	Operating: 5% to 95%, Storage: Max. 90%
Dimensions (W x H x D) in mm	29.9 x 50.8 x 12.9

**Configurations are subject to change without notifications.*

RF Performance Table for 2.4GHz

	Data Rate	TX Power (per chain)	TX Power (4 chains)	Tolerance
2.4GHz 802.11b	1Mbps	20dBm	26dBm	±2dB
	2Mbps	20dBm	26dBm	±2dB
	5.5Mbps	20dBm	26dBm	±2dB
	11Mbps	20dBm	26dBm	±2dB
2.4GHz 802.11g	6Mbps	20dBm	26dBm	±2dB
	9Mbps	20dBm	26dBm	±2dB
	12Mbps	20dBm	26dBm	±2dB
	18Mbps	20dBm	26dBm	±2dB
	24Mbps	19dBm	25dBm	±2dB
	36Mbps	19dBm	25dBm	±2dB
	48Mbps	18dBm	24dBm	±2dB
	54Mbps	17dBm	23dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	20dBm	26dBm	±2dB
	MCS 1	20dBm	26dBm	±2dB
	MCS 2	20dBm	26dBm	±2dB
	MCS 3	20dBm	26dBm	±2dB
	MCS 4	19dBm	25dBm	±2dB
	MCS 5	18dBm	24dBm	±2dB
	MCS 6	17dBm	23dBm	±2dB
	MCS 7	16dBm	22dBm	±2dB
	MCS 8	15dBm	21dBm	±2dB
2.4GHz 802.11n/ac HT40	MCS 0	20dBm	26dBm	±2dB
	MCS 1	20dBm	26dBm	±2dB
	MCS 2	20dBm	26dBm	±2dB
	MCS 3	20dBm	26dBm	±2dB
	MCS 4	19dBm	25dBm	±2dB
	MCS 5	18dBm	24dBm	±2dB
	MCS 6	17dBm	23dBm	±2dB
	MCS 7	16dBm	22dBm	±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	-91dBm	±2dB
	11Mbps	-89dBm	±2dB
2.4GHz 802.11g	6Mbps	-93dBm	±2dB
	9Mbps	-90dBm	±2dB
	12Mbps	-88dBm	±2dB
	18Mbps	-85dBm	±2dB
	24Mbps	-83dBm	±2dB
	36Mbps	-80dBm	±2dB
	48Mbps	-77dBm	±2dB
	54Mbps	-73dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	-93dBm	±2dB
	MCS 1	-90dBm	±2dB
	MCS 2	-87dBm	±2dB
	MCS 3	-85dBm	±2dB
	MCS 4	-81dBm	±2dB
	MCS 5	-78dBm	±2dB
	MCS 6	-76dBm	±2dB
	MCS 7	-73dBm	±2dB
	MCS 8	-69dBm	±2dB
2.4GHz 802.11n/ac HT40	MCS 0	-92dBm	±2dB
	MCS 1	-89dBm	±2dB
	MCS 2	-86dBm	±2dB
	MCS 3	-82dBm	±2dB
	MCS 4	-78dBm	±2dB
	MCS 5	-73dBm	±2dB
	MCS 6	-72dBm	±2dB
	MCS 7	-70dBm	±2dB
	MCS 8	-68dBm	±2dB
	MCS 9	-65dBm	±2dB

