

# MB2411H 802.11 b/g Mini PCI Card User Manual

Version 1.0

Microelectronics Technology Inc. Proprietary

Copyright © 2005 Microelectronics Technology Inc.

Notice of Proprietary Information

This document and its contents are proprietary to Microelectronics Technology Inc. and are intended solely for the internal use of Microelectronics Technology Inc. This publication and its contents may not be reproduced or distributed for any other purpose without the written permission of Microelectronics Technology Inc.

## Version History

| Version | Date         | Remark          |
|---------|--------------|-----------------|
| 1.0     | Nov. 25 2005 | Initial Version |

## **Introduction**

---

The Mti MB2411H is Mti 2.4GHz Mini PCI Card. The supporting channel is from 2412GHz to 2462 GHz as the FCC standard over the 2.4GHz part. The design is to enhance your wireless environment. The 23dBm/200mW output power will also enhance our product strength over the data transmitting and receiving. You could also use this device to plug into the client devices with Mini PCI Slot to enrich your wireless experience.

The following paragraph will describe the Mti MB2411H Mini PCI Card's feature & benefit, system requirement, application, and network configuration.

### **Feature and Benefit**

- Up to 54Mbps high speed data rate
- WPA / AES Encryption Security
- Operating in High Temperature
- Light weight

### **System Requirement**

The following items are the minimum requirement in order to use the Mini-PCI card.

- Notebook or other Client Devices containing a 32-bit PCI Slot
- Window 98/ME/2000/XP operating system
- 300 MHz or higher processor

### **Application**

The WLAN products are easy to install and highly efficient. The following items will state some applications could make possible to access the power and flexibility of WLAN:

- Difficult-To-Wired Environment – Offer the remote Internet Access
- Ethernet Network or Another Wireless LAN Backup – To secure some critical communication
- The Ability For The Real-Time Information Transmitting – Working Places, Hot Spots
- Small Office and Home Office network / SOHO -- Easy, Cost-effective and Quick Installation
- Campus or Educational Environment – Internet Access for Information or Researching

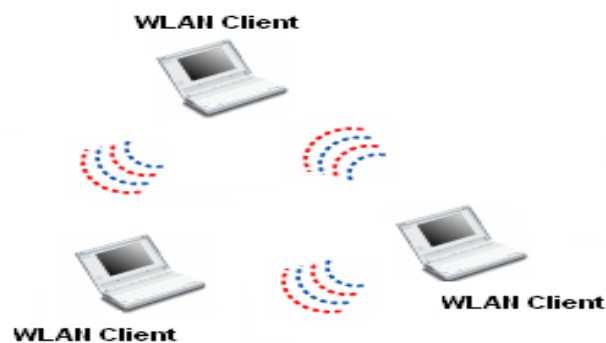
## Network Configuration

There are two network modes in Wireless LAN environment as following:

- Ad-Hoc / Peer-to-Peer Mode
- Infrastructure

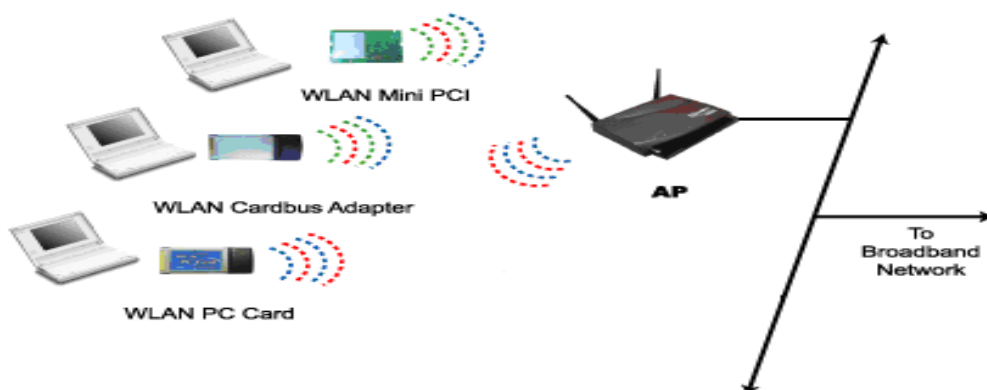
### Ad-Hoc Mode

In Ad-Hoc mode is peer-to-peer networking, each client could access other clients and does not require an access point in this network configuration.



### Infrastructure

The infrastructure mode requires an access point. In this mode, all client notebooks want to communicate with each other need to go through the access point. You could put our Mini PCI card either in Notebook or in AP client device as the following figure.



## **Install Mini PCI**

---

This paragraph will talk about the installation under the Window Platform 98/ ME/ 2000/ XP.

### **Start Configuration**

You need to remove other wireless card and turn off its driver utility first then plug the mini PCI card in and start loading the PCI card' s driver.

