

# USER MANUAL

802.11n, 2.4G 1T1R Wireless LAN USB Module

## WN4615L

## Realtek RTL8188ETV

Version 1.1

### Change History

Revision	Date	Author	Change List
Version 1.0	2014/05/05	Ben J Chen	Preliminary
Version 1.1	2015/01/07	Ben J Chen	Update Power Consumption Update Pin Assignment

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## PRODUCT FEATURES

### Wi-Fi Feature

- Operate at ISM frequency Band (2.4GHz)
- IEEE Standards Support, 802.11b, 802.11g and 802.11n
- CMOS MAC, Baseband PHY, and RF in a single chip for IEEE 802.11b/g/n compatible WLAN
- Complies with USB Specification 2.0, support Full-speed(12Mbps) and High-Speed(480Mbps)
- Enterprise level security supporting: WPA, WPA2
- Support 1 transmission and 1 receiving, transmission rate can up to 150Mbps (Physical Rate) in downstream and upstream
- RoHS compliance
- Low Halogen compliance

## PRODUCT SPECIFICATIONS

### MAIN CHIPSET

Realtek RTL8188ETV

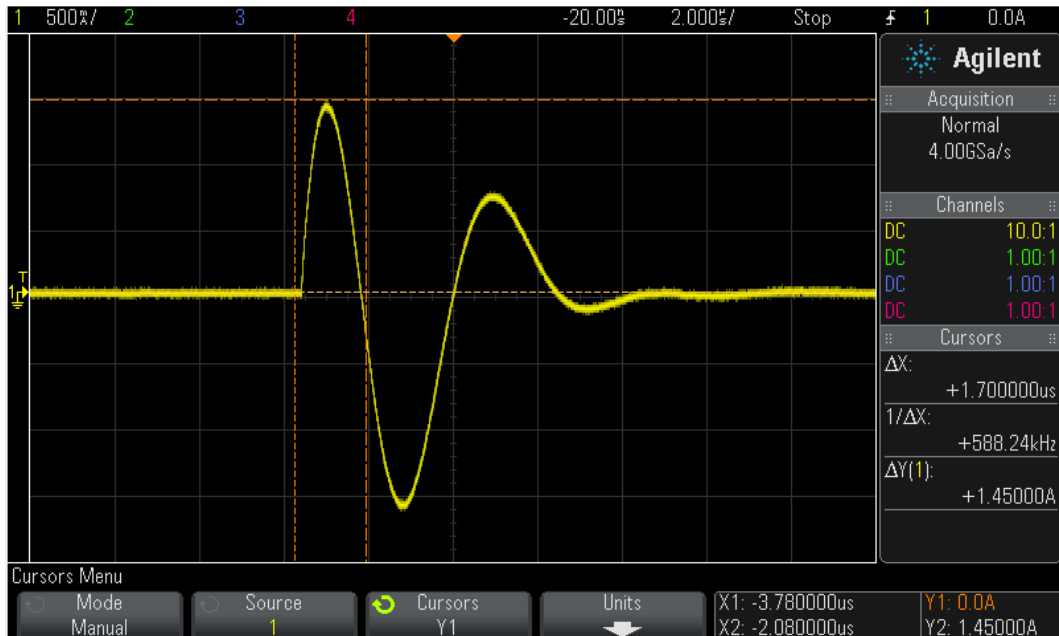
### FUNCTIONAL SPECIFICATIONS

<b>Wi-Fi Function</b>	
<b>Standard</b>	IEEE802.11b; IEEE 802.11g; IEEE 802.11n
<b>Bus Interface</b>	USB 2.0
<b>Data Rate</b>	<p><i>802.11b:</i> 11, 5.5, 2, 1 Mbps</p> <p><i>802.11g:</i> 54, 48, 36, 24, 18, 12, 9, 6 Mbps</p> <p><i>802.11n:</i> MCS 0 to 7 for HT20MHz MCS 0 to 7 for HT40MHz</p>
<b>Media Access Control</b>	CSMA/CA with ACK
<b>Modulation Techniques</b>	<p><i>802.11b:</i> CCK, DQPSK, DBPSK</p> <p><i>802.11g:</i> 64QAM, 16QAM, QPSK, BPSK</p> <p><i>802.11n:</i> 64QAM, 16QAM, QPSK, BPSK</p>
<b>Network Architecture</b>	Ad-hoc mode (Peer-to-Peer) Infrastructure mode
<b>Operation Channel</b>	<p><i>2.4GHz</i></p> <p>11: (Ch. 1-11) – United States 13: (Ch. 1-13) – Europe 14: (Ch. 1-14) – Japan</p>
<b>Frequency Range</b>	<p><i>802.11bg</i> 2.400 ~ 2.4835 GHz</p>
