

SPECIFICATION FOR APPROVAL

CUSTOMER: Linkcom (Neutral Module)

MODEL NO. : U15QT-6053C1C1

PART NO. : ILMU15QT-6053C1C1-XX-1

MODEL NAME: 15W Wireless Charging TX Module

REVISION: A7

DATE: 2025-5-16

APPROVED SIGNATURES

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LinkCom®

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Model No.	U15QT-6053C1C1	Model Name	15W Wireless Charging TX Module
Part No.	ILMU15QT-6053C1C1-XX-1	Size	L72 ±0.2*W50 ±0.2*T8±0.5mm

Product Specification

產品規格書

Product name/產品名稱: **15W Wireless Charging TX Module**Model No/ 產品型號: **U15QT-6053C1C1**

File number /文件編號:

Revision/版本號: **A7**Date/日期: **2025-5-16**

APPROVED BY 批准	CHECKED BY 審核	DESIGNED BY 製作

Model No.	U15QT-6053C1C1	Model Name	15W Wireless Charging TX Module
Part No.	ILMU15QT-6053C1C1-XX-1	Size	L72 ±0.2*W50 ±0.2*T8±0.5mm

Catalog/目錄

Reversion History/更新記錄.....	4
1. Scope/概述.....	5
2. Product Characteristic /產品特點.....	5
3. Performance Parameter/性能參數.....	5
4. Safety Control/安全機制.....	6
5. Reliability Requirements/可靠性要求.....	7
6. Environment Requirement/環境要求.....	7
7. Execution Standards/執行標準.....	7
8. Photo of Product/產品照片.....	8
9. Module/模組.....	8
10. Indicator light/指示燈.....	12
11. Attentions/使用注意事項.....	12
12. Weight/重量.....	12
13. Packaging/包裝.....	12
14. Statement/聲明.....	14

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Reversion History/更新記錄

Revision	Date	Changes
A0	2024-01-11	New release
A1	2024-09-03	Added dimensions of PCB, coil, heatsink 增加PCB、線圈、鋁片尺寸
A2	2024-09-13	Modified LED indicators operation 修改指示燈動作說明.
A3	2024-10-10	Delete ripple noise 刪除漣波規格 Added checksum. 增加軟件校驗碼 Modified power on of indicator 修改指示燈工作 Modified OVP voltage 13.5V 修改OVP電壓 Revised of the NO.6,7,9,10 description 修改第6,7,9,10項敘述
A4	2024-10-18	修改料號為ILMU15QT-6053C1C1 Revised Model No. is ILMU15QT-6053C1C1
A5	2024-12-2	1- Modified NTC temperature protection 80°C to 85°C at page 6 2- Deleted EMI standard EN55035, retain to EN55032 3- Defined tolerance for TX module. L72 ±0.2 ※ W50 ±0.2 ※T8±0.5mm 4- Changed PCB drawing from 1.0 version to 1.1 version 5- Changed TX coil drawing and added tolerance 6- Redefined aluminum heat sink Spec from 72(±0.5)*50(±0.5)*1.0(±0.1)mm to 72(±0.2)*50.14(±0.2)*0.8(±0.1)mm
A6	2025-02-10	1. Add the EMI test result report. 2. Add the Audio noise spec at page 5.
A7	2025-5-16	Revised Model No. 、 added consumer application description 、 execution standards 、 packaging 、 module description and attentions

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1. Scope/概述

The U15QT-6053 is a WPC Qi 1.2.4 compliant multifunctional fixed-frequency regulated wireless charging module with a transmission efficiency of up to 70%±5% at the highest point, and can also provide up to 15W transmission capacity. It can provide fast wireless charging for iPhone & Samsung cell phones. This product is only suitable for general consumer product application installation and is not suitable for any automotive or aviation product application.

