

SPECIFICATION FOR APPROVAL

客户承认书

GPN No.: KC2010
REV 版本: 1.0

Model No. 型号: KRE-Q01
Design No. 设计流水号: 171026-150477-161029-A1



景荣企业有限公司
中山市景荣电子有限公司

KINGRONG ENTERPRISE LTD. (Since 2008)

ZHONGSHAN KINGRONG ELECTRONICS CO., LTD.

客户承认书

SPECIFICATION FOR APPROVAL

DESCRIPTION/概述: 2 Coils Quick Wireless Charger (Pen Holder)

COIL & POWER/圈数&功率: 2 Coils & 10W

CUSTOMER P.N. /客户料号: _____

PART NO. /产品编号: KRE-Q01 RoHS: Yes

| CUSTOMER AUTHORIZED SIGNATURE/客户承认签字 | | |
|--------------------------------------|----|--|
| Special Notes 特殊要求 | 1. | Signature & seal: Date: |
| | 2. | |
| | 3. | |
| | 4. | |

Sign it means acknowledge our sample(s) performance and we production to samples. In the event of discrepancies between the sample(s) and specification, the sample(s) shall prevail. /客户确认签字, 盖章即视为确认样品性能, 以样品为准生产.

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| | 黄秀红 | 吴静雯 | 王苑 |

TABLE OF CONTENTS/目录

0. Revision List /变更履历表 3

1. Product Function /产品功能 4

1.1 Introduction of Wireless Charging Function 无线充电功能介绍 4

1.2 Usage /使用方法 4

1.3 Transmitter Pad Indicator Light Working Description/发射板指示灯工作说明 4

2. Receiver Location Hints /接收端放置提示 5

3. Basic Performance Parameters/基本性能参数 5

4. Electric Characteristics /电性特征 5

4.1 MTBF Qualification/平均间隔故障时间估算 5

4.2 Aging Test /老化测试 5

4.3 No Load Test /空载测试 6

4.4 Load Aging /负载老化 6

5. Reliability Requirements /可靠性要求 6

5.1 High Temperature Storage Test /高温储存测试 6

5.2 Low Temperature Storage Test /低温储存测试 6

5.3 High and Low Temperature Cycle Tests /高低温循环测试（冲击） 6

5.4 Work High-temperature Test /高温工作测试 6

5.5 Work Low-temperature Test /低温工作测试 6

5.6 Cord Bending Test /摇摆测试: 7

5.7 Strain Relief Test / 拉力测试: 7

5.8 Insertion and Extraction Test /插拔测试 7

5.9 Salt Spray Test /盐雾测试 7

5.10 Drop Test / 跌落测试 7

5.11 Vibration Test/振动测试: 7

6. Automatic Protection /自动保护功能 7

7. Charging Range Test /充电范围测试 8

8. Sensitivity Test /灵敏度测试 8

9. Outline & PCBA Photograph/外观和 PCBA 示意图 9

10. Retail Packing Design & Photograph /零售包装设计示意图 10

11. Test Report/测试报告 11

12. Outer Carton Packing Information /包装示意图 12

13. Certificates /认证证书 12

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REV 版本: 1.0

Design No. 设计流水号: **171026-150477-161029-A1****0. Revision List / 变更履历表**

变更后立即通知生产更新资料, 切记!

| Rev. 版本 | Date 日期 | Description of Changes 变更内容描述 | Notes 备注 |
|------------|------------|----------------------------------|-------------|
| 1.0 | | | |
| 2.0 | | | |
| 3.0 | | | |

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1. Product Function /产品功能

1.1 Introduction of Wireless Charging Function 无线充电功能介绍

The product could achieve short-range radio transmission by magnetic induction, applicable to charging for digital products of communications, furniture, fire protection, water proof and other digital products, this product meets Qi wireless charging standard, and compatible with all Qi enabled devices. /本产品通过磁感应方式实现短距离无线电能传输，适应数码产品充电以及通信、家具、消防、防水等数码产品。本产品符合 Qi 无线充电标准，凡是符合 Qi 标准的接收端都可以使用本产品进行充电，