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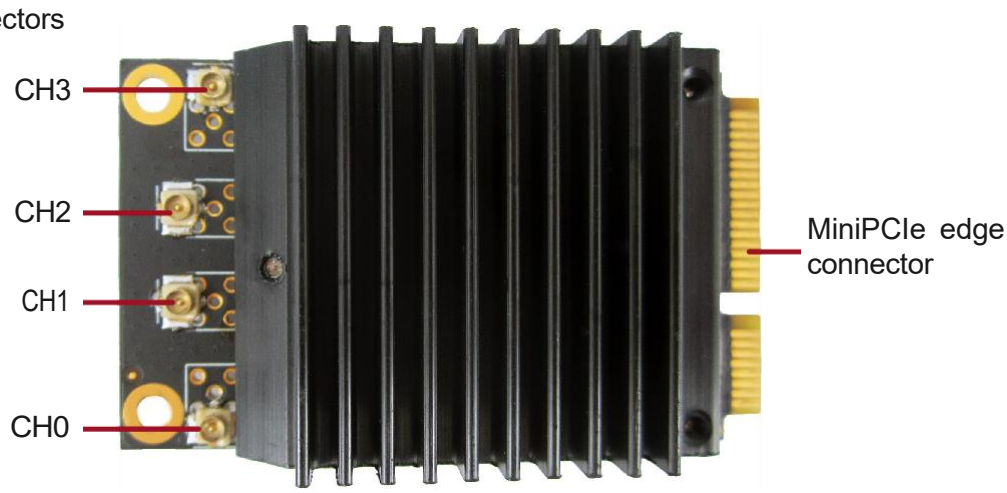
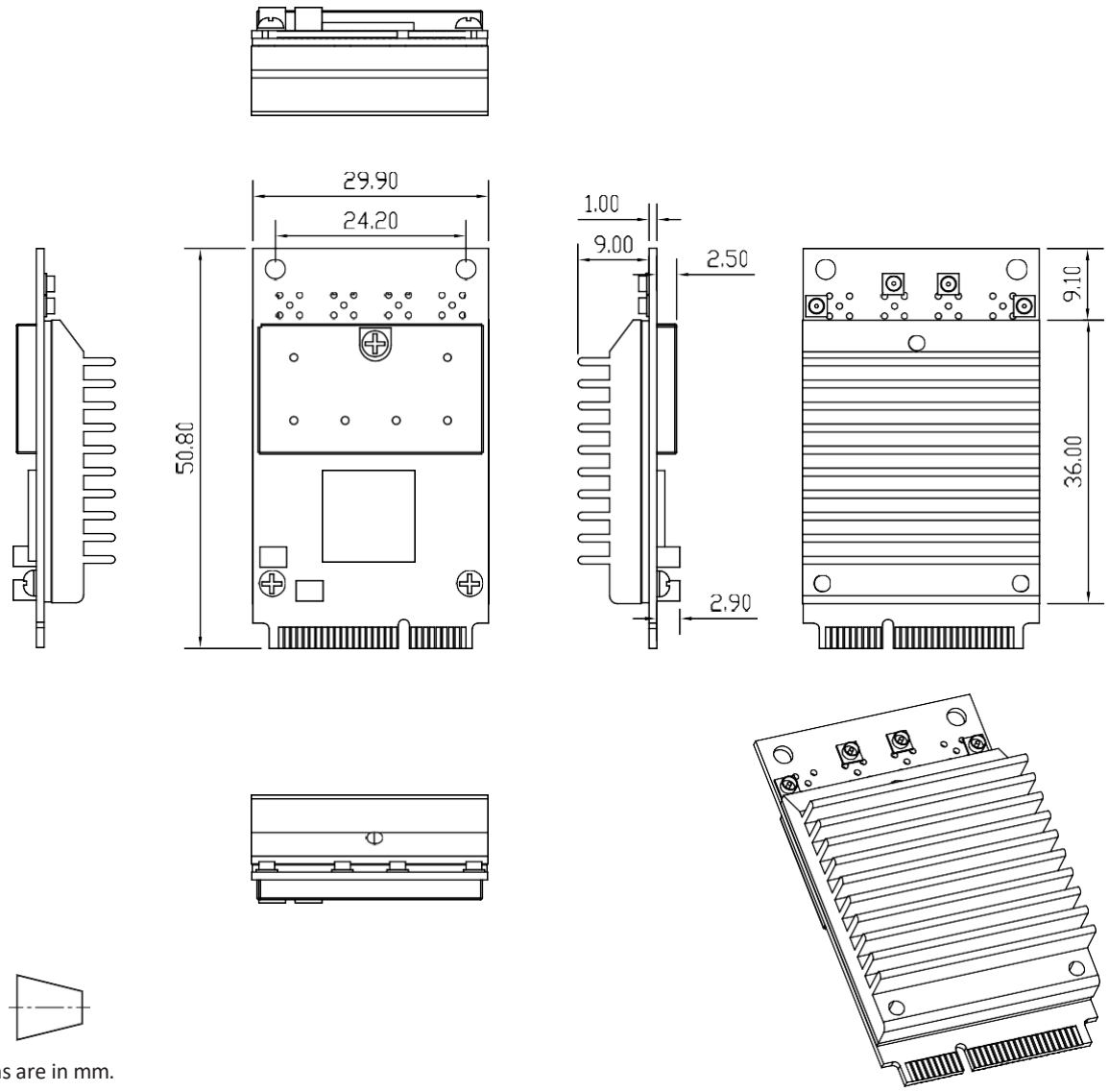
Component Map



Mechanical Dimensions



All dimensions are in mm.

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Packaging Content

Item	Quantity
WLE1216V2-20 Wireless Module	1

Ordering Configuration

Item Code	Chipset	Form Factor	Card Information
WLE1216V2-20 7A00001.02-2	QCA9984	Standard size card	4x4 802.11b/g/n/ac 2.4GHz

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