U15QT-6053 是一款兼容 WPC Qi 1.2.4 標準的多功能定頻調壓無線充電模組，其傳輸效率最高點可達 70%±5%，也可提供高達 15W 的傳輸容量。它能夠為 iPhone® 三星手機提供快速無線充電。本產品僅適用於一般消費性產品應用安裝，不適用任何車規航空產品應用。

2. Product Characteristic /產品特點

- ◆ QC3.0 power communication protocol
QC3.0 電源通信協議；
- ◆ DC12V direct power supply
DC12V 電源直接供電；
- ◆ Compatible with Qi 1.2.4 and fast charging for Samsung® and iPhone® phones.
兼容 Qi 1.2.4 並能夠為三星® 和 iPhone® 手機快速充電。

3. Performance Parameter/性能參數

3.0	Power input protocol/電源輸入協定	DC12V/2A
3.1	Input voltage & current/輸入電壓電流	12V/1.75A
3.2	Working voltage & current/工作電壓電流	12V/2A Max
3.3	Wireless charging output power/ 無線充電輸出功率	5W/7.5W/10W/15W (Max)
3.4	Power Transfer Efficiency/轉換效率	70% ±5%
3.5	Operating frequency / 工作頻率	110-205KHz

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3.6	Ripple noise /紋波及噪音	≤5%
3.7	Operating temperature /工作溫度	0-30°C
3.8	Relative humidity / 相對濕度	40%~60%
3.9	Audio noise/噪音	15cm distance less than 30dB
3.10	Check sum/軟件版本	EA32

4. Safety Control/安全機制

4.1. Short Circuit Protection/短路保護

In the case of short-circuit at the receiver output, the transmitter stop output. When removed the receiver or short circuit, the transmitter will resume normal operation.

在接收端輸出短路的情況下，發射端停止輸出。當移除接收或者短路解除時，發射端將恢復正常工作。

4.2. Over Current Protection/過流保護

When the receiver load exceeds the rated value (110% - 130%), the overcurrent protection is triggered and the transmitter stops working. When removed the receiver, the transmitter will resume normal operation.

當接收器負載>額定值的110% - 130%時，觸發過電流保護，發射端停止工作，當接收器被移除時，發射端將恢復正常工作。

4.3. Overvoltage Protection/过压保护

The product would stop working when the input voltage exceeds the rated value (13.5V). The Product would be restarted working when the voltage returns to the set value range.

P/S: The input voltage shall not exceed 13.5V in case damage the product.

輸入端超过设定过压电压值13.5V时，发射端停止工作。电压恢复设定值范围时重新启动工作。

注意：输入电压不可以超过13.5V，以防损坏本产品。

4.4. Foreign Object Detect (FOD) (1 RMB coin as the standard.)/異物檢測（以一元RMB硬幣為標準）

異物檢測（以一元RMB硬幣為標準）

4.4.1. When placing the coin onto the center of the product under no-load condition, the transmitter detected foreign object and reports an error, then stops working. Removes the foreign object to resume normal operation.

空載時放置產品中心，發射端檢測到異物並報錯，停止工作，移除異物可恢復正常工作。

4.4.2. When placing the load and coin together onto the center of the product, an error is reported within 10s (time varies with different mobile phone models) and the output is closed. Removes the foreign object to resume normal operation.

負載和硬幣一起放置產品中心時，10秒（不同手機型號時間不同）之內報錯並關閉輸出，移除異物可恢復正常工作。

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4.5. Over-temperature Protection/過溫保護

4.5.1. Wireless charging over-temperature protection/無線充電過溫保護

The NTC temperature protection of the PCBA is $85^{\circ}\text{C} \pm 5^{\circ}\text{C}$. The transmitter stops working when the temperature exceeds the value. Resets the receiver or cools to $55 \pm 5^{\circ}\text{C}$, the transmitter returns to normal operation (optional replacement with external NTC)

PCBA貼片NTC溫度保護設定值為 $85^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ，當溫度超過設定值，發射端停止工作，重新放置接收或者降溫至 $55 \pm 5^{\circ}\text{C}$ 時，發射器恢復正常工作。(可選擇更換成外接NTC)

5. Reliability Requirements/可靠性要求

5.1. Reliability Test/可靠性測試

Please refer to Link Com's reliability standard and reliability test Report.

請參考聯寶標準《可靠性測試規範》與《可靠性測試報告》

6. Environment Requirement/環境要求

6.1. Operating Temperature and Relative Humidity/操作溫度和相對濕度 $0^{\circ}\text{C} - 30^{\circ}\text{C}$ / RH40~60%

6.2. Storage Temperature and Relative Humidity/儲存溫度和相對濕度 $-20^{\circ}\text{C} - 40^{\circ}\text{C}$ / RH20~80%

6.2.1. Avoid direct exposure to the storage environment, and do a good temperature and humidity control, room temperature should be controlled at $5^{\circ}\text{C} - 25^{\circ}\text{C}$, relative humidity RH40~ 60%. In order to maintain good functionality of the product, please observe the following storage conditions. 儲存環境應避免產品受陽光直接照射，並作好溫濕度管控，室溫宜控制在 $5^{\circ}\text{C} - 25^{\circ}\text{C}$ / RH40~60%。為使產品維持良好之功能性，請確實遵守以下保存條件

6.2.2. Keep away from high humidity, salt spray or oil spray. 儲存需避開高濕，鹽霧或油霧之環境

6.2.3. When storing, the storage environment temperature should be avoided too drastic, and the humidity should be avoided too high or too low. High humidity and large temperature difference tend to cause water Vapor condensation phenomenon, too low humidity easily cause the high electrostatic strength. Therefore, humidity will cause the electron ionization, and eventually cause the product functional abnormalities.

儲存時應避免儲存環境溫度變化過於激烈，同時避免濕度過高或過低。濕度過高和溫差過大容易導致水 蒸氣凝結現象，濕度過低容易導致靜電強度過高。故濕度會造成電子遊離，最終導致產品功能性異常。

7. Execution Standards/執行標準

7.1. EMI Standards電磁相容標

EN55032

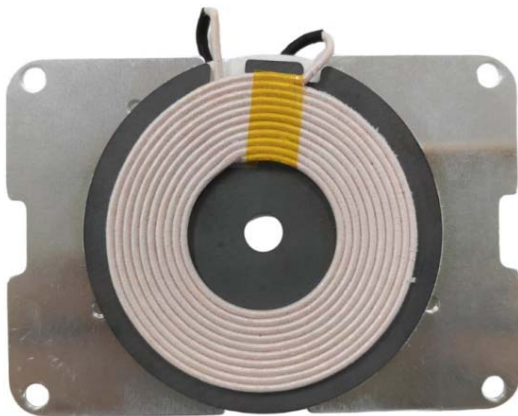
Note : The EMI test should include the actual testing of the enclosure and RX equipment.

備註：EMI 測試需包含外殼與 RX 設備實際測試。

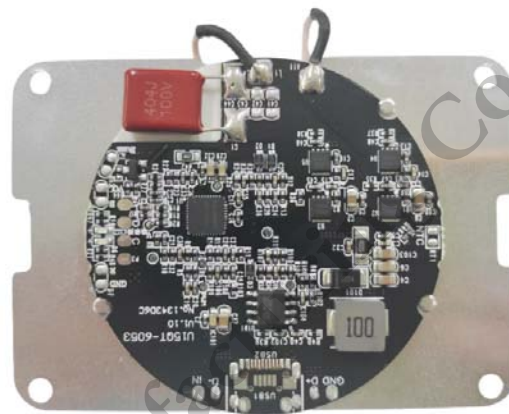
Model No.	U15QT-6053C1C1	Model Name	15W Wireless Charging TX Module
Part No.	ILMU15QT-6053C1C1-XX-1	Size	L72 ±0.2*W50 ±0.2*T8±0.5mm

