

PRODUCT SPECIFICATION

802.11b/g/n 2T2R Wireless LAN USB Module

WN4642R

MT7603U

Version 1.3

Change History

Revision	Date	Author	Change List
Version 1.0	2016/05/23	Ben J Chen	Preliminary
Version 1.1	2016/06/06	Ben J Chen	Change VID/PID from 0x0E8D/0x7603 to 0x25AA/0x76A3 Update Module Photo
Version 1.2	2016/09/12	Ben J Chen	Modify Pin Assignment Update Operating Voltage to 5V
Version 1.3	2016/10/14	Ben J Chen	Change connector to right angle type - Update connector Spec - Update Mechanical Update Reset Timing SPEC

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802.11b/g/n 2T2R Wireless LAN USB Module

WN4642R

MT7603U

Version 1.3

Networking B.U.
Lite-on Technology Corporation
4F, No. 90, Chien 1 Rd.,
Chung Ho, New Taipei City 235, Taiwan, R.O.C.



Customer Approval: _____ (Signature)
_____ (Title)
_____ (Company)
_____ (Date)

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

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PRODUCT FEATURES

- Operate at ISM frequency Band (2.4GHz)
- IEEE Standards Support, 802.11b, 802.11g and 802.11n
- Support USB 2.0 host interface
- Enterprise level security supporting: WPA, WPA2, WPS2.0, WAPI
- Two-stream IEEE 802.11n support for 20MHz and 40MHz bandwidth channels provides PHY layer rates up to 300Mbps
- Integrated LNA, PA and T/R switch
- Support Wi-Fi Direct
- RoHS compliance
- Low Halogen compliance

PRODUCT SPECIFICATIONS

MAIN CHIPSET

MAC/ Baseband/ RF: MediaTek MT7603U

FUNCTIONAL SPECIFICATIONS

Wi-Fi Function	
Standard	IEEE802.11b; IEEE 802.11g; IEEE 802.11n
Bus Interface	USB2.0
Data Rate	<i>802.11b:</i> 11, 5.5, 2, 1 Mbps <i>802.11g:</i> 54, 48, 36, 24, 18, 12, 9, 6 Mbps <i>802.11n:</i> MCS 0 to 15 for HT20MHz MCS 0 to 15 for HT40MHz
Media Access Control	CSMA/CA with ACK
Modulation Techniques	<i>802.11b:</i> CCK, DQPSK, DBPSK <i>802.11g:</i> 64QAM, 16QAM, QPSK, BPSK <i>802.11n:</i> 64QAM, 16QAM, QPSK, BPSK
Network Architecture	Ad-hoc mode (Peer-to-Peer) Infrastructure mode
Operation Channel	<i>2.4GHz</i> 11: (Ch. 1-11) – United States 13: (Ch. 1-13) – Europe 14: (Ch. 1-14) – Japan
Frequency Range	<i>802.11bg</i> 2.400 ~ 2.4835 GHz
Transmit Output Power – 2x2 MAX: 19.5dBm (Tolerance: ± 2 dBm)	<i>802.11b:</i> 16.5dBm@1-11Mbps <i>802.11g:</i> 17dBm@6-54Mbps <i>802.11n(2.4G):</i> 20MHz: 17.5dBm@MCS0-7 40MHz: 17.5dBm@MCS0-7
Receiver Sensitivity	<i>802.11b:</i> -88 dBm@1Mbps -82 dBm@11Mbps <i>802.11g:</i> -86 dBm@6Mbps -71 dBm@54Mbps <i>802.11n:</i> 20MHz -86 dBm@MCS0

	-68 dBm@MCS7 40MHz -83 dBm@MCS0 -65 dBm@MCS7
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Security	WPA, WPA2, WPS, WEP 64b&128bit, IEEE 802.1X, IEEE 802.11i
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Operating Voltage	5V ± 10% I/O supply voltage
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OS Supported	Linux based
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	<i>Mode</i>	<i>Average</i>	<i>Peak</i>
		<i>2.4G</i>	<i>2.4G</i>
Power Consumption	<i>TX</i>		
	<i>RX</i>		
	<i>Standby@ wake mode</i>		

