

# User manual

## 802.11n, 2T2R Single Band Wireless LAN USB Module

### WN4611L

Version 1.0

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#### Change History:

| Revision    | Date       | Author    | Change List |
|-------------|------------|-----------|-------------|
| Version 1.0 | 2013/12/03 | Kaysa Lee | Preliminary |

|                   |                             |
|-------------------|-----------------------------|
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| Editor: Kaysa Lee | Project Leader: Sunny Hsieh |

# PRODUCT SPECIFICATION

## 802.11n, 2T2R Single Band Wireless LAN USB Module

### WN4611L

Version 1.0

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(Please Sign Back by FAX. For Confirming the Spec Only, not an Official Agreement for OEM/ODM Business)

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## PRODUCT DESCRIPTION

The WN4611L Wireless LAN USB Module is a sleek miniature Wireless LAN device working under 2.4GHz frequency band. The WN4611L is 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 WN4611L comes with an USB 2.0 interface providing the maximum transfer rate of 480Mbps, the form factor is an embedded module.

WN4611L 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 data 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
- HF compliance

## Product specifications

### Main chipset

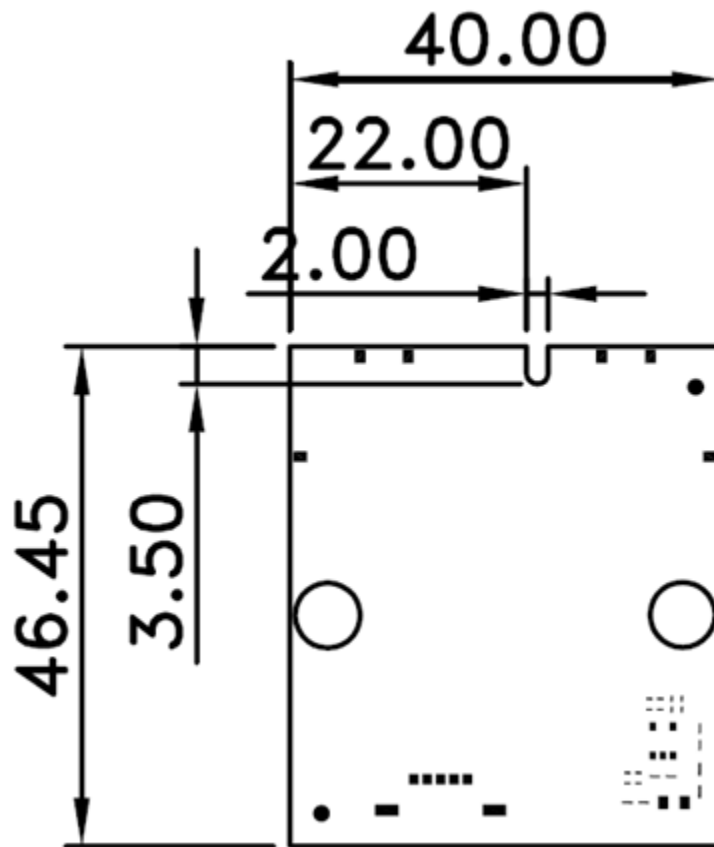
MAC/Baseband/RF: Realtek 8192EU

## Functional Specifications

|                                                              |                                                                                                                                                                                         |                                |                                                                                            |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------|
| <b>Standard</b>                                              | IEEE802.11b; IEEE 802.11g; IEEE802.11n                                                                                                                                                  |                                |                                                                                            |
| <b>Bus Interface</b>                                         | Universal Serial Bus (USB2.0)                                                                                                                                                           |                                |                                                                                            |
| <b>Data Rate</b>                                             | 802.11b:<br>11, 5.5, 2, 1 Mbps<br>802.11g:<br>54, 48, 36, 24, 18, 12, 9, 6 Mbps<br>802.11n:<br>MCS 0 to 15 for HT20MHz<br>MCS 0 to 15 for HT40MHz                                       |                                |                                                                                            |
| <b>Media Access Control</b>                                  | CSMA/CA with ACK                                                                                                                                                                        |                                |                                                                                            |
| <b>Radio Technology</b>                                      | <b>802.11b:</b><br>CCK, DQPSK, DBPSK<br><b>802.11g:</b><br>64QAM, 16 QAM, QPSK, BPSK<br><b>802.11n:</b><br>BPSK, QPSK, 16QAM, 64QAM                                                     |                                |                                                                                            |
| <b>Network architecture</b>                                  | Ad-hoc mode (Peer-to-Peer )<br>Infrastructure mode                                                                                                                                      |                                |                                                                                            |
| <b>Operating Channel</b>                                     | <b>2.4GHz</b><br>11: (Ch. 1-11) – United States<br>13: (Ch. 1-13) – Europe<br>14: (Ch. 1-14) – Japan                                                                                    |                                |                                                                                            |
| <b>Frequency Range</b>                                       | <b>802.11 b &amp; g</b><br>2.412 ~ 2.462 GHz – N. America<br>2.412 ~ 2.484 GHz – Japan<br>2.412 ~ 2.472 GHz – Europe ETSI                                                               |                                |                                                                                            |
| <b>Transmit Output Power</b><br>(Tolerance: +1.5dBm/-1.5dBm) | <b>802.11b</b><br>16dBm                                                                                                                                                                 | <b>802.11g</b><br>14dBm@54Mbps | <b>802.11n</b><br>13dBm@HT20 MCS0<br>13dBm@HT20 MCS7<br>12dBm@HT40 MCS0<br>12dBm@HT40 MCS7 |
| <b>Receiver Sensitivity</b>                                  | <b>802.11b:</b><br>Less than -76dBm<br><b>802.11g:</b><br>Less than -82dBm @ 6Mbps<br>Less than -65dBm @54Mbps<br><b>802.11n:</b><br>Less than -82dBm @ MCS0<br>Less than -64dBm @ MCS7 |                                |                                                                                            |
| <b>Security</b>                                              | 64-bit, 128-bit WEP, TKIP, AES, WPA, WPA2, WPS<br>IEEE 802.11i                                                                                                                          |                                |                                                                                            |
| <b>Operating Voltage</b>                                     | 5V ±5% I/O supply voltage                                                                                                                                                               |                                |                                                                                            |
| <b>OS supported</b>                                          | Windows, Linux(embedded system)                                                                                                                                                         |                                |                                                                                            |
| <b>Power Consumption</b>                                     | <b>Standby: 196mA</b><br><b>TX: 369mA</b><br><b>RX: 238mA</b>                                                                                                                           |                                |                                                                                            |
| <b>Antenna Type</b>                                          | Dual Metal Antenna                                                                                                                                                                      |                                |                                                                                            |