<b>Transmit Output Power – 1x1 (Tolerance: ±1.5dBm)</b>	<p><i>802.11b:</i> 15 dBm@1Mbps 15 dBm@11Mbps</p> <p><i>802.11g:</i> 14 dBm@6Mbps 14 dBm@54Mbps</p> <p><i>802.11n:</i> <b>20MHz:</b> 14 dBm@MCS0 14 dBm@MCS7 <b>40MHz:</b> 12 dBm@MCS0 12 dBm@MCS7</p>
<b>Receiver Sensitivity</b>	<p><i>802.11b:</i> -82 dBm@11Mbps</p> <p><i>802.11g:</i> -69 dBm@54Mbps</p> <p><i>802.11n:</i> <b>20MHz</b></p>

	-68 dBm@MCS7 <b>40MHz</b> -65 dBm@MCS7
<b>Security</b>	WEP 64&128 bit, WPA, WPA-PSK, WPA2, WPA2-PSK, WPS, IEEE 802.1X, IEEE 802.11i
<b>Operating Voltage</b>	3.3 V ±9% I/O supply voltage
<b>OS Supported</b>	Microsoft Windows Win7/Win8/Win8.1; Linux based
<b>Power Consumption</b> Test Condition: - Operate at HT40 - File Transmission	<i>Average</i>
	<i>TX Mode:</i> 300 mA <i>RX Mode:</i> 180 mA <i>Standby Mode:</i> 160 mA
	<i>Max</i> <b>600mA</b>
<b>Antenna Type</b>	Printed Antenna

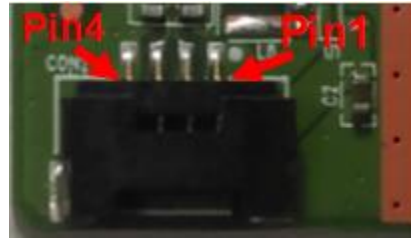
**INRUSH CURRENT**

The MAX is about 1.45A and during time is about 1.7us.



PIN ASSIGNMENT

Pin.	Pin Define	Status
1	+3.3V	YES
2	USB_D-	YES
3	USB_D+	YES
4	GND	YES



USB CONNECTOR SPEC

版本 REV.	日期 DATE	ECN NO.	变更内容 DESCRIPTION	制图 DRAWN
B				

No. of Contacts	DIMENSIONS					
	A	B	C	D	E	F
2	1.25	7.45	3.81	2.83	2.43	3.50
3	2.50	8.70	5.06	4.08	3.68	3.50
4	3.75	9.95	6.31	5.33	4.93	3.50
5	5.00	11.20	7.56	6.58	6.18	3.50
6	6.25	12.45	8.81	7.83	7.43	3.50
7	7.50	13.70	10.06	9.08	8.68	3.50
8	8.75	14.95	11.31	10.33	9.93	3.50
9	10.00	16.20	12.56	11.58	11.18	3.50
10	11.25	17.45	13.81	12.83	12.43	3.50
11	12.50	18.70	15.06	14.08	13.68	5.00
12	13.75	19.95	16.31	15.33	14.93	5.00
13	15.00	21.20	17.56	16.58	16.18	5.00
14	16.25	22.45	18.81	17.83	17.43	5.00
15	17.50	23.70	20.06	19.08	18.68	5.00
20	23.75	29.95	26.31	25.33	24.93	5.00
25	30.00	36.20	32.56	31.58	31.18	6.00
30	36.25	42.45	38.81	37.83	37.43	6.00

