

Product Specification

WN8522B

IEEE Dual Band 802.11n USB2.0 Adapter

v.01 draft

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Revision History

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	◆			

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@48/54Mbps 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 °C ambient
- ◆ Storage Temperature: -10 ~ 70 °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

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FCC Statement :

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:

Federal Communication Commission (FCC) Radiation Exposure Statement

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.

IC Statement :

This Class B digital apparatus complies with Canadian ICES-003.

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.

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

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.

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 that permitted for successful communication.

The device could automatically discontinue transmission in case of absence of information to transmit, or operational failure. Note that this is not intended to prohibit transmission of control or signaling information or the use of repetitive codes where required by the technology.

The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems.

The maximum antenna gain permitted (for devices in the bands 5250-5350 MHz and 5470-5725 MHz) to comply with the e.i.r.p. limit.

The maximum antenna gain permitted (for devices in the band 5725-5825 MHz) to comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate, as stated in section A9.2(3).

High-power radars are allocated as primary users (meaning they have priority) of the bands 5250-5350 MHz and 5650-5850 MHz and these radars could cause interference and/or damage to LE-LAN devices.

IMPORTANT NOTE:

IC Radiation Exposure Statement

This EUT is compliance with SAR for general population/uncontrolled exposure limits in IC RSS-102 and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528. This equipment should be installed and operated with minimum distance 0.5cm between the radiator & your body.