
# Wireless Module

## Catalogue

COMPEX®

Revision: 231018

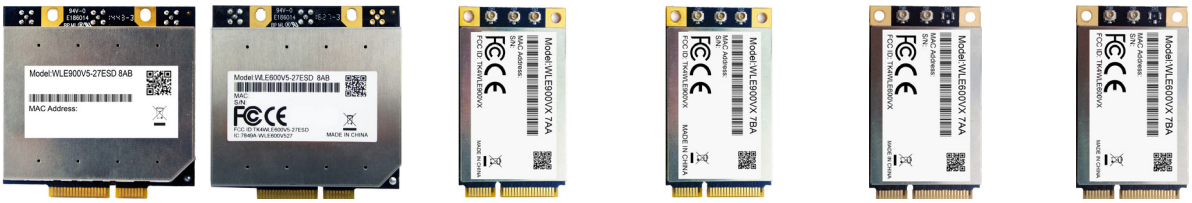
# 802.11ac Wave 2





| HARDWARE SPECIFICATIONS | | | | | |
|---|---|---|---|---|---|
| **TYPE OF CARD** | Wide Size<br>4 x 4 MU-MIMO<br>802.11ac Wave 2 | Standard size<br>4 x 4 MU-MIMO<br>802.11ac Wave 2 | Standard size<br>3 x 3 MU-MIMO<br>802.11ac Wave 2 | Standard size<br>2 x 2 MU-MIMO<br>802.11ac Wave 2 | Standard size<br>2 x 2 MU-MIMO<br>802.11ac Wave 2 |
| **MIMO** | **4 x 4** | **4 x 4** | **3 x 3** | **2 x 2** | **2 x 2** |
| **MODEL** | **WLE1216V5-23** | **WLE1216V5-20** | **WLE1000V5-20** | **WLE650V5-25A** | **WLE650V5-18A** |
| **CHIPSET** | QCA9984 | QCA9984 | QCA9982 | QCA9888 | QCA9888 |
| **STANDARD** | 802.11a/n/ac | 802.11a/n/ac | 802.11a/n/ac | 802.11a/n/ac | 802.11a/n/ac |
| **THEORETICAL RATE** | 1733Mbps | 1733Mbps | 1300Mbps | 867Mbps | 867Mbps |
| **FORM FACTOR** | Wide size | Standard size | Standard size | Standard size | Standard size |
| **SPECTRUM** | 5.180~5.825GHz | 5.180~5.825GHz | 5.180~5.825GHz | 5.180~5.825GHz | 5.180~5.825GHz |
| **REFERENCE DESIGN** | CUS239 | × | × | × | × |
| **HOST INTERFACE** | MiniPCIe 2.0 | MiniPCIe 2.0 | MiniPCIe 2.0 | MiniPCIe 2.0 | MiniPCIe 1.2 |
| **OPERATING VOLTAGE** | 5V DC | 3.3V DC | 3.3V DC | 3.3V and 5V DC | 3.3V DC |
| **POWER (PER CHAIN)** | 23dBm @ 5GHz | 20dBm @ 5GHz | 20dBm @ 5GHz | 25dBm @ 5GHz | 18dBm @ 5GHz |
| **POWER CONSUMPTION** | 13W (Max) | 8.5W (Max) | 8.5W (Max) | 9.49W (Max) | 5.6W (Max) |
| **CHANNEL SUPPORT** | 20 / 40 / 80 / 80+80MHz | 20 / 40 / 80 / 80+80MHz | 20 / 40 / 80MHz | 20 / 40 / 80 / 80+80MHz | 20 / 40 / 80 / 80+80MHz |
| **ANTENNA CONNECTOR** | 4x U.FL | 4x U.FL | 3x U.FL | 2x MMCX | 2x U.FL |
| **MODULATION TECHNIQUES** | OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM | OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM | OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM | OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM | BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM |
| **OPERATING ENVIRONMENT** | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C |
| **CERTIFICATION** | N.A | N.A | N.A | N.A | N.A |
| **DIMENSIONS (W x H x D) in mm** | 73.7 x 51.0 x 5.5 | 29.9 x 50.8 x 12.9 | 29.9 x 50.8 x 12.7 | 29.9 x 50.8 x 12.2 | 29.9 x 50.8 x 10.4 |