\*Environmental factors dependent

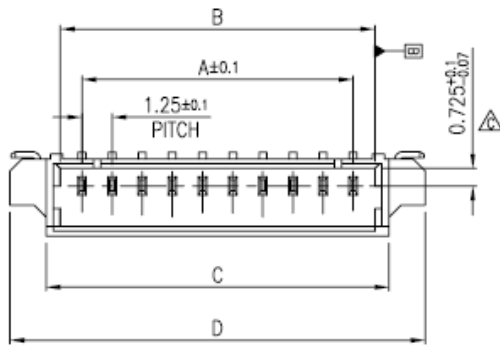
## Mechanical



## Product Picture



# Connector SPEC (CONNECTOR 1.25mm 1\*6P 50271-0060N-001 SMD(宏致))

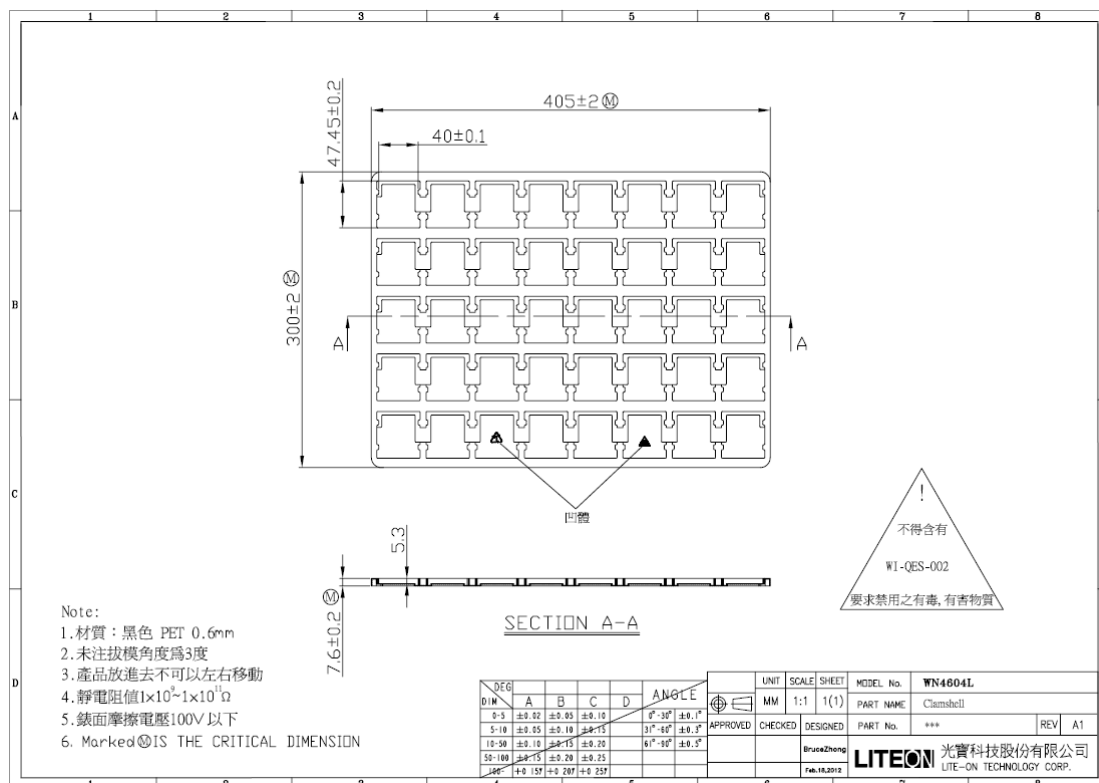


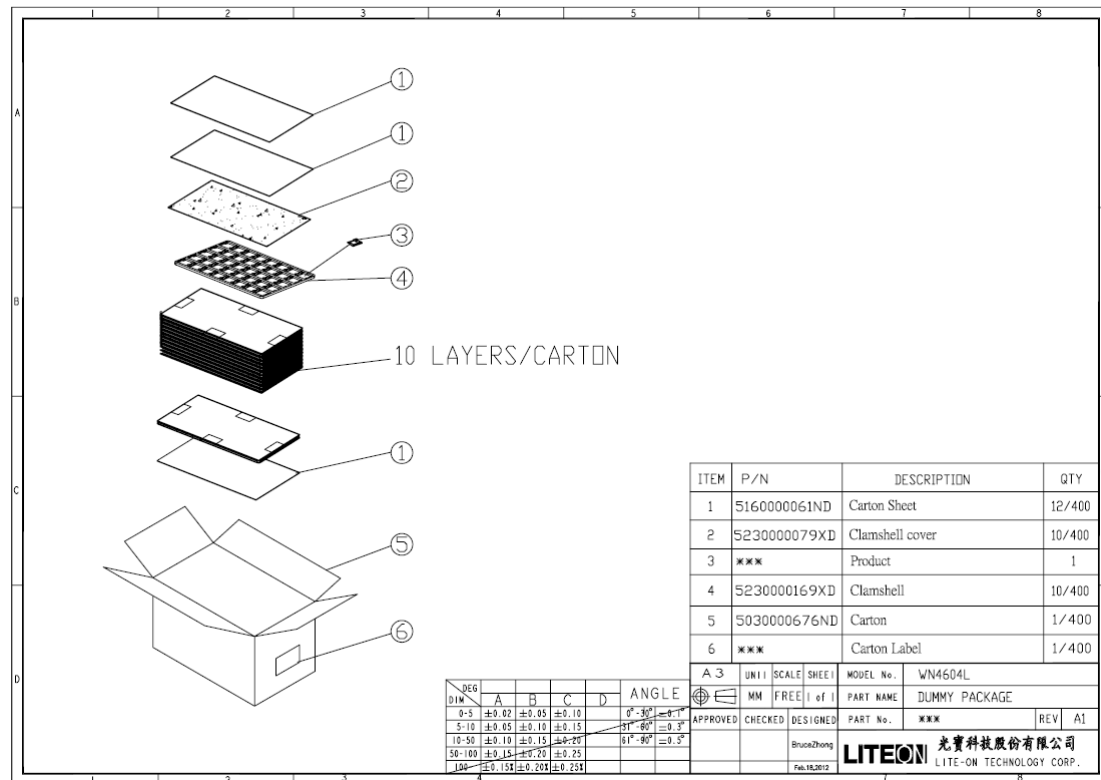
| CKT | Dim A | Dim B | Dim C | Dim D | Dim E |
|-----|-------|-------|-------|-------|-------|
| 2   | 1.25  | 3.05  | 4.25  | 7.25  | 7.15  |
| 3   | 2.50  | 4.30  | 5.50  | 8.50  | 8.40  |
| 4   | 3.75  | 5.55  | 6.75  | 9.75  | 9.65  |
| 5   | 5.00  | 6.80  | 8.00  | 11.00 | 10.90 |
| 6   | 6.25  | 8.05  | 9.25  | 12.25 | 12.15 |

