Integration Instruction

General:

This modular approval is limited to OEM/Integrators installation only.
OEM integrators are responsible for ensuring that the end-user has no manual instructions to remove or install module.

FCC Regulations:

To integrate this module into the host, the host manufacturer is responsible for the applicable FCC rules, including the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules

In the user manual of the host device, the following statements are required to be included.

- 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 device 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 radiated 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.

  Changes or modifications not expressly approved by the party responsible for compliance could void the user‘s authority to operate the equipment.

IMPORTANT NOTE:
FCC Radiation Exposure Statement:

This module has been certified by FCC as single module approval with the following restrictions:

1. For RF exposure compliance to FCC requirement, the module should be installed in the host to keep the minimum of 2 mm separation to the user.
2. The chip antenna with antenna gain 0.43 dBi is permanently attached to the module, and for compliance the antenna shall not be modified. A separate approval is required for all other operating configurations, including different antenna configurations.
3. If any other simultaneous transmission radio is installed in the host platform together with this module, or the separation distance of the module to the user cannot be kept equal or larger than 2 mm, a separate RF exposure assessment and FCC equipment authorization is required.

When the module is installed in the host device, the FCC ID label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily re-moved. If not, a second label must be placed on the outside of the final device that contains the following text: “Contains FCC ID: RLY-WLM01”.

IC Regulations:

To integrate this module into the host, the host manufacturer is responsible for the applicable Industry Canada rules, including the limits for a Class B digital device, pursuant to ICES-003 of the Industry Canada Rules

In the user manual of the host device, the following statements are required to be included.

- This device complies with Industry Canada license-exempt RSS standard(s). 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 Class B digital apparatus complies with Canadian ICES-003.

Pour intégrer ce module dans l'hôte, le fabricant hôte est responsable des règles applicables d'Industrie Canada, y compris les limites d'un appareil numérique de classe B, conformément à la norme NMB-003 du règlement d'Industrie Canada

Dans le manuel d'utilisation de l'appareil hôte, les énoncés suivants doivent être inclus.

- Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:
  (1) l'appareil ne doit pas produire de brouillage, et
  (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement."

  Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

IMPORTANT NOTE:
IC Radiation Exposure Statement:

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment.

1. This device has been certified by IC RSS-102 as modular approval with the following restrictions:
2. For RF exposure compliance to IC requirement, the module should be installed in the host to keep the minimum of 2 mm separation to the user.
3. The chip antenna with antenna gain 0.43 dBi is permanently attached to the module, and for compliance the antenna shall not be modified. A separate approval is required for all other operating configurations, including different antenna configurations.
4. If any other simultaneous transmission radio is installed in the host platform together with this module, or the separation distance of the module to the user cannot be kept equal or larger than 2 mm, a separate RF exposure assessment and RSS-102 equipment certification is required.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p) is not more than necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Labeling Requirements for the Host Device (from Section 3.2.1, RSS-Gen, Issue 3, December 2010): The host device shall be properly labeled to identify the module within the host device. The Industry Canada certification label of a module shall be clearly visible at all times when installed in the host device, otherwise the host device must be labeled to display the Industry Canada certification number of the module, preceded by the words ―Contains transmitter module, or the word ―Contains, or similar wording expressing the same meaning, as follows: Contains transmitter module IC: 10809A-WLM01.

Table of Contents

Chapter 1: Introduction

The wifi module(model name: MLW01) measures just around 35.5 mm and 26.3 mm wide that give mobile workers the freedom of staying connected to wifi Storage. The Storage includes HD/SD Card/USB, which can share information to people. The wifi module is expected to be able to reach 150Mbps, which is still far more than sufficient to read /write data to storage.

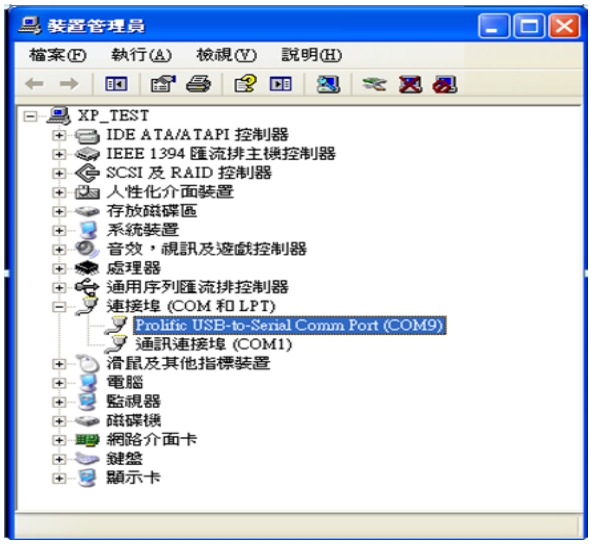
Features

- 1T1R Mode with 150Mbps PHY Rate
- Complies with IEEE 802.11n and IEEE 802.11 b/g standards
- Support 802.11n 20/40MHz band width.
- Supports WPA, WPA2

Chapter 2:
WiFi Module control form UART Guideline

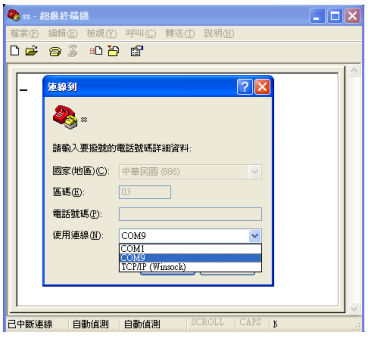
3.1 Setting device com port :

Open Device Manager => com and LPT (Make sure com port No.)