8. Photo of Product/產品照片

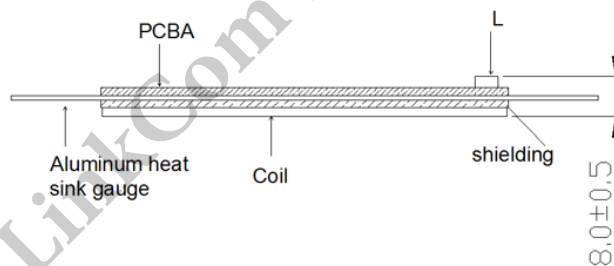
Size : L72 ±0.2*W50 ±0.2*T8±0.5mm



Module Front Side 模組前面



Module Back Side 模組後面



9. Module/模組

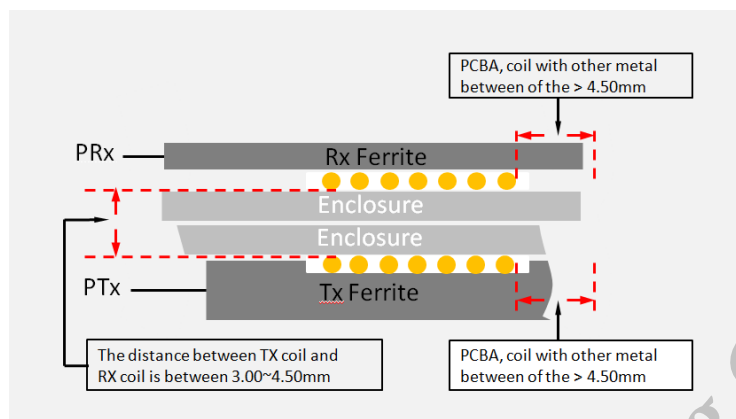
9.1. Product design proposal/產品設計要求

According to the standardization of Qi, Please note the following:

為了要符合Qi的標準，以下幾點需注意：

1. The distance between Coil with PCBA and other metal components is Min: 4.50mm.
線圈，PCBA和其他金屬部件之間的最小距離：4.50mm.
2. The surface distance between Tx Coil and Rx Coil is 3.00 – 4.50mm.
輸出線圈和接收線圈之間的表面距離為3.00 – 4.50mm.

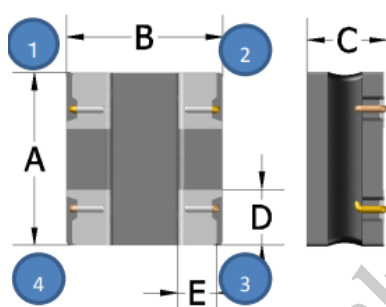
Model No.	U15QT-6053C1C1	Model Name	15W Wireless Charging TX Module
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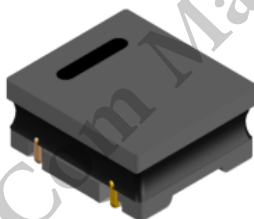
3. In order to pass the EMI test, it is recommended to use a DC 12V power supply plus a common mode inductor and then connect to the PCBA. The recommended specifications of common mode inductors are as follows, which can be adjusted according to actual conditions:

為了通過EMI測試，建議使用DC 12V電源外加共模電感後連接PCBA。共模電感建議規格如下，可依實際狀況做調整：

PACKING DIMENSIONS (mm)



Marking



5045	Dimensions
A	5.0 ± 0.3
B	4.5 ± 0.3
C	2.5 Max.
D	1.6 ± 0.3
E	1.4 ± 0.3

Electrical Characteristics

P/N	Z(Ω) Common Mode Impedance at 100MHz	DCR (Ω) ±40%	IDC (A) Max.	Rated Voltage Vdc (V)Typ.	Insulation Resistance IR (MΩ) Min.	Withstand Voltage Vdc (V)Typ.
PCN5045A-102	1000 Typ.	0.024	3.0	50	10	125

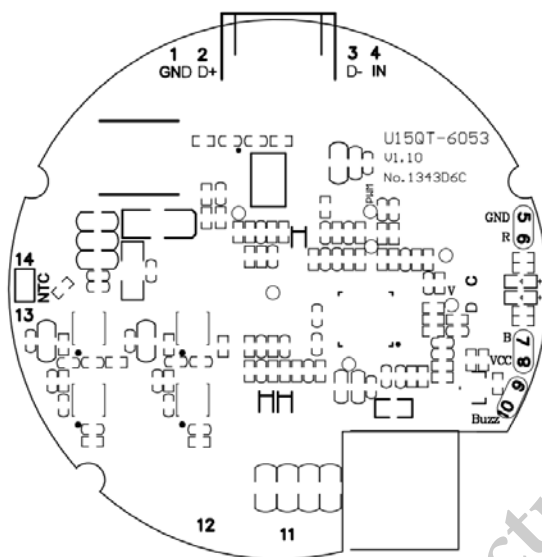
4. In order to achieve better temperature performance, it is recommended to add heat dissipation measures when designing, such as adding thermal conductive silicone pads to the PCBA to increase the heat dissipation area.

