

Operating manual

LawMate

WN7911B-ZZ

WiFi Module

V 01

Notice : The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IMPORTANT NOTE: To comply with the FCC RF exposure compliance requirements, no change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATIONS 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 UNDESRIED OPERATION

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: 2AHTX-WN7911B-ZZ"

When the module is installed inside another device, the user manual of this device must contain below warning statements;

1. 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.
 - (2) This device must accept any interference received, including interference that may cause undesired operation.
2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

本產品符合低功率電波輻射性電機管理辦法 第十二條~第十四條等條文規定

- * 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
- * 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。
- * 前項合法通信，指依電信法規定作業之無線電通信。
- * 低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。
- * 電磁波曝露量MPE 標準值1mW/cm2，送測產品實測值為：0.00008277mW/cm2。

本模組於取得認證後，將依規定於模組本體標示審定合格標籤，並要求平台廠商於平台上標示「本產品內含射頻模組 CCAJxxLPxxxxTx」

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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	Wilber

Chapter 1 Introduction

1.1 Introduction

WN7911Ban industrial wireless 802.11n SDIO module enable wireless networking systems to attain data transmission speeds up to 150megabits-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

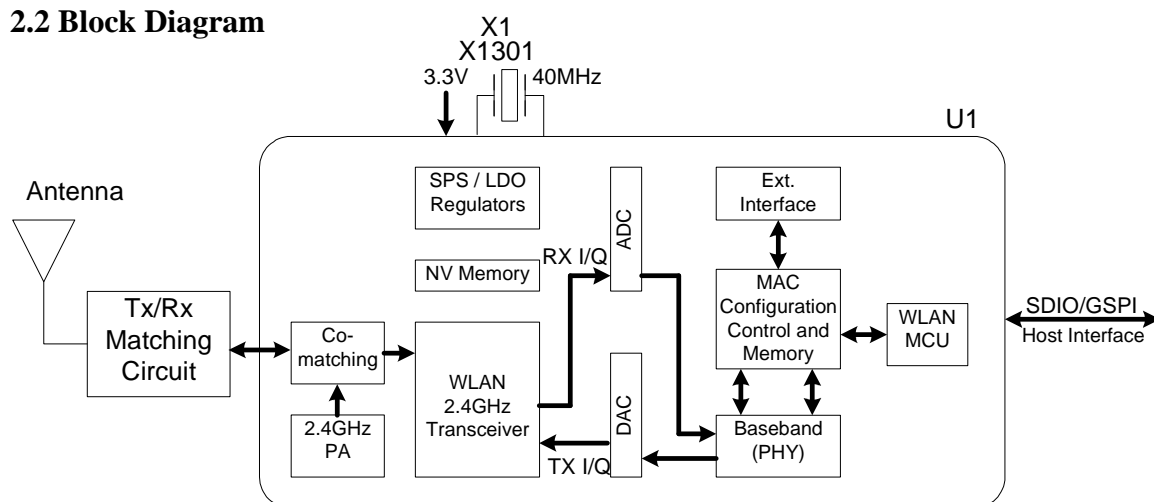
Chapter 2 Hardware

2.1 General Specification

Host Interface	SDIO/GSPI
Standard	IEEE 802.11n, 802.11b/g
Chipset	RTL8189ES-CG
Description	Realtek RTL8189ES-CG:MAC/ WiFi Baseband / RF:
Modulation	802.11b: CCK, DQPSK, DBPSK 802.11g: 64 QAM, 16 QAM, QPSK, BPSK 802.11n: BPSK, QPSK, 16-QAM, 64-QAM
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 7 for HT20MHz; MCS 0 to 7 for HT40MHz
Network Architecture	Ad-hoc mode (Peer-to-Peer) Infrastructure mode
Operating Frequency	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 2412~2462MHz (Ch1~Ch13)
Operating Channel	WiFi 2.4GHz: 11: (Ch. 1-11) – United States 13: (Ch. 1-13) – Europe 13: (Ch. 1-13)– Japan 2412MHz ~ 2462 MHz
Security	WPA, WPA-PSK, WPA2, WPA2-PSK, WEP 64bit & 128bit, IEEE 802.11x, IEEE 802.11i
Antenna Connector	One antenna allowing transmission or reception on both, simultaneously
Operating System Supported	Windows XP/Vista/Win7
Temperatures	Operating Temperature: -10°C to +70 °C Storage Temperature: -40°C to +80°C (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

