

# Product Specifications

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## ***WN7911B-WM***

### IEEE 802.11n SDIO Module

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V 01

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## Revision History

| <i>Edition #</i> | <i>Reason for revision</i> | <i>Issue date</i> | <i>Written by</i> |
|------------------|----------------------------|-------------------|-------------------|
| V 0.1            | ◆ Initial Document         | July 10 2012      | Troy Chen         |
|                  |                            |                   |                   |
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# Chapter 1 Introduction

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## 1.1 Introduction

WN7911B an industrial wireless 802.11n SDIO module enable wireless networking systems to attain data transmission speeds up to 150 megabits-per-second (Mbps), while remaining backward compatible to the existing installed base of Wi-Fi systems worldwide. It supports operation to the IEEE 802.11b and IEEE 802.11g ,and IEEE 802.11n standards.

## 1.2 Product Features

- ◆ Operate at ISM frequency bands (2.4GHz)
- ◆ SDIO/GSPI interface for WiFi
- ◆ IEEE standards support: IEEE 802.11b, IEEE 802.11g, IEEE 802.11n, IEEE 802.11d, IEEE 802.11e, IEEE 802.11h, IEEE 802.11i
- ◆ Enterprise level security which can apply WPA2 certification for WiFi.
- ◆ WiFi 1 transmitter and 1 receiver allow data rates supporting up to 150 Mbps downstream and 150 Mbps upstream PHY rates.
- ◆ Full-featured software utility for easy configuration and management
- ◆ RoHS compliance
- ◆ Low Halogen compliance

## 1.3 Applications

- ◆ Mobile networking for Tablet PC

## Chapter 2 Hardware

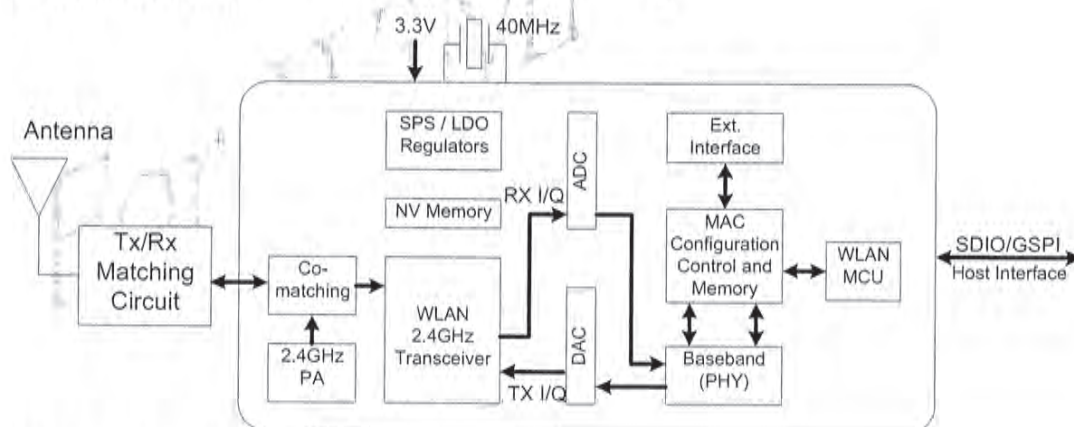
### 2.1 General Specification

|                      |   |
|----------------------|---|
| Host Interface       | SDIO/GSPI   |
| Standard             | IEEE 802.11n, 802.11b/g, 802.11a  |
| Modulation           | 802.11b:<br>CCK, DQPSK, DBPSK<br>802.11g:<br>64 QAM, 16 QAM, QPSK, BPSK<br>802.11n:<br>BPSK, QPSK, 16-QAM, 64-QAM   |
| Data Rate            | 8802.11b:<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 7 for HT20MHz;<br>MCS 0 to 7 for HT40MHz  |
| Network Architecture | Ad-hoc mode (Peer-to-Peer )<br>Infrastructure mode  |
| Operating Frequency  | Draft 802.11n Radio: 2.4 GHz<br>802.11g Radio: 2.4 GHz<br>802.11b Radio: 2.4 GHz<br>USA – FCC<br>2412~2462MHz (Ch1~Ch11)<br>Canada – IC<br>2412~2462MHz (Ch1~Ch11)<br>Europe – ETSI<br>2412~2472MHz (Ch1~Ch13)<br>Japan – STD-T66/STD-33<br>2412~2484MHz (Ch1~Ch14) |
| Operating Channel    | WiFi 2.4GHz:<br>11: (Ch. 1-11) – United States  |



|                            |   |
|----------------------------|---|
|                            | 13: (Ch. 1-13) – Europe<br>14(ch1-14)– Japan<br>2.400GHz ~ 2.4835 GHz                                   |
| Security                   | WPA, WPA-PSK, WPA2, WPA2-PSK,<br>WEP 64bit & 128bit, IEEE 802.11x, IEEE<br>802.11i                      |
| Antenna Connector          | One antenna allowing transmission or<br>reception on both, simultaneously                               |
| Operating System Supported | Windows XP/Vista/Win7   |
| Temperatures               | Operating Temperature: -10°C to +70 °C<br><br>Storage<br>Temperature: -40°C to +80°C<br>(non-operating) |
| Humidity                   | 5-90  |