為了有更好的溫度表現，使用時建議增加散熱對策，如增加導熱矽膠墊於PCBA增加散熱面積。

9.2. PCBA Port Functional Illustration/PCBA功能說明

PCBA Version : V1.1

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PCBA圖

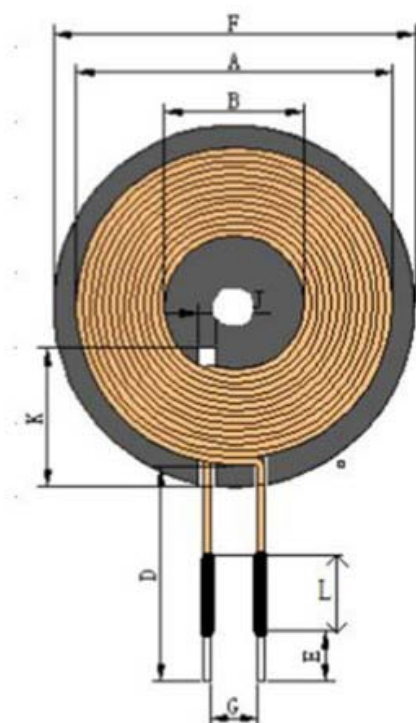
PCBA Size: $\varnothing 50(\pm 0.5) * 4.0\text{mm}(\text{MAX})$

Port	Pin1	Pin2	Pin3	Pin4	Pin5	Pin6
Function	GND INPUT	USB D+	USB D-	IN INPUT	LED GND	LED Red
Port	Pin7	Pin8	Pin9	Pin10	Pin11	Pin12
Function	LED Bule	LED VCC	Buzz_VCC	Buzz	Coil_1	Coil_2
Port	Pin13	Pin14				
Function	NTC+	NTC-				

9.3. Tx_Coil Spec : TX線圈規範

Coil + Shielding : 尺寸 $\Phi 50 \pm 0.5 * 2.4\text{mm}$

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注：

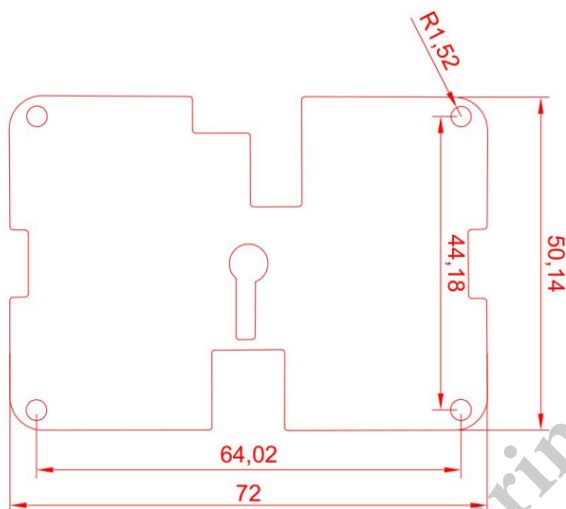
1. 线圈贴磁片带直线槽，中心开孔磁片尺寸Φ50mm,厚度为0.95Max;
2. 磁片一面黑色PC95，另一面不要双面胶;
3. 黑色L为黑色Φ1mm的热缩套管

	A	B	C	D	E	F	G	H	I	J	L	备注
尺寸 mm (Dim)	42.5	20.5	1.2	20.0	2.0	50	11	2.4	0.85	5.2 直径	10 (1.0 热缩套管)	双线 出口 开双槽
公差 mm (Tol.)	±0.5	±0.5	±0.2	±1.0	±0.5	+0 -0.5	±0.5	+0.1 -0.4	±0.1	±0.3	±1.0	

9.4. Aluminum heat sink gauge Spec/铝散热片规格

72(±0.2)*50.14(±0.2)*0.8(±0.1)mm

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	A 长	B	C 宽	D	H 厚度	R 孔半径	备注
尺寸 mm	72	64.02	50.14	44.18	0.8	1.52	
公差 mm	±0.2	±0.2	±0.2	±0.2	±0.1	±0.2	

10. Indicator light/指示燈

- ◆ Power on: Blue + Red LED blinks 2 times /通電: 藍+紅色 LED 閃爍 2 下
- ◆ Standby: No light /待機: 無燈
- ◆ Charging: Blue light always on /充電時: 藍燈常亮
- ◆ Charging complete: blue light off/充電完成: 藍燈熄滅
- ◆ Abnormal: Red light always on/異常: 紅燈長亮
- ◆ FOD: Red light flashing /檢測到異物: 紅燈閃

