WMIB-114G Wireless 802.11g miniPCI Network Card User Manual

Features and Functions

IEEE 802.11g 54-Mbps standard compliant and Wi-Fi CERTIFIED™ to ensure complete compatibility with 802.11b solutions and Interoperability with over 800 products tested by the Wi-Fi alliance.

Low-power consumption with a comprehensive power management technique. Optimized for new, low-power mobile processors, the BCM94306M consumes up to 75 percent less power than competing technologies for extended notebook battery life.

Maximum performance speed, reach, and security with unique Broadcom® features such as SmartRadio™ and Xpress™ technology. Maximizes performance in presence of BlueTooth™ and other 2.4 GHz devices.

Advanced high performance baseband processor with integrated medium access controller (MAC) that supports future IEEE standards, such as 802.11i Security and 802.11e QoS for built-in future proof designs.

SmartRadio technology improves wireless LAN througWMIB-114Gut and range with advanced signal processing techniques. The all-CMOS solutions are capable of self-calibrating based on usage temperature and other environmental conditions, reconfiguring constantly for optimum performance.

OneDriver™ works with all AirForce™ 802.11a/b/54g™ solutions, simplifying the upgrade/update process for customers and end users. Driver certification and extensive operating system support, including WHQL certified Microsoft® Windows®drivers, Zero configuration with Microsoft XP, and embedded drivers for Linux®and VxWorks®

Comprehensive security portfolio including Cisco Compatible Extensions (CCX), Wi-Fi Protected Access (WPA) CERTIFIED, built-in hardware support for Advanced Encryption Standard (AES) protocol, Wired Equivalent Privacy (WEP) weak key avoidance, TKIP, and 802.1x.

Xpress technology standards-based software enhancement. Increases aggregate network performance by up to 75 percent in a mixed 802.11g+802.11b environment. 54g™-based client devices with Xpress technology can achieve more than six times greater performance than 802.11b products.

Product Specifications

Chipset
Baseband/MAC – BCM4306KFB,C0
RF Transeiver – BCM2050KML

Host interface
32-bit mini PCI.

Network standard

IEEE 802.11b and 802.11g standard.

Data rate

802.11b: 11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps.

802.11g: 54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, and 6 Mbps.

Modulation

802.11g: OFDM.

802.11b: CCK (11 Mbps, 5.5 Mbps), DQPSK (2 Mbps), and DBPSK (1 Mbps).

Network architectures

Infrastructure and ad hoc.

Operating frequencies

2.412–2.484 GHz.

Operating channels

802.11g and 802.11b: 11 for North America, 13 for Europe (ETSI), 14 for Japan

RF output power

13.5 dBm typical at 54Mbps

17.5 dBm typical at 11Mbps

Antenna connectors

Hardware diversity support. Transmit and receive on main and auxiliary antenna connectors.

Receiver Sensitivity

-84dBm minimum @ 11Mbps @ 8% PER

-70dBm minimum @ 54Mbps @ 10% PER

Range

802.11g: 54 Mbps up to 50m Line of Sight (LOS), 20m indoors; 18 Mbps up to 150m LOS, 75m indoors.

802.11b: 11 Mbps up to 180m LOS, 60m indoors; 1 Mbps up to 570m LOS, 125m indoors.

Power consumption

TX: 350 mA, 3.3VDC

RX: 280 mA, 3.3VDC

Power Save mode: 13 mA, 3.3VDC

Radio disable: <10 mA, 3.3VDC

Security

Hardware 64/128-bit WEP engine; WEP weak key avoidance; TKIP; hardware ES engine supporting CCM and OCB, WPA, 802.1x, and 802.11i.

Delay tolerance

802.11b: Multipath RMS delay spread @ 1% FER: 11 Mbps >250 ns, and 5.5 Mbps >300 ns

Client utility

Automatic location profile, site monitor, current link status, and diagnostics.

Software support

Microsoft WHQL certified for Windows XP, 2000.

FAA Switch

Manual radio on/off disables transmit and receive to comply with aviation in-flight restrictions.

Temperatures

Operates from 0 to 70°C, and storage from -40 to 90° C.

Humidity (non-condensing)

5 to 95%

Appendix A:
Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:
FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device is intended only for OEM integrators under the following conditions:
1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further <u>transmitter</u> test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

IMPORTANT NOTE: In the event that these conditions <u>can not be met</u> (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID <u>can not</u> be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

<u>**End Product Labeling**</u>

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users (for example: notebook, AP, Router…etc.). The final end product must be labeled in a visible area with the following: "Contains TX FCC ID: MXF-M930916G".

<u>**Manual Information That Must be Included**</u>

The OEM integrator has to be aware not to provide information to the end user regarding

how to install or remove this RF module in the users manual of the end product which

integrate this module.

The users manual for OEM integrators must include the following information in a prominent location " IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Appendix B: IC Statement

The device is certified to the requirements of RSS-210 for 2.4 GHz spread spectrum devices. To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding