

Dual Band 5GHz 3x3 MIMO 802.11ac Mini PCIe WiFi Module Designed for Dual Band High Speed Wireless Access Points

Model: WLE900VX-I



KEY FEATURES

- Qualcomm Atheros QCA9890
- XBI40 Reference Design
- 2.4GHz max 21dBm & 5GHz max 20dBm output power (per chain)
- IEEE 802.11ac compliant & backward compatible with 802.11a/b/g/n
- 3x3 MIMO Technology, up to 1.3Gbps
- Mini PCI Express edge connector
- 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 standards
- Supports Dynamic Frequency Selection (DFS)
- Cards are individually calibrated for Quality Assurance
- Supported by either CompexWRT with Atheros Reference Wireless Driver OR OpenWRT with ath10k Wireless Driver on WPJ344

Specifications

Chipset	QCA9890
Host Interface	Mini PCI Express 1.1 Standard
Operating Voltage	3.3V DC
Antenna Connector	3x U.FL
Frequency Range	2.412 ~ 2.472 GHz 5.180 ~ 5.825 GHz
Certification	FCC & CE Certified, RoHS Compliant
Power Consumption	5W (Max)
Modulation Techniques	OFDM: BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM
Temperature Range	Operating: -40°C to 70°C* Storage: -40°C to 90°C
*The wireless module can operate up to 90°C. For long term reliability, it is recommended that a 20°C safety margin be maintained.	
Humidity	Operating: 5% to 95% (non-condensing) Storage: Max. 90% (non-condensing)
Dimensions (H x W x D)	50.95 x 30 x 3.2 mm

RF Performance Table

	Data Rate	TX Power (per chain)	TX Power (3 chains)	Tolerance
2.4GHz 802.11b	1Mbps	20dBm	25dBm	±2dB
	2Mbps	20dBm	25dBm	±2dB
	5.5Mbps	20dBm	25dBm	±2dB
	11Mbps	20dBm	25dBm	±2dB
2.4GHz 802.11g	6Mbps	21dBm	26dBm	±2dB
	9Mbps	21dBm	26dBm	±2dB
	12Mbps	21dBm	26dBm	±2dB
	18Mbps	21dBm	26dBm	±2dB
	24Mbps	21dBm	26dBm	±2dB
	36Mbps	20dBm	25dBm	±2dB
	48Mbps	19dBm	24dBm	±2dB
	54Mbps	18dBm	23dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	21dBm	26dBm	±2dB
	MCS 1	21dBm	26dBm	±2dB
	MCS 2	21dBm	26dBm	±2dB
	MCS 3	20dBm	25dBm	±2dB
	MCS 4	20dBm	25dBm	±2dB
	MCS 5	20dBm	25dBm	±2dB
	MCS 6	18dBm	23dBm	±2dB
	MCS 7	16dBm	21dBm	±2dB
2.4GHz 802.11n HT40	MCS 0	20dBm	25dBm	±2dB
	MCS 1	20dBm	25dBm	±2dB
	MCS 2	20dBm	25dBm	±2dB
	MCS 3	19dBm	24dBm	±2dB
	MCS 4	19dBm	24dBm	±2dB
	MCS 5	19dBm	24dBm	±2dB
	MCS 6	18dBm	23dBm	±2dB
	MCS 7	16dBm	21dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11b	1Mbps	-95dBm	±2dB
	2Mbps	-94dBm	±2dB
	5.5Mbps	-92dBm	±2dB
	11Mbps	-90dBm	±2dB
2.4GHz 802.11g	6Mbps	-94dBm	±2dB
	9Mbps	-93dBm	±2dB
	12Mbps	-93dBm	±2dB
	18Mbps	-90dBm	±2dB
	24Mbps	-90dBm	±2dB
	36Mbps	-85dBm	±2dB
	48Mbps	-82dBm	±2dB
	54Mbps	-80dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	-94dBm	±2dB
	MCS 1	-92dBm	±2dB
	MCS 2	-89dBm	±2dB
	MCS 3	-84dBm	±2dB
	MCS 4	-83dBm	±2dB
	MCS 5	-80dBm	±2dB
	MCS 6	-79dBm	±2dB
	MCS 7	-77dBm	±2dB
2.4GHz 802.11n HT40	MCS 0	-93dBm	±2dB
	MCS 1	-91dBm	±2dB
	MCS 2	-89dBm	±2dB
	MCS 3	-84dBm	±2dB
	MCS 4	-82dBm	±2dB
	MCS 5	-80dBm	±2dB
	MCS 6	-79dBm	±2dB
	MCS 7	-75dBm	±2dB