Ordering Code:  
 S1315 - XX R V X - SB3 - K H  
 ① Series NO.  
 ② Circuits number  
 ③ R: Right Angle  
 ④ V: Prefix "V" means lead free plating  
 ⑤ Plating Code: 

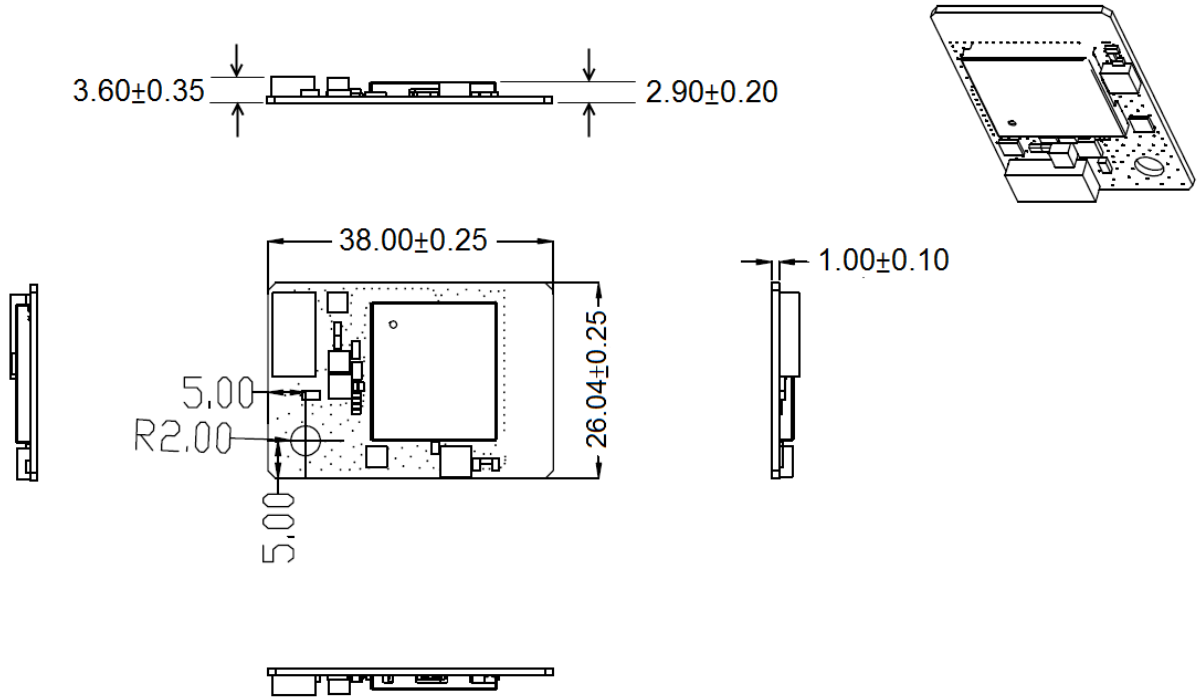
Definition	Code
⊙ Tin plated:	A
⊙ Gold plated:	
flash B 15u"	F
10u" E 30u"	J
⊙ Duplex plating:	
flash K 15	P
10u" N 30u"	U

  
 ⑥ B: Color Black  
 ⑦ Packing:  
   Null: Tube  
   K: Reel  
   C: FILM+REEL  
 ⑧ H: Halogen Free

NOTES: (UNLESS OTHERWISE SPECIFIED)  
 1. Temperature range: -25°C~+85°C  
 2. Voltage rating: 150V, AC, DC  
 3. Current rating: 1A  
 4. Contact resistance: 20mΩ Max.  
 5. Insulation resistance: 500MΩ Min.  
 6. Withstand voltage: 500V, AC/minute.  
 Material:  
 Housing: High Temperature, Thermoplastic UL 94V-0 Black.  
 Contact: Phosphor Bronze, Gold plated.  
 Clip: Brass, Gold plated.

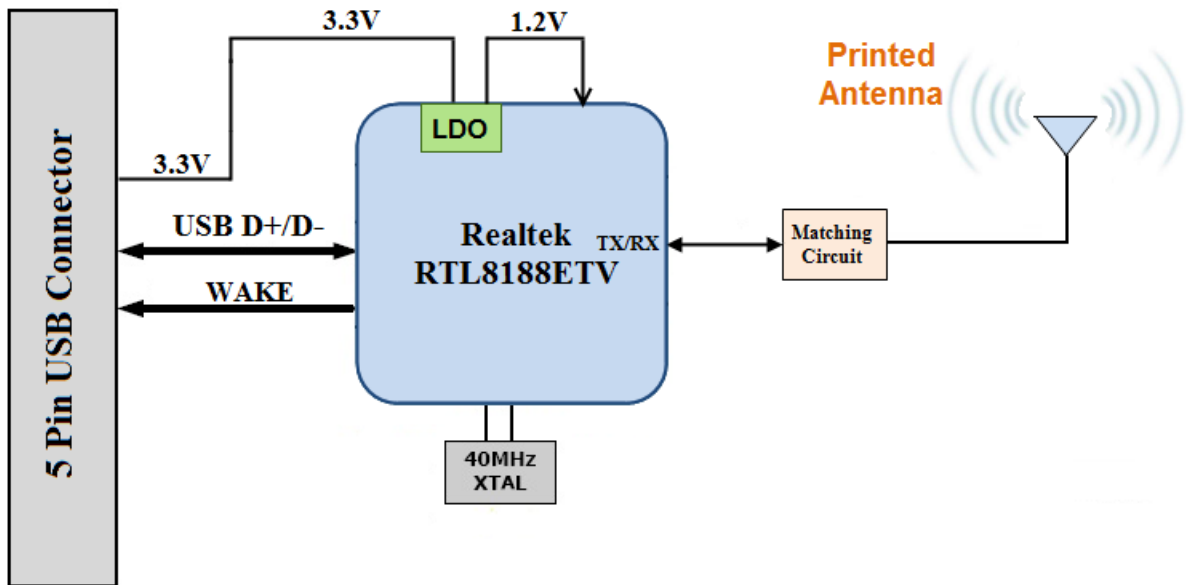
GENERAL TOLERANCE	公差 (DR.)	规格	料号 PART NO.	S1315-XXRVX-SB3-KH	版本 REV.	A
X±0.30	X'±2'	公差 (CHK)	品名 TITLE	1.25P SMD WAFER	页次 SHEET	1/1
.X±0.25	.X'±1'	公差 (APPD.)	客户料号 CUTM. NO.			
.XX±0.20	.XX'±0.5'	日期 (OR.D.)	2012.6.16	Xinyu 苏州新亚电通有限公司		
.XXX±0.15	.XXX'±0.5'	单位 UNITS	MM	比例 SCALE	1:1	SUZHOU XINYA ELECTRONIC COMMUNICATION Co. LTD.

**MECHANICAL**

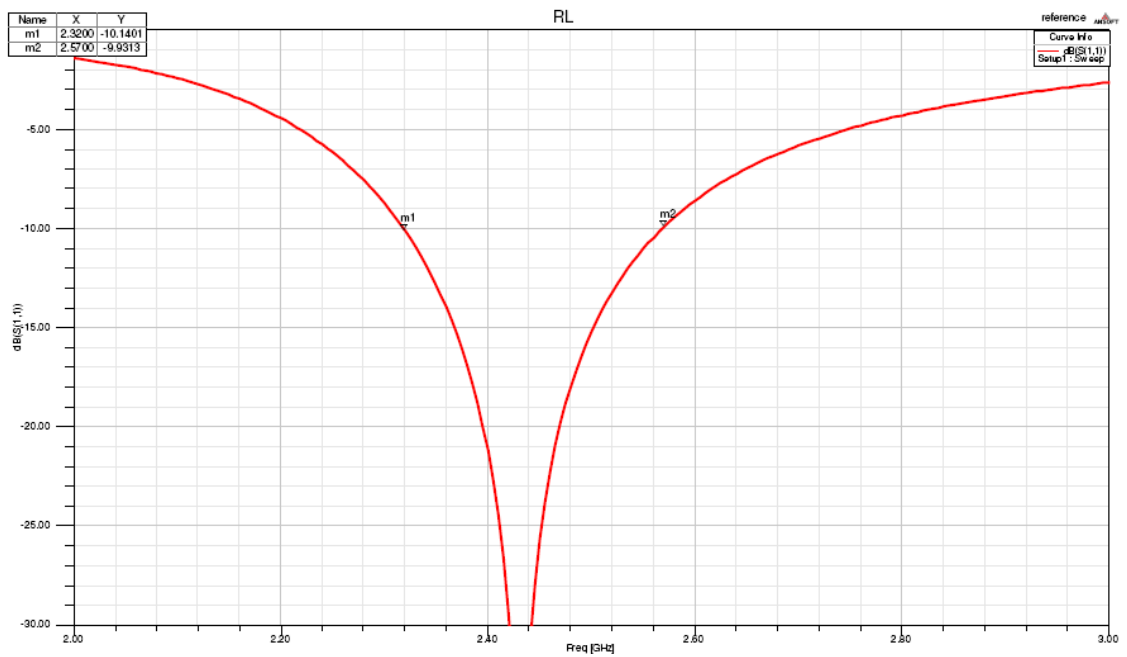
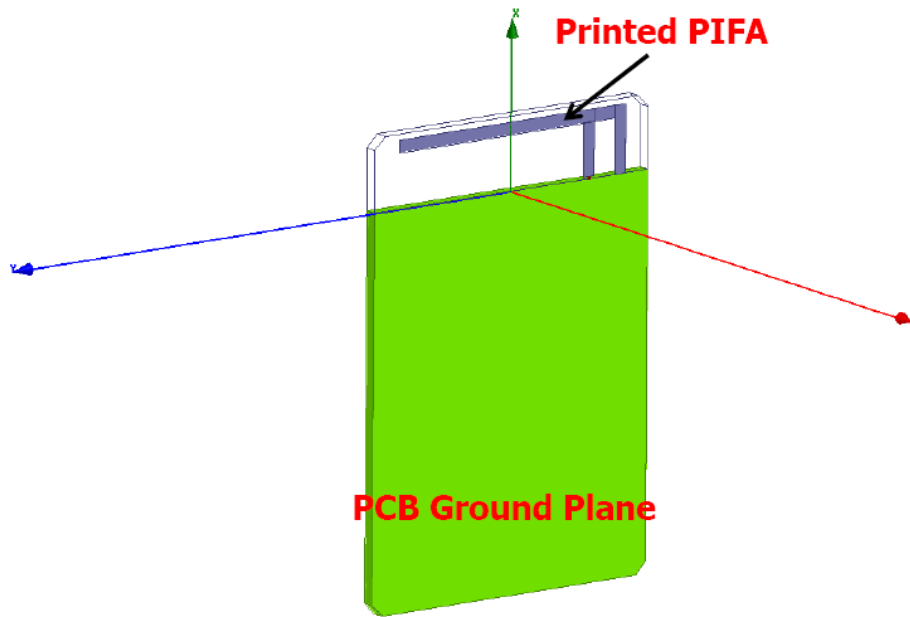


Unit: mm

**BLOCK DIAGRAM**



**PRINTED ANTENNA SPEC**



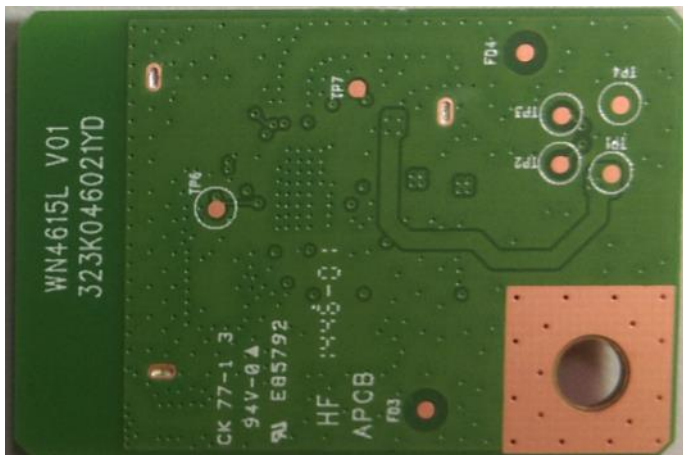


MODULE PHOTO

*Top Side*



*Bottom Side*



**EEPROM INFORMATION**

<b>Reg Domain</b>	WorldWide13 Channels 1-11 with active scan, 12-13 with passive scan
	0x20
<b>Vendor ID</b>	0x0BDA
<b>Device ID</b>	0x0179

**ENVIRONMENTAL**

**OPERATING**

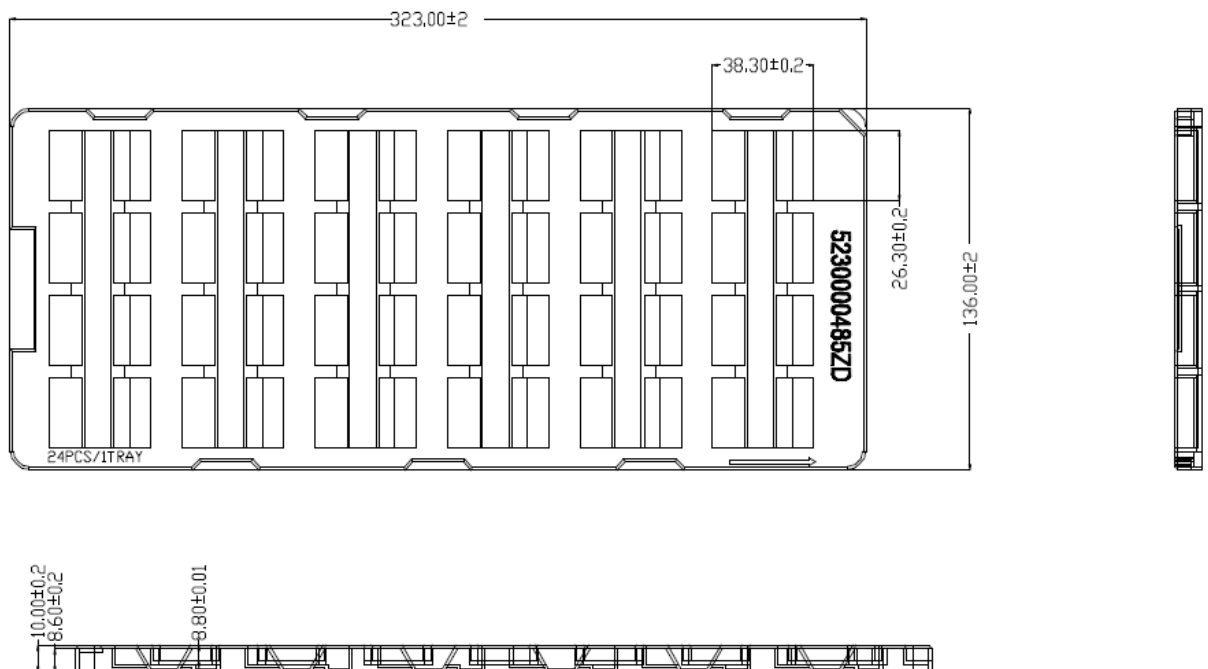
Operating Temperature: 0 to 70 °C (32 to 158 °F)  
Relative Humidity: 5-90% (non-condensing)

**STORAGE**

Temperature: -40 to 80 °C (-40 to 176 °F)  
Relative Humidity: 5-95% (non-condensing)