This product has wide operating voltage which can adapt to most USB A adapter and QC2.0 adapter. /本产品有较宽的工作电压能适应绝大多数 USB A 输出的普通适配器或符合 QC2.0 的适配器。

Support fast wireless charging./本产品支持快速无线充电功能。

1.2 Usage /使用方法

Connect the adapter through Micro USB cable (standard cable). /将发射器通过 USB A 转 Micro USB 线连接（产品标配的数据线）

Under normal charging mode when connect to 5V normal power adapter:/ 如果适配器是 5V 输出的，产品工作在普通无线充电模式时：

It supports: **5W** loads max, under normal charging mode./普通模式下最大支持负载

Under fast/quick charging mode when connect to QC2.0 power adapter./ 如果适配器符合 QC2.0 标准，产品工作在快速无线充电模式时：

It supports: **10W** loads max, under fast/quick charging mode /快充模式下最大支持负载。

1.3 Transmitter Pad Indicator Light Working Description/发射板指示灯工作说明

a) **Power on LED/通电灯 Green/绿色**: After 2 seconds indicator light flash alternately, indicator light will turn on for a long time then enter into standby mode./指示灯交替闪烁 2 秒钟后，指示灯长亮进入待机模式；

b) **Standby LED/待机灯 Green/绿色**: Indicator light will turn on for a long time. /指示灯长亮；

c.) **Charging LED/充电灯 Blue/蓝色**: Indicator light will turn on for a long time, remove the receiver, the indicator light will turn standby LED, enter into standby mode. /充电灯长亮，移除接收端，指示灯变成待机灯，进入待机模式。

When this product work with Samsung phones which are built-in wireless charging

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function, the green LED light keeps standby LED if the battery is fully charged. The LED light shows Charging LED for other device when fully charged. If don't move the phone, the battery power keeps in fully charged status (supplementary charge). /当使用该产品为三星自带无线充电机型充电, 手机充满电后, 指示灯长亮待机灯色。其他设备充满电后, LED 指示灯亮充电灯。若手机长时间未拿开, 该手机将保持电量在 100% 状态 (补充充电)。

2. Receiver Location Hints /接收端放置提示

Tips: The greater deviation distance, the lower charging efficiency.

温馨提示: 偏离距离越大, 充电效率越低。

The phone receiver coil center should be place in the center of transmitter, allowed distance is ($\pm 2.5\text{mm}$), If over this range, the transmitter will not work. It needs to put the phone in the correct position and the device will enter the charging status.

手机端接收线圈中心位置偏移发射线圈中心位置超出允许距离($\pm 2.5\text{mm}$), 发射器将不工作, 需将手机重新正确放置, 设备将重新进入充电状态。

3. Basic Performance Parameters/基本性能参数

3.1 Input voltage current /输入电压电流: DC5V 2A - 9V 1.8A

3.2 Output voltage /输出电压: DC5V $\pm 0.25\text{V}$

3.3 Output current (no-load) /输出电流 (空载): $\leq 15 - 58\text{mA}$

3.4 Output current (full load) /输出电流 (满载): 1.6A

3.5 Output load voltage Load /输出负载电压:

Input DC5V , Output 5V $\pm 0.25\text{V}$

Input DC9V , Output 5V $\pm 0.25\text{V}$

3.6 Efficiency (full load) /转换效率 (满载): $\geq 73\%$

3.7 Working Frequency /工作频率: 110-205 KHz

3.8 Ripple & Noise /纹波及噪声: $\leq 100\text{mVp}_p$

3.9 IC Solution /使用IC方案: NewYea新页

3.10 Working Temperature /工作温度: 0~40°C

3.11 Relative Humidity /相对湿度: 10%~80%

4. Electric Characteristics /电性特征

4.1 MTBF Qualification/平均间隔故障时间估算

The average failure rate is less than 0.5% under 25 °C when working 20,000 hours. /工作2万小时, 在 25°C 环境下平均失效率小于0.5%.

