4ipnet®
for your IP network

Handbook

WM-MB92M

Mini PCI Module

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FCC CAUTION

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.

This equipment has been tested and proven 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 or more 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: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

The device contains a low power transmitter which will send out Radio Frequency (RF) signal when transmitting. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

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 the maximum antenna gain allowed for use with this device is 4.5 dBi.

2) 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

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integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

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 FCC ID: VZ9120002”. The grantee's FCC ID can be used only when all FCC compliance requirements are met.

Manual Information To the End User

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 user’s manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

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CE CAUTION

Declaration of Conformity with Regard to the 1999/5/EC (R&TTE Directive) for

European Community, Switzerland, Norway, Iceland, and Liechtenstein

Model: WM-MB92M

For 2.4 GHz radios, the device has been tested and passed the requirements of the following standards, and hence fulfills the EMC and safety requirements of R&TTE Directive within the CE marking requirement.

• Radio: EN 300.328:

• EMC: EN 301.489-1, EN 301.489-17,

• EMC: EN 55022 Class B, EN 55024:+ A1 + A2 including the followings:

EN 61000-3-2, EN 61000-3-3.

EN 61000-4-2, EN 61000-4-3, EN 61000-4-4,

EN 61000-4-5, EN 61000-4-6, EN 61000-4-11

• Safety: EN 60950-1 + A11,

Caution:

- This declaration is only valid for configurations (combinations of software, firmware, and hardware) provided and supported by 4ipnet Inc. The use of software or firmware not provided and supported by 4ipnet Inc. may result in the equipment no longer being compliant with the regulatory requirements.

European standards dictate maximum radiated transmit power of 100mW EIRP and frequency range 2.400-2.4835 GHz. This equipment is intended to be used in all EU and EFTA countries. Outdoor use may be restricted to certain frequencies and/or may require a license for operation. Contact your local regulatory authority for compliance.

Taiwan NCC Statement

根據 NCC 低功率電波輻射性電機管理辦法 規定:

第十二條	經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
第十四條	低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時應立即停用，並改善至無干擾時方得繼續使用。 前項合法通信，指依電信法規定作業之無線電通信。 低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之擾。

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Preface

The WM-MB92M 802.11a/b/g/n MMCX Mini PCI Module is compliant with IEEE 802.11a standards and 802.11b/g/n standards, which can be integrated with a variety of wireless network platforms.

Key Features

- Fully IEEE 802.11a/b/g/n standards compliant to provide wireless speed of 300Mbps data rate.
- 2 antennas to support 2T2R MIMO technology.
- Allows auto fallback data rate for optimized reliability, throughput and transmission range: 54/ 48/ 36/ 24/ 18/ 12/11/ 9/ 6/ 5.5/ 2 / 1 Mbps.
- Strong network security with 802.1x, Wi-Fi Protected Access, and WEP encryption.
- Driver/Utility supports most commonly used operating systems including Windows XP / Windows Vista / Windows 7, and Linux.
- Conformable to industry-standard Mini PCI Card Type III-A specification.

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WM-MB92M

802.11 a/b/g/n MMCX Mini PCI Module

Specifications:

Chipset	Atheros (AR9220)
Interface Type	Mini PCI Type III A
Channel and Frequency	IEEE 802.11a 4 Channels / 5150MHz – 5250MHz (Japan) 19 Channels / 5150MHz – 5350MHz / 5470MHz – 5725MHz (Europe) 13 Channels / 5150MHz – 5250MHz / 5725MHz – 5850MHz (USA) 13 Channels / 5250MHz – 5350MHz / 5725MHz – 5850MHz (Taiwan)
	IEEE 802.11b/g/n 14 Channels (Japan) 13 Channels (Europe) 11 Channels (USA) / 2400MHz – 2483.5MHz (for USA, Taiwan, Canada & Europe)
Emission Type	ODFM, DSSS
Output Power	802.11b: 22dBm ± 1dBm 802.11g: 26dBm ± 1dBm **For 5GHz (5.25~5.35GHz)** 802.11a: 16dBm ± 1dBm 802.11n (HT20): 16dBm ± 1dBm 802.11n (HT40): 13dBm ± 1dBm **For 5GHz (5.725~5.85GHz)** 802.11a: 24dBm ± 1dBm 802.11n (HT20): 27dBm ± 1dBm 802.11n (HT40): 27dBm ± 1dBm
Receiver Sensitivity (2Rx dBm)	802.11a: -95dBm @ 6M 802.11b: -95dBm @ 1M 802.11g: -95dBm @ 6M 802.11an HT20: -95dBm @ MCSo 802.11an HT40: -91dBm @ MCSo 802.11gn HT20: -95dBm @ MCSo 802.11an HT40: -90dBm @ MCSo

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Data Modulation Type	802.11a: 64QAM, 16QAM, QPSK, BPSK 802.11b: DBPSK, DQPSK, CCK 802.11g: BPSK, QPSK, 16QAM, 64QAM 802.11n: 64QAM, 16QAM, QPSK, BPSK
Operating Voltage	3.3 Volt + 5%
Power Consumption	TX : Under 800mA RX : Under 350mA
Antenna Connector	2 x MMCX connectors
Security	64/128/152-bits WEP, WPA, WPA2, Encryption TKIP / AES, 802.1X, LEAP
Temperature	0°C to +70°C (Operating) -10°C to 80°C (Storage)
Humidity	0 to 95% and must be non-condensing
Frequency Stability	Within + 20ppm
Dimension	59.59 x 59.95mm

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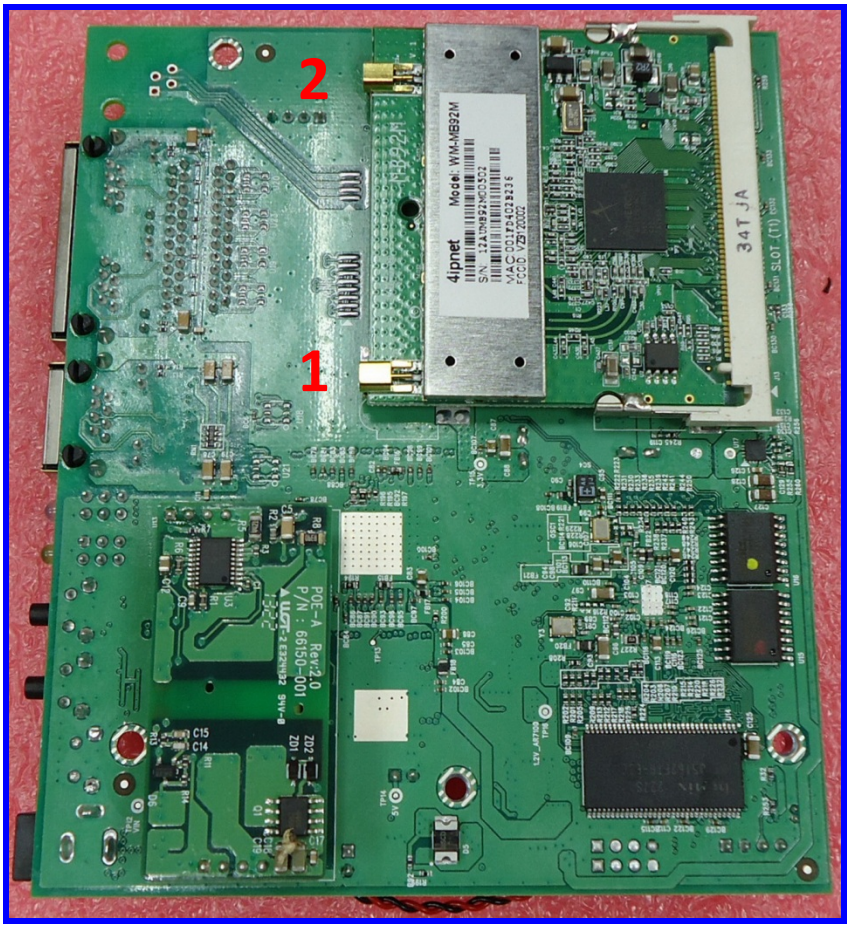
Assembly Procedure on PCBA:

ATTENTION ⚠	1. *No stacking of PCBA (DUT).* 2. *ESD wrist strip and anti-static gloves to be worn at all times* 3. *Immediate replacement of inept tools and accessories*

Step 1:

Define position of PCBA MMCX Connector for first RF Card.