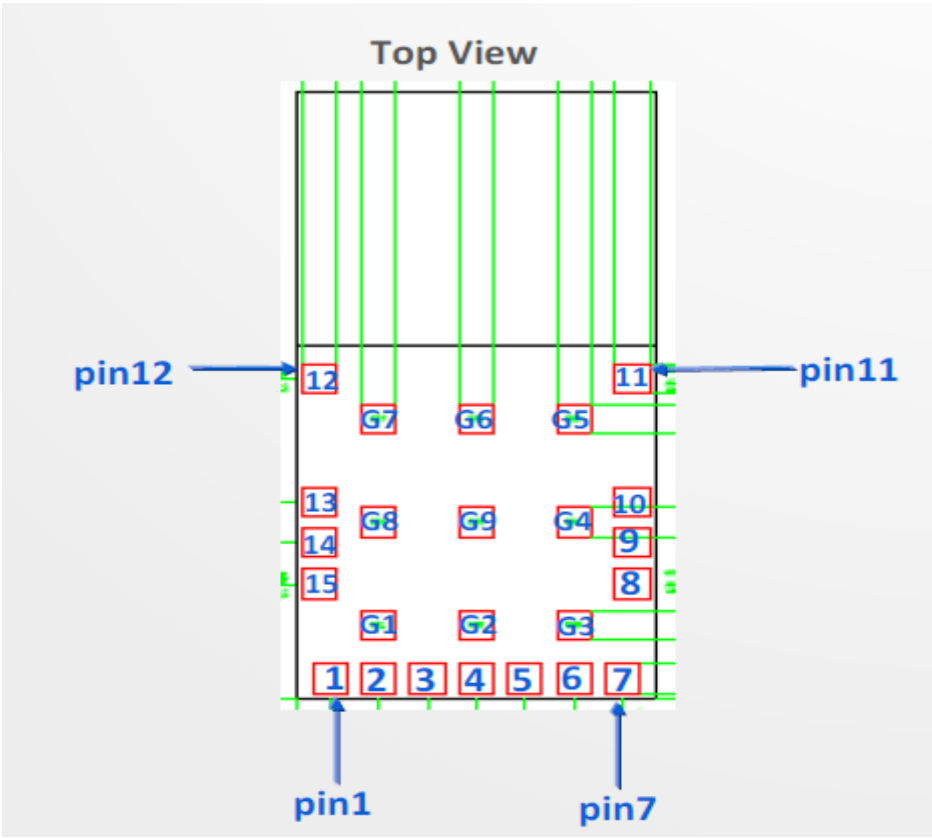
-71dBm @64-QAM, 20MHz channel spacing

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

2.4 Ping Assignment

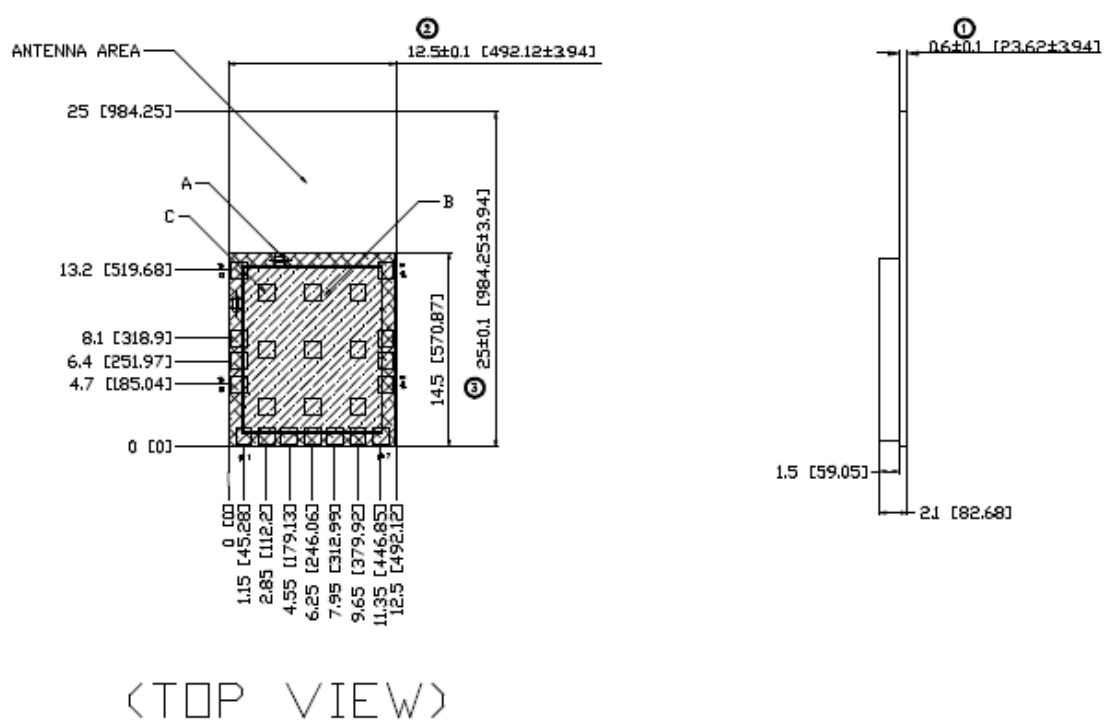
Pin Definition

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 RTL8189ES internally
9	O I/O	LED pins(Active Low) Share with GPIO 5, can be selected by control register
10	I/O	General Purpose I/O pin 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)



Chapter 3 Appearance

Module size: 25mm X 12.5mm X 2.1mm



<TOP VIEW>

Dimensions (mm)	Length	Width	Height
	25 (Tolerance:±0.1mm)	12.5 (Tolerance:±0.1mm)	2.1 (Tolerance:±0.15mm)