11. Attentions/使用注意事項

- 11.1. Please use the correct rated AC Adapter, to ensure the normal function.
請使用配置的正确規格火牛，保證功能正常。
- 11.2. This product is only suitable for general consumer product application installation and is not suitable for any automotive or aviation product application.
本產品僅適用於一般消費性產品應用安裝，不適用於任何汽車或航空產品應用。

12. Weight/重量

- 1 piece: 27±2 g
- 1 Carton/1箱: 200pcs; Net Weight/淨重: about 5.4kg; Gross Weight/毛重: about 7.1kg

13. Packaging/包裝

Model No.	U15QT-6053C1C1	Model Name	15W Wireless Charging TX Module
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中尺寸模组 (白盒) _ Carton Packing Method

2025.03.06

outer carton : 160 pcs

材质: K=K (4 boxes)

size : W 350 × D 315 × H 210 mm

NW : kg GW : kg

inner carton : 40 pcs

材质: A3A (boxes)

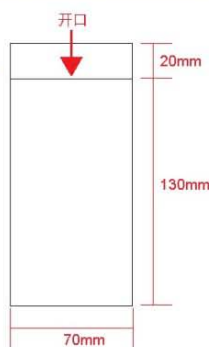
size : W 330 × D 145 × H 93 mm

NW : kg GW : kg

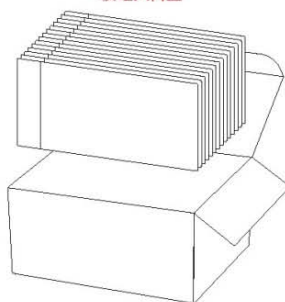
天地盖 (材质: A3A): 320 x 135mm(2PCS/箱)

PRODUCT

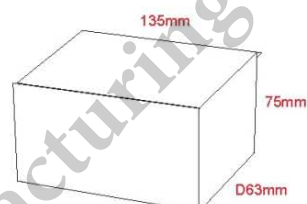
气泡袋
本厂标准的模组用气泡袋



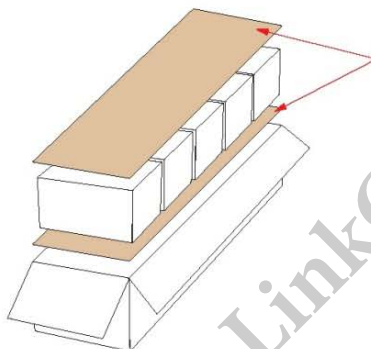
8PCS
模组入白盒



weight:



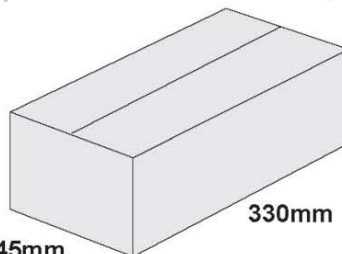
INNER



320 x 135mm(2PCS/箱)

93mm

145mm



shipping mark:

4 faces

line:

pcs:

40

OUTER

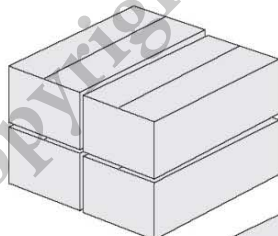
shipping mark:

faces

line:

pcs:

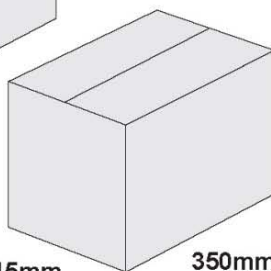
160



210mm

315mm

350mm



Inner Material:

A3A

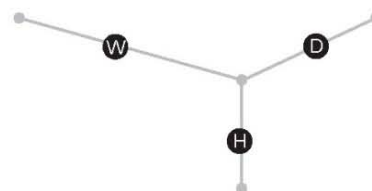
Outer Material:

K=K

Designer:

Bruce

Coordinate:



Please make sure to get our approval of following issues before you start mass production of the cartons:

- printing of the shipping mark (ink color, printing date etc.)
- weight and size of the carton
- fitting between product & Inner carton, Inner carton & outer carton

Model No.	U15QT-6053C1C1	Model Name	15W Wireless Charging TX Module
Part No.	ILMU15QT-6053C1C1-XX-1	Size	L72 ±0.2*W50 ±0.2*T8±0.5mm

14. Statement/聲明

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