Antenna Type	Metal antenna
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RECOMMENDED OPERATION CONDITIONS

For Module

Symbol	Rating	Min	Typ	Max	Units
VCC	5V Supply Voltage	4.5	5	5.5	V

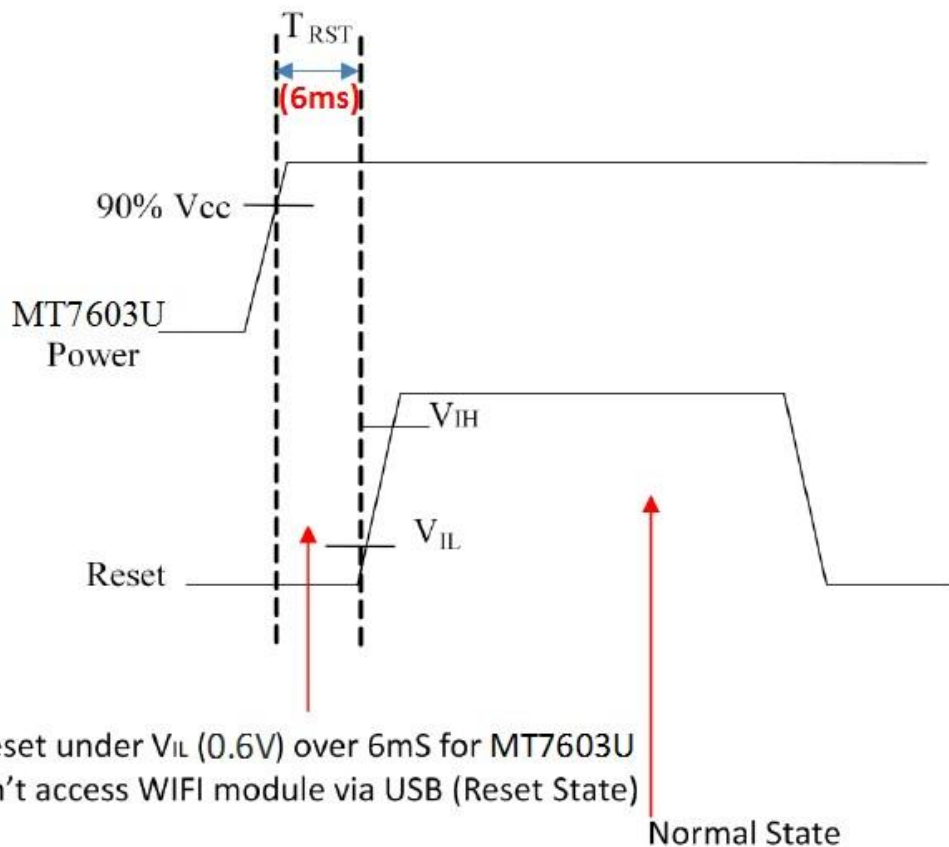
For MT7603U IC

Symbol	Rating	Min	Typ	Max	Units
VDD33	3.3V Supply Voltage	2.97	3.3	3.63	V
VDD12	1.2V Supply Voltage	1.14	1.2	1.26	V
VDD16	1.6V Supply Voltage	1.34	1.6	1.76	V

DC CHARACTERISTICS

Symbol	Parameter	Min	Typ	Max	Units
V _{IL}	Input Low Voltage	-0.28	-	0.6	V
V _{IH}	Input High Voltage	2.0	-	3.63	V
V _{OL}	Output Low Voltage	-0.28	-	0.4	
V _{OH}	Output High Voltage	2.4	-	3.63	V

RESET TIMING SPEC



Keep Reset under V_{IL} (0.6V) over 6mS for MT7603U and don't access WIFI module via USB (Reset State)