## Pin Definition

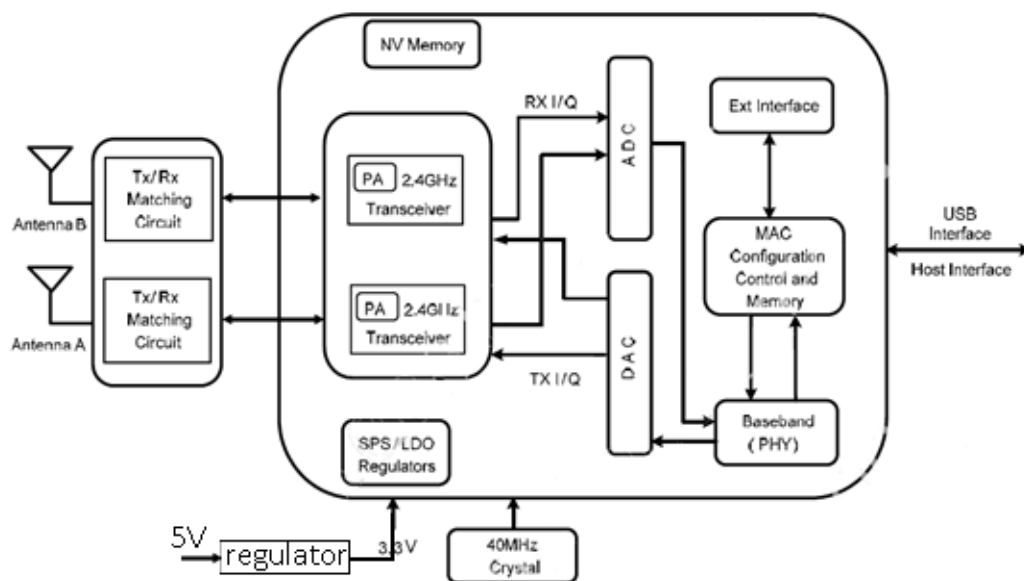
| Pin Number | Pin Name                        |
|------------|---------------------------------|
| 1          | +5V                             |
| 2          | D-                              |
| 3          | D+                              |
| 4          | GND                             |
| 5          | WOW - Device wake Host function |
| 6          | Host inform Device function     |

## Packing





## Block Diagram



## EEPROM INFORMATION

|            |                      |
|------------|----------------------|
| Reg Domain | World Wide13<br>0x20 |
| Vendor ID  | 0x0BDA               |
| Product ID | 0x818B               |

## 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)

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.

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.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

FCC RF Radiation Exposure Statement: 1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. 2.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

#### Information to OEM integrator

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user manual of the end product. The user manual which is provided by OEM integrators for end users must include the following information in a prominent location.

1. To comply with IC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter, except in accordance with IC multi-transmitter product

transmitter product procedures.

2. Only those antennas with same type and lesser gain filed under this IC ID number can be used with this device.

3. The regulatory label on the final system must include the statement: "Contains IC ID: xxxx".

4. The final system integrator must ensure there is no instruction provided in the user manual or customer documentation indicating how to install or remove the transmitter module except such device has implemented two-way authentication between module and the host system.