

# **User Manual**

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# **Product Specification**

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# ***WN7522C 2-LF-19***

**IEEE Single Band 802.11b/g/n USB2.0 Module**

*V1.0*

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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	July 27, 2009	Troy Chen
V02	Revise the Frequency band in France/ Regulation/Security	Nov 4 <sup>th</sup> 2009	Troy Chen

# Chapter 1 Introduction

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## 1. Introduction

WN7522C 2 is a single band wireless 802.11 b/g/n USB module for LG Blu-ray players and home theater corresponding devices. It enables multi-media devices to connect onto 802.11 b/g/n 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 802.11b/g/n WLAN infrastructure.
- ◆ 2 28\*5\*5mm MIFAs
- ◆ 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 b/g/n chipset-on-board design.

### 2.2 Hardware Architecture

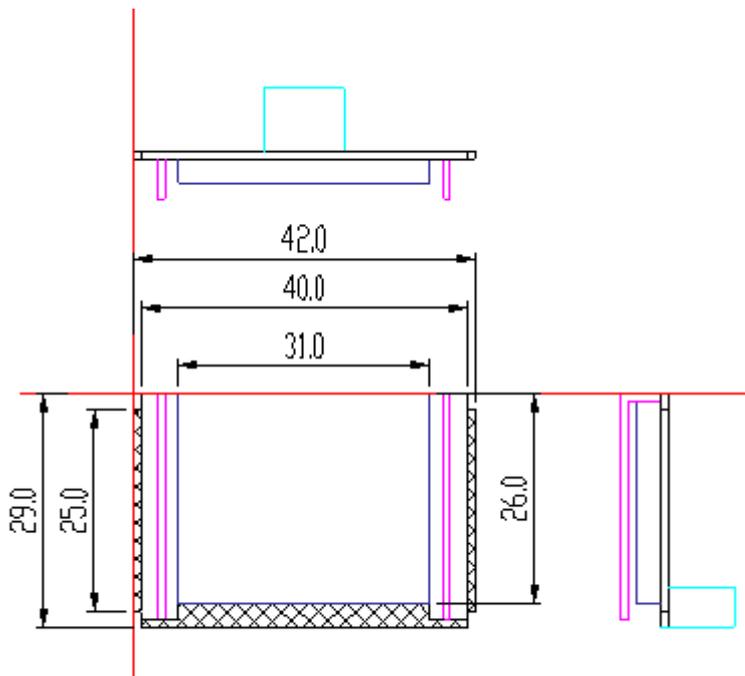
Broadcom 43231 single chip USB2.0

### 2.3 Main Chipset Information

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

### 2.4 PCB dimension:

42mm\*29mm



## 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/WPA2(TKIP/AES) with PSK
- ◆ Ad-hoc mode supports
  - ◆ None (plaintext)
  - ◆ Static WEP that supports both 64 and 128 bit keys.

## Chapter 4 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)

### ◆ 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 16.5 +/- 2 dBm

11g 16.0 +/- 2 dBm@54Mbps

11n 16.0 +/- 2 dBm

Rx Sensitivity:(Typical)

-82 dBm @ 11 Mbps

-68 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

- ◆ Current consumption(5V DC):
  - TX: 380mA Max, @MCS7, 40MHz
  - RX: 350mA Max, @MCS15, 40MHz
  - Power Saving: < 50mA
  - Radio OFF mode: < 100mA
  
- ◆ Operating Temperature: 0 ~ 60 °C ambient
- ◆ Storage Temperature: -10 ~ 70 °C ambient
- ◆ Humidity: 5 ~ 90% and must be non-condensing
  
- ◆ Regulation and certification compliance available:
  - ◆ ETSI/CE
  - ◆ ESD: EN61000-4-2, which specifies 4kV contact and 8kV air discharge.

## References

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

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### **WARNING**

***This document is intended for internal use only. A Non-Disclosure Agreement (NDA) is required to release this document under any circumstances***

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## Chapter 5 Statement

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### Federal Communications Commission (FCC) Statement

15.21

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

15.105(b)

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 or more 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 of the device.

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.

### FCC RF 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. End users must follow the specific operating instructions

for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

### **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 classe B est conforme à la norme NMB-003 du Canada

### **IC Radiation Exposure Statement:**

This equipment complies with IC 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.

**NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.**

Note: This equipment contains module, FCC ID: BEJ9QK-WN7522C2 and IC: 2703H-WN7522C2, which qualifies as an UNLICENSED MODULAR TRANSMITTER per FCC Public Notice DA 00-1407 and RSS-Gen Section: 7.1.1. It has been tested and found to comply with Part 15.247 of the FCC Rules and RSS-210 issue 7:2007, Annex 8.

Required labeling.

Any device incorporating this module must include an external, visible, permanent marking or label which states:

“Contains FCC ID: BEJ-9QKWN7522C2”

“Contains IC: 2703H-WN7522C2.”

Failure to comply with this requirement will void the user's authority to operate any device that incorporates this module.

This equipment complies with FCC/IC radiation exposure limits set forth for uncontrolled equipment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65 and RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment has very low levels of RF energy that it is deemed to comply without testing of specific absorption ratio(SAR).

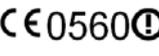
**CE Notified Body statement:**

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Hereby, the device manufacturer declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Explosive device proximity warning – Do not operate a portable transmitter (such as a wireless network device) near unshielded blasting caps or in an explosive environment unless the device has been modified to be qualified for such use.

This device can be operated in the EU without restrictions indoor.

This CE marking is valid for EU non-harmonized telecommunications products  R&TTE Directive (1999/5/EC) issued by the Commission of the European Community.