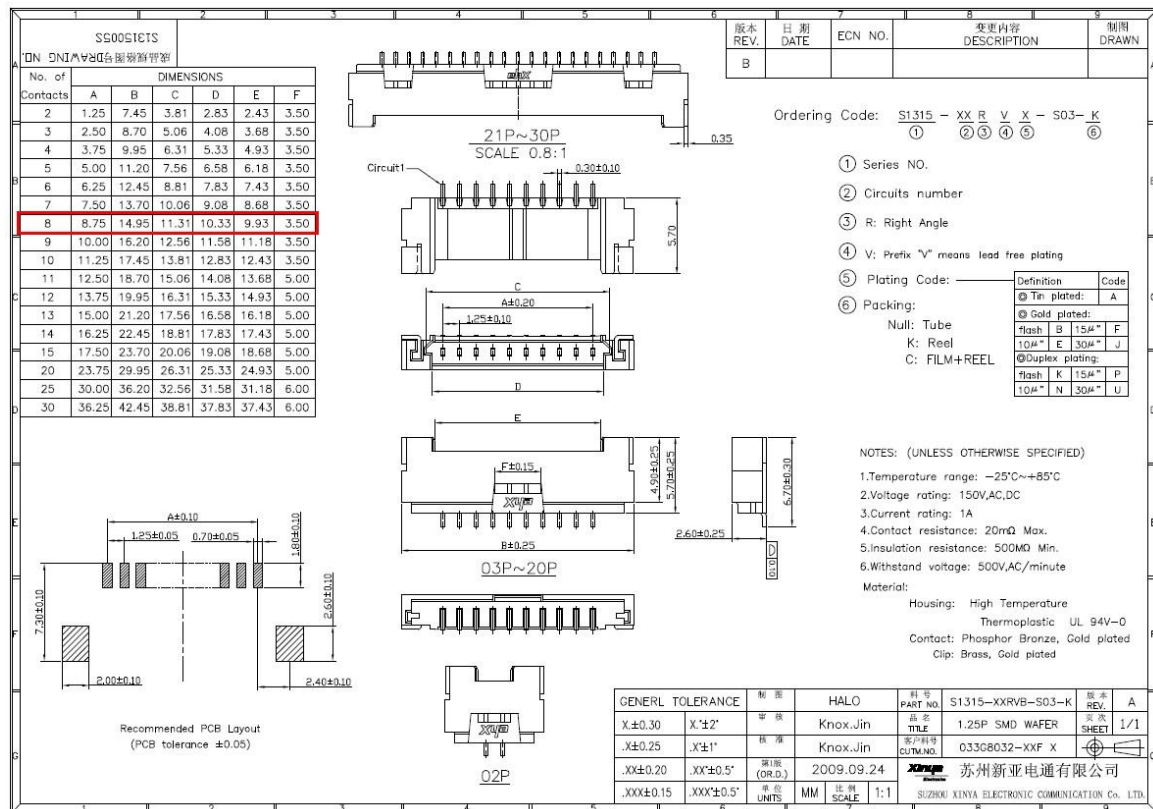
PIN ASSIGNMENT

Pin.	Pin Define	Description	Status
1	+5VCC	5V source	YES
2	+5VCC	5V source	YES
3	USB_D-	USB Data-	YES
4	USB_D+	USB Data+	YES
5	GND	Ground	YES
6	RESET#	System reset MT7603U, low active	YES
7	WoWLAN#	Wake up system via wifi, low active	YES
8	GND	Ground	YES

