

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
- MiniPCI Express 1.1 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, 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	MiniPCI-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

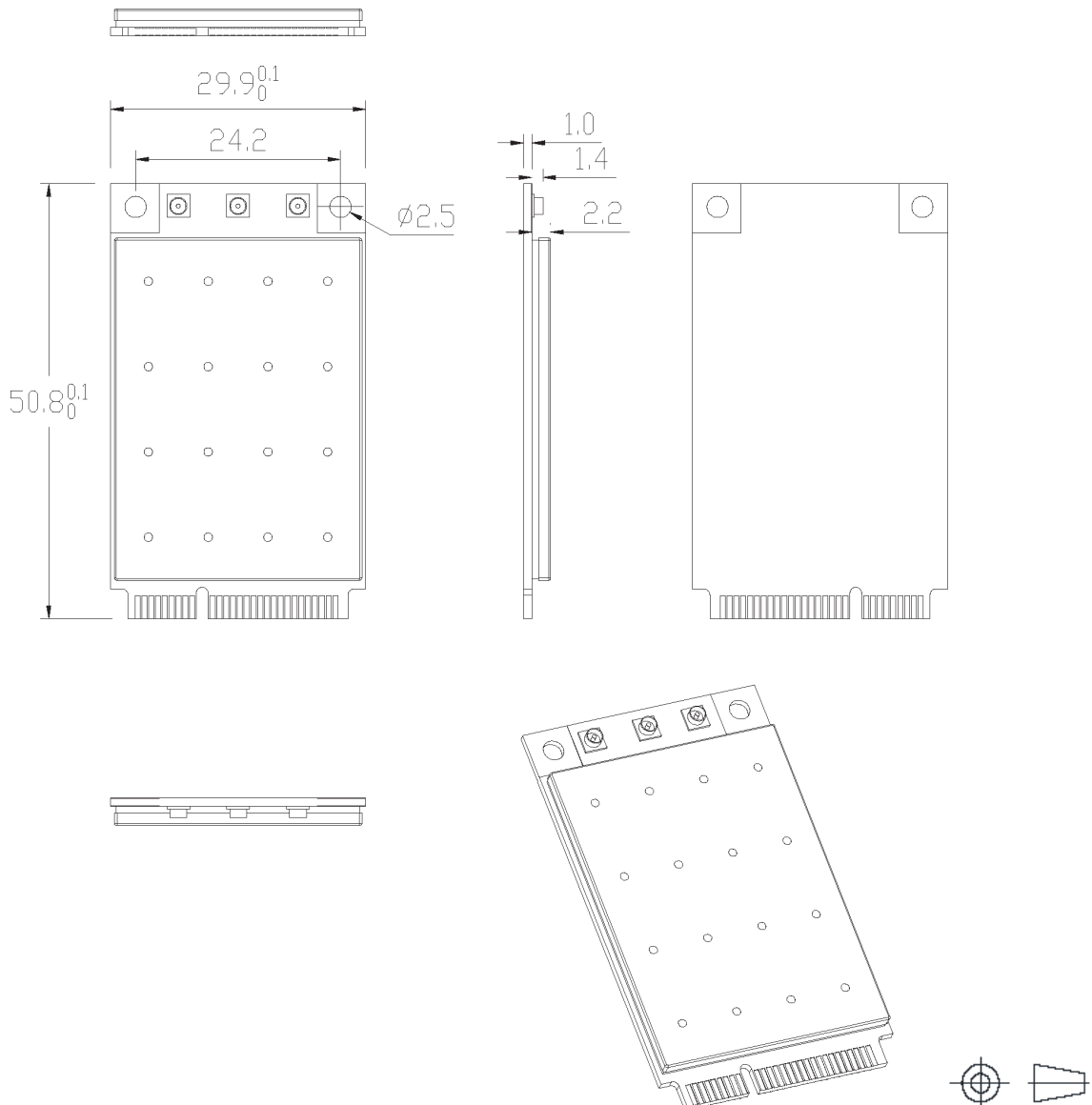
	Data Rate	TX Power (per chain)	TX Power (3 chains)	Tolerance
5GHz 802.11a	6Mbps	20dBm	25dBm	±2dB
	9Mbps	20dBm	25dBm	±2dB
	12Mbps	20dBm	25dBm	±2dB
	18Mbps	20dBm	25dBm	±2dB
	24Mbps	20dBm	25dBm	±2dB
	36Mbps	18dBm	23dBm	±2dB
	48Mbps	16dBm	21dBm	±2dB
	54Mbps	15dBm	20dBm	±2dB
5GHz 802.11n/ac VHT20	MCS 0	19dBm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

	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
MCS 8	-70dBm	±2dB	
5GHz 802.11ac VHT80	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	

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