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Step 2:

Adhere FPC Antenna on inner side of top lid and attach connectors to the defined PCBA position for the first RF Card.

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Step 3:

Place PCBA in enclosure with the first RF Card facing down

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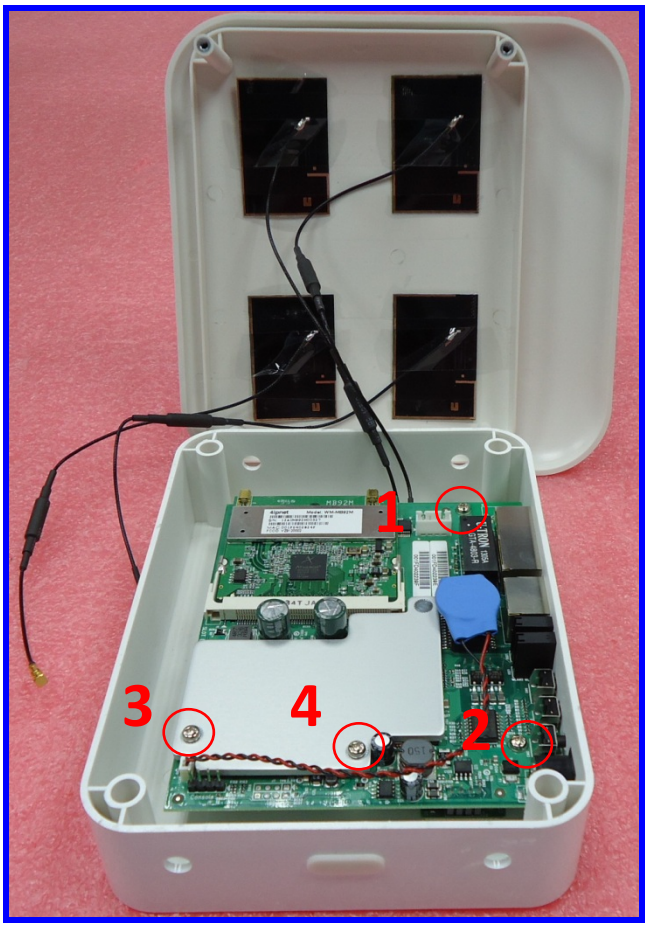
Step 4:

Tighten the 4 screws on PCBA as marked in the stated order. Make sure the RJ45 ports are aligned to the enclosure.



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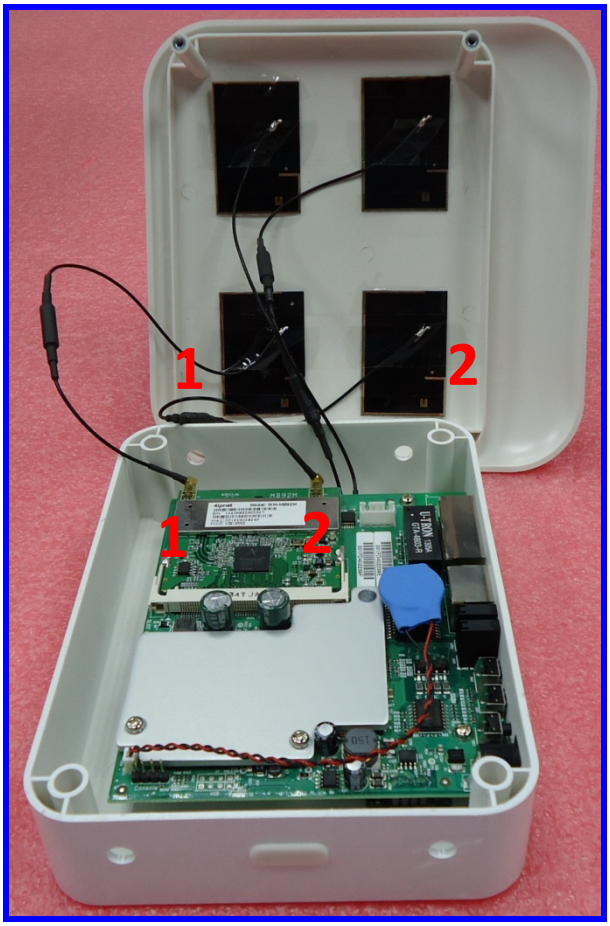
Step 5:

Adhere FPC Antenna on inner side of top lid and attach connectors to the defined PCBA position for the second RF Card.



