

**J20H035**

**802.11 b/g RF Module**

**User's Manual**

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# **Chapter 1 About the RF Module**

## **1-1 Introduction**

The RF Module allows you to access Wireless Local Area Networks (WLANs), share a local files with others in your network, access the Internet, and roam about the office—wirelessly. This wireless Local Area Network solution is designed for both large and small businesses, and it is scalable so that you can add users and new network features as your networking needs grow.

The RF Module is a WLAN device that allows for access to 2.4GHz WLAN technologies. The RF Module will operate with at a maximum data rate of 11Mbps with 802.11b (2.4GHz), 54Mbps with 802.11g (2.4GHz) wireless networks . The RF Module will automatically detect and seamlessly roam between 802.11b (2.4GHz), 802.11g (2.4GHz) wireless networks

## **1-2 Using a Wireless Local Area Network**

A wireless LAN provides the same functionality of a wired network, but it eliminates the need to install networking cables and other networking equipment. Not only is a wireless LAN easier to deploy, but it also allows for mobility through “roaming.” For example the RF Module can roam from a conference room to an office without being disconnected from the network.

## **1-3 Features and Requirements**

The RF Module includes the following features:

### Wireless Features

- Support for the IEEE 802.11g standard
- Support for the IEEE 802.11b standard
- Operates within the 2.4-GHz band
- Maximum data rate of up to 54 Mbps (802.11g)
- Maximum data rate of up to 11 Mbps (802.11b)

### Interoperability

- WiFi certified at 2.4GHz to ensure wireless interoperability with other WiFi (802.11b) certified devices.

## Chapter 2 Marvell Driver Installation

### 2-1 Marvell Driver Installation

1. Begin installation by finding the new device setup program according to the step described below...
2. Click Next on the Software Setup “find the new device” dialog box.

