

### 802.11a/b/g Mini PCI Wireless LAN Module

Zcomax Technologies, Inc. has released its new line of Air Runner™ wireless mini-PCI cards. The AG-623C is an 802.11a/b/g 54Mbps mini PCI module that has been designed with the integration market in mind. With its low profile external antenna connector and small mini PCI form, the AG-623C will fit into any design that supports the mini-PCI form factor. The AG-623C is a high performance module that exceeds both IEEE 802.11a and FCC regulatory requirements.

The AG-623C module is a robust plug and play ready device that has support for both windows and Linux operating systems.

With an excellent price / performance ratio and the field-proven reliability associated with the Atheros chipset, the AG-623C is a superb choice for any wireless application requiring enhanced connectivity in a small form factor.



### *AG-623C at a glance*

- 802.11a/b/g compliant
- 20 dBm Tx output Power
- -95 dBm Rx Sensitivity
- Hirose U.FL Antenna Connector
- 32-bit mini-PCI Type III Half Interface
- FCC and ROHS compliant
- MAC / Baseband - Atheros AR5414
- Amplifier - RFMD RF5824
- Driver support – Windows, Linux and customized drivers are available.



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**Physical Specification:**

|                        |                                    |
|------------------------|------------------------------------|
| Host Interface         | 32-bit Mini PCI                    |
| Dimensions (L x W x H) | 59.6mm(L) * 46.2mm(W) * 4.15mm (H) |
| Weight                 | < 50g                              |

**RF Specification:**

|                                   |   |
|-----------------------------------|---|
| Frequency Range (GHz)             | North America:                                      |
| 802.11a                           | FCC: 5.15 ~ 5.35 ; 5.47 ~5.850                      |
|                                   | Japan TELEC: 5.15 ~ 5.35                            |
|                                   | Japan TELEC: 4.90 ~ 5.00 ; 5.03 ~ 5.09              |
|                                   | Europe ETSI: 5.15 ~ 5.35, 5.47 ~ 5.725              |
| Frequency Range (GHz)             | North America:                                      |
| 802.11b/g                         | FCC: 2.412 ~ 2.462                                  |
|                                   | Europe ETSI: 2.412 ~ 2.472                          |
|                                   | Japan 802.11b TELEC:2.412 ~ 2.484                   |
|                                   | Japan 802.11g TELEC:2.412 ~ 2.472                   |
| Transmit power 802.11a            | 12.5dBm @ 54 Mbps (QAM-64)<br>18dBm @ 6 Mbps (BPSK) |
| Transmit power 802.11g            | 16.5dBm @ 54 Mbps (QAM-64)<br>21dBm @ 6 Mbps (BPSK) |
| Transmit power 802.11b            | 22dBm @ 11 Mbps (CCK)                               |
| Receiver Sensitivity              | 108/54/48 Mbps: -72 / -72 / -73dBm                  |
| @ PER < 10% for 802.11a / Super A | 36 / 24 Mbps: -77dBm / -81dBm                       |
|                                   | 18 / 12 Mbps: -84dBm / -86dBm                       |
|                                   | 9 / 6 Mbps: -88dBm / -90dBm                         |
| Receiver Sensitivity              | 108/54/48 Mbps: -74 / -74 / -75dBm                  |
| @ PER < 10% for 802.11g / Super G | 36 / 24 Mbps: -79dBm / -83dBm                       |
|                                   | 18 / 12 Mbps: -86dBm / -88dBm                       |
|                                   | 9 / 6 Mbps: -90dBm / -91dBm                         |
| Receiver Sensitivity              | 11 Mbps: -87dBm                                     |
| @ PER < 8% for 802.11b            | 5.5 Mbps -92dBm                                     |
|                                   | 2 Mbps: -93dBm                                      |
|                                   | 1 Mbps: -95dBm                                      |

**Electrical Specification:**

|                               |                         |
|-------------------------------|-------------------------|
| Supply Voltage                | 3.3 Vdc, +/- 5%         |
| Supply Voltage Ripple         | 120mV (pp) max.         |
| Power-on startup time         | <600 ms                 |
| Sleep-to-receive startup time | <75 ms                  |
| Power consumption             | TX: <550mA, RX: <450mA, |

**Antenna Connector Specification**

|                |                              |
|----------------|------------------------------|
| Connector Type | Hirose U.FL 50Ω              |
| Manufacturer   | Hirose Electronic Co. Ltd.   |
| Part Number    | U.FL-R-SMT (CL331-0471-0-01) |

**Environmental**

|                     |  |
|---------------------|--|
| Working Temperature | -10 ~65°C, 95% relative humidity (non-condensing)  |
| Storage Temperature | -40 ~ 85°C, 95% relative humidity (non-condensing) |

**Absolute Maximum Rating**

Stress above those listed in Absolute Maximum Rating may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in standard specifications is not implied.

|                     |   |
|---------------------|---|
| Supply Voltage      | 3.7V  |
| I/O Voltage         | -0.5V ~ VCC+0.3V                                    |
| Storage Temperature | -45 ~ +85°C, 95% relative humidity (non-condensing) |
| Barometric Pressure | 740 hPa ~ 1050 hPa                                  |

**Performance**

The range of a RF subsystem is determined by many different factors, including antenna design and cable loss, as well as connector selection. Typical ranges are given for PER < 10% (802.11a) and assume a 0dBi antenna design.

|                      |                          |
|----------------------|--------------------------|
| Open Space – 802.11a | 60 meters @ 54 Mbps      |
| Open Space – 802.11a | 120 meters @ 24/18 Mbps  |
| Open Space – 802.11a | 120 meters @ 12/9/6 Mbps |

### ***Reliability***

Mean Time To Failure is rated at 150,000 hours.

### ***Interoperability***

The AG-623C interoperates with any IEEE 802.11a/b/g compliant devices.