Product Specification

WN8522B-LF-ZZ

IEEE Dual Band 802.11n USB2.0 Adapter

v.01 draft

Table of Contents

Chapter 1 Introduction 4
1. Introduction 4
1.1 Product Features 4
1.2 Applications 4
Chapter 2 Hardware 5
2.1 General Overview 5
2.2 Hardware Architecture 5
2.3 Main Chipset Information 5
Chapter 3 Software 5
3.1 Operating System Supported 6
3.2 Wireless Mode Supported 6
3.3 Security 6
3.4 Configuration 6
Chapter 4 Appearance 7
Chapter 5 Specifications 7
Table 1: Modulation Scheme and Nominal Transmit Power 11

Revision History

Edition #	*Reason for revision*	*Issue date*	*Written by*
V 01	♦ Initial Document	Dec 22th 2009	Troy Chen
	♦		

Chapter 1 Introduction

1. Introduction

WN8522B is a dual band wireless 802.11n USB Adapter which enables wireless networking systems to attain data communication speeds up to 300 megabits-per-second (Mbps), while remaining backward compatible to the existing installed base of Wi-Fi systems worldwide. It supports operation to the IEEE 802.11a/b and IEEE 802.11g ,and draft IEEE 802.11n standards.

WN8522B 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 300 Mbps data rate.
- Backward compatible to the existing IEEE 802.11a/b/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: 2 Internal Antenna on board

2.2 Hardware Architecture

Broadcom 4323 single chip USB2.0

2.3 Main Chipset Information

BCM4323: MIMO MAC + Baseband processor and RF with fully forward compatible with IEEE 802.11n draft2.0 standard.

2.4 PCB dimension

PCB dimension : 2.0 cm x 5.2 cm

WPS button should be supported

Chapter 3 Software

3.1 Operating System Supported

- Windows 2000 , Windows XP, Windows Vista

3.2 Wireless Mode Supported

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

3.3 Security

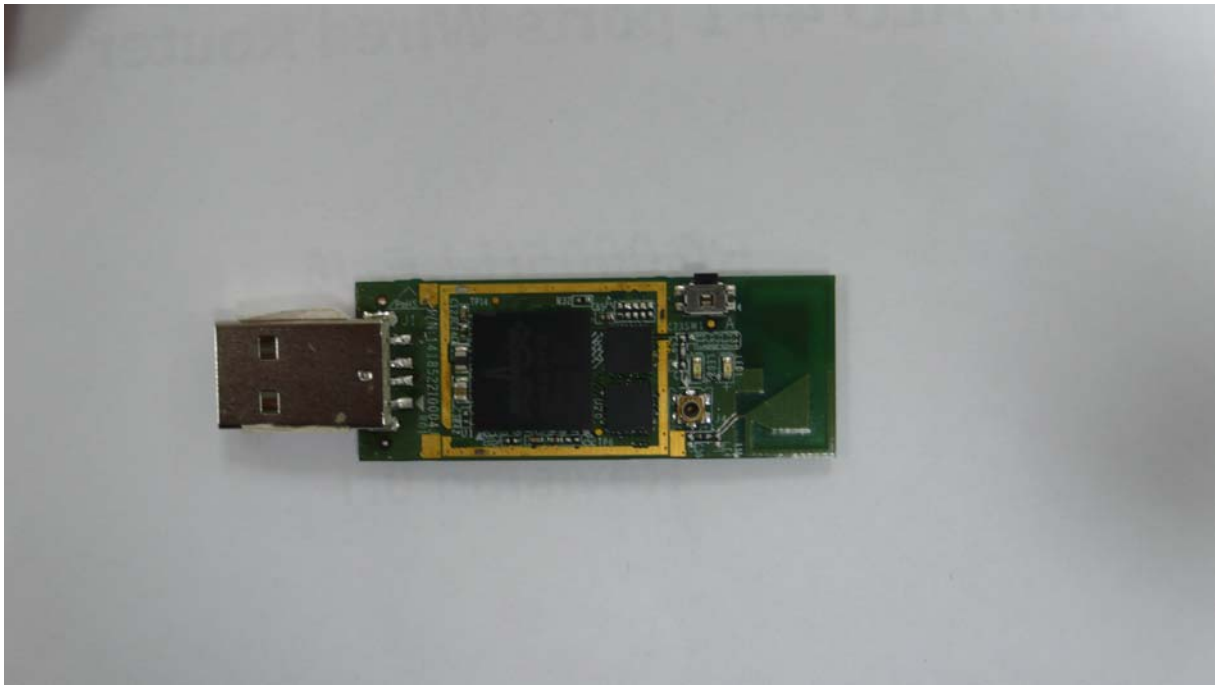
- AP (Infrastructure) mode supports
  - Static WEP that support both 64 and 128 bit keys.
  - WPA(TKIP) with PSK
- Ad-hoc mode supports
  - None (plaintext)
  - Static WEP that supports both 64 and 128 bit keys.

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 or 802.1X/LEAP as supported by the respective operating mode.
  - Channel to operate on
- User should be able to perform key management on WPA/PSK and static WEP as supported by the respective operating mode
- A Utility to set SSID, WEP key, site survey, profile manager and dynamically view configuration and receiving signal quality.
- Support for transmitting power configurable.
- WPS support(Pin code)
- WPS Hard Button

Chapter 4 Appearance

LED1	**One Power/Link (Green/Blue)**
OFF	All others states
ON	Radio On and Associated
Blink	Radio On and Scanning
Flash	Radio On and Associated and TX/RX Data
LED2	WPS/Security Blue
OFF	No security/Not connected
ON	Connected with security
Blink	In the process of connecting



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)
Japan – STD-T66/STD-33	2412~2484MHz (Ch1~Ch14)

802.11a Radio : 5 GHz

5.150~5.250GHz

5.250~5.350 GHz

5.470~5.725 GHz

5.725~5.850GHz

- Operating Channels:

  IEEE 802.11b/g/n compliant:

  11 channels (US, Canada)

  13 channels (ETSI)

  14 channels (Japan)

- Transmit Power and Sensitivity:

  TX Output Power:(Typical)

  11b 18.5 +/- 1 dBm

  11g 14.5 +/- 1 dBm@54Mbps

  11n 14.5 +/- 1 dBm

  Rx Sensitivity:(Typical)

  -84 dBm @11 Mbps

  -72 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 300Mbps

- Current consumption(5V DC):
  TX: <ToBeUpdate>mA Max, @MCS7, 40MHz
  RX: <ToBeUpdate> mA Max, @MCS15, 40MHz
  Power Saving: <ToBeUpdate> mA
  Radio OFF mode: <ToBeUpdate> mA

- Operating Temperature: 0 ~ 40 ^{o}C ambient
- Storage Temperature: -10 ~ 70 ^{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.

References

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

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.

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 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.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

This device is going to be operated in 5.15~5.25GHz frequency range, it is restricted in indoor environment only.

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.

IMPORTANT NOTE:

This module is intended for OEM integrator. The OEM integrator is still responsible for the FCC compliance requirement of the end product, which integrates this module.

20cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of 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.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: RAX-WN8522B". If the size of the end product is larger

than 8x10cm, then the following FCC part 15.19 statement has to also be available on the label: This device complies with Part 15 of 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.