

Product Specification

WN8522B 1-LF-MT

IEEE Dual Band 802.11n USB2.0 module for DTV

v.03 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
2.4	PCB dimension	5
2.5	Antenna features	5
2.6	Antenna dimension	6
Chapter 3	Specifications	7
References		10

Revision History

<i>Edition #</i>		<i>Reason for revision</i>	<i>Issue date</i>	<i>Written by</i>
V 01	◆	Initial Document	April 7, 2009	Katherine Hsieh
V 02	◆	Data Transfer Rate added	April 27, 2009	Andre Lin
V 03	◆	Antenna spec. added	June 15 2009	Andre Lin

Chapter 1 Introduction

1. Introduction

WN8522B 1 is a dual band wireless 802.11n USB module for DTV, Bluray Players, etc.. which enables consumer devices to support wireless connectivity over 802.11a/b/g/n WLAN .

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.
- ◆ Support USB v2.0

1.2 Applications

- ◆ Module for Connected TV

Chapter 2 Hardware

2.1 General Overview

- ◆ USB 2.0 Interface
- ◆ 2 * antenna connectors

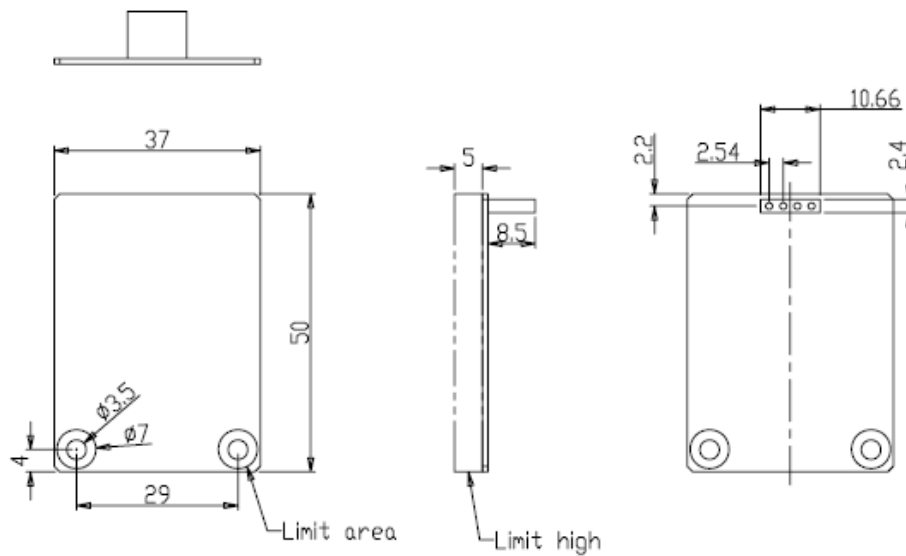
2.2 Hardware Architecture

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

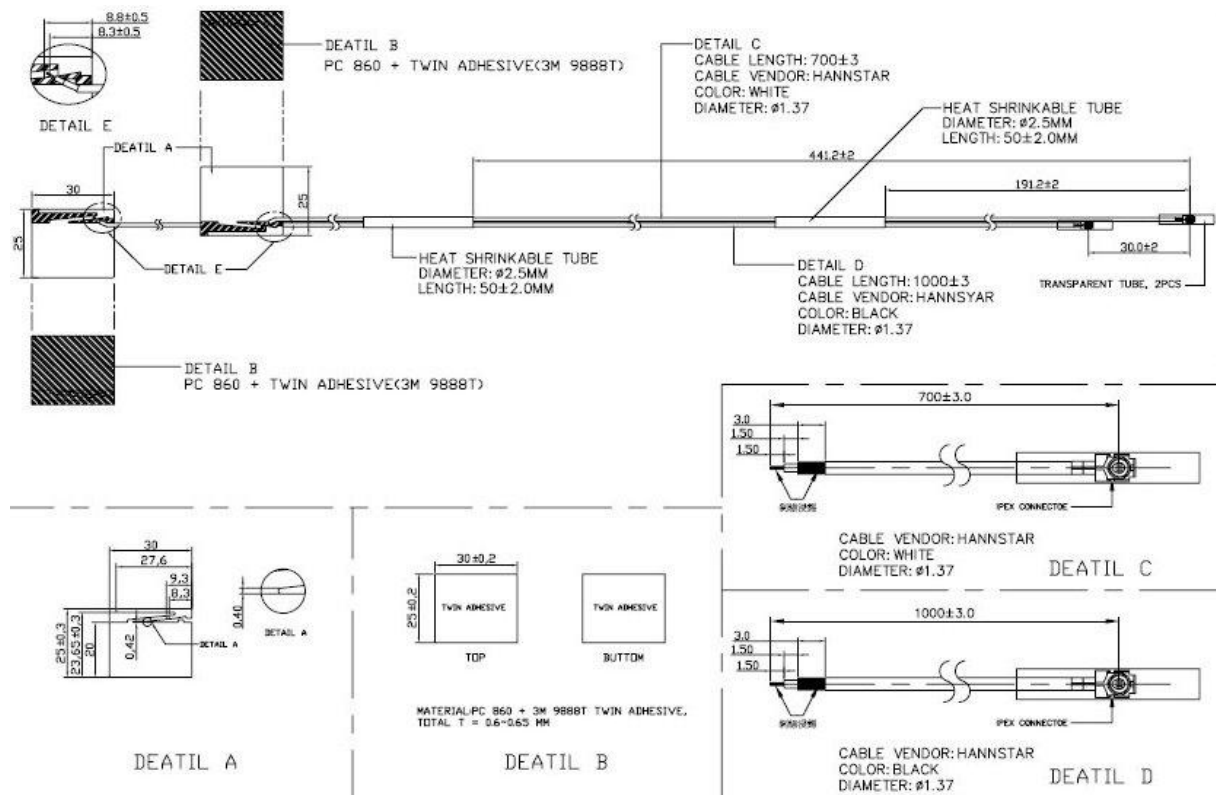


2.5 Antenna Features

Antenna VSWR is < 2.5 .

Antenna Average Gain in the Main Cut is $> -6\text{dBi}$.

2.6 Antenna dimension



Chapter 3 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	2457~2472MHz (Ch10~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)

4 channels (France)

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

◆ Data transfer rate

for 802.11a are (6, 9, 12, 18, 24, 36, 48, 54)

for 802.11b are (1, 2, 5.5, 11)

for 802.11g are (6, 9, 11, 12, 18, 24, 36, 48, 54)