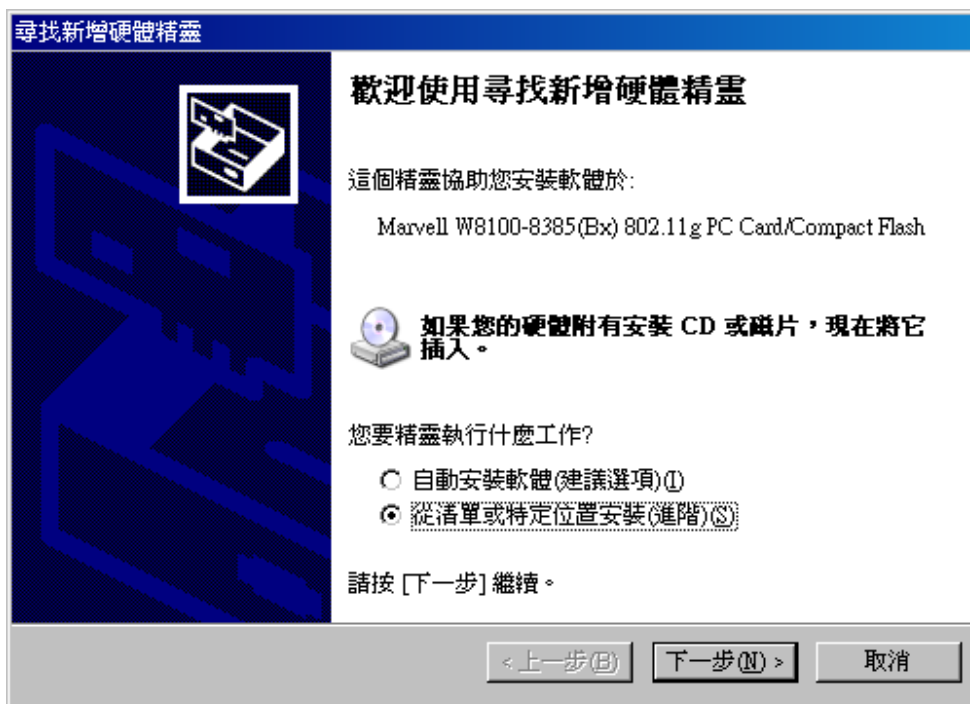


Figure 2-1

3. Scan the computer, find the driver in the location of your computer.

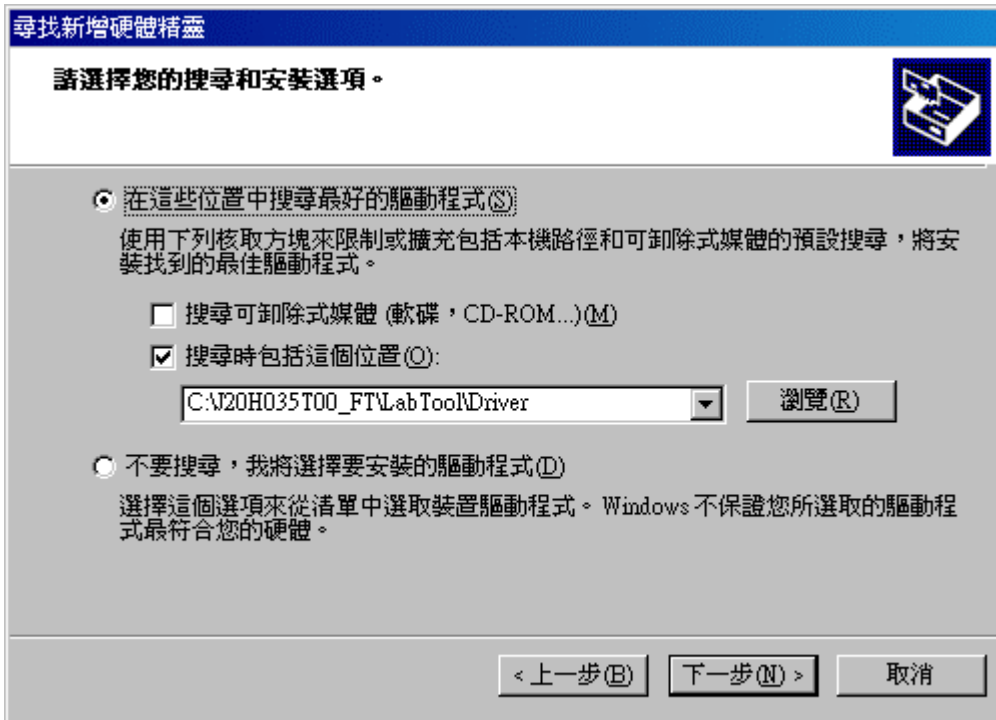


Figure 2-2

4. Scroll down and check the Box labeled, “Marvell W8100-8385(Bx) 802.11g PC Card/Compact Flash”

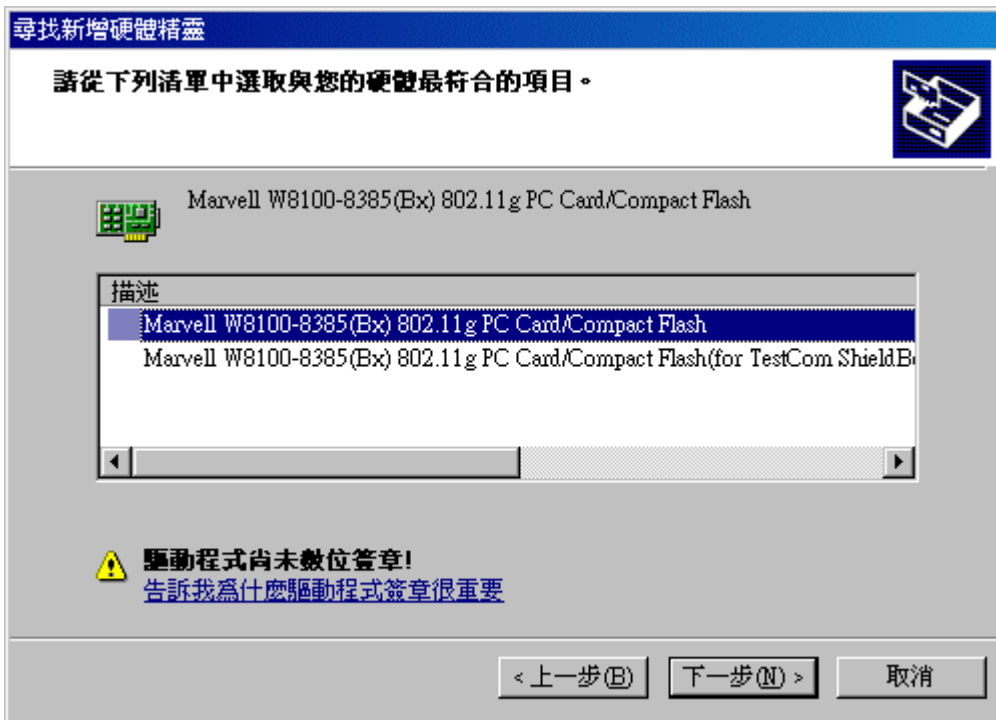


Figure 2-3

4. Congratulations! Marvell driver has been installed successfully.  
Please click 'Finish' to go to the next step.



Figure 2-4

6. The Marvell Driver will automatically be loaded each time your computer started. To access the utility click on Marvell Driver icon in the system tray.

