User Manual

ET-WM200U, AJ-WM30P

WLAN USB CARD

v.01 draft

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Revision History

Edition #	*Reason for revision*	*Issue date*	*Written by*
V 01	♦ Initial Document	June 17, 2010	Troy chen
	♦		

Chapter 1 Introduction

1. Introduction

WN7511A is a wireless 1x1 802.11n USB Adapter which enables wireless networking systems to attain data communication speeds up to 150 megabits-per-second (Mbps), while remaining backward compatible to the existing installed base of Wi-Fi systems worldwide. It supports operation to the IEEE 802.11b and IEEE 802.11g ,and draft IEEE 802.11n standards. WN7511A will enable a next generation of high-data-rate platforms for operation in the 2.4 GHz band that deliver a five-fold speed increase. The cost and performance advantages will make it an ideal solution for high bandwidth enterprise applications, such as wireless video conferencing and large file transfers. It is compatible with 802.11g standard's mandatory modulation schemes—Complementary Code Keying (CCK), which is used in 802.11b, and Orthogonal Frequency Division Multiplexing (OFDM), used in 802.11g and draft 802.11n. Using CCK ensures backward-compatibility with the installed Wi-Fi 802.11b base, while OFDM provides the speed required for today's high-bandwidth applications.

1.1 Product Features

- High speed for wireless LAN connection, RX up at 150 Mbps data rate.
- Backward compatible to the existing IEEE 802.11b/g WLAN infrastructure.
- User-friendly utility to configure SSID, security setup and site survey.
- Wireless data encryption with 64, 128 encryption for security.
- Internal antenna
- Support USB v2.0
- Key type housing
- WPS Button for easy security

1.2 Applications

- Home networking for device sharing.
- Wireless multimedia.
- Wireless office for extension Ethernet range.
- Mobile networking for notebook PC, Desktop PC, Monitor, PDA with USB port ready device.

Chapter 2 Hardware

2.1 General Overview

- USB 2.0 Interface and 802.11 n chipset-on-board design.
- Antenna: 1 Internal Antenna on board

2.2 Hardware Architecture

Ralink 3070 single chip USB2.0

2.3 Main Chipset Information

RT3070: An 1T1R MIMO MAC + Baseband processor and RF with fully forward compatible with IEEE 802.11n draft2.0 standard. RT3070 is also backward compatible with the 802.11 b/g standard.

2.4 PCB dimension

16.5mmx43mm

Chapter 3 Software

3.1 Operating System Supported

- Linux (Kernel 2.6 and later), Win CE (5.0 , 6.0)

3.2 Wireless Mode Supported

- AP (Infrastructure) mode(Software AP)
- AP (Infrastructure) Client mode
- Ad-hoc mode

3.3 Security

- AP (Infrastructure) mode supports
  - Static WEP that support both 64 and 128 bit keys.
  - WPA(TKIP) with PSK
  - WPA2(AES) with PSK
- Ad-hoc mode supports
  - None (plaintext)
  - Static WEP that supports both 64 and 128 bit keys.

3.4 Configuration

- User should be able to select
  - Mode of operations: AP or ad-hoc mode
  - Different security modes: none (plaintext), static WEP, WPA(TKIP)/PSK, WPA2(AES)PSK as supported by the respective operating mode.
  - Channel to operate on
- User should be able to perform key management on WPA/PSK, WPA2/PSK and static WEP as supported by the respective operating mode
- A Utility to set SSID, WEP key, site survey and dynamically view configuration and receiving signal quality.
- Support for transmitting power configurable.
- WPS support(Pin code)
- WPS Hard Button

Chapter 4 Appearance

LED 1	One Power/Link (Green)
OFF	All others states
ON	Radio On and Associated
Blink	Radio On and Scanning
Flash	Radio On and Associated and TX/RX Data

Chapter 5 Specifications

- Frequency Band:

  Draft 802.11n Radio: 2.4 GHz

  802.11g Radio: 2.4 GHz

  802.11b Radio: 2.4 GHz

USA – FCC	2412~2462MHz (Ch1~Ch11)
Canada – IC	2412~2462MHz (Ch1~Ch11)
Europe – ETSI	2412~2472MHz (Ch1~Ch13)
France	2412~2472MHz (Ch1~Ch13)
Japan – STD-T66/STD-33	2412~2484MHz (Ch1~Ch14)

- Operating Channels:

  IEEE 802.11b/g/n compliant:

  11 channels (US, Canada)

  13 channels (ETSI)

  13 channels (France)

  14 channels (Japan)

- Transmit Power and Sensitivity:

  TX Output Power:(Typical)

  11g 15 +/- 2 dBm

  11n 15 +/- 2 dBm

  Rx Sensitivity:(Typical)

  -86 dBm @6 Mbps

  -85 dBm @9 Mbps

  -84 dBm @12 Mbps

  -81dBm @18 Mbps

  -79dBm @24 Mbps

  -75dBm @36 Mbps

  -71dBm @48 Mbps

  -69 dBm @54 Mbps

  -64 dBm @64-QAM, 20MHz channel spacing

  -61 dBm @64-QAM, 40MHz channel spacing

- Modulation

DBPSK @1Mbps
DQPSK@2Mbp
CCK@5.5/11Mbps
BPSK@6/9 Mbps
QPSK@12/18Mbps
16-QAM@24Mbps
64-QAM@48/54Mpb and above, RX up to 150Mbps

- Current consumption(5V DC):

TX: 170mA, HT20; 180mA, HT40 at 3.3V
RX: 160mA, HT20; 160 mA HT40 at 3.3V
Idle: 90mA
Radio off 52mA

- Operating Temperature: 0 ~ 65 ^{o}C ambient
- Storage Temperature: -10 ~ 80 ^{o}C ambient
- Humidity: 5 ~ 90% and must be non-condensing

- Regulation and certification compliance available:
  - WHQL
  - ETSI/CE
  - ESD: EN61000-4-2, which specifies 4kV contact and 8kV air discharge.

FCC 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. End users must follow the specific operating instructions for satisfying RF exposure compliance. To maintain compliance with FCC RF exposure compliance requirements, please follow operation instruction as documented in this manual.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2.4GHz operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

This EUT is compliance with SAR for general population/uncontrolled exposure limits in ANSI/IEEE C95.1-1999 and had been tested in accordance with the measurement

methods and procedures specified in OET Bulletin 65 Supplement C.

SAR compliance has been established in typical laptop computer(s) with USB slot, and product could be used in typical laptop computer with USB slot. Other application like handheld PC or similar device has not been verified and may not compliance with related RF exposure rule and such use shall be prohibited.

This EUT is compliance with SAR for general population/uncontrolled exposure limits in ANSI/IEEE C95.1-1999 and had been tested in accordance with the measurement methods and procedures specified in OET Bulletin 65 Supplement C. This equipment should be installed and operated with minimum distance 0.5 cm between the radiator & your body.

References

- Ralink Reference Design Functional Specification
- IEEE 802.11b Standard Specification
- IEEE 802.11g Standard Specification
- IEEE 802.11n draft Standard Specification