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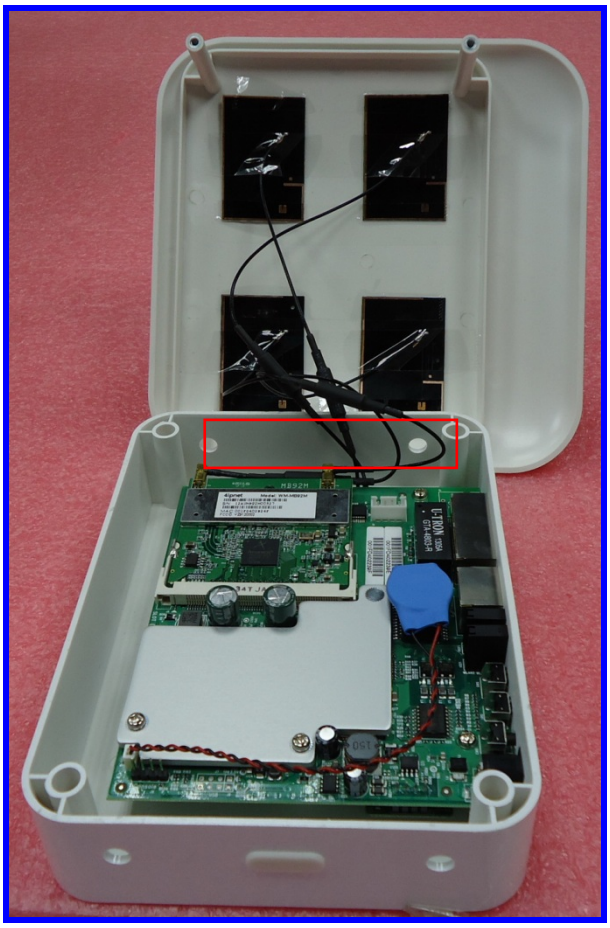
Step 6:

Insert Antenna cable into the highlighted area.



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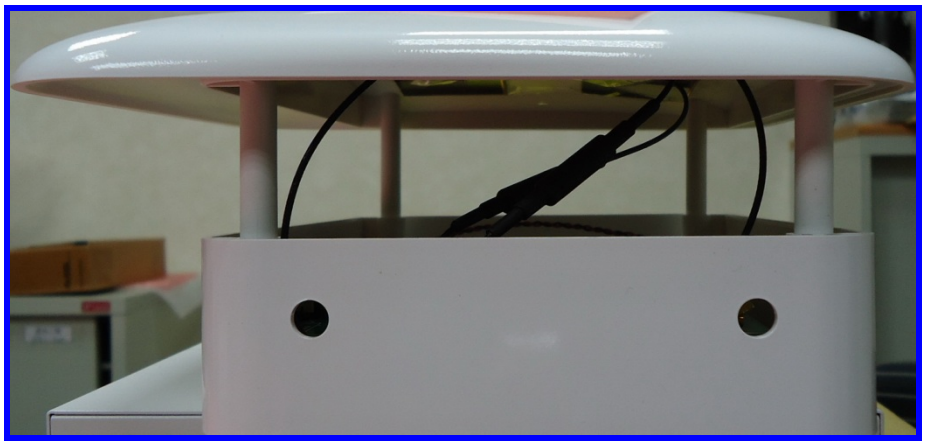
Step 7:

Close the enclosure and ensure that the antenna cables are not pressed in between the lid and the enclosure.



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Step 8:

Tighten the 4 screws for the enclosure in the stated order to complete the assembly procedure.

NOTE:	***The device label of the product shall include the NCC ID of assembled RF module.*** *平台業者於安裝此模組至系統設備時需標示「內含發射器模組:* XXXyyyLPDzzzz-x 」

P/N: V10020140210

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