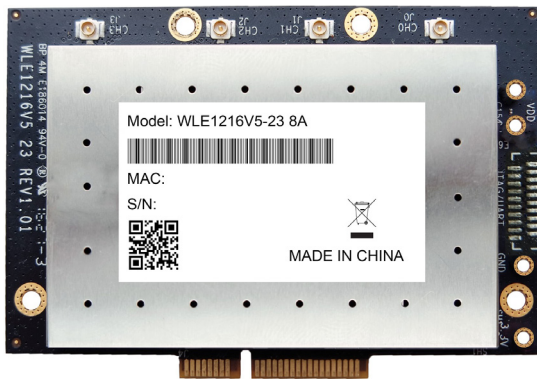


4x4 Wave-2 802.11ac/a/n Mini PCIe WiFi Module With 80+80MHz bandwidth support

Model: WLE1216V5-23



KEY FEATURES

- Qualcomm Atheros 'Cascade' QCA9984
- CUS239 Reference Design
- 5GHz max 23dBm output power (per chain)
- IEEE 802.11ac compliant & backward compatible with 802.11a/n, up to 1.73Gbps
- 2 spatial streams (2SS) MIMO 160MHz and 80+80MHz bandwidth support
- 4 spatial streams (4SS) Multi-user MIMO (MU-MIMO)
- 802.11ac explicit transmit beamforming (TxBF) and legacy implicit TxBF for both beamformer and beamformee
- MiniPCI Express 2.0 interface
- 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
- Supports Dynamic Frequency Selection (DFS)
- Designed for High Bandwidth Enterprise Wireless Access Points

Specifications

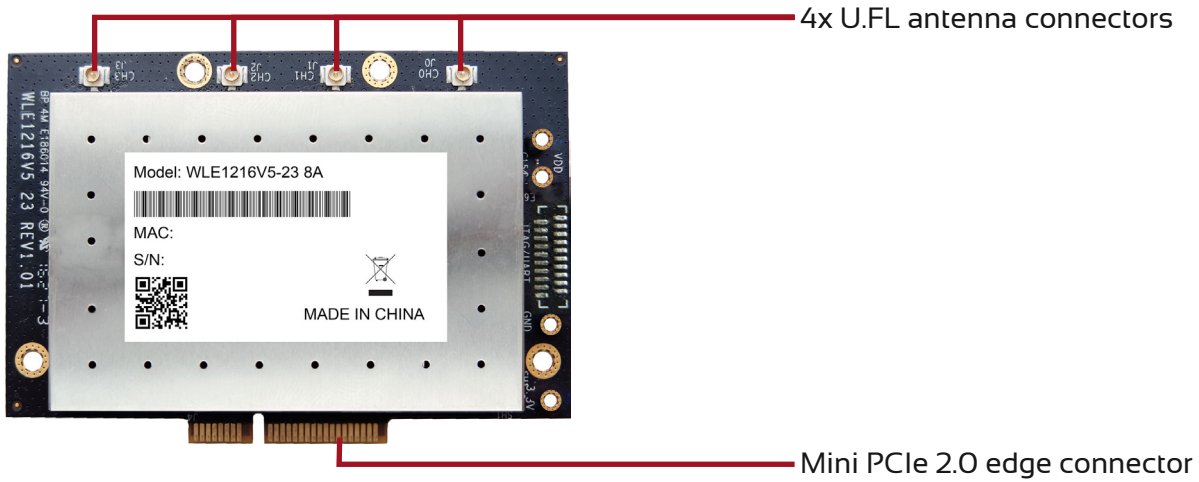
Chipset	QCA9984
Host Interface	MiniPCI-Express 2.0 Standard
Operating Voltage	5V
Antenna Connector	4x U.FL
Frequency Range	5.180 ~ 5.825 GHz
Power Consumption	13W (Max)
Supported Operating System	Supported by CompexWRT (v3.x and above) with Qualcomm Atheros reference wireless drivers; on WPJ558, WPJ563, and WPJ564: throughput up to 800Mbps; on WPQ864 and WPQ865: throughput up to 1300Mbps; or OpenWRT/LEDE with ath10k wireless drivers.
Modulation Techniques	OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
Certification	RoHS Compliant
Environmental Temperature	Operating: -20°C to 70°C Storage: -40°C to 90°C
Environmental Humidity, non-considering	Operating: 5% to 95% (non-condensing) Storage: Max. 90% (non-condensing)
ESD Sensitivity	Class 1C
Dimensions (W x H x D) in mm	73.7 x 50.3 x 5.5

