WMA1
PCMCIA Type II Wireless LAN Card
User Manual

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.

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices) any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

Statement Needed to be Shown on End Product

Since this module is installed inside the end product, the end product should be affixed a label on visible area showing that this product contain a RF module, and also its FCC ID.

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.

Manufacturer's Disclaimer Statement

The information in this document is subject to change without notice and does not represent a commitment on the part of the vendor. No warranty or representation, either expressed or implied, is made with respect to the quality, accuracy or fitness for any particular purpose of this document.

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Printed in Taiwan

1. Introduction

1.1 Overview

This user manual describes the feature of the PCMCIA wireless LAN card (model name: WMA1), as well as the physical card installation.

WMA1 complies with full IEEE 802.11b standards with bit rate up to 11Mbps and the interface complies with PCMCIA specifications.

The WMA1 module can be installed on a variety of gateway (or router) master boards as various wireless gateways (or routers).

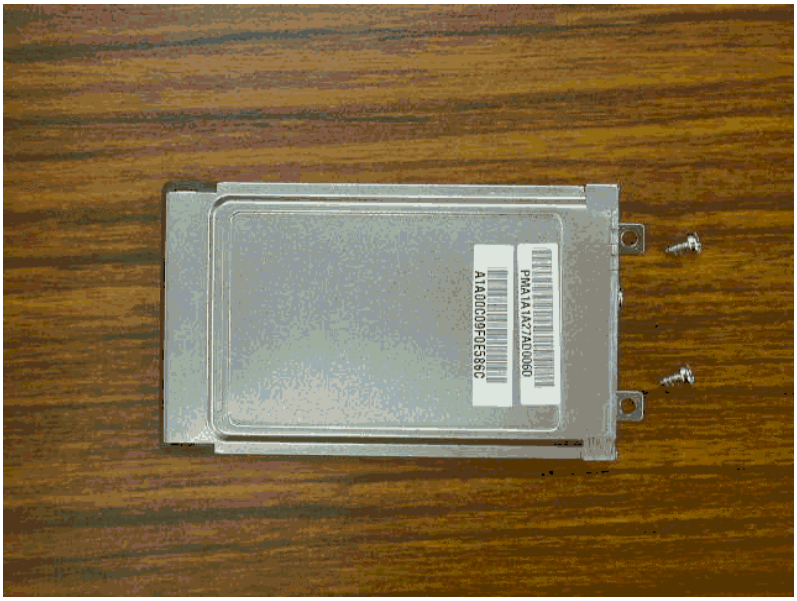
1.2 Features

*** Fully IEEE 802.11b and Wi-Fi compatible**
*** Working range up to 300 meters in an open environment**
*** Seamless roaming under 802.11b WLAN infrastructure**
*** Automatically Support basic rate at 11M/5.5M/2M/1M fall back functionality**
*** WEP 64/128 bits encryption provided**
*** Supply User-friendly installation: hardware auto-detection and software easy-setup without manual configuration.**
*** The powerful utility operates and communicates other WLAN devices**
*** Direct Sequence Spread Spectrum (DSSS) technology provides robust, interference-resistant and wireless communication security.**
*** Compatible with any computer under the OS of Microsoft Windows series: Windows 98/ME/2000/XP**

2. Device Description

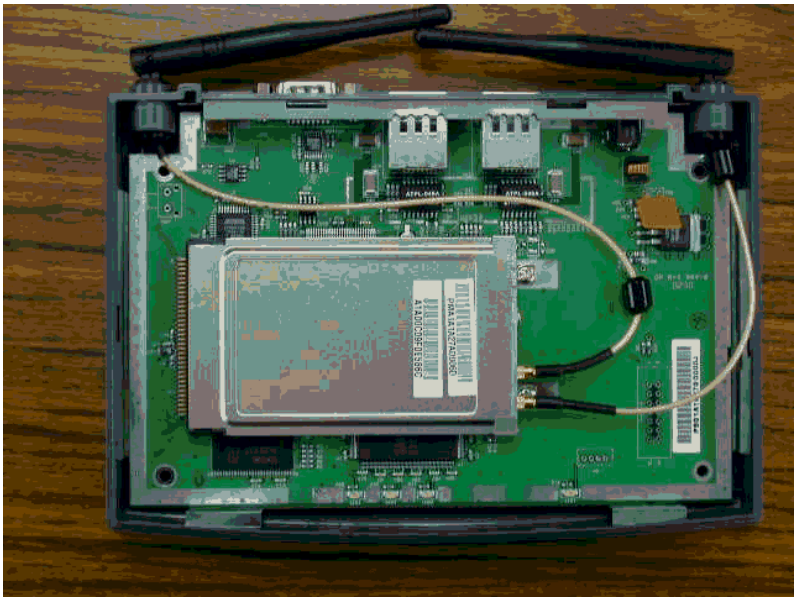
2.1 Appearance before installed on the Master Board

The WMA1 wireless LAN card Module allows for placement on the Master board (Quanta BG Series) using the attached bracket and screws. The installation steps are mentioned in section 3.



