

Dual Band 4x4 802.11ac Wave 2 Mini PCIe WiFi Module

Model: WLE1216VX-I



KEY FEATURES

- Qualcomm Atheros 'Cascade' QCA9994
- 2.4GHz max 20dBm output power (per chain)
- 5GHz max 19dBm output power (per chain)
- Heat sink allows free air operation
- 2.4GHz 4x4 MU-MIMO Technology, up to 800Mbps
- 5GHz 4x4 MU-MIMO Technology, up to 1733Mbps
- Multi-user MIMO (MU-MIMO) beamformer
- Mini PCI Express 2.0 interface
- Supports IEEE 802.11d, e, h, i, j, k, r, u, v time stamp, w, and z standards
- Supports Dynamic Frequency Selection (DFS)
- Designed for High Bandwidth Enterprise Wireless Access Points

Specifications

Chipset	QCA9994
System Memory	256Kbit serial I ² C bus EEPROM
Power Consumption	9W (Max)
Supported Operating System	CompexWRT or OpenWRT/ LEDE
Antenna Cable/ Port	4x U.FL Connectors, 4T4R
Operating Voltage	3.3V
Frequency Range	2.412 ~ 2.472GHz, 5.150 ~ 5.825GHz
Modulation Techniques	CCK, OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
Certification	REACH & RoHS Compliance
Humidity	Operating: 5% to 95% (non-condensing) Storage: Max. 90% (non-condensing)
Temperature Range	Operating: -40°C to 85°C Storage: -40°C to 90°C
Dimension (W x H x D) (in mm)	29.9 x 50.8 x 12.9

RF Performance Table

	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	18dBm	24dBm	±2dB
	48Mbps	17dBm	23dBm	±2dB
	54Mbps	16dBm	22dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	20dBm	26dBm	±2dB
	MCS 1	20dBm	26dBm	±2dB
	MCS 2	20dBm	26dBm	±2dB
	MCS 3	19dBm	25dBm	±2dB
	MCS 4	18dBm	24dBm	±2dB
	MCS 5	17dBm	23dBm	±2dB
	MCS 6	16dBm	22dBm	±2dB
	MCS 7	15dBm	21dBm	±2dB
2.4GHz 802.11n/ac HT40	MCS 8	14dBm	20dBm	±2dB
	MCS 0	20dBm	26dBm	±2dB
	MCS 1	20dBm	26dBm	±2dB
	MCS 2	20dBm	26dBm	±2dB
	MCS 3	19dBm	25dBm	±2dB
	MCS 4	18dBm	24dBm	±2dB
	MCS 5	17dBm	23dBm	±2dB
	MCS 6	16dBm	22dBm	±2dB
	MCS 7	15dBm	21dBm	±2dB
	MCS 8	14dBm	20dBm	±2dB
	MCS 9	13dBm	19dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11b	1Mbps	-96	±2dB
	2Mbps	-93	±2dB
	5.5Mbps	-90	±2dB
	11Mbps	-86	±2dB
2.4GHz 802.11g	6Mbps	-90	±2dB
	9Mbps	-88	±2dB
	12Mbps	-86	±2dB
	18Mbps	-84	±2dB
	24Mbps	-81	±2dB
	36Mbps	-78	±2dB
	48Mbps	-76	±2dB
	54Mbps	-73	±2dB
2.4GHz 802.11n HT20	MCS 0	-89	±2dB
	MCS 1	-87	±2dB
	MCS 2	-84	±2dB
	MCS 3	-81	±2dB
	MCS 4	-78	±2dB
	MCS 5	-75	±2dB
	MCS 6	-72	±2dB
	MCS 7	-69	±2dB
2.4GHz 802.11n/ac HT40	MCS 8	-66	±2dB
	MCS 0	-87	±2dB
	MCS 1	-85	±2dB
	MCS 2	-82	±2dB
	MCS 3	-79	±2dB
	MCS 4	-76	±2dB
	MCS 5	-74	±2dB
	MCS 6	-71	±2dB
	MCS 7	-68	±2dB
	MCS 8	-65	±2dB
	MCS 9	-62	±2dB

