

User Manual

WN7522C 1

802.11n Single band WLAN module

V1.0

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	
Chapter 4 Appearance	7
Chapter 5 Specifications	8
Table 1: Modulation Scheme and Nominal Transmit Power	14

Revision History

<i>Edition #</i>		<i>Reason for revision</i>	<i>Issue date</i>	<i>Written by</i>
V 0.1	◆	Initial Document	May 25, 2009	Stephen Fan
V1.0	◆	New USB connector	June 8,2009	Stephen Fan

Chapter 1 Introduction

1. Introduction

WN7522C 1 is a single band wireless 802.11n USB module for Blu-ray players and other multi-media devices. It enables multi-media devices to connect onto 802.11n WLAN network and attain data communication speeds up to 300 megabits-per-second (Mbps). It is also backward compatible to the existing installed base 802.11b/g network.

1.1 Product Features

- ◆ High speed for wireless LAN connection, RX up at 300 Mbps data rate.
- ◆ Backward compatible to the existing IEEE 802.11/b/g WLAN infrastructure.
- ◆ On-board PCB antenna
- ◆ Support USB v2.0

1.2 Applications

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

Chapter 2 Hardware

2.1 General Overview

- ◆ USB 2.0 Interface and 802.11 n chipset-on-board design.

2.2 Hardware Architecture

Broadcom 43231 single chip USB2.0

2.3 Main Chipset Information

- ◆ **BCM43231:** MIMO MAC + Baseband processor and RF with integrated 2.4GHz PA

2.4 PCB dimension:

- PCB Dimensions: 68mm x 21.8mm x 1mm (L x W x H)
- PCBA net weight: around 6g

2.5 Host Interface

- USB 2.0 interface (4-pin connector)

2.5 Antenna

- Single band on-board PCB antennas with 2 dBi antenna gain

Chapter 3 Software

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 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	2457~2472MHz (Ch10~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)

4 channels (France)

14 channels (Japan)

◆ Transmit Power and Sensitivity:

TX Output Power:(Typical)

11b 16.5 +/- 1 dBm

11g 16.5 +/- 1 dBm@54Mbps

11n 15.5 +/- 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

- ◆ Current consumption(5V DC):
 - TX: 380mA Max, @MCS7, 40MHz
 - RX: 350mA Max, @MCS15, 40MHz
 - Power Saving: < 50mA
 - Radio OFF mode: < 100mA

- ◆ 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.

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.

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. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

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.

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: RAXWN7522CJU** ". 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.

Industry Canada Statement

This device complies with RSS-210 of the Industry Canada Rules.

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

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

Cet appareil numérique de la class B est conforme a la norme NMB-003 du Canada.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with Canada radiation exposure limits set forth for uncontrolled environments. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

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

2.4GHz operation of this product in Canada is firmware-limited to channels 1 through 11.

IMPORTANT NOTE:

This module is intended for OEM integrator. 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 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 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-WN7522CJU**".

References

- ◆ IEEE 802.11b Standard Specification
- ◆ IEEE 802.11g Standard Specification
- ◆ IEEE 802.11n draft Standard Specification

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