

# WPEA-152GN(BT) PRODUCT APPROVAL SHEET

Version:1.3

Customer	SparkLAN Communications, Inc.
Part Number	R9701990001
Product Number	WPEA-152GN(BT) [E]
Description	802.11bgn Bluetooth Mini PCIe module (AR9485 + AR3012)

<b>SparkLAN</b>		<b>Customer</b>
<b>Sales</b>	<b>PM</b>	<b>Approved by</b>
	Cooper Hou	

### Revised History

Version	Purpose	Date	Editor
V1.0	Initial Doc	2012/02/08	Cooper
V1.1	Added [Note] for Radio stream, Temperature and Humidity item	2012/9/24	Angela
V1.2	Revised RoHS logo & product description on label	2012/11/22	Angela
V1.3	Modified BT HW ID to Chipset vendor default	2013/1/15	Cooper

---

# Contents

<b>1. PRODUCT SPECIFICATION .....</b>	<b>4</b>
<b>2. HARDWARE SPECIFICATION.....</b>	<b>6</b>
2.1 HARDWARE DIMENSION.....	6
2.2 BLOCK DIAGRAM.....	7
2.3 MINI PCI EXPRESS PIN ASSIGNMENT .....	7
2.4 DOMAIN CODE .....	8
<b>3. SOFTWARE SPECIFICATION .....</b>	<b>9</b>
3.1 DRIVER SUPPORT .....	9
<b>4. STANDARD PACKING .....</b>	<b>10</b>
4.1 PRODUCT LABEL.....	10
4.2 PACKING & CARTON LABEL .....	11
<b>7. CUSTOMIZE REQUIREMENT.....</b>	<b>13</b>
<b>8. APPENDIX .....</b>	<b>14</b>

# 1. PRODUCT SPECIFICATION

Standard	IEEE802.11b/g/n, Bluetooth V4.0 LE, V3.0+HS, V2.1+EDR
Chipset solution	Atheros AR9485 + AR3012
Radio stream[ <b>Note</b> ]	1T1R( Support WiFi diversity and WiFi/BT co-existence)
Antenna Type / con.	2 U.FL connectors
Bus Interface	WiFi: PCI Express BT: USB
Form Factor	Mini PCIe
Data Rate	WiFi: 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 BT: 1 Mbps, 2Mbps and Up to 3Mbps EDR
Media Access Control	CSMA/CA with ACK
Spreading /Modulation Techniques	WiFi: 802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g: OFDM (BPSK,QPSK,16-QAM,64-QAM) 802.11n: OFDM (BPSK,QPSK,16-QAM,64-QAM) BT: Header: GFSK Payload 2M: 4-DQPSK Payload 3M: 8-DPSK
Frequency Range	WiFi: 11b/g/n: 2.400GHz ~ 2.4835GHz BT: 2.402~2.480 GHz

Transmit Output Power (Tolerance: +/-2dBm)	<p>WiFi:</p> <p>802.11b: 17dBm ± 2dBm@11Mbps</p> <p>802.11g: 13dBm ± 2dBm @54Mbps</p> <p>802.11gn HT20: 16dBm ± 2dBm @MCS0</p> <p>802.11gn HT20: 11dBm ± 2dBm @MCS7</p> <p>802.11gn HT40: 16dBm ± 2dBm @MCS0</p> <p>802.11gn HT40: 11dBm ± 2dBm @MCS7</p> <p>BT: (Class 1 Device)</p> <p>0 ≤ Output Power ≤ +10 dBm;</p>
Receiver Sensitivity (Tolerance: +/-2dBm)	<p>WiFi:</p> <p>802.11b: -85dBm ± 2dBm@11Mbps</p> <p>802.11g: -68dBm ± 2dBm@54Mbps</p> <p>802.11gn HT20: -88dBm ± 2dBm@MCS0</p> <p>802.11gn HT20: -68dBm ± 2dBm@MCS7</p> <p>802.11gn HT40: -84dBm ± 2dBm@MCS0</p> <p>802.11gn HT40: -65dBm ± 2dBm@MCS7</p> <p>BT:</p> <p>&lt; 0.1% BER at -70dBm</p>
Operating Voltage	3.3 V ±9% I/O supply voltage
Power Consumption	<p>TX Mode: 310mA</p> <p>RX Mode: 180mA</p> <p>Associated Idle: 11mA</p>
Temperature Range	0°~ +75°C (Operating), -40°~+85°C (Storing) <b>[Note2]</b>
Humidity (non-condensing)	5~90%(Operating) <b>[Note2]</b>
Security	WEP / WPA / WPA2
OS supported	Windows XP/Vista/Win7/Linux

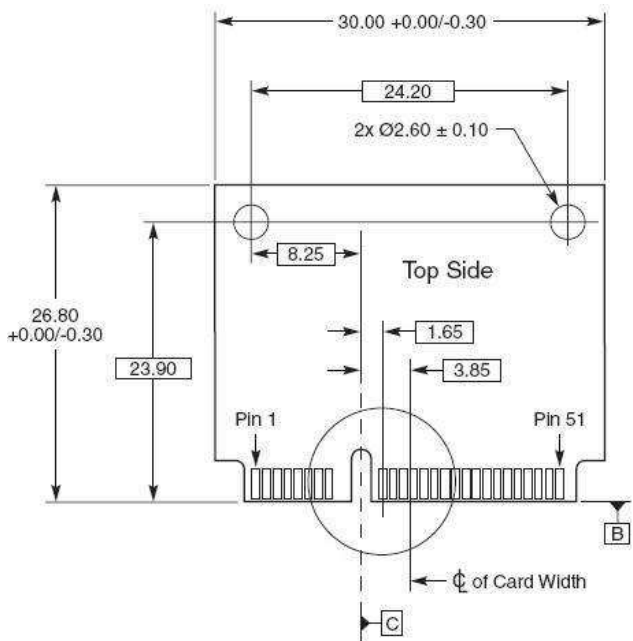
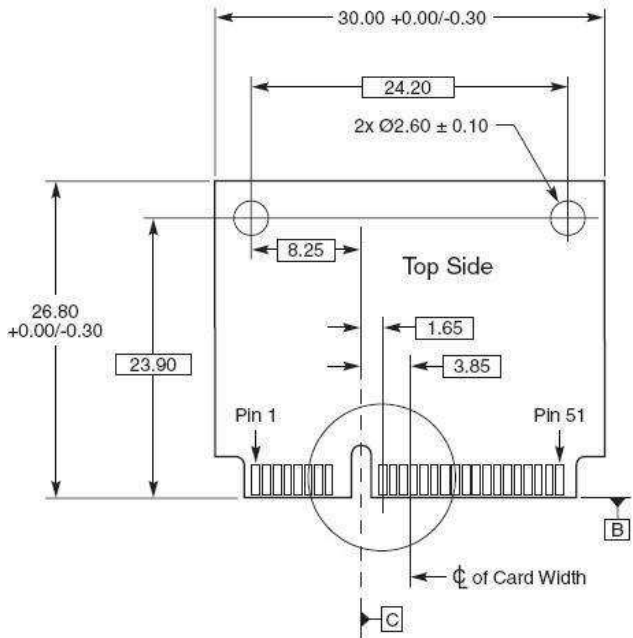
**Note:**

1. For Radio stream with diversity or MIMO design, all RF connectors on the module must be fitting antennas in order to guarantee the module performance.
2. The storing condition is only for product functionality, no included for parts appearance.

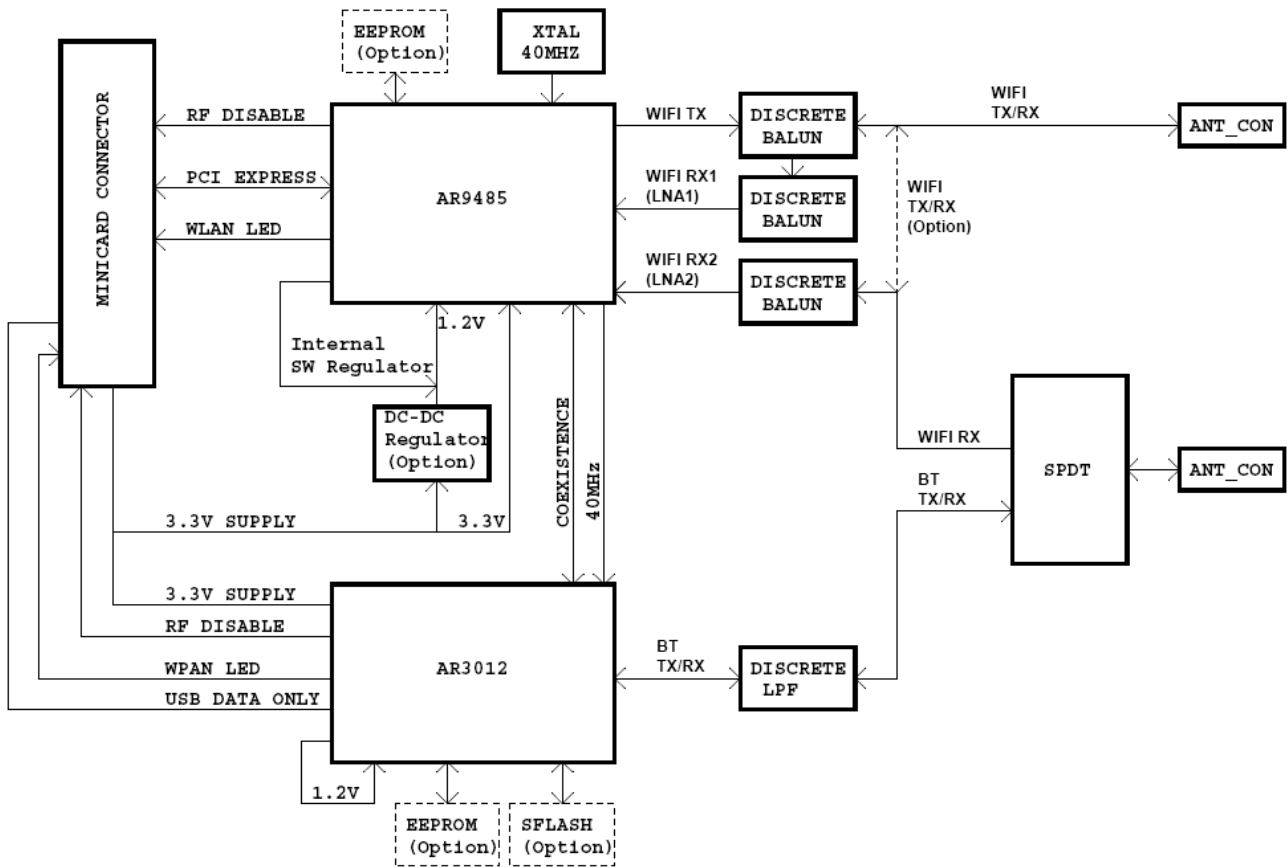
## 2. HARDWARE SPECIFICATION

### 2.1 Hardware Dimension

Dimension(L x W x H): 30 \* 26.8 \* 3.4mm (Tolerance:±0.5mm)



## 2.2 Block Diagram



## 2.3 MINI PCI EXPRESS PIN ASSIGNMENT

PIN#	Pin Name		PIN#	Pin Name	
1	WAKE_L	NC	2	3.3V	YES
3	RESERVED	NC	4	GND	YES
5	RESERVED	NC	6	1.5V	NC
7	CLKREQ_L	YES	8	UIM_PWR	NC
9	GND	YES	10	UIM_DATA	NC
11	REFCLK-	YES	12	UIM_CLK	NC
13	REFCLK+	YES	14	UIM_RESET	NC
15	GND	YES	16	UIM_VPP	NC
17	UIM_C8	NC	18	GND	YES
19	UIM_C4	NC	20	W_DISABLE_L	YES
21	GND	YES	22	PERST_L	YES
23	PERn0	YES	24	+3.3V	NC
25	PERp0	YES	26	GND	YES
27	GND	YES	28	+1.5V	NC
29	GND	YES	30	SMB_CLK	NC

31	PETn0	YES	32	SMB_DATA	NC
33	PETp0	YES	34	GND	YES
35	GND	YES	36	USB_D-	YES
37	GND	YES	38	USB_D+	YES
39	+3.3V	YES	40	GND	NC
41	+3.3V	YES	42	LED_WWAN_L	NC
43	GND	YES	44	LED_WLAN_L	YES
45	RESERVED	NC	46	LED_WPAN_L	YES
47	RESERVED	NC	48	+1.5V	NC
49	RESERVED	NC	50	GND	YES
51	BT_DISABLE_L (low active to disable Bluetooth)	YES	52	+3.3V	YES

## 2.4 Domain Code

■ WiFi:

<b>Reg Domain Code</b>	0x0065
<b>Vendor ID</b>	0x168C
<b>Device / Product ID</b>	0x 0032

Note:

1. Support channels can refer the Appendix.

■ BT:

<b>Vendor ID</b>	0x0CF3
<b>Product ID</b>	0x3004



## 3. Software Specification

### 3.1 Driver Support

Windows XP/Vista/Win7/Linux [Note]

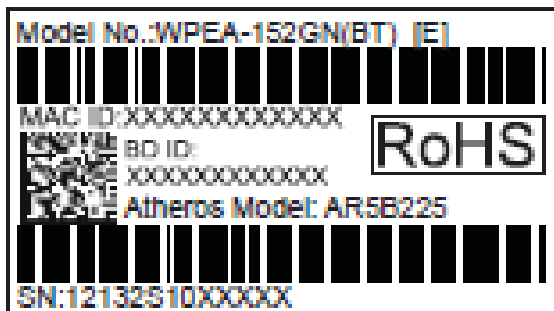
Note:

1. Driver release requires Atheros NDA/TLA approval.

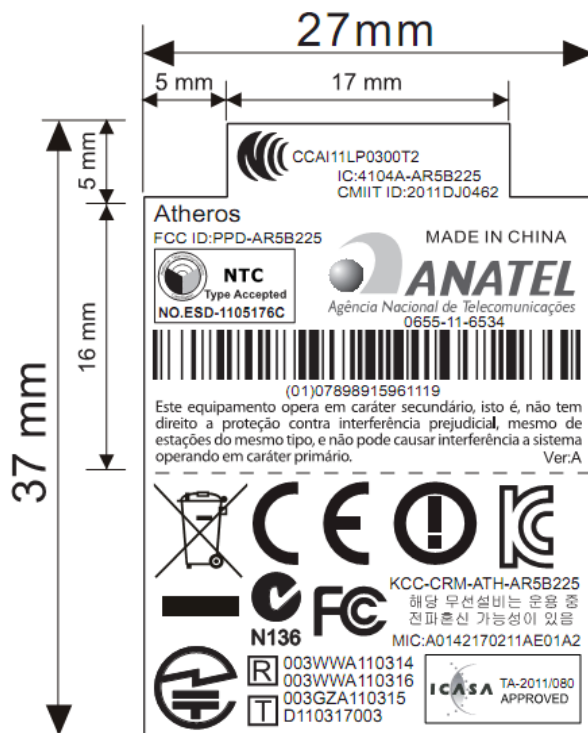
## 4. Standard Packing

### 4.1 Product Label

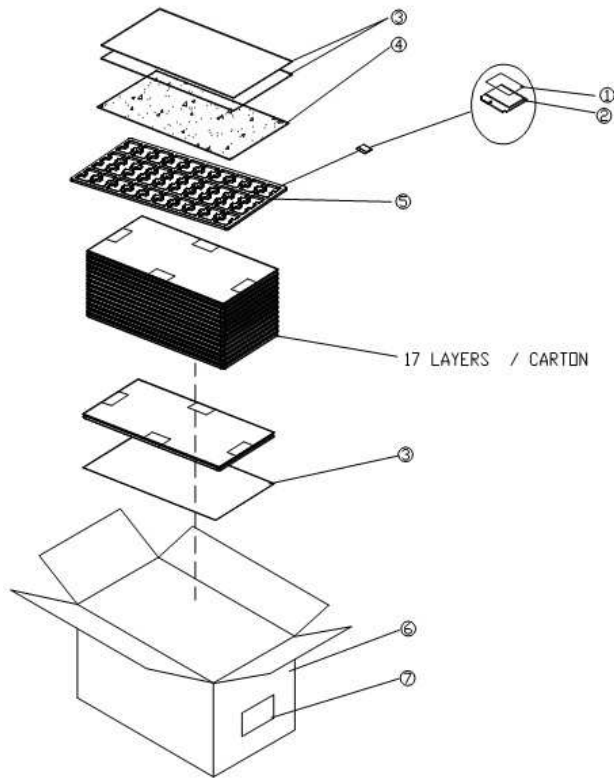
- Front label size: 27\*15\*mm



- Certificate label size: 27\*37\*mm

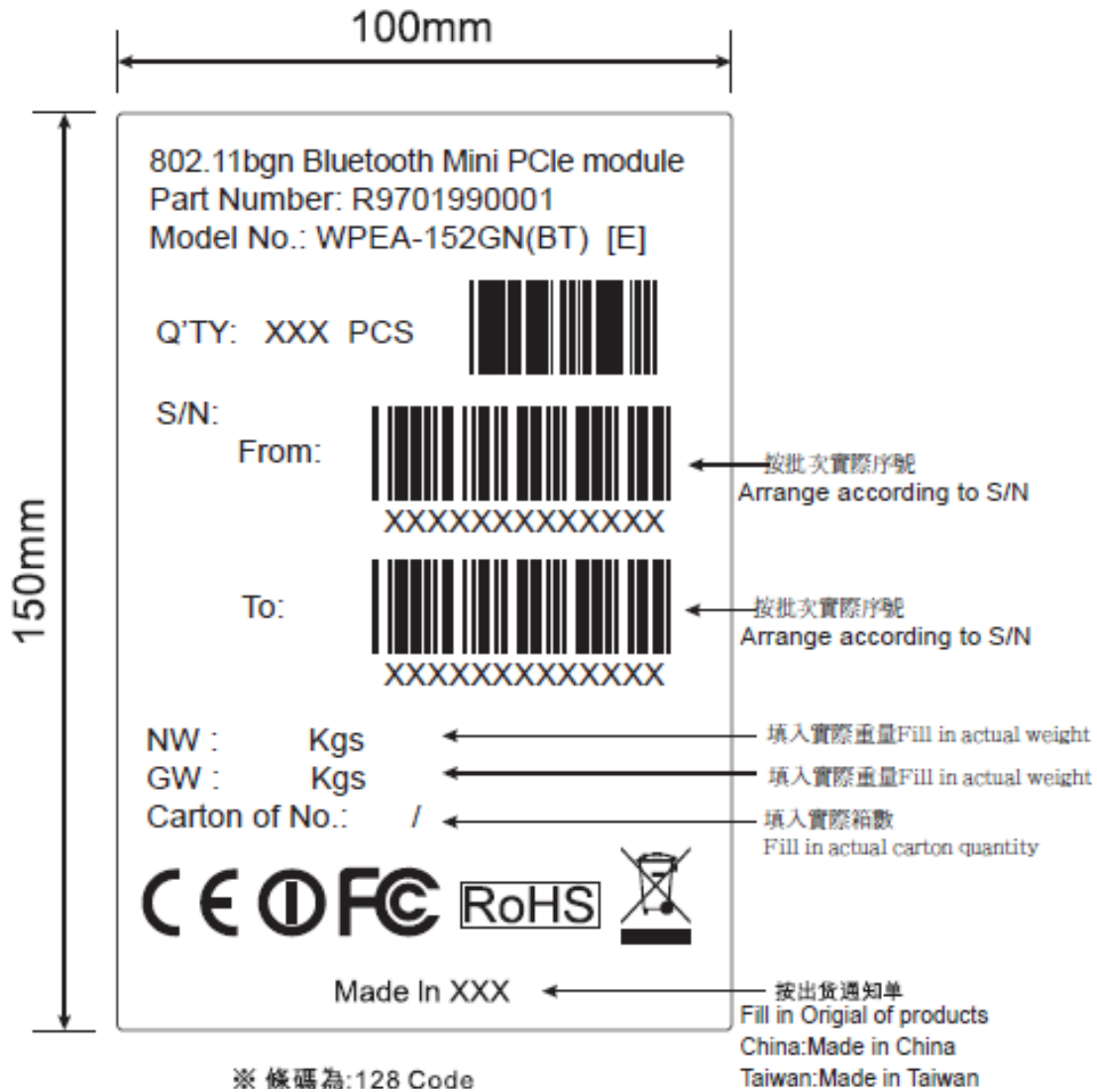


## 4.2 Packing & Carton Label



ITEM	DESCRIPTION	QTY
1	MAC ID LABEL	1
2	<b>Module</b>	1
3	CARTON SHEET 405*300mm(B浪)	19/1190
4	clamshell cover	17/1190
5	CLAMSHELL	17/1190
6	CARTON BOX 408x303x183mm	1/1190
7	CARTON LABEL	1/1190

- Carton label size: 100\*150\*mm



## 7. CUSTOMIZE REQUIREMENT

NA

## 8. APPENDIX

NA