Appearance of the WMA1 card and attached components (bracket and screws)

2.2 Appearance after installed on the Master Board

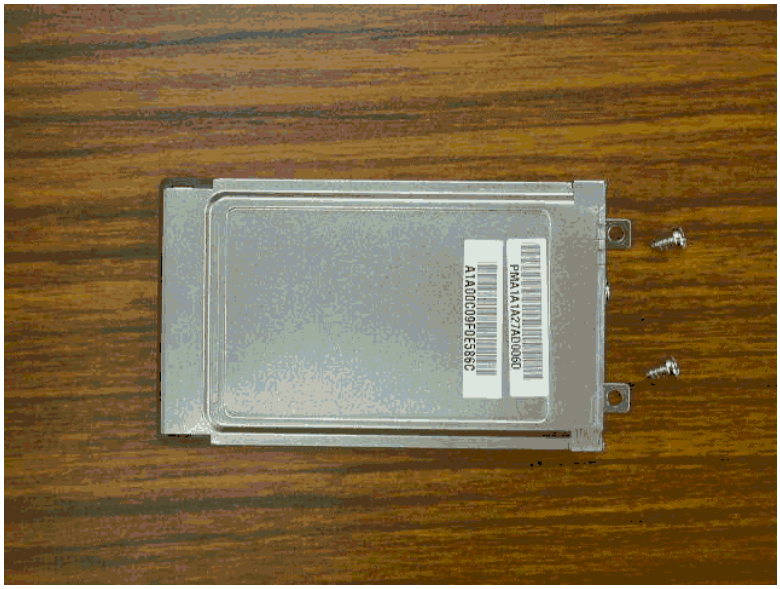


Appearance of the complete WMA1 installation

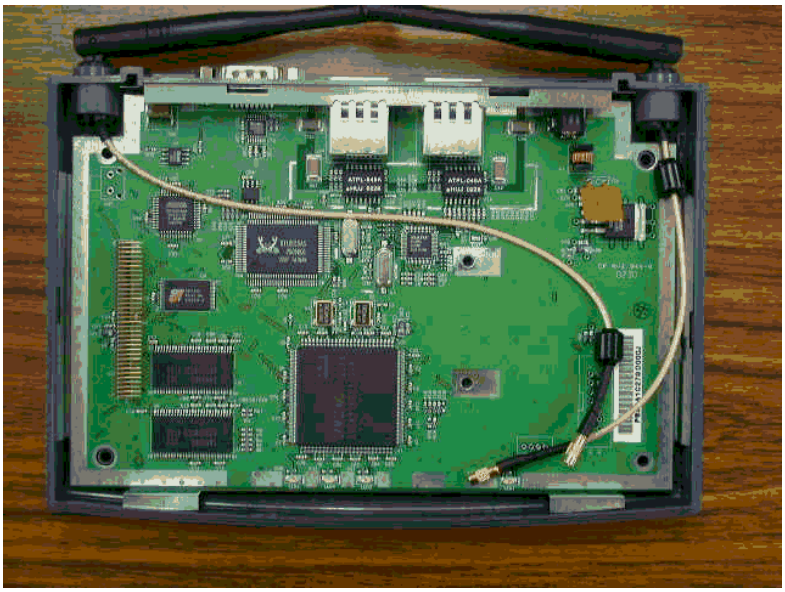
3. Installation the Card

To physically install the WMA1 onto the PCMCIA interface Master Board, please follow the steps below:

Step 1: Slide the WMA1 PCMCIA Wireless LAN Card Module over the Quanta Gateway master board.



Appearance of the WMA1 card and attached components (bracket and screws)