## Chapter 3 Marvell Driver Configuration

The following sections describe the Marvell Driver. The Marvell Drive provides quick access and friendly interface to configure the Wireless LAN settings.

### 3-1 Marvell Driver icon

The Marvell Driver icon will appear in the system tray each time your card is restarted.

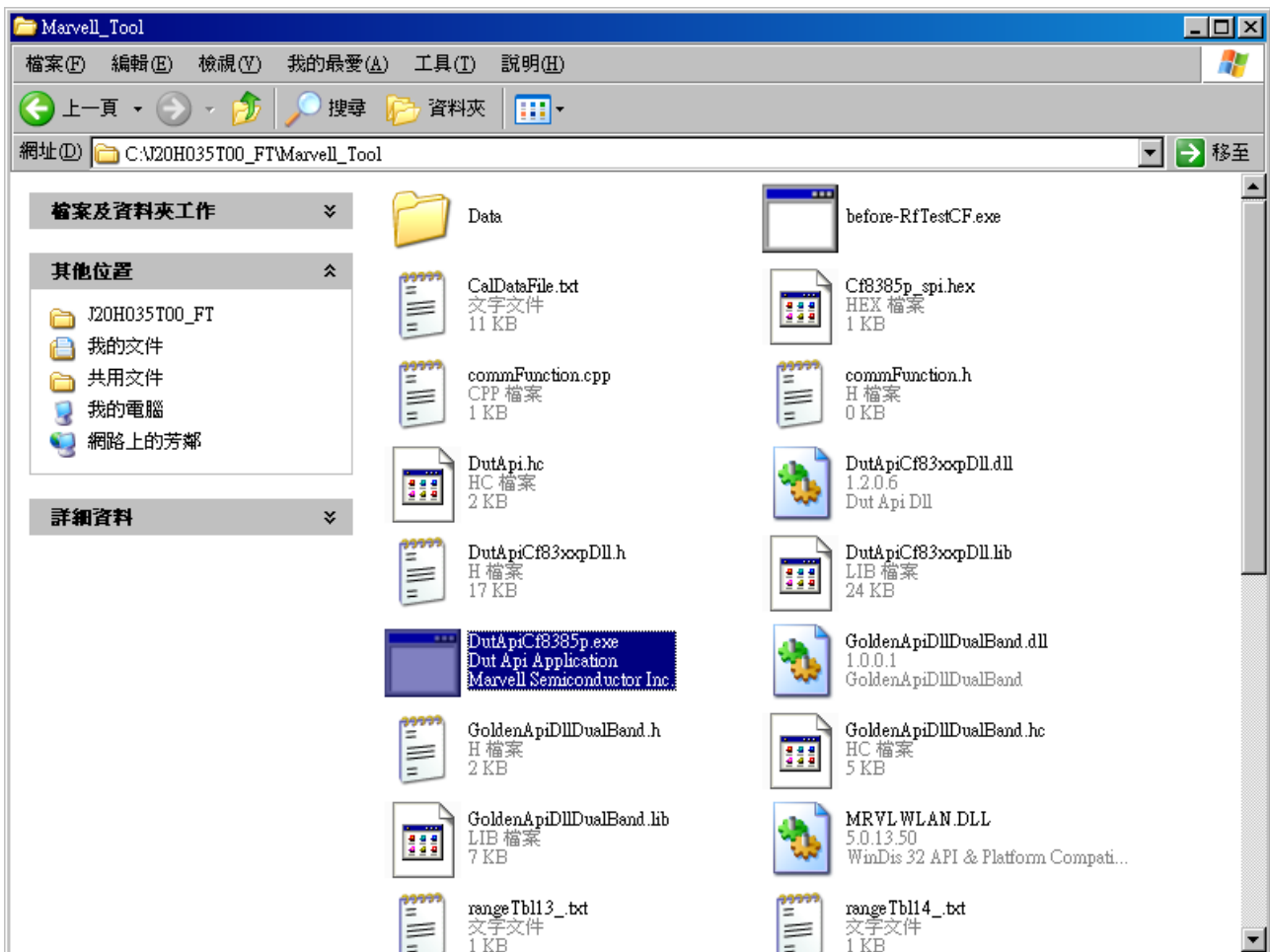


Figure 3-1

The Marvell Driver icon will display the current status of the wireless connection.