4.2 Aging Test /老化测试

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Under normal temperature, aging test 4 hours when full load./ 常温，满载老化时间4H。

4.3 No Load Test /空载测试

DC5V,DC9V, standby 4 hours, electrical property and structure are normal. /DC5V, DC9V 输出端无负载，待机时间4H，本体无冒烟，电性正常，结构无异常。

4.4 Load Aging /负载老化

DC5V, DC9V, Load current I=1000 mA as an example, aging test 4 hours, electrical property and structure are normal. / DC5V, DC9V ，以负载电流I=1000 mA,老化4H，电性正常，结构无异常。

5. Reliability Requirements /可靠性要求

5.1 High Temperature Storage Test /高温储存测试

Test temperature is $85^{\circ}\text{C}\pm 2^{\circ}\text{C}$, test 4 hours. Place products 4 hours at normal temperature after test, the appearance and electrical property are normal. /测试温度为 $85^{\circ}\text{C}\pm 2^{\circ}\text{C}$ ，持续测试时间为4H。测试完后在常温下放置4H后，外观、电性能正常。

5.2 Low Temperature Storage Test /低温储存测试

Test temperature is $-10^{\circ}\text{C}\pm 3^{\circ}\text{C}$, test 4 hours. Place products 4 hours at normal temperature after test, the appearance and electrical property are normal. /测试温度为 $-10^{\circ}\text{C}\pm 3^{\circ}\text{C}$ ，持续测试时间为4H。测试完后在常温下放置4H后，外观、电性能正常。

5.3 High and Low Temperature Cycle Tests /高低温循环测试（冲击）

High and low temperature cycle tests: test temperature is $85^{\circ}\text{C}\pm 2^{\circ}\text{C}$, humidity 90%-95%, test 1 hour. Low temperature -10°C , time 1 hour, 6 cycling test. Place products 4 hours at normal temperature after test, the appearance and electrical property are normal. /高低温循环测试（冲击）：测试温度 $85^{\circ}\text{C}\pm 2^{\circ}\text{C}$ ，湿度90%-95%，实验持续时间1H，低温 -10°C ，时间1H，进行6个循环，测试后在常温下恢复4H，外观、电性能正常。

5.4 Work High-temperature Test /高温工作测试

Working 12 hours under 60°C ，95 RH，check product per 2 hours if function works well, put aside 24 hours under room temperature after testing, function and structure are normal. /温度 60°C ，湿度95%，工作12H，每2H检查一次，测试后常温24H，电性能、结构正常。

5.5 Work Low-temperature Test /低温工作测试

Temperature is -10°C ，input DC5V /9V，humidity 20%-30%，connected load and working 12 hours，check every two hours，the electrical property and structure are normal after 2 hours test under normal temperature. /温度 -10°C ，输入DC5V /9V，湿度20%-30%，连接负载工作12小时，每隔2H检查一次，测试后常温2H，电性能及结构正常。

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5.6 Cord Bending Test / 摇摆测试:

Lifting weight: 500 g, swivel angle: 90 °C between left and right, swivel frequency: 2 times every minute, still conducts after 3000 times. / 吊重500克, 摇摆角度: 90度, 摇摆频率: 2次/分钟, 摇摆次数: 3000次以上; 线皮无破损, 导通阻抗正常。

5.7 Strain Relief Test / 拉力测试:

USB tension test machine pull after plugging in, strength: 0.6kgf-1.0kgf. / 输入端拉力, 插入后再用拉力计拉出, 力度0.6kgf-1.0kgf.