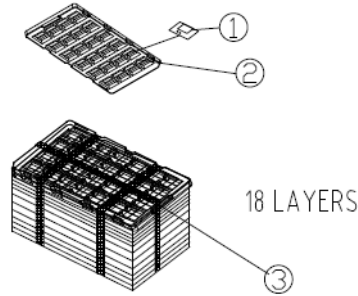
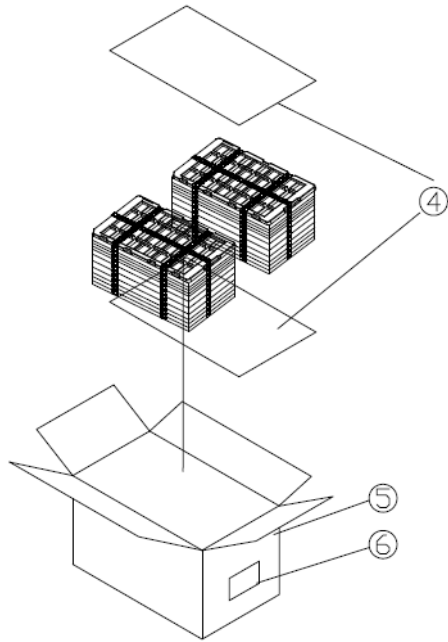
**PACKING DRAWING**

**Tray**



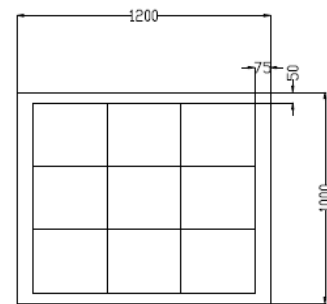
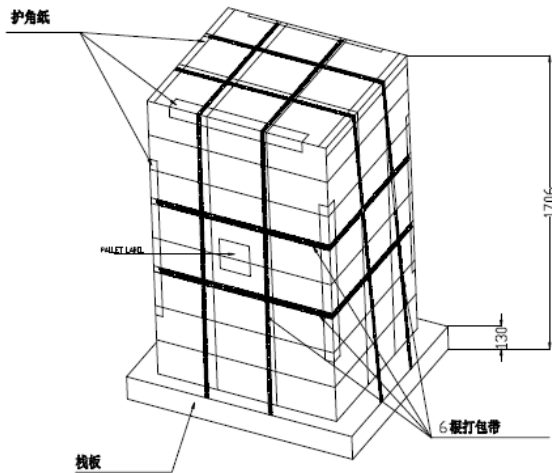
**Note:**

1. 材質：黑色 PS 1.2mm
2. 未注拔模角度為3度
3. 產品放進去不可以左右移動
4. 靜電阻值 $1 \times 10^4 \sim 1 \times 10^9 \Omega$
5. 錶面摩擦電壓100V以下
6. Marked (M) IS THE CRITICAL DIMENSION



1 carton=18Layer\*2=(24\*17+1\*0)\*2=816pcs

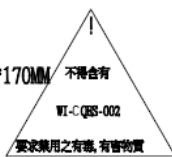
ITEM	P/N	DESCRIPTION	QTY
1	xxxxxxx	product	1
2	5230000485ZD/CD	Clamshell	18/408
3	5210000004ZD	Straps	2.08m/408
4	5160000928XD	Carton sheet	2/816
5	5030000231XD	Carton	1/816
6	xxx	Carton Label	1/816



TOP VIEW 1:1

**Note:**

1. 10LAYERS/HIGH=1700MM
2. CARTON OUT DIMENSIONS: 350\*300\*170MM
3. 816 SETS /CARTON
4. 9 CARTON/LAYER
5. 73440 SETS/PALLET



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 FCC 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 FCC multi-transmitter product

transmitter product procedures.

2. Only those antennas with same type and lesser gain filed under this FCC ID number can be used with this device.
3. The regulatory label on the final system must include the statement: “Contains FCC ID: **PPQ-WN4615L** “.
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.