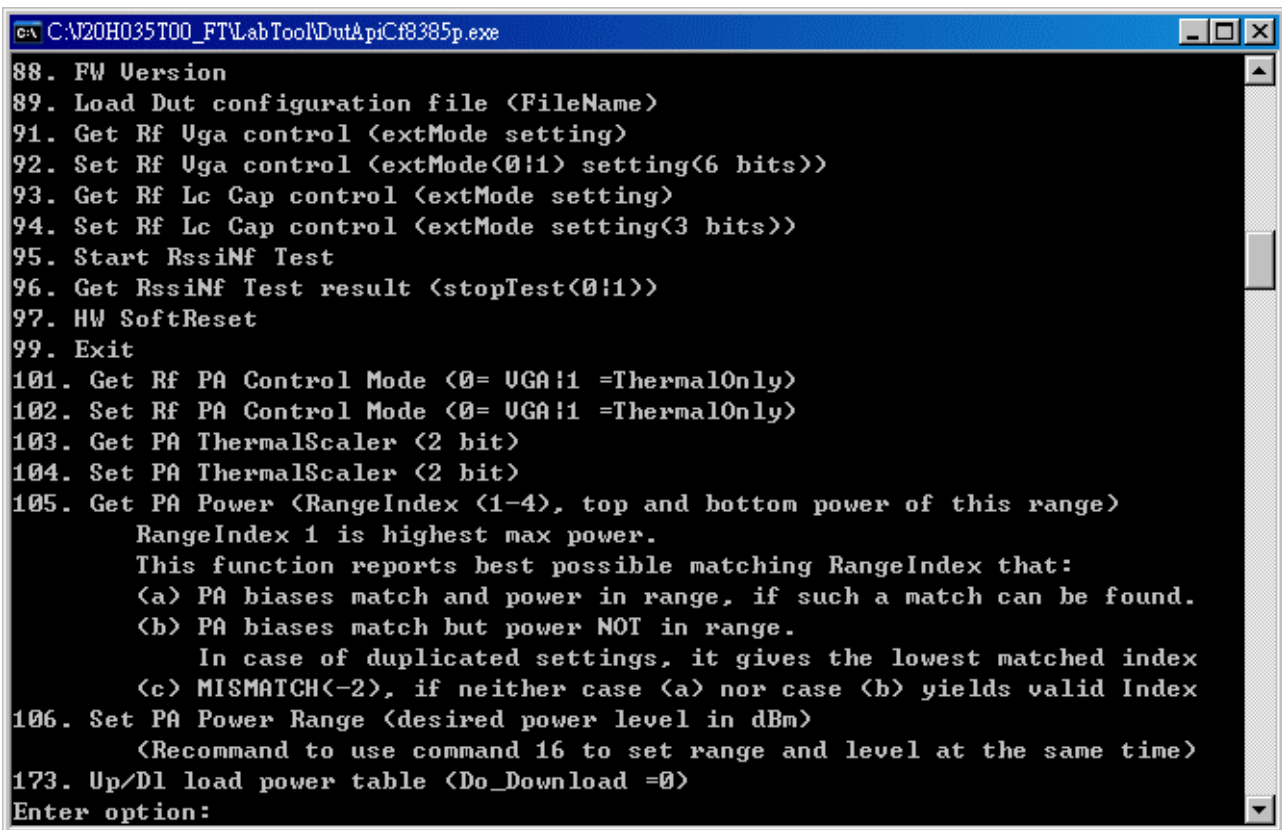
### 3-2 Test in the lab

1. Click on the file “DutApiCi8385p.exe”



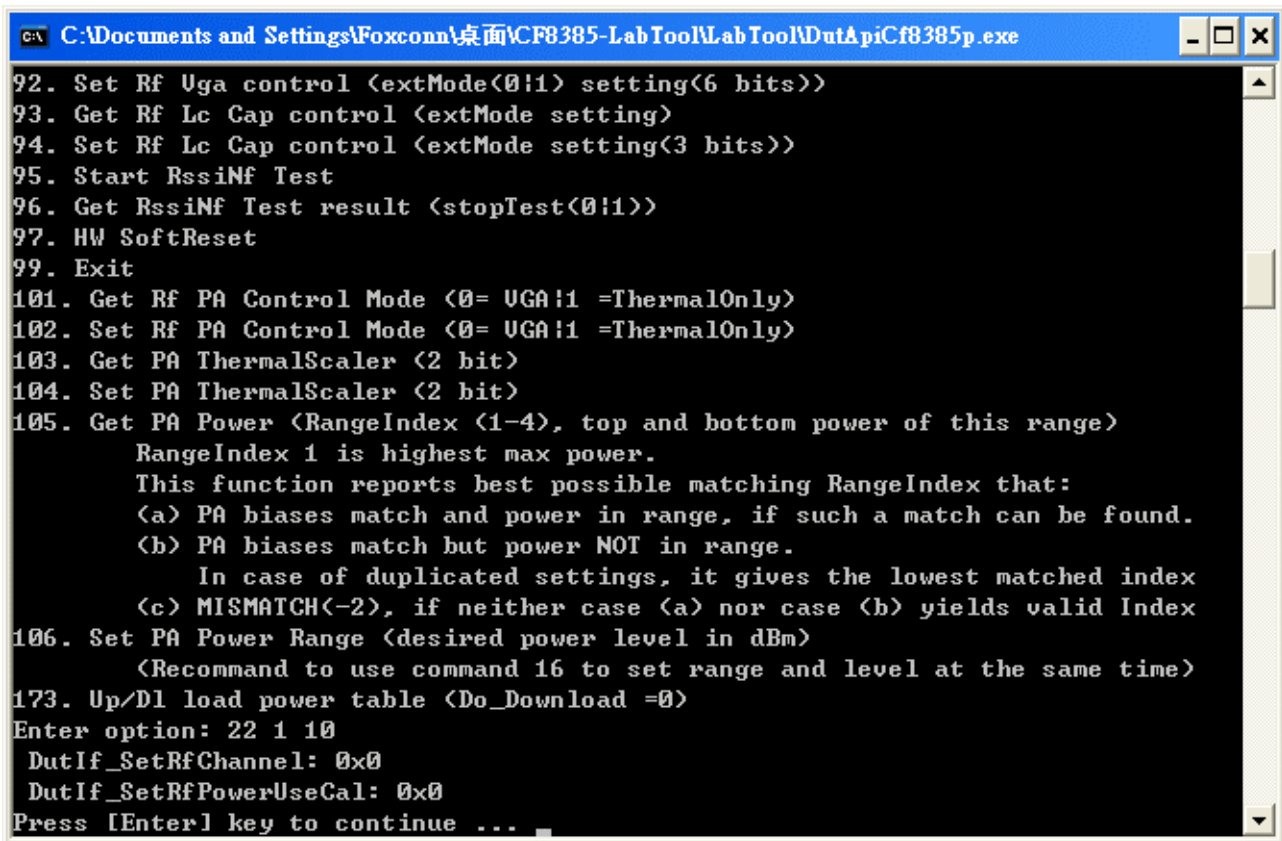


2. Enter the test program.



```
C:\N20H035T00_FT\Lab Tool\Lab Tool\Dut\ApiCf8385p.exe
88. FW Version
89. Load Dut configuration file <FileName>
91. Get Rf Uga control <extMode setting>
92. Set Rf Uga control <extMode<0:1> setting<6 bits>>
93. Get Rf Lc Cap control <extMode setting>
94. Set Rf Lc Cap control <extMode setting<3 bits>>
95. Start RssiNf Test
96. Get RssiNf Test result <stopTest<0:1>>
97. HW SoftReset
99. Exit
101. Get Rf PA Control Mode <0= UGA:1 =ThermalOnly>
102. Set Rf PA Control Mode <0= UGA:1 =ThermalOnly>
103. Get PA ThermalScaler <2 bit>
104. Set PA ThermalScaler <2 bit>
105. Get PA Power <RangeIndex <1-4>, top and bottom power of this range>
    RangeIndex 1 is highest max power.
    This function reports best possible matching RangeIndex that:
    (a) PA biases match and power in range, if such a match can be found.
    (b) PA biases match but power NOT in range.
    In case of duplicated settings, it gives the lowest matched index
    (c) MISMATCH<-2>, if neither case (a) nor case (b) yields valid Index
106. Set PA Power Range <desired power level in dBm>
    <Recommand to use command 16 to set range and level at the same time>
173. Up/Dl load power table <Do_Download =0>
Enter option:
```