for 11n ht20

MCS15	MCS14	MCS13	MCS12	MCS11	MCS10
130M	117M	104M	78M	52M	39M

MCS9	MCS8	MCS7	MCS6	MCS5	MCS4
26M	13M	65M	58.5M	52M	39M

MCS3	MCS2	MCS1	MCS0
26M	19.5M	13M	6.5M

for 11n ht40

MCS15	MCS14	MCS13	MCS12	MCS11	MCS10
270M	243M	216M	162M	108M	81M

MCS9	MCS8	MCS7	MCS6	MCS5	MCS4
54M	27M	135M	121.5M	108M	81M

MCS3	MCS2	MCS1	MCS0
54M	40.5M	27M	13.5M

◆ 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 °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

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

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.*

For operation within 5.15 ~ 5.25GHz frequency range, it is restricted to indoor use only.

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: MDZVF552XVT-WL ". 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.

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.

The drawings, specifications and the data contain herein are the exclusive property of Arcadyan Technology Corp. issued in strict confidence and shall not, without the prior written permission of Arcadyan Technology Corp., be reproduced, copied or used, in parts or as a whole, for any purpose whatsoever, except the manufacture of articles for Arcadyan Technology Corp.

Arcadyan makes no warranties with respect to the correctness, accuracy or wholeness of this specification. The information in this document is subject to change without notice. Arcadyan reserves the right to make revisions to this document and the product described herein without obligation to notify any person or entity of any such changes.