# 802.11ac Wave 1



## HARDWARE SPECIFICATIONS

| | | | | | | |
|---|---|---|---|---|---|---|
| **TYPE OF CARD** | Wide card<br>High Power 2 x 2<br>MIMO 802.11ac | Wide card<br>High Power 2 x 2<br>MIMO 802.11ac | Standard size<br>3 x 3 MIMO<br>802.11ac | Standard size<br>Industrial Grade 3 x 3<br>MIMO 802.11ac | Standard size<br>2 x 2 MIMO 802.11ac | Standard size<br>Industrial Grade 2 x 2<br>MIMO 802.11ac |
| **MIMO** | **3 x 3** | **2 x 2** | **3 x 3** | **3 x 3** | **2 x 2** | **2 x 2** |
| **MODEL** | **WLE900V5-27ESD** | **WLE600V5-27ESD** | **WLE900VX** | **WLE900VX-I** | **WLE600VX** | **WLE600VX-I** |
| **CHIPSET** | QCA9880 | QCA9882 | QCA9880 | QCA9890 | QCA9882 | QCA9892 |
| **STANDARD** | 802.11a/n/ac | 802.11a/n/ac | 802.11a/b/g/n/ac | 802.11a/b/g/n/ac | 802.11a/b/g/n/ac | 802.11a/b/g/n/ac |
| **THEORETICAL RATE** | 1300Mbps | 867Mbps | 1300Mbps | 1300Mbps | 867Mbps | 867Mbps |
| **FORM FACTOR** | Wide size | Wide size | Standard size | Standard size | Standard size | Standard size |
| **SPECTRUM** | 5.180~5.825GHz | 5.180~5.825GHz | 2.412~2.472GHz<br>5.180~5.825GHz | 2.412~2.472GHz<br>4.920~5.825GHz | 2.412~2.472GHz<br>5.180~5.825GHz | 2.412~2.472GHz<br>4.920~5.825GHz |
| **REFERENCE DESIGN** | CUS223 (High Power) | x | XB140 | XB140 | XB140 | XB140 |
| **HOST INTERFACE** | MiniPCIe 1.2 | MiniPCIe 1.2 | MiniPCIe 1.1 | MiniPCIe 1.1 | MiniPCIe 1.1 | MiniPCIe 1.1 |
| **OPERATING VOLTAGE** | 3.3V and 5V DC | 3.3V and 5V DC | 3.3V DC | 3.3V DC | 3.3V DC | 3.3V DC |
| **POWER (PER CHAIN)** | 27dBm @ 5GHz | 27dBm @ 5GHz | 21dBm @ 2.4GHz<br>20dBm @ 5GHz | 21dBm @ 2.4GHz<br>20dBm @ 5GHz | 21dBm @ 2.4GHz<br>20dBm @ 5GHz | 21dBm @ 2.4GHz<br>20dBm @ 5GHz |
| **POWER CONSUMPTION** | 10W (Max) | 7.5W (Max) | 5W (Max) | 5W (Max) | 3.5W (Max) | 3.5W (Max) |
| **CHANNEL SUPPORT** | 20 / 40 / 80MHz | 20 / 40 / 80MHz | 20 / 40 / 80MHz | 20 / 40 / 80MHz | 20 / 40 / 80MHz | 20 / 40 / 80MHz |
| **ANTENNA CONNECTOR** | 3x MMCX | 2x MMCX | 3x U.FL | 3x U.FL | 2x U.FL | 2x U.FL |
| **MODULATION TECHIQUES** | BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM | BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM | OFDM: BPSK, QPSK, DBPSK, DQPSK, CCK, 16-QAM, 64-QAM, 256-QAM | OFDM: BPSK, QPSK, DBPSK, DQPSK, CCK, 16-QAM, 64-QAM, 256-QAM | OFDM: BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM | OFDM: BPSK, QPSK, DBPSK, DQPSK, CCK, 16-QAM, 64-QAM, 256-QAM |
| **OPERATING ENVIRONMENT** | -40°C to 70°C with normal heatsink, -40°C to 80°C with large heatsink | -40°C to 70°C with normal heatsink, -40°C to 85°C with large heatsink | -20°C to 70°C | -40°C to 70°C* | -20°C to 70°C | -40°C to 70°C* |
| **CERTIFICATION** | N.A | FCC, CE, IC | FCC, CE | FCC, CE | FCC, CE | FCC, CE |
| **DIMENSIONS (W x H x D) in mm** | 50 x 51 x 12.5 with normal heatsink, 95 x 51 x 13 with large heatsink | 50 x 51 x 12.5 with normal heatsink, 95 x 51 x 13 with large heatsink | 30 x 50.9 x 3.2 | 30 x 50.9 x 3.2 | 30 x 50.9 x 3.2 | 30 x 50.9 x 3.2 |

*The wireless module can operate up to 90°C. For long term reliability, it is recommended that a 20°C safety margin be maintained.

