

# Product Specification

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## ***WN8522D 8 -CP***

**Dual Band WLAN Adapter**

*v.01 draft*

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## Revision History

<i>Edition #</i>	<i>Reason for revision</i>	<i>Issue date</i>	<i>Written by</i>
V 01	◆ Initial Document	August 10 <sup>th</sup> 2010	Troy Chen
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# Chapter 1 Introduction

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## 1. Introduction

WN8522D 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.
- ◆ Support USB v2.0

### 1.2 Applications

- ◆ Home networking for device sharing.
- ◆ Wireless multimedia.

## Chapter 2 Hardware

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### 2.1 General Overview

- ◆ USB 2.0 Interface and 802.11 n chipset-on-board design.
- ◆ Antenna: 2 external Antennas on board

### 2.2 Hardware Architecture

Broadcom 43236 single chip USB2.0

### 2.3 Main Chipset Information

- ◆ **BCM43236** is a dual band IEEE 802.11n-compliant MAC/PHY/Radio complete system on a chip with 2.4Ghz and 5GHz internal PA

## Chapter 3 Software

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### 3.1 Operating System Supported

- ◆ Windows 2000, XP, Vista
- ◆ Linux Driver

### 3.2 Wireless Mode Supported

- ◆ AP (Infrastructure) Client 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.

## Chapter 4 Appearance

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## 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) TBD

11b 16 +/- 1.5 dBm

11g 15 +/- 1.5 dBm@54Mbps

11n 11 +/- 1.5 dBm

Rx Sensitivity:(Typical)

-69dBm at HT20 m15 2.4GHz

-91dBm at HT20 m0 2.4GHz

-69dBm at HT20 m15 5.0GHz

-90dBm at HT20 m0 5.0GHz

### ◆ Modulation

DBPSK @1Mbps

DQPSK@2Mbps



CCK@5.5/11Mbps

BPSK@6/9 Mbps

QPSK@12/18Mbps

16-QAM@24Mbps

64-QAM@48/54Mpb and above

- ◆ Current consumption(5V DC):
  - TX: 2164mW at 11dBm HT40 CH38 2x2
  - RX: 1405mW at 11dBm HT40 CH38 2x2
  - Power Saving: TBD
  - Radio OFF mode: TBD
  
- ◆ Operating Temperature: 0 ~ 60 °C ambient
- ◆ Storage Temperature: -20 ~ 60 °C ambient
- ◆ Humidity: under 85% and must be non-condensing
  
- ◆ Regulation and certification compliance available:
  - ◆ ETSI/CE
  - ◆ FCC
  - ◆ 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:

#### 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's brand name is: Arcadyan Technology Corporation and with a model ID: WN8522D 8-CP. This module is limited to be integrated with typical host device, such as TV application.

. 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 a 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.

**LABEL OF THE END PRODUCT:**

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: RAXWN8522D8CP ". The FCC part 15.19 statement below 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.

## 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.

*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.*

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.

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 that necessary for successful communication.

**IMPORTANT NOTE:**

**IC Radiation Exposure Statement:**

This equipment complies with IC RSS-102 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's brand name is: Arcadyan Technology Corporation and with a model ID: WN8522D 8-CP. This module is limited to be integrated with typical host device, such as TV application. The OEM integrator is still responsible for the IC 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 IC RSS-102 radiation exposure limits set forth for a 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 IC 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. IC statement is required to be available in the users manual: This Class B digital apparatus complies with Canadian ICES-003. 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 IC : 4711A-WN8522D8CP ".