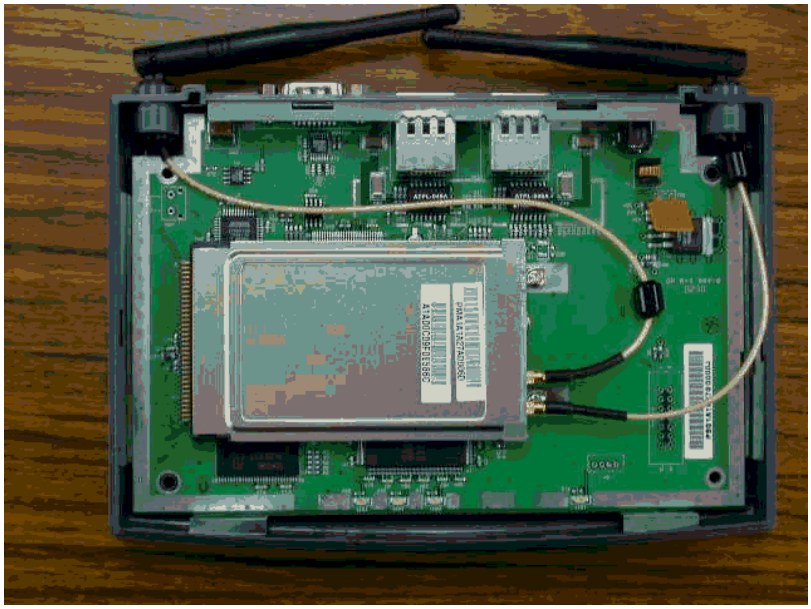
Appearance of the Quanta Gateway Master Board

Step 2: Directly align the WMA1 card pins to the mapping PCMCIA interface port and then plug-in it.

Step 3: Use the screwdriver to mount the screws and the attached bracket onto the Master

board.

Step 4: Mount the external antenna to WMA1.



Appearance of the complete WMA1 installation

Step 5: Put the gateway cover on and the installation is all set.

Appearance of the front panel of wireless gateway

View from the bottom of wireless gateway

4. Application

The WMA1 as a original WLAN card module can be installed on the Master Board with PCMCIA interface as a Wireless Gateway.

5. Hardware Technical Specification of Wireless LAN

Standard Compliance

IEEE 802.11b standard and WECA interoperability certified FCC part 15，sec.15. 247/USA

CE/ETSI 300.328，300.826/Eurpoe

TELEC/Japan

Electrical Specification

Parameter name	Value	Remark
Supply voltage range	3.0V~3.6V DC	Bus powered
Average current:	290 mA typical	2% transmit, 98% receive without power saving mode
AVERAGE CURRENT:	75 mA typical	2% transmit, 8% receive 90% standby with power saving mode
Continuous transmit mode	315 mA max	
Continuous receive mode:	270 mA max	
Standby mode:	51 mA max	with power saving mode

Form Factor

Comply with PCMCIA Type II　Form Factor.

Connectivity Specification

Comply with the PCMCIA Standard（release 2.0）

Environmental Specification

Parameter name	Value	Remark
Temperature Range	0~55ºC	Operation
Temperature Range	-20~65ºC	Storage
Relative Humidity	95% max	
Vibration	15G	10 to 2000Hz, non-operating

Parameter name	Value	Remark
EMI	FCC class B	
ESD	1500V	Non-operating

Frequency Allocation

Regulatory Domain	Operating frequency range	No. of operating channels
North America	2412~2462MHZ	11channel （3 non-overlapping）
Europe	2412~2472MHZ	13channel （3 non-overlapping）
Japan	2412~2484MHZ	14channels

Modulation/Data rate

Data Rate	Modulation
1M bps	DBPSK
2M bps	DQPSK
5.5M bps	CCK
11M bps	CCK

Antenna Specification

Antenna Type: 2 PCB Antenna for Space Diversity

Receive Sensitivity

Modulation/Rate	Sensitivity Spec(dBm, Typ.)	Allowed PER
DBPSK (1M bps)	-87dBm	8% PER or less
DQPSK (2M bps)	-85dBm	8% PER or less
CCK (5.5M bps)	-84dBm	8% PER or less
CCK (11M bps)	-82dBm	8% PER or less

Dynamic Range

Parameter name	Value	Remark
Dynamic Range	82 dB	Maximum Input level is –5dBm

System Linearity（Input）

Input third order intercept point	Value	Remark
IIP3	-17 dBm Min.	@-28dBm input
IIP3	13 dBm Min.	@-1dBm input

Adjacent Channel Rejection

Receive Adjacent Channel Rejection shall be tested with a 25MHz Separation and the desired channel input power is –80dBm.

General Specification	Value	Remark
Adjacent channel rejection	35dB.	PER<8%　@25MHz jammer offset

Transmitter Power Output

Parameter name	Value	Remark
TXP	13±1dBm	Preliminary measured Measured at antenna port ➢ 1st side lobe < -30dBc ➢ 2nd side lobe < -50dBc
TXP Range（ALC on）	0dB typical	

TX Carrier Suppression

25dB Min.

Preamble Length

Short/Long

Multipath Fading Equalization

- 80 ns rms at 11Mbps
- 160 ns rms at 5.5Mbps
- 280 ns rms at 1M or 2M bps