3. Output Power



```
C:\Documents and Settings\Foxconn\桌面\CF8385-Lab Tool\Lab Tool\Dut\ApiCf8385p.exe
92. Set Rf Uga control <extMode<0:1> setting<6 bits>>
93. Get Rf Lc Cap control <extMode setting>
94. Set Rf Lc Cap control <extMode setting<3 bits>>
95. Start RssiNf Test
96. Get RssiNf Test result <stopTest<0:1>>
97. HW SoftReset
99. Exit
101. Get Rf PA Control Mode <0= UGA:1 =ThermalOnly>
102. Set Rf PA Control Mode <0= UGA:1 =ThermalOnly>
103. Get PA ThermalScaler <2 bit>
104. Set PA ThermalScaler <2 bit>
105. Get PA Power <RangeIndex <1-4>, top and bottom power of this range>
    RangeIndex 1 is highest max power.
    This function reports best possible matching RangeIndex that:
    (a) PA biases match and power in range, if such a match can be found.
    (b) PA biases match but power NOT in range.
    In case of duplicated settings, it gives the lowest matched index
    (c) MISMATCH<-2>, if neither case (a) nor case (b) yields valid Index
106. Set PA Power Range <desired power level in dBm>
    <Recommand to use command 16 to set range and level at the same time>
173. Up/Dl load power table <Do_Download =0>
Enter option: 22 1 10
    DutIf_SetRfChannel: 0x0
    DutIf_SetRfPowerUseCal: 0x0
Press [Enter] key to continue ...
```

```
C:\Documents and Settings\Foxconn\桌面\CF8385-Lab Tool\Lab Tool\DutApiCf8385p.exe
91. Get Rf Uga control <extMode setting>
92. Set Rf Uga control <extMode(0:1) setting(6 bits)>
93. Get Rf Lc Cap control <extMode setting>
94. Set Rf Lc Cap control <extMode setting(3 bits)>
95. Start RssiNf Test
96. Get RssiNf Test result <stopTest(0:1)>
97. HW SoftReset
99. Exit
101. Get Rf PA Control Mode (0= UGA:1 =ThermalOnly)
102. Set Rf PA Control Mode (0= UGA:1 =ThermalOnly)
103. Get PA ThermalScaler (2 bit)
104. Set PA ThermalScaler (2 bit)
105. Get PA Power <RangeIndex (1-4), top and bottom power of this range>
    RangeIndex 1 is highest max power.
    This function reports best possible matching RangeIndex that:
    (a) PA biases match and power in range, if such a match can be found.
    (b) PA biases match but power NOT in range.
    In case of duplicated settings, it gives the lowest matched index
    (c) MISMATCH(-2), if neither case (a) nor case (b) yields valid Index
106. Set PA Power Range <desired power level in dBm>
    <Recommand to use command 16 to set range and level at the same time>
173. Up/Dl load power table <Do_Download =0>
Enter option: 25 1 4
DutIf_SetTxDutyCycle: 0x00000000
Press [Enter] key to continue ...
```

```
C:\Documents and Settings\Foxconn\桌面\CF8385-Lab Tool\Lab Tool\DutApiCf8385p.exe
91. Get Rf Uga control <extMode setting>
92. Set Rf Uga control <extMode(0:1) setting(6 bits)>
93. Get Rf Lc Cap control <extMode setting>
94. Set Rf Lc Cap control <extMode setting(3 bits)>
95. Start RssiNf Test
96. Get RssiNf Test result <stopTest(0:1)>
97. HW SoftReset
99. Exit
101. Get Rf PA Control Mode (0= UGA:1 =ThermalOnly)
102. Set Rf PA Control Mode (0= UGA:1 =ThermalOnly)
103. Get PA ThermalScaler (2 bit)
104. Set PA ThermalScaler (2 bit)
105. Get PA Power <RangeIndex (1-4), top and bottom power of this range>
    RangeIndex 1 is highest max power.
    This function reports best possible matching RangeIndex that:
    (a) PA biases match and power in range, if such a match can be found.
    (b) PA biases match but power NOT in range.
    In case of duplicated settings, it gives the lowest matched index
    (c) MISMATCH(-2), if neither case (a) nor case (b) yields valid Index
106. Set PA Power Range <desired power level in dBm>
    <Recommand to use command 16 to set range and level at the same time>
173. Up/Dl load power table <Do_Download =0>
Enter option: 25