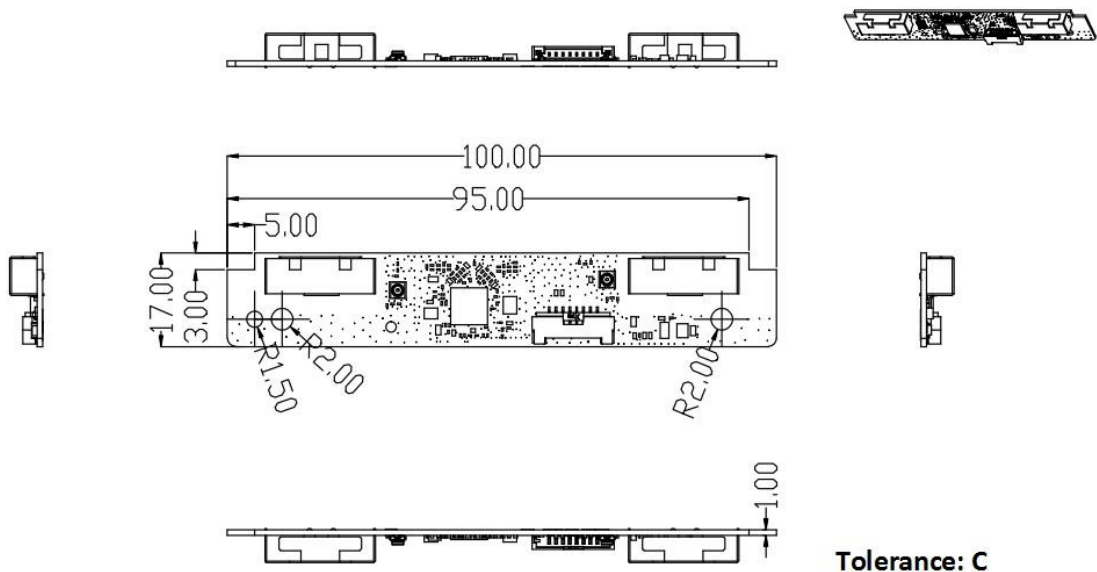
USB CONNECTOR SPEC

Manufacture P/N: S1315-08RVB-SB3-KH

Thickness of gold flash plated: $\geq 1\mu$ "



MECHANICAL



Tolerance: C

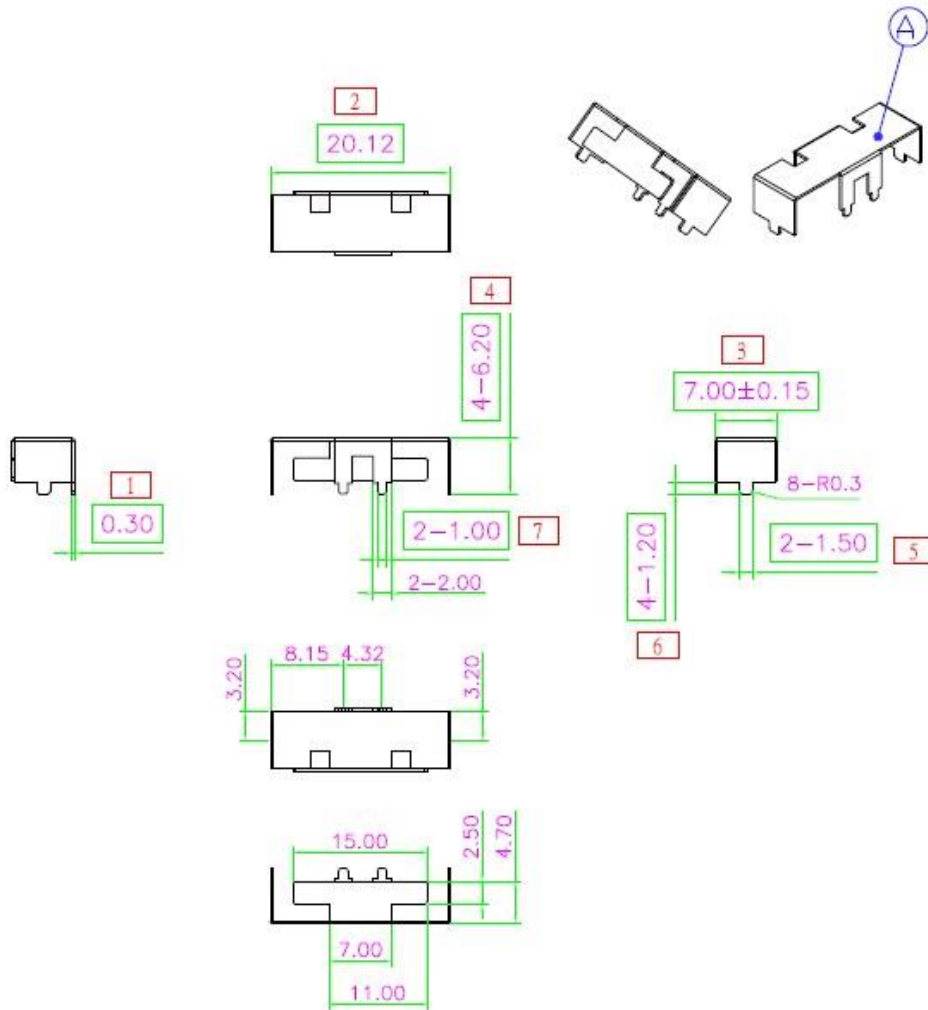
DIM	DEG			ANGLE
	A	B	C	D
0-5	±0.05	±0.05	±0.10	0°-30° ±0.1°
5-10	±0.05	±0.10	±0.15	31°-60° ±0.3°
10-50	±0.10	±0.15	±0.20	61°-90° ±0.5°
50-100	±0.15	±0.20	±0.25	
100-	±0.15	±0.20	±0.25	