RF Performance Table

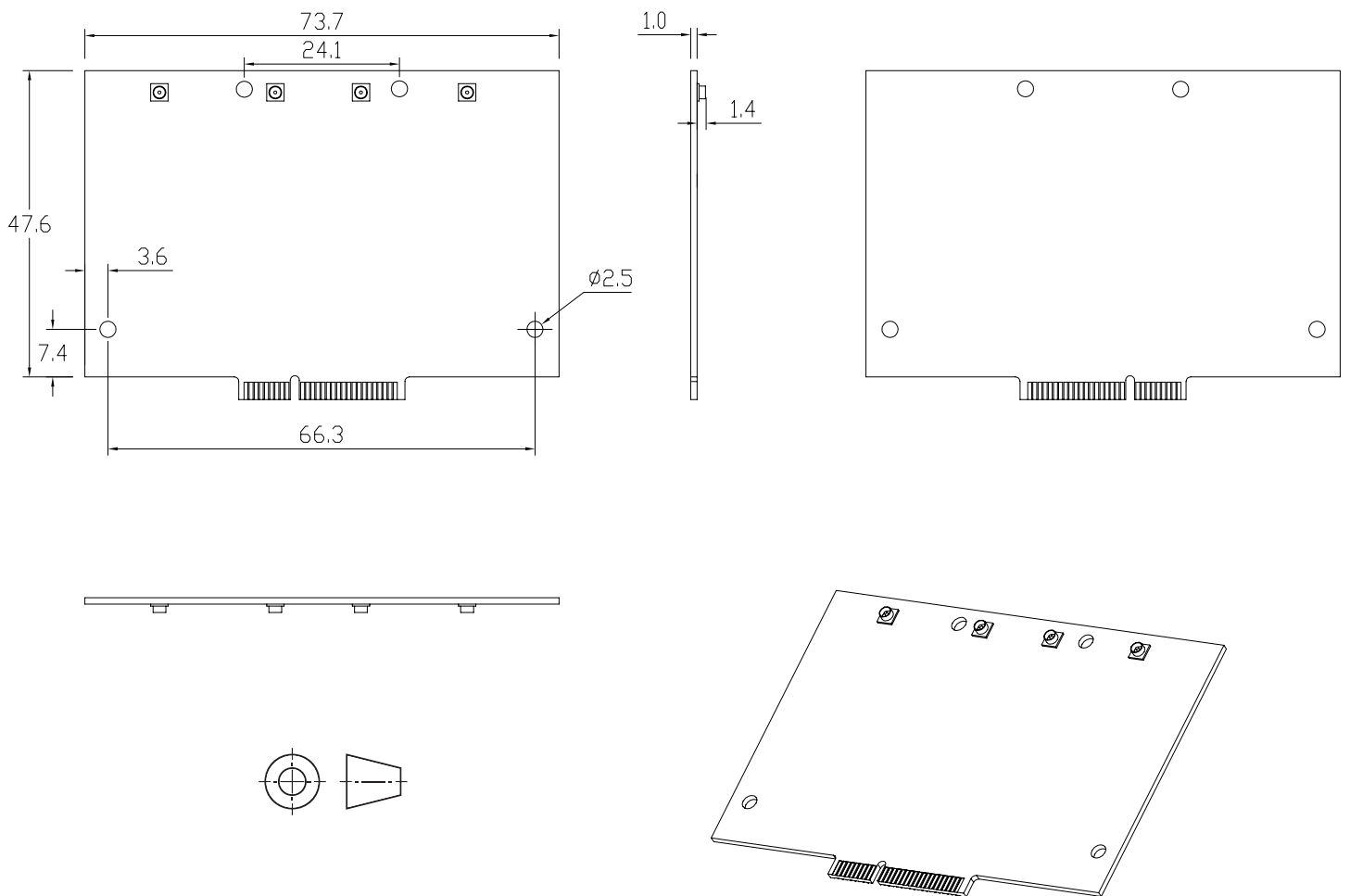
	Data Rate	TX Power (per chain)	TX Power (4 chains)	Tolerance
5GHz 802.11a	6Mbps	23dBm	29dBm	±2dB
	9Mbps	23dBm	29dBm	±2dB
	12Mbps	23dBm	29dBm	±2dB
	18Mbps	23dBm	29dBm	±2dB
	24Mbps	23dBm	29dBm	±2dB
	36Mbps	23dBm	29dBm	±2dB
	48Mbps	23dBm	29dBm	±2dB
	54Mbps	22dBm	28dBm	±2dB
5GHz 802.11n/ac VHT20	MCS 0	23dBm	29dBm	±2dB
	MCS 1	23dBm	29dBm	±2dB
	MCS 2	23dBm	29dBm	±2dB
	MCS 3	23dBm	29dBm	±2dB
	MCS 4	23dBm	29dBm	±2dB
	MCS 5	23dBm	29dBm	±2dB
	MCS 6	22dBm	28dBm	±2dB
	MCS 7	21dBm	27dBm	±2dB
	MCS 8	20dBm	26dBm	±2dB
5GHz 802.11n/ac VHT40	MCS 0	23dBm	29dBm	±2dB
	MCS 1	23dBm	29dBm	±2dB
	MCS 2	23dBm	29dBm	±2dB
	MCS 3	23dBm	29dBm	±2dB
	MCS 4	23dBm	29dBm	±2dB
	MCS 5	23dBm	29dBm	±2dB
	MCS 6	22dBm	28dBm	±2dB
	MCS 7	21dBm	27dBm	±2dB
	MCS 8	20dBm	26dBm	±2dB
5GHz 802.11ac VHT80	MCS 0	23dBm	29dBm	±2dB
	MCS 1	23dBm	29dBm	±2dB
	MCS 2	23dBm	29dBm	±2dB
	MCS 3	23dBm	29dBm	±2dB
	MCS 4	23dBm	29dBm	±2dB
	MCS 5	23dBm	29dBm	±2dB
	MCS 6	22dBm	28dBm	±2dB
	MCS 7	21dBm	27dBm	±2dB
	MCS 8	20dBm	26dBm	±2dB
5GHz 802.11ac VHT160	MCS 0	23dBm	29dBm	±2dB
	MCS 1	23dBm	29dBm	±2dB
	MCS 2	23dBm	29dBm	±2dB
	MCS 3	23dBm	29dBm	±2dB
	MCS 4	23dBm	29dBm	±2dB
	MCS 5	23dBm	29dBm	±2dB
	MCS 6	22dBm	28dBm	±2dB
	MCS 7	21dBm	27dBm	±2dB
	MCS 8	20dBm	26dBm	±2dB
MCS 9	20dBm	26dBm	±2dB	

	Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11a	6Mbps	-96dBm	±2dB
	9Mbps	TBA	±2dB
	12Mbps	TBA	±2dB
	18Mbps	TBA	±2dB
	24Mbps	TBA	±2dB
	36Mbps	TBA	±2dB
	48Mbps	TBA	±2dB
	54Mbps	-82dBm	±2dB
	5GHz 802.11n/ac VHT20	MCS 0	-96dBm
MCS 1		TBA	±2dB
MCS 2		TBA	±2dB
MCS 3		TBA	±2dB
MCS 4		TBA	±2dB
MCS 5		TBA	±2dB
MCS 6		TBA	±2dB
MCS 7		-80dBm	±2dB
MCS 8		-76dBm	±2dB
5GHz 802.11n/ac VHT40	MCS 0	-93dBm	±2dB
	MCS 1	TBA	±2dB
	MCS 2	TBA	±2dB
	MCS 3	TBA	±2dB
	MCS 4	TBA	±2dB
	MCS 5	TBA	±2dB
	MCS 6	TBA	±2dB
	MCS 7	-78dBm	±2dB
	MCS 8	TBA	±2dB
5GHz 802.11ac VHT80	MCS 0	-89dBm	±2dB
	MCS 1	TBA	±2dB
	MCS 2	TBA	±2dB
	MCS 3	TBA	±2dB
	MCS 4	TBA	±2dB
	MCS 5	TBA	±2dB
	MCS 6	TBA	±2dB
	MCS 7	-75dBm	±2dB
	MCS 8	TBA	±2dB
MCS 9	-68dBm	±2dB	
5GHz 802.11ac VHT160			

Feature Guide



Mechanical Dimensions



Ordering Configuration

Item Code	Model	Card Information
WLE1216V5-23 8AA0001.02	WLE1216V5-23	4x4 802.11a/n/ac 5GHz miniPCIe card