3.2 Using “HyperTerminal” => Choose COM PORT => port setting

=>



=>

3.3 Tx/Rx command setting introduction

iwpriv ra0 set ATE=ATESTART = > ATE function start

iwpriv ra0 set ATETXMODE=1 = > set Mode 0: CCK, 1: OFDM, 2: HT-Mix, 3: GreenField,

iwpriv ra0 set ATETXMCS=7 = > set Data rate

iwpriv ra0 set ATETXBW=0 = > 0=20MHz ;1=40MHz

iwpriv ra0 set ATECHANNEL=1 = > Ch=1~14 for 802.11 b/g;

iwpriv ra0 set ATETXPOW0=5 = > set power level of antenna 0 (decmial) ;range =0~31 for 802.11 b/g

iwpriv ra0 set ATETXCNT=200 = > Tx frame count(decmial)

iwpriv ra0 set ATETXFREQOFFSET=25 = > Set frequency offset 0(decimal)

iwpriv ra0 set ATE=TXFRAME = > Start TX

iwpriv ra0 set ResetCounter=0 = > clear Rx buffer data

iwpriv ra0 set ATE=RXFRAME = > Start RX

iwpriv ra0 stat = > receive signal

Note :

1. ATETXPOW0 value control out power to spec power from DACvalue。
2. ATETXFREQOFFSET value control Frequency error to +/- 2ppm。
3. ATETXMODE (Modulation) and ATETXMCS (data rate) setting table:

802.11b

MODE = 0, Legacy CCK	
MCS = 0	Long Preamble CCK 1Mbps
MCS = 1	Long Preamble CCK 2Mbps
MCS = 2	Long Preamble CCK 5.5Mbps
MCS = 3	Long Preamble CCK 11Mbps
MCS = 8	Short Preamble CCK 1Mbps, * illegal rate
MCS = 9	Short Preamble CCK 2Mbps
MCS = 10	Short Preamble 5.5Mbps
MCS = 11	Short Preamble 11Mbps

802.11g

MODE = 1, Legacy OFDM	
MCS = 0	6Mbps
MCS = 1	9Mbps
MCS = 2	12Mbps
MCS = 3	18Mbps
MCS = 4	24Mbps
MCS = 5	36Mbps
MCS = 6	48Mbps
MCS = 7	54Mbps

802.11n

MODE = 2, HT Mixed Mode	MODE = 3, HT Greenfield
MCS = 0 (1S)	(BW=0, SGI=0) 6.5Mbps
MCS = 1	(BW=0, SGI=0) 13Mbps
MCS = 2	(BW=0, SGI=0) 19.5Mbps
MCS = 3	(BW=0, SGI=0) 26Mbps
MCS = 4	(BW=0, SGI=0) 39Mbps
MCS = 5	(BW=0, SGI=0) 52Mbps
MCS = 6	(BW=0, SGI=0) 58.5Mbps
MCS = 7	(BW=0, SGI=0) 65Mbps
MCS = 32	(BW=1, SGI=0) HT duplicate 6Mbps
When MCS=32, only SGI option is supported. BW and STBC option are not supported. (BW =1, STBC=0	

Example_1 : 802.11 g, Tx , 54Mbps, 2412 MHz

iwpriv ra0 set ATE=ATESTART

iwpriv ra0 set ATEDA=FF:FF:FF:FF:FF:FF

iwpriv ra0 set ATESA=00:0C:43:25:66:40

iwpriv ra0 set ATEBSSID=11:22:33:44:55:66

iwpriv ra0 set ATETXGI=0

iwpriv ra0 set ATETXLEN=1024

iwpriv ra0 set ATETXCNT=9999999

iwpriv ra0 set ATETXCHN=1

iwpriv ra0 set ATECHANNEL=1

iwpriv ra0 set ATETXMODE=1

iwpriv ra0 set ATETXMCS=7

iwpriv ra0 set ATETXBW=0

iwpriv ra0 set ATETXPOW0=7

iwpriv ra0 set ATETXFREQOFFSET=30

iwpriv ra0 set ATE=TXFRAME

Example_2 Rx Test Command

iwpriv ra0 set ResetCounter=0

iwpriv ra0 set ATE=ATESTART

iwpriv ra0 set ATEDA=FF:FF:FF:FF:FF:FF

iwpriv ra0 set ATESA=00:0C:43:25:66:40

iwpriv ra0 set ATEBSSID=11:22:33:44:55:66

iwpriv ra0 set ATETXGI=0

iwpriv ra0 set ATETXANT=0

iwpriv ra0 set ATECHANNEL=1

iwpriv ra0 set ATETXBW=0

iwpriv ra0 set ATETXFREQOFFSET=30

iwpriv ra0 set ATE=RXFRAME

iwpriv ra0 stat