Unit: mm

ANTENNA SPEC

On Board Antenna for WiFi (Q'ty:2pcs)

ELECTRICAL	No.	DESCRIPTION	MAT' L	Finish	Q' TY
Frequency : 2.4/5. x GHz	A	Antenna	SUS430 T=0.3mm	先鍍後沖	1



※標記□記號者，為重點檢驗尺寸

		設計 DR.	HWCHAN	2015.02.06	品名	版本 REV.
		核准			ARTICLE	B
變更歷程 (由先沖後鍍改為先鍍後沖)		2016.05.18	HWCHAN		RFMTA200700NNLB002	
LTR	DESCRIPTION	DATE	REQ. BY	容許公差 TOLERANCE	單位 UNIT	比例 SCALE
				0-5 ±0.05	mm	****
華新科技股份有限公司 Walsin Technology Corporation				5-10 ±0.10	張數 SHEET	1
				10-50 ±0.15		
				50-100 ±0.20		

EEPROM INFORMATION

Reg Domain	World Wide 2.4G Read from registry; Control by driver
	Offset 0x39 for 2.4G: 0xFF
Vendor ID	0x25AA
Product ID	0x76A3

ENVIRONMENTAL**Operating**

Operating Temperature: 0 to 70 °C (32 to 158 °F)

Relative Humidity: 5-90% (non-condensing)