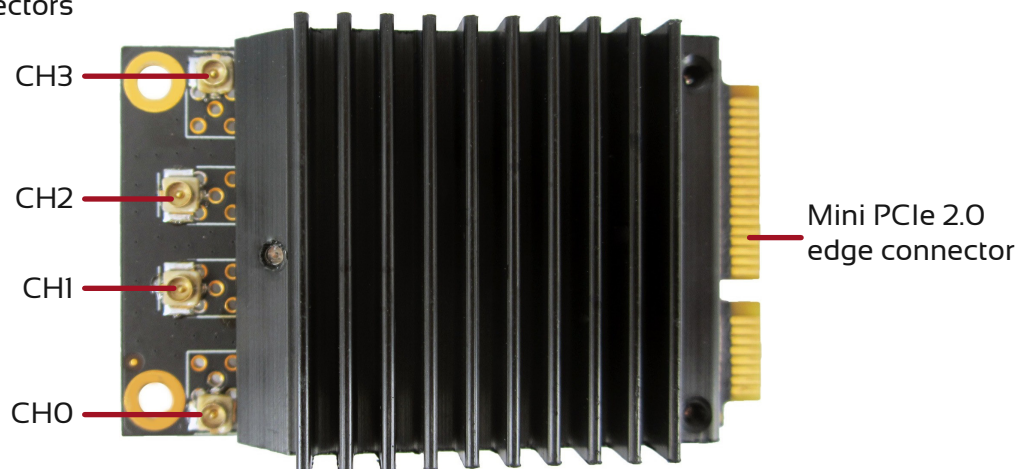
RF Performance Table

	Data Rate	TX Power (per chain)	TX Power (4 chains)	Tolerance
5GHz 802.11a	6Mbps	19dBm	25dBm	±2dB
	9Mbps	19dBm	25dBm	±2dB
	12Mbps	19dBm	25dBm	±2dB
	18Mbps	19dBm	25dBm	±2dB
	24Mbps	18dBm	24dBm	±2dB
	36Mbps	17dBm	23dBm	±2dB
	48Mbps	16dBm	22dBm	±2dB
	54Mbps	15dBm	21dBm	±2dB
5GHz 802.11n/ac VHT20	MCS 0	19dBm	25dBm	±2dB
	MCS 1	19dBm	25dBm	±2dB
	MCS 2	19dBm	25dBm	±2dB
	MCS 3	18dBm	24dBm	±2dB
	MCS 4	17dBm	23dBm	±2dB
	MCS 5	16dBm	22dBm	±2dB
	MCS 6	15dBm	21dBm	±2dB
	MCS 7	14dBm	20dBm	±2dB
	MCS 8	13dBm	19dBm	±2dB
5GHz 802.11n/ac VHT40	MCS 0	19dBm	25dBm	±2dB
	MCS 1	19dBm	25dBm	±2dB
	MCS 2	19dBm	25dBm	±2dB
	MCS 3	18dBm	24dBm	±2dB
	MCS 4	17dBm	23dBm	±2dB
	MCS 5	16dBm	22dBm	±2dB
	MCS 6	16dBm	22dBm	±2dB
	MCS 7	15dBm	21dBm	±2dB
	MCS 8	13dBm	19dBm	±2dB
	MCS 9	12dBm	18dBm	±2dB
5GHz 802.11ac VHT80	MCS 0	18dBm	24dBm	±2dB
	MCS 1	18dBm	24dBm	±2dB
	MCS 2	18dBm	24dBm	±2dB
	MCS 3	18dBm	24dBm	±2dB
	MCS 4	17dBm	23dBm	±2dB
	MCS 5	16dBm	22dBm	±2dB
	MCS 6	16dBm	22dBm	±2dB
	MCS 7	15dBm	21dBm	±2dB
	MCS 8	13dBm	19dBm	±2dB
	MCS 9	12dBm	18dBm	±2dB

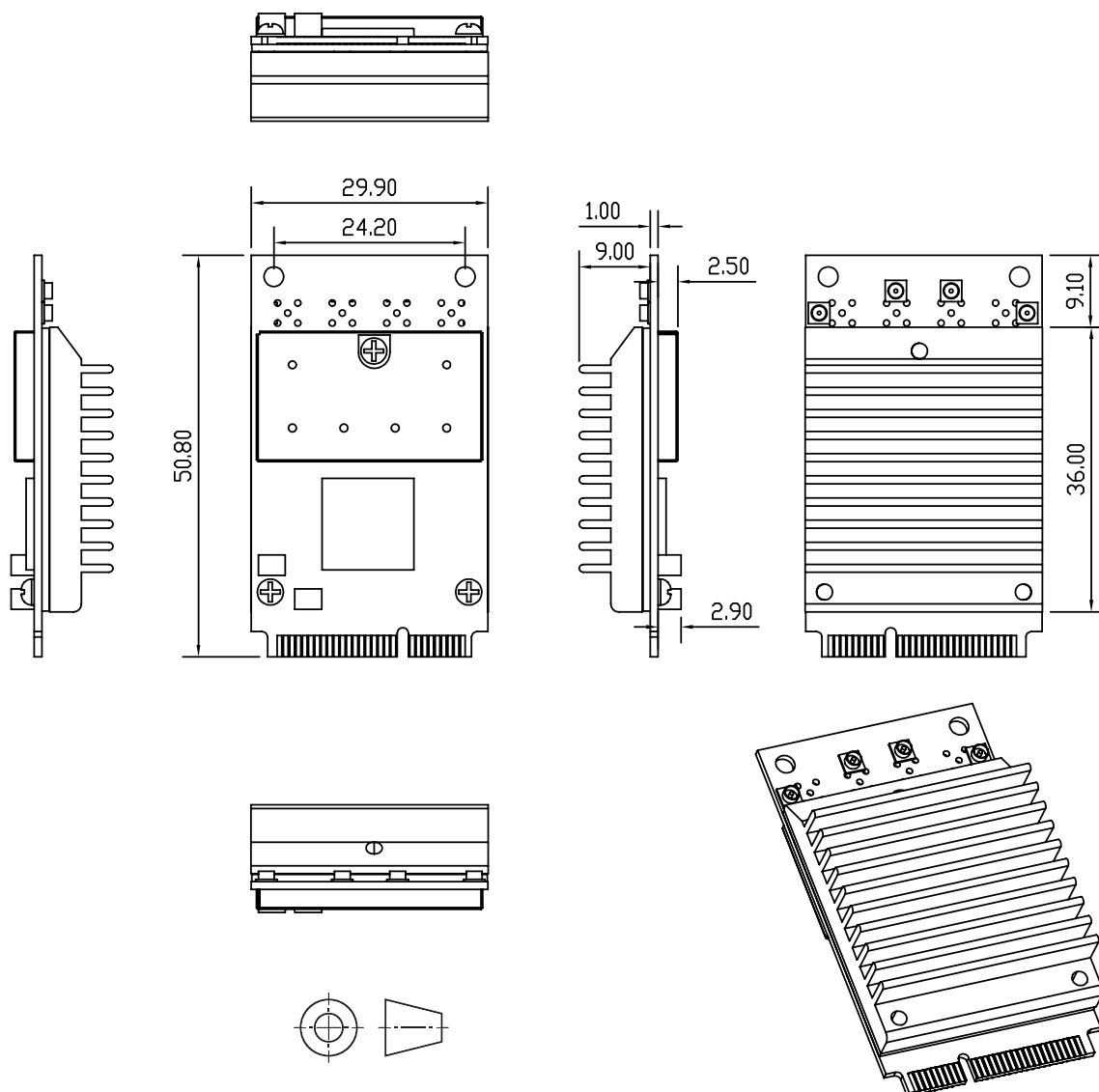
	Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11a	6Mbps	-91	±2dB
	9Mbps	-89	±2dB
	12Mbps	-87	±2dB
	18Mbps	-85	±2dB
	24Mbps	-83	±2dB
	36Mbps	-80	±2dB
	48Mbps	-77	±2dB
	54Mbps	-74	±2dB
5GHz 802.11n/ac VHT20	MCS 0	-90	±2dB
	MCS 1	-88	±2dB
	MCS 2	-86	±2dB
	MCS 3	-84	±2dB
	MCS 4	-81	±2dB
	MCS 5	-79	±2dB
	MCS 6	-77	±2dB
	MCS 7	-74	±2dB
	MCS 8	-71	±2dB
5GHz 802.11n/ac VHT40	MCS 0	-89	±2dB
	MCS 1	-87	±2dB
	MCS 2	-85	±2dB
	MCS 3	-82	±2dB
	MCS 4	-80	±2dB
	MCS 5	-77	±2dB
	MCS 6	-74	±2dB
	MCS 7	-71	±2dB
	MCS 8	-68	±2dB
	MCS 9	-65	±2dB
5GHz 802.11ac VHT80	MCS 0	-85	±2dB
	MCS 1	-83	±2dB
	MCS 2	-81	±2dB
	MCS 3	-78	±2dB
	MCS 4	-75	±2dB
	MCS 5	-73	±2dB
	MCS 6	-70	±2dB
	MCS 7	-67	±2dB
	MCS 8	-64	±2dB
	MCS 9	-61	±2dB

Feature Guide

U.FL connectors



Mechanical Dimensions



Ordering Configuration

Item Code	Model	Description
WLE1216VX 7B0000-TE	WLE1216VX I-Temp	4x4 802.11 a/b/g/n/ac Dual Band Wave 2 miniPCle Card with flat heatsink industrial chip
WLE1216VX 7B0000-ZT-TE	WLE1216VX I-Temp	4x4 802.11 a/b/g/n/ac Dual Band Wave 2 miniPCle Card with 8mm thickness flat heatsink industrial chip