PRODUCT SPECIFICATION

802.11n, 2T2R Single Band Wireless LAN USB Module

WN4616L

Version 1.1

User Manual

PRODUCT DESCRIPTION

The Wireless LAN USB Module is a sleek miniature Wireless LAN device working under 2.4GHz frequency band. Compatible with IEEE standards, 802.11b, 802.11g and support 802.11n. It provides full functional wireless access within wireless environments anytime, anywhere at a data rate of up to 300Mbps. The WN4616L comes with an USB 2.0 interface providing the maximum transfer rate of 480Mbps, the form factor is an embedded module.

WN4616L embody 2 transmitter 2 receiver (2T2R) architecture to ensure reliable and cost-effective wireless connectivity at high throughput over an extended range. Optimized RF architecture and base band algorithms provide super performance with low-power consumption.

PRODUCT FEATURES

- Operate at 2.4GHz band
- 300Mbps PHY Rate Support
- 2T2R Modes
- 20MHz/40MHz Bandwidth Support
- USB 2.0 support for date rates up to 12Mbps full speed and 480Mbps high speed
- IEEE standards support: IEEE 802.11b/g and 802.11n
- 802.11i- WEP 64/128, AES, TKIP
- Low power with advanced Power Management
- Embedded CPU with host off-load capability
- Support WoW function
- RoHS compliance

Product specifications

Main chipset

MAC/Baseband/RF: Realtek RTL8192EU

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Functional Specifications

Standard	IEEE802.11b; IEEE 802.11g; IEEE802.11n
Bus Interface	Universal Serial Bus (USB2.0)
Data Rate	802.11b: 　　11, 5.5, 2, 1 Mbps 802.11g: 　　54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: 　　MCS 0 to 15 for HT20MHz 　　MCS 0 to 15 for HT40MHz
Media Access Control	CSMA/CA with ACK
Radio Technology	*802.11b*: 　　CCK, DQPSK, DBPSK *802.11g*: 　　64QAM, 16 QAM, QPSK, BPSK *802.11n*: 　　BPSK, QPSK, 16QAM, 64QAM
Network architecture	Ad-hoc mode (Peer-to-Peer) Infrastructure mode
Operating Channel	*2.4GHz* 　　11: (Ch. 1-11) – United States 　　13: (Ch. 1-13) – Europe 　　14: (Ch. 1-14) – Japan
Frequency Range	*802.11 b & g* 　　2.412 ~ 2.462 GHz – N. America 　　2.412 ~ 2.484 GHz – Japan 　　2.412 ~ 2.472 GHz – Europe ETSI
Receiver Sensitivity	*802.11b:* Less than -76dBm *802.11g:* Less than -82dBm @ 6Mpbs Less than -65dBm @54Mbps *802.11n:* Less than -82dBm @ MCS0 Less than -64dBm @ MCS7
Security	64-bit, 128-bit WEP, TKIP, AES, WPA, WPA2, WPS IEEE 802.11i
Operating Voltage	5V ±5% I/O supply voltage
OS supported	Windows, Linux(embedded system)
Power Consumption	*Standby: 196mA* *TX: 369mA* *RX: 238mA*
Antenna Type	Dual Metal Antenna

*Environmental factors dependent

ENVIRONMENTAL

Operating

Operating Temperature: -10 to 75 C (14 to 167 F)
Relative Humidity: 5-90% (non-condensing)

Storage

Temperature: -40 to 85 C (-40 to 185 F)
Relevant Humidity: 5-95% (non-condensing)

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REGULATORY STATEMENTS

FCC Certification

The United States Federal Communication Commission (FCC) and the Canadian Department of Communications have established certain rules governing the use of electronic equipment.

Part15, Class B

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 equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part15 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 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.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

CAUTION

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

2. For product available in the USA market, only channel 1~11 can be operated. Selection of other channels is not possible.

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 user 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: **PPQ-WN4616L** ".

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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.

Appropriate measurements (e.g. 15 B compliance) and if applicable additional equipment authorizations (e.g. Verification , Doc) of the host device to be addressed by the integrator/manufacturer.

This device complies with Industry Canada licence-exempt RSS standard(s). 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.

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.

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.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains transmitter module IC: 4491A-WN4614L".

Contient le module d'émission IC: 4491A-WN4614L
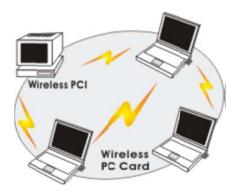
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INTRODUCTION

The **802.11b/g/n 2T2R WLAN** is a device that allows you connect your computer to a wireless local area network (LAN). A wireless LAN allows your system to use wireless Radio Frequency (RF) technology to transmit and receive data without physically attaching to the network. The Wireless protocols that come with this product ensure data security and isolation from interference generated by other radio frequencies.

This card also allows you to take full advantage of your computer's mobility with access to real-time information and online services anytime and anywhere. In addition, this device eliminates the bother of pulling cable through walls and under furniture. It even allows you to place your system in locations where cabling is impossible. Modifying and augmenting networks has never been so easy.
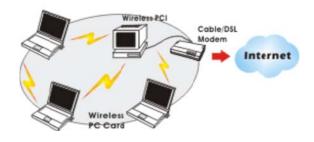
Wireless Network Options

The Peer-to-Peer Network

This network installation lets you set a small wireless workgroup easily and quickly. Equipped with USB port, you can share files and printers between each PC and laptop.
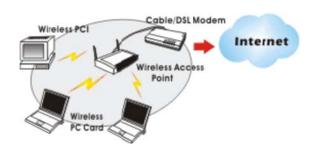

You can also use one computer as an Internet Server to connect to a wired global network and share files and information with other computers via a wireless LAN.

The Access Point Network

The network installation allows you to share files, printers, and Internet access much more conveniently. With Wireless LAN Cards, you can connect wireless LAN to a wired global network via an **Access Point**.

SOFTWARE INSTALLATION

Install the device

1. Make sure the computer is turned off. Remove the expansion slot cover from the computer.

2. Carefully slide the **802.11b/g/n 2T2R WLAN** into the USB slot. Push evenly and slowly and ensure it is properly seated.

3. After the device has been connected to your computer, turn on your computer. Windows will detect the new hardware and then automatically copy all of the files needed for networking.
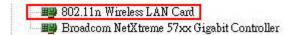
Install the Driver & Utility

1. Exit all Windows programs. Insert the included CD-ROM into your computer. The CD-ROM will run automatically.

2. Manually install driver from Device Manager

HARDWARE INSTALLATION

Verification

To verify if the device exists in your computer and is enabled, go to **Start > Control Panel** > **System** (> **Hardware)** > **Device Manager**. Expand the **Network Adapters** category. If the **802.11n Wireless LAN Card** is listed here, it means that your device is properly installed and enabled.

NETWORK CONNECTION

Once the device driver is well installed, a network setting described in the following should be also established.

1. Click the Wireless icon to enable Windows Zero Configure.

2. Select the AP then click the **Connect**

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