RF Performance Table

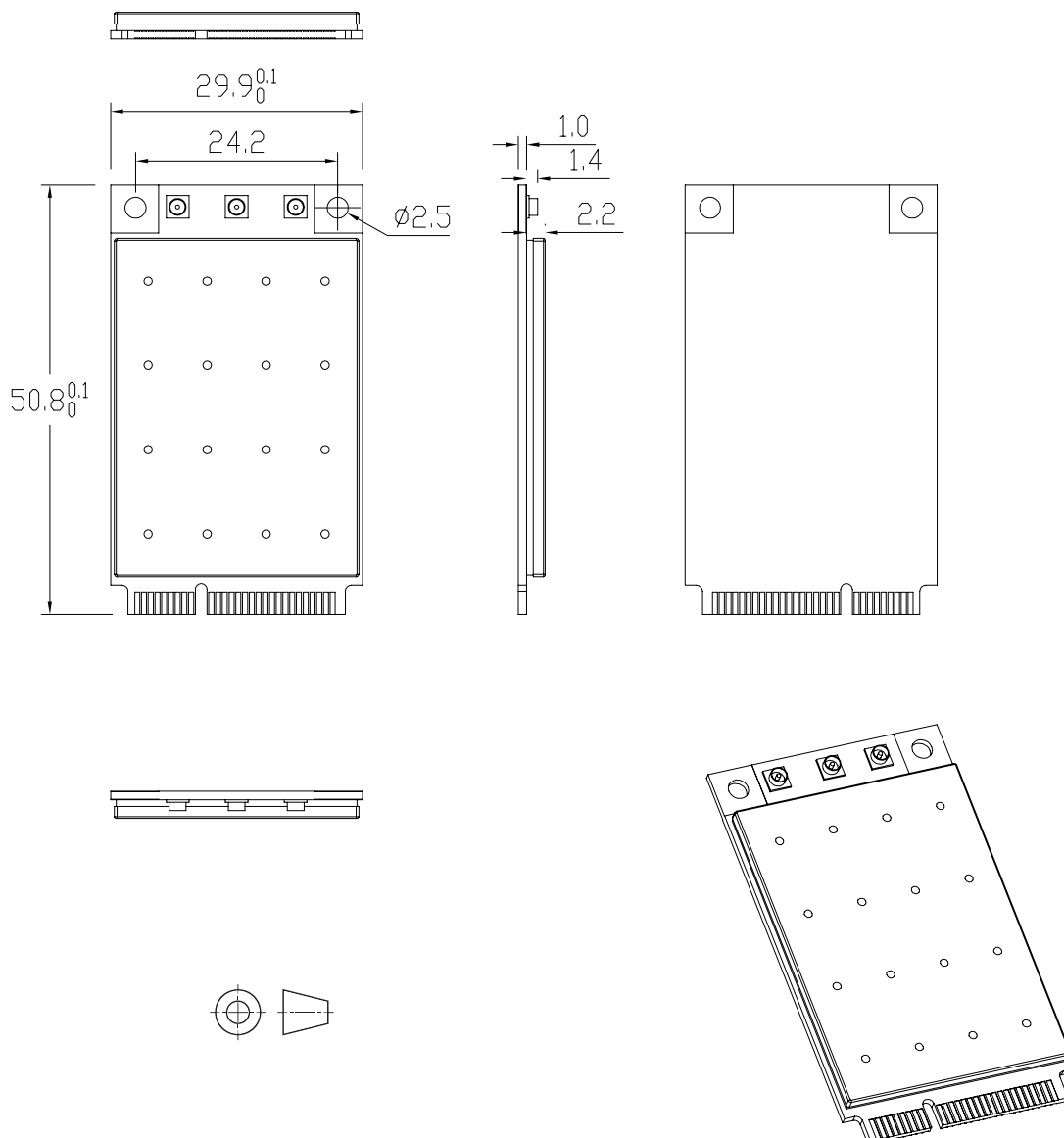
	Data Rate	TX Power (per chain)	TX Power (3 chains)	Tolerance
5GHz 802.11a	6Mbps	20dBm	25dBm	±2dB
	9Mbps	20dBm	25dBm	±2dB
	12Mbps	20dBm	25dBm	±2dB
	18Mbps	20dBm	25dBm	±2dB
	24Mbps	20dBm	25dBm	±2dB
	36Mbps	18dBm	23dBm	±2dB
	48Mbps	16dBm	21dBm	±2dB
	54Mbps	15dBm	20dBm	±2dB
5GHz 802.11n/ac VHT20	MCS 0	19dBm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

	Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11a	6Mbps	-94dBm	±2dB
	9Mbps	-94dBm	±2dB
	12Mbps	-92dBm	±2dB
	18Mbps	-91dBm	±2dB
	24Mbps	-90dBm	±2dB
	36Mbps	-86dBm	±2dB
	48Mbps	-83dBm	±2dB
	54Mbps	-80dBm	±2dB
5GHz 802.11n/ac VHT20	MCS 0	-93dBm	±2dB
	MCS 1	-90dBm	±2dB
	MCS 2	-87dBm	±2dB
	MCS 3	-83dBm	±2dB
	MCS 4	-80dBm	±2dB
	MCS 5	-77dBm	±2dB
	MCS 6	-74dBm	±2dB
	MCS 7	-73dBm	±2dB
5GHz 802.11n/ac VHT40	MCS 8	-71dBm	±2dB
	MCS 0	-90dBm	±2dB
	MCS 1	-88dBm	±2dB
	MCS 2	-85dBm	±2dB
	MCS 3	-82dBm	±2dB
	MCS 4	-80dBm	±2dB
	MCS 5	-75dBm	±2dB
	MCS 6	-73dBm	±2dB
	MCS 7	-73dBm	±2dB
5GHz 802.11ac VHT80	MCS 8	-70dBm	±2dB
	MCS 9	-68dBm	±2dB
	MCS 0	-89dBm	±2dB
	MCS 1	-87dBm	±2dB
	MCS 2	-85dBm	±2dB
	MCS 3	-83dBm	±2dB
	MCS 4	-80dBm	±2dB
	MCS 5	-78dBm	±2dB
	MCS 6	-75dBm	±2dB
MCS 7	-72dBm	±2dB	
MCS 8	-70dBm	±2dB	
MCS 9	-68dBm	±2dB	

Connector Map



Mechanical Dimensions



Packaging Content

Item	Quantity
WLE900VX-I Wireless Module	1

Ordering Configuration

Item Code	Chipset	Form factor	Card Information
WLE900VX 7BA000S-I	Atheros 9890	Full size card	3x3 802.11ac/a/b/g/n 2.4/5GHz

Packaging Information

Packaging Type	Dimensions	Gross Weight	Dimensional Weight
Carton Box (250 units)	422 x 410 x 240 mm	4.63 kg	8.5 kg