DutIf_SetTxDutyCycle: 0x00000000
Press [Enter] key to continue ...
```

```
C:\Documents and Settings\Foxconn\桌面\CF8385-Lab Tool\Lab Tool\Dut\ApiCf8385p.exe
92. Set Rf Uga control <extMode(0:1) setting(6 bits)>
93. Get Rf Lc Cap control <extMode setting>
94. Set Rf Lc Cap control <extMode setting(3 bits)>
95. Start RssiNf Test
96. Get RssiNf Test result <stopTest(0:1)>
97. HW SoftReset
99. Exit
101. Get Rf PA Control Mode <0= UGA:1 =ThermalOnly>
102. Set Rf PA Control Mode <0= UGA:1 =ThermalOnly>
103. Get PA ThermalScaler <2 bit>
104. Set PA ThermalScaler <2 bit>
105. Get PA Power <RangeIndex <1-4>, top and bottom power of this range>
    RangeIndex 1 is highest max power.
    This function reports best possible matching RangeIndex that:
    (a) PA biases match and power in range, if such a match can be found.
    (b) PA biases match but power NOT in range.
    In case of duplicated settings, it gives the lowest matched index
    (c) MISMATCH(-2), if neither case (a) nor case (b) yields valid Index
106. Set PA Power Range <desired power level in dBm>
    <Recommand to use command 16 to set range and level at the same time>
173. Up/Dl load power table <Do_Download =0>
Enter option: 17 1 4
DutIf_SetTxDataRate: 0x00000000
DutIf_SetTxContMode: 0x00000000
Press [Enter] key to continue ...
```

```
C:\Documents and Settings\Foxconn\桌面\CF8385-Lab Tool\Lab Tool\Dut\ApiCf8385p.exe
91. Get Rf Uga control <extMode setting>
92. Set Rf Uga control <extMode(0:1) setting(6 bits)>
93. Get Rf Lc Cap control <extMode setting>
94. Set Rf Lc Cap control <extMode setting(3 bits)>
95. Start RssiNf Test
96. Get RssiNf Test result <stopTest(0:1)>
97. HW SoftReset
99. Exit
101. Get Rf PA Control Mode <0= UGA:1 =ThermalOnly>
102. Set Rf PA Control Mode <0= UGA:1 =ThermalOnly>
103. Get PA ThermalScaler <2 bit>
104. Set PA ThermalScaler <2 bit>
105. Get PA Power <RangeIndex <1-4>, top and bottom power of this range>
    RangeIndex 1 is highest max power.
    This function reports best possible matching RangeIndex that:
    (a) PA biases match and power in range, if such a match can be found.
    (b) PA biases match but power NOT in range.
    In case of duplicated settings, it gives the lowest matched index
    (c) MISMATCH(-2), if neither case (a) nor case (b) yields valid Index
106. Set PA Power Range <desired power level in dBm>
    <Recommand to use command 16 to set range and level at the same time>
173. Up/Dl load power table <Do_Download =0>
Enter option: 17
DutIf_SetTxContMode: 0x00000000
Press [Enter] key to continue ...
```

# Appendix A –Wireless Notices

## U.S. Regulatory Wireless Notice

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:**

- 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,
- 3) Limit the operation channels in CH1 to CH11 for both infrastructure and Ad Hoc mode in 2.4G band by supplied firmware programming tool.

As long as 3 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 FCC ID: MCLJ20H035".

#### **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.

### **Canadian Regulatory Wireless Notice**

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions:

- 1) this device may not cause interference and
- 2) this device must accept any interference, including interference that may cause undesired operation of the device

This device has been designed to operate with an antenna having a maximum gain of 2.80dBi.

Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the EIRP is not more than required for successful communication.

#### **IMPORTANT NOTE:**

#### **IC Radiation Exposure Statement:**

This equipment complies with IC 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.