## 2.2 Block Diagram



## 2.3 Radio Specification

- ◆ Transmit Power and Sensitivity:  
TX Output Power:(Typical)  
11b 16 +/- 2.5 dBm

11g 14+/- 2.5 dBm@54Mbps

11n 13 +/- 2.5 dBm

Rx Sensitivity:(Typical)

-84 dBm @11 Mbps

-73dBm @54 Mbps

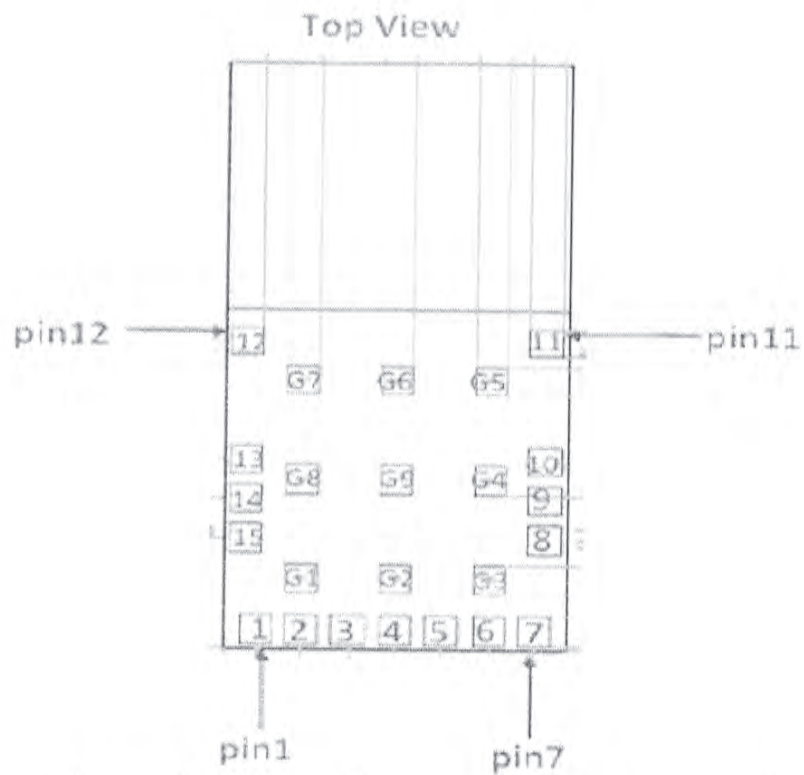
-71dBm @64-QAM, 20MHz channel spacing

-67dBm @64-QAM, 40MHz channel spacing

## 2.4 Ping Assignment

Pin Definition

| PIN# | Type     | Pin Description   |
|------|----------|---|
| 1    | I/O      | SDIO Data Line0   |
| 2    | I/O      | SDIO Data Line 1  |
| 3    |          | Ground  |
| 4    | I        | SDIO Data Clock Input   |
| 5    | I/O      | SDIO Data Command Input   |
| 6    | I/O      | SDIO Data Line 2  |
| 7    | I/O      | SDIO Data Line 3  |
| 8    | P        | Shut down internally  |
| 9    | O<br>I/O | LED pins( Active Low)<br>Share with GPIO 5, can be selected by control register |
| 10   | I/O      | General Purpose I/O pin<br>Tie it to ground if not use                          |
| 11   |          | Ground  |
| 12   |          | Ground  |
| 13   | I/O      | General Purpose Input/Output  |
| 14   | P        | VDD 3.3V  |
| 15   | P        | VDD for SDIO pin, the power supply is same as the signal of SDIO bus (3.3V~1.8) |



TOP VIEW



(TOP VIEW)

|                 |                                 |                                   |                                   |
|-----------------|---------------------------------|-----------------------------------|-----------------------------------|
| Dimensions (mm) | Length                          | Width                             | Height                            |
|                 | 25<br>(Tolerance: $\pm 0.1$ mm) | 12.5<br>(Tolerance: $\pm 0.1$ mm) | 2.1<br>(Tolerance: $\pm 0.15$ mm) |

*For body-worn operating conditions please use belt-clips, holsters, and/or accessories that have no metallic component in the assembly and must provide at least 1 cm separation between the device and the user's body.*

## **Chapter 4 FCC Statement**

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### **Federal Communication Commission Interference Statement**

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 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.

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.

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

**This device is intended only for OEM integrators under the following conditions:**

1. Transmitter module may not be co-located with any other transmitter or antenna.
2. The antenna of the module must be installed to keep at least 1cm from end-user.

As long as the conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

**IMPORTANT NOTE:** In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

### **End Product Labeling**

The product can be kept as far as possible from the user body or set the device to lower output power if such function is available. The final end product must be labeled in a visible area with the following: “Contains FCC ID: **2ACFIWM7911B**”. The grantee's FCC ID can be used only when all FCC compliance requirements are met.

### **Manual Information To the End User**

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’s manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.