5.8 Insertion and Extraction Test / 插拔测试

Inserting and drawing strength is in the range of 9.5-12N, the intensity is no less than 3N after plug 5 times, no less than 1.5N after plug 1500 times, plug and socket tested more than 500 times, plug injection molding wear, the structure and conduction performance are normal. (Inserting and drawing frequency: 500 times every hour.) / 插拔力度在9.5-12N, 插拔5次后力度不小于3N, 插拔1500次后(每小时500次)力度不小于1.5N, 插头及插座必须通过500次插拔测试, 插头注塑件外观允许磨损, 结构仍然保持完整, 且导通性能无异常。

5.9 Salt Spray Test / 盐雾测试

The salt water density is 5%, lays aside the sample in the salt-fog test box 8 hours under 35 °C. Put aside the sample in room temperature for 1 hour after testing, there is no rust on the appearance of exposed metal and galvanized parts. / 盐水浓度为5%, 持续喷雾8H, 桶内温度35°C。实验结束后取出, 在常温下搁置1H后, 在检查外观, 外露金属及电镀件不生锈。

5.10 Drop Test / 跌落测试

Drop test at 1.0m, 6 edges for 10 times, works as usual, indentation no more than φ5mm, electrical property and structure are normal. / 单体跌落, 高度为1m, 自由跌落到木板地面上, 一角三边六面, 总跌落10次。试验后对外观进行检查, 电性能正常, 可接受直径最大为5mm表面压痕, 结构无异常。

5.11 Vibration Test / 振动测试:

Frequency 10-55Hz, sweep frequency cycle time 10 times in X, Y and Z directions for 30 minutes, appearance and function are normal. / 频率为10-55Hz, X/Y/Z每个方向上扫频循环次数为10次, 总时间30分钟, 外观电性正常。

6. Automatic Protection / 自动保护功能

When the transmitter detected its connector's load current is too large (current exceeds the rated output), the transmitter will disconnect with the mobile receiver automatically. Put the mobile phone in correct position again after move the mobile 5 seconds later. It will re-enter charging status when the

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connection is successful. /当发射器检测到与其连接的负载电流过大（电流超过额定输出值），发射器自动关断与接收器连接，进行自动安全保护。将设备移开5 秒钟后重新正确放置，连接成功才能重新进入充电状态。

7. Charging Range Test /充电范围测试


Mark the center of coils on wireless charger transmitter, placing the standard interval of 2-4.5 mm receiving terminal acrylic sheets in wireless charger transmitter, charging test can identify normal range. Standard: 1.8 to 2.5 mm. The receiver recognition is normal in the interval of 7 mm acrylic sheets.

/ 在发射端标记好线圈中心点，用标准接收端中间隔2 - 4.5 mm亚克力板置于发射端，测试能正常识别的充电范围。标准：1.8 - 2.5 mm。

中间隔7 mm亚克力塑胶板，接端正常识别。

8. Sensitivity Test /灵敏度测试

Using the standard interval of 2-4.5 mm in the receiving terminal acrylic sheets and place it in transmitting terminal every 3 to 5 seconds , Test the speed of each recognition. The recognition time is less than 1 second. The normal recognition time is less than 1 second, in the interval of 4.4 mm acrylic./用标准接收端中间隔2-4.5 mm 亚克力板，每间隔3-5秒放置于发射端一次，测试每次识别的速度。要求识别时间小于1秒。中间隔4.4 mm亚克力塑胶板，接收端正常识别小于1秒。