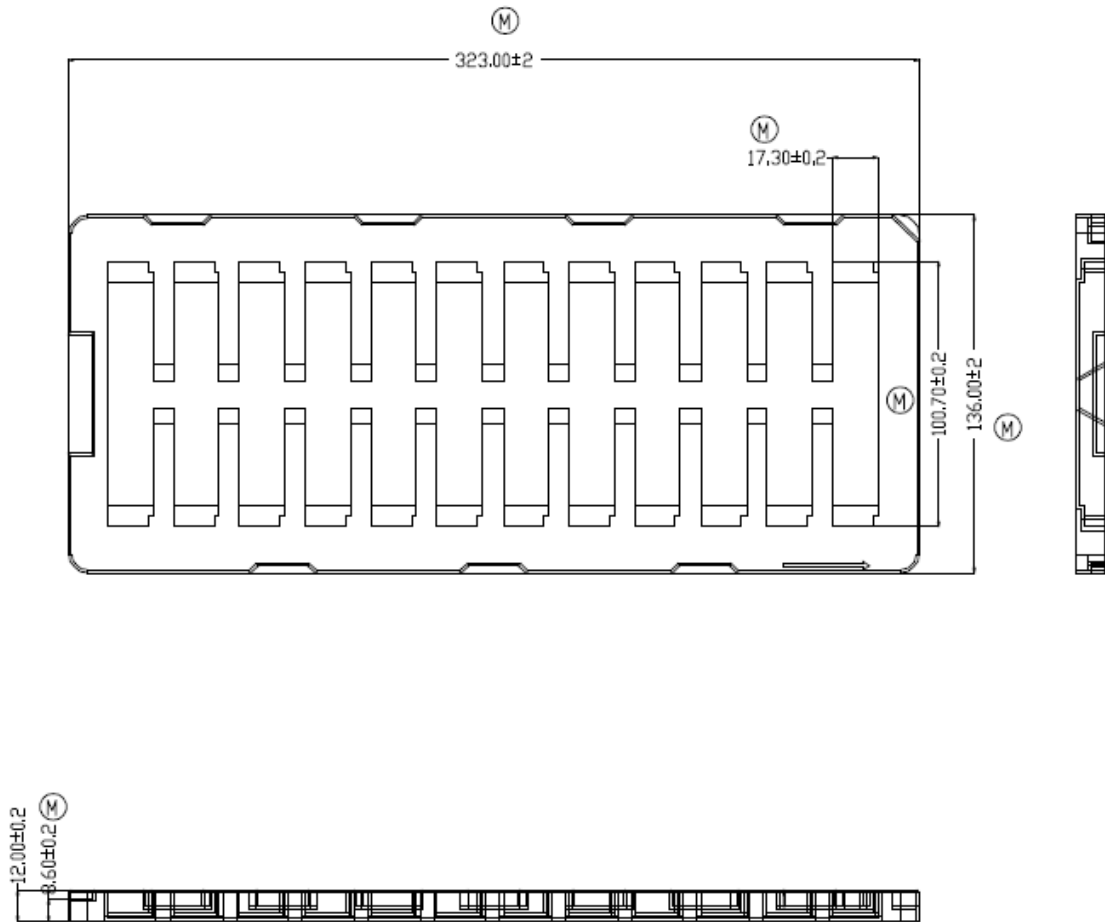
Storage

Temperature: -20 to 70 °C (-4 to 158 °F)

Relative Humidity: 5-95% (non-condensing)

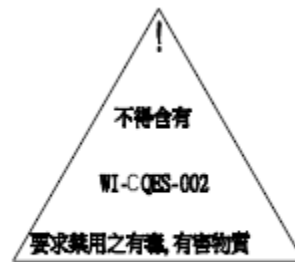
PACKING DRAWING

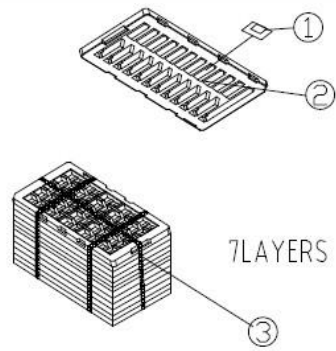
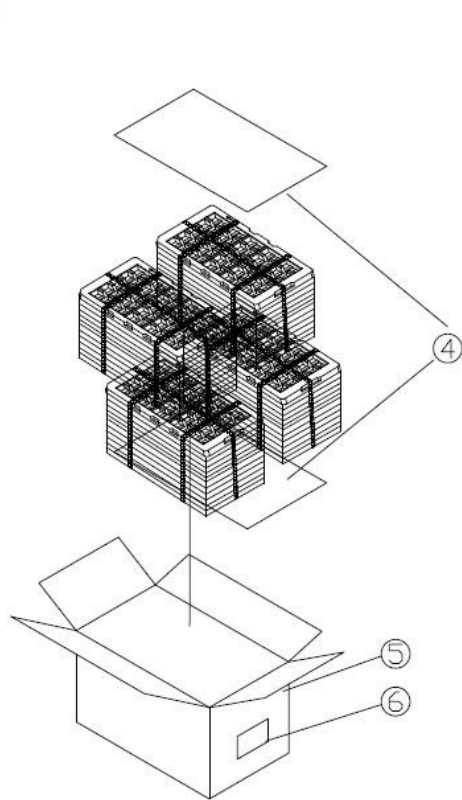
Tray



Note:

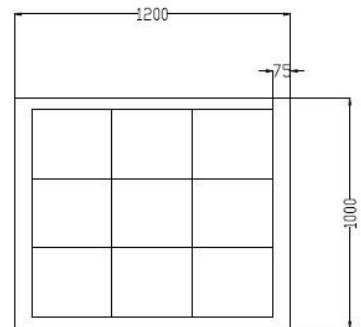
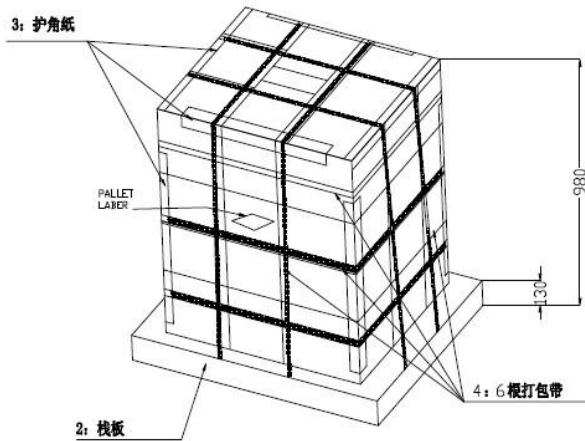
1. 材質：黑色 PS 1.2mm
2. 未注拔模角度為3度
3. 產品放進去不可以左右移動
4. 靜電阻值 $1 \times 10^4 \sim 1 \times 10^9 \Omega$
5. 錶面摩擦電壓100V以下
6. Marked (M) IS THE CRITICAL DIMENSION





1 carton=7Layer*4=(6*12+1*0)*4=288pcs

ITEM	P/N	DESCRIPTION	QTY
1	xxxxxxx	product	1
2	523000486ZD/CD	Clamshell	7/72
3	5210000004ZD	Straps	1.73m/72
4	5160000928XD	Carton sheet	2/288
5	5030000231XD	Carton	1/288
6	MM108xxx	Carton Label	1/288



TOP VIEW 1:1

Note:

- 1. 1.5LAYERS/HIGH=980MM
- 2. CARTON OUT DIMENSIONS: 350*300*170MM 不得含有
- 3. 288 SETS /CARTON
- 4. 9 CARTON/LAYER
- 5. 12960 SETS/PALLET
- 6. SHIP BY AIR



1	PART NAME	PART NUMBER	DIM	QTY
2	PALLET	514000035QD	1200*1000*130MM	1/12960
3	PAPER	5040000063D	850*50*50*5MM	8/12960
4	STRAPS	5210000004ZD	W=9MM	??/12960

FCC Statement:

Federal Communication Commission Interference Statement

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 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.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

This device and its antenna(s) must not be co-located with any other transmitters except in accordance with FCC multi-transmitter product procedures.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

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

IMPORTANT NOTE:

This module is intended for OEM integrator. The OEM integrator is responsible for the

compliance to all the rules that apply to the product into which this certified RF module is integrated.

Additional testing and certification may be necessary when multiple modules are used.

20 cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 20 cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of 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.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: PPQ-WN4642R ". If the size of the end product is larger than 8x10cm, then the following FCC part 15.19 statement has to also be available on the label: This device complies with Part 15 of 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.

OEM Integrator Checklist

The party below will implement the LITE-ON Module in host systems in accordance with the instructions specified in this document and the documents referenced herein.

1. The OEM integrator will ensure the Module is integrated in a host systems using only the approved antenna model(s) described in this document.

Walsin / RFMTA200700NNLB002 / PIFA Antenna

ANT 1 Gain: 1.53 dBi

ANT 2 Gain: -0.29 dBi

Auden / T-0082 / PIFA Antenna

ANT 1 Gain: 2.70 dBi

ANT 2 Gain: 0.63 dBi

2. The OEM integrator will ensure the antenna placement inside the host system will maintain the required spacing to end user for RF Exposure compliance, as specified in this document.

3. If other radios are integrated inside the host with the LITE-ON Module, the OEM integrator will contact its test lab, TCB or LITE-ON to determine if additional FCC compliance evaluation is required to meet FCC collocation rules.

4. The OEM integrator will ensure end user documentation will contain the specified regulatory wording and ensure the host system and the Module itself are labeled as specified in this document.

5. The OEM integrator will ensure the Module is programmed in the factory with compliant transmit power not exceeding the levels specified in this document.

LITE-ON requests that the OEM integrator acknowledge its receipt of this document and the above instructions. You may contact LITE-ON with any questions concerning this document or the responsibilities of the OEM integrator.