# 802.11n





## HARDWARE SPECIFICATIONS

| TYPE OF CARD | Standard size<br>4 x 4 MU-MIMO<br>802.11n | Wide size<br>4 x 4 MU-MIMO<br>802.11n | Wide size<br>High Power 2 x 2<br>MIMO 802.11n | Standard size<br>High Power 2 x 2<br>MIMO 802.11n | Standard size<br>2 x 2 MIMO 802.11n | Half size<br>2 x 2 MIMO 802.11n |
|---|---|---|---|---|---|---|
| **MIMO** | **4 x 4** | **4 x 4** | **2 x 2** | **2 x 2** | **2 x 2** | **2 x 2** |
| **MODEL** | **WLE1216V2-20** | **WLE1200V2-22** | **WLE200N5-23ESD** | **WLE200N2-23** | **WLE200NX** | **WLE200N2** |
| **CHIPSET** | QCA9984 | QCA9980 | AR9280 | AR9283 | AR9280 | AR9287 |
| **STANDARD** | 802.11b/g/n | 802.11b/g/n | 802.11a/n | 802.11b/g/n | 802.11a/b/g/n | 802.11b/g/n |
| **THEORETICAL RATE** | 800Mbps | 600Mbps | 300Mbps | 300Mbps | 300Mbps | 300Mbps |
| **FORM FACTOR** | Standard size | Wide size | Wide size | Standard size | Standard size | Half size |
| **SPECTRUM** | 2.412~2.472GHz | 2.412~2.472GHz | 5.150~5.875GHz | 2.412~2.484GHz | 2.412~2.484GHz<br>5.150~5.875GHz | 2.412~2.484GHz |
| **REFERENCE DESIGN** | × | CUS260 | × | × | XB92 | HB97 |
| **HOST INTERFACE** | MiniPCIe 2.0 | MiniPCIe 2.0 | MiniPCIe 1.1 | MiniPCIe 1.1 | MiniPCIe 1.1 | MiniPCIe 1.1 |
| **OPERATING VOLTAGE** | 3.3V DC | 5V DC | 3.3V DC | 3.3V DC | 3.3V DC | 3.3V DC |
| **POWER (PER CHAIN)** | 20dBm @ 2.4GHz | 22dBm @ 2.4GHz | 23dBm @ 5GHz | 23dBm @ 2.4GHz | 18dBm @ 2.4GHz<br>17dBm @ 5GHz | 16dBm @ 2.4GHz |
| **POWER CONSUMPTION** | 6.68W (Max) | 15W (Max) | 2.8W | 2.5W | 3.7W (Max) | 1.9W |
| **CHANNEL SUPPORT** | 20 / 40MHz | 20 / 40MHz | 20 / 40MHz | 20 / 40MHz | 20 / 40MHz | 20 / 40MHz |
| **ANTENNA CONNECTOR** | 4x U.FL | 8x U.FL | 2x MMCX or<br>2x U.FL | 2x U.FL | 2x U.FL | 2x U.FL |
| **MODULATION TECHIQUES** | OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM | OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM<br>DSSS: DBPSK, DQPSK, CCK | OFDM: BPSK, QPSK, 16-QAM, 64-QAM | OFDM: BPSK, QPSK, 16-QAM, 64-QAM<br>DSSS: DBPSK, DQPSK, CCK | OFDM: BPSK, QPSK, 16-QAM, 64-QAM | OFDM: BPSK, QPSK, 16-QAM, 64-QAM<br>DSSS: DBPSK, DQPSK, CCK |
| **OPERATING ENVIRONMENT** | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C |
| **CERTIFICATION** | FCC, CE | N.A | N.A | N.A | FCC, CE | FCC, CE, IC |
| **DIMENSIONS (W x H x D) in mm** | 29.9 x 50.8 x 12.9 | 70.3 x 51 x 5.5 | 42.8 x 51.2 x 3.3 | 30.0 x 50.9 x 3.2 | 30 x 50.9 x 3.2 | 30 x 26.8 x 3.2 |

# New Form Factors



| HARDWARE SPECIFICATIONS | | |
|---|---|---|
| **TYPE OF CARD** | M.2 2230<br>2 x 2 MU-MIMO<br>802.11ac | System-on-chip (SoC)<br>1 x 1 WLAN and Bluetooth |
| **MIMO** | **2 x 2** | **1 x 1** |
| **MODEL** | **WLT674** | **WSD377** |
| **CHIPSET** | QCA6174A-5 | QCA9377-3 |
| **STANDARD** | 802.11a/b/g/n/ac | 802.11a/b/g/n/ac |
| **THEORETICAL RATE** | 867Mbps | 433Mbps |
| **FORM FACTOR** | M.2 2230, Key A+E | Single-die |
| **SPECTRUM** | 2.412~2.472GHz<br>5.180~5.825GHz | 2.412~2.472GHz<br>5.180~5.825GHz |
| **REFERENCE DESIGN** | **×** | **×** |
| **HOST INTERFACE** | M.2 | SDIO |
| **OPERATING VOLTAGE** | 3.3V DC | 3.3V DC |
| **POWER (PER CHAIN)** | 18dBm @ 2.4GHz<br>10.5dBm @ 5GHz | 16dBm @ 2.4GHz<br>11dBm @ 5GHz |
| **POWER CONSUMPTION** | TX: 610mA<br>RX: 280mA | 3.83W (Max) |
| **CHANNEL SUPPORT** | 20 / 40MHz @ 2.4GHz<br>20 / 40 / 80MHz @ 5GHz | 20 / 40MHz @ 2.4GHz<br>20 / 40 / 80MHz @ 5GHz |
| **ANTENNA CONNECTOR** | 2x U.FL connectors | SDIO |
| **MODULATION TECHNIQUES** | OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM | OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM |
| **OPERATING ENVIRONMENT** | -20°C to 70°C | -20°C to 70°C |
| **CERTIFICATION** | FCC, CE, IC | CE |
| **DIMENSIONS (W x H x D) in mm** | 22 x 30 x 3 | 12 x 12 x 2.5 |