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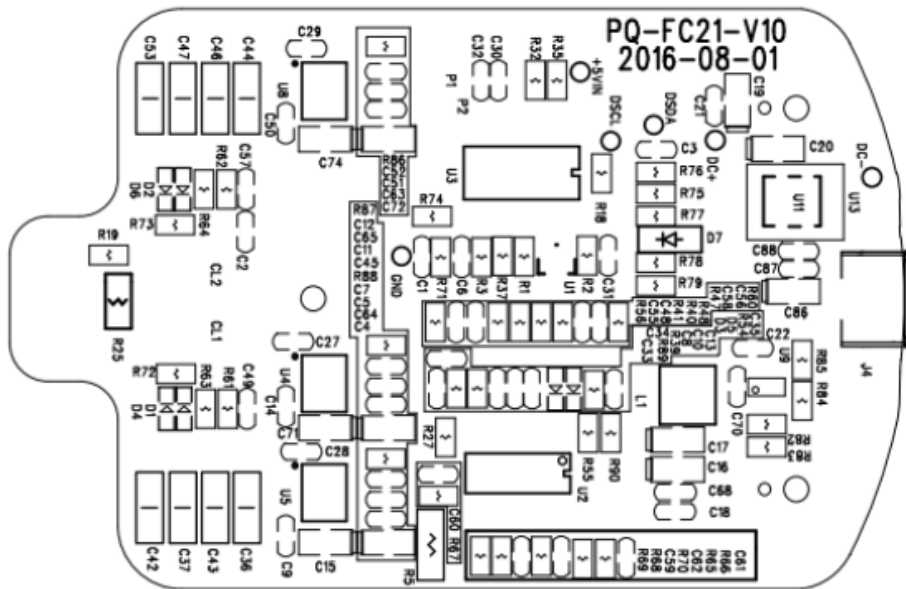
Model No. 型号: KRE-Q01

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9. Outline & PCBA Photograph/外观和 PCBA 示意图

Size 尺寸: L 100*W 100 *H 112 mm



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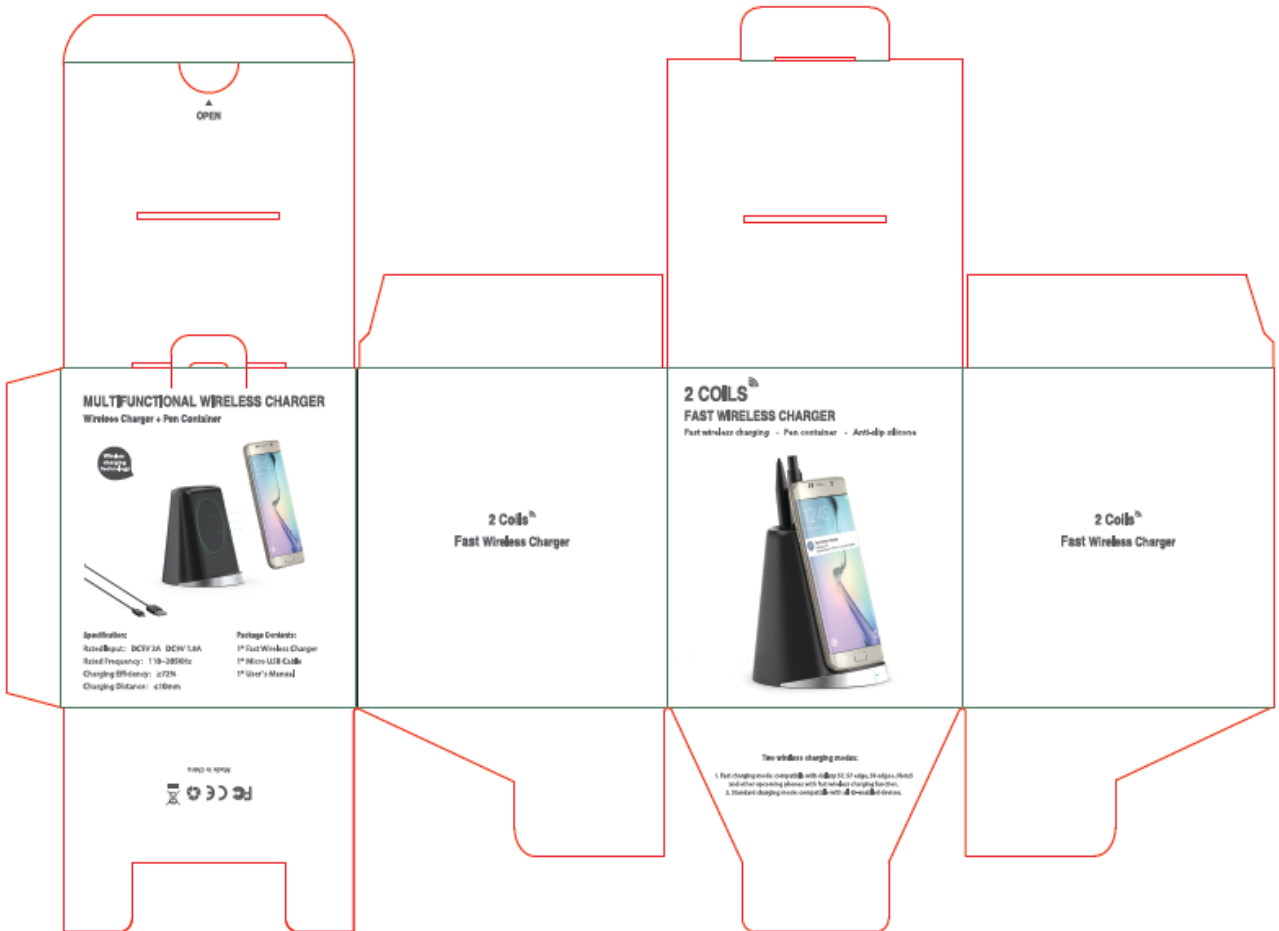
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10. Retail Packing Design & Photograph /零售包装设计示意图