### **Install Mini PCI card in notebook**

- Turn off the notebook power.
- Take off the notebook battery.
- Insert the Mini PCI card into slot
- Install the Atheros Mini PCI driver and click the setup

### **Install Mini PCI card into the client device slot**

- Make sure the power is off or unplug the power cord from the device first
- Insert the Mini PCI card into slot
- Install the Atheros Mini PCI driver and click the setup

## **Appendix A - Trouble Shooting**

The following description is to help to you do the trouble shooting in case you encounter some difficult to install and use the MB2411H Mini PCI Card.

### **When the window doesn't detect the card installation**

- Make sure you install the Mini PCI Card properly into the slot.
- Check your computer or Laptop has the "Plug and Play" BOIS.
- Window might not detect the Mini PCI Card if the previous card did not cancel completely. Please, remove and re-install it again.

### **Fail to load the Driver**

- There may have the resource conflict. Please, go to the device manager to resolve the conflict.

### **Conflict with the Window Platform**

- The device conflict might be related to the PC card. Please, use the computer property to identify the conflict root cause.

### **No any conflict was detected but still could not attach the network**

- Make sure you install the proper driver.
- Check the SSID is the same as the AP.

## Appendix B – Product Specification

| MTI IEEE802.11b/g High Power 23dBm MiniPCI Card Specification                     |                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |                                                                                                                                                                                                                                               |
| Hardware Specification                                                            |                                                                                                                                                                                                                                               |
| Supporting Standard                                                               | • IEEE802.11b/g                                                                                                                                                                                                                               |
| Interface                                                                         | • 32-bit 3.3V Type IIIB<br>• 124-pin Golden Finger                                                                                                                                                                                            |
| Security                                                                          | • Hardware-Base WEP Privacy<br>• Hardware-Base AES Privacy                                                                                                                                                                                    |
| Operating Environment                                                             | • Operating Temperature: -10 ~ +75°C<br>• Operating Humidity: 20 ~ 90%                                                                                                                                                                        |
| Storage Environment                                                               | • Storage Temperature: -40 ~ +85°C<br>• Storage Humidity: 10 ~ 95%                                                                                                                                                                            |
| Weight & Size                                                                     | • Weight: 12g ± 2g<br>• Size: 44.6 x 59.75 x 4.9mm                                                                                                                                                                                            |
| Antenna Interface                                                                 | • Interface: Ultra-Miniature Coax, U.FL-R-SMT.                                                                                                                                                                                                |
| Power Consumption / Typical                                                       | • IEEE802.11b TX : 2.1W ± 30mW<br>• IEEE802.11b RX : 1W ± 30mW<br>• IEEE802.11b Standby Mode : 0.9W ± 30mW<br>• IEEE802.11g TX : 2.1W ± 30mW<br>• IEEE802.11g RX : 1W ± 30mW<br>• IEEE802.11g Standby Mode : 0.9W ± 30mW                      |
| Radio Frequency Specification                                                     |                                                                                                                                                                                                                                               |
| TX Rate & Modulation                                                              | • IEEE802.11b (Auto-Fallback)<br>• CCK: 11 and 5.5Mbps<br>• DQPSK: 2Mbps<br>• DBPSK: 1Mbps<br>• IEEE802.11g (Auto-Fallback)<br>• OFDM: 54, 48, 36, 24, 18, 12, 9, 6Mbps                                                                       |
| Networking                                                                        | • Infrastructure Mode: Station-To-LAN Architecture<br>• Ad-Hoc Mode: Station-To-Station Architecture                                                                                                                                          |
| Frequency, Bandwidth and Channels                                                 | • 2.412 ~ 2.462GHz Frequency Band<br>• 11 Channels<br>• Maximum 3 Non-Overlapped Channels<br>• 25MHz Bandwidth Per Channel                                                                                                                    |
| Transmit Output Power                                                             | • IEEE802.11b 23dBm (+ 1/ -1.5 dBm) @ 1~11Mbps<br>• IEEE802.11g 20dBm (+ 1/ -1.5 dBm) @ 54Mbps<br>• IEEE802.11g 21dBm (+ 1/ -1.5 dBm) @ 48Mbps<br>• IEEE802.11g 23dBm (+ 1/ -1.5 dBm) @ 6~36Mbps                                              |
| Receiver Sensitivity                                                              | • IEEE 802.11g @ PER<10%<br>- 6Mbps 9Mbps 12Mbps 18Mbps 24Mbps 36Mbps 48Mbps 54Mbps<br>- -90dBm -89dBm -88dBm -87dBm -83dBm -81dBm -76dBm -72dBm<br>• IEEE 802.11b @ PER<10%<br>- 1Mbps 2Mbps 5.5Mbps 11Mbps<br>- -95dBm -93dBm -91dBm -90dBm |

## **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.

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

**This device is intended only for OEM integrators under the following conditions:**

The antenna must be installed such that 20 cm is maintained between the antenna and users, and the transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter 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 can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not 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.

**End Product Labeling**

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. The final end product must be labeled in a visible area with the following: “Contains TX FCC ID: **MAD-MB2411H**”.

**Manual Information That Must be Included**

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.