Size 尺寸: L 100*W 106*H 117mm

- : Gift box type/彩盒
- : Cover box type/天地盖盒
- : Plastic transparency box/透明塑料盒



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11. Test Report/测试报告

11.1 Test Program and Conditions/测试条件:


1. The product was test in still air at an ambient temperature of 23°C±5°C./室温测试
2. Original accessories of Samsung or Iphone, QC charger and data cable./原装配件
3. Charging position center to center whatever in vertical or horizontal/中心对准

11.2 Test Result/测试结果:

: Pass

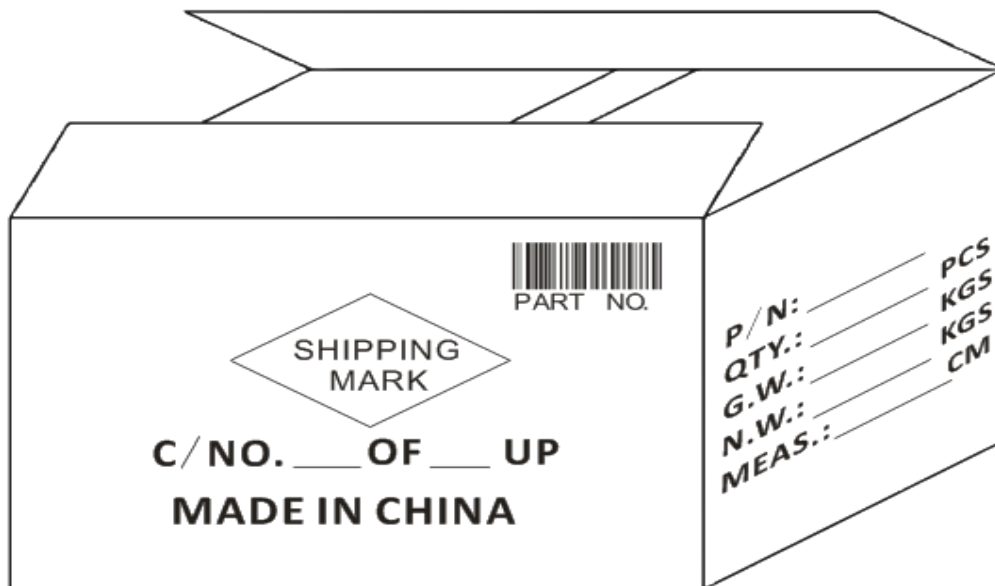
11.3 Test Data/测试数据:

| Days | Tested Mobile 测试手机 | Mobile Status | Time | Battery % | Ambient Temp°C | Max.phone case Temp°C | TX Voltage Current | Remark |
|------|-----------------------|---------------|-------|-----------|----------------|-----------------------|--------------------|--------|
| 1 | S6edge+ | Power on | 9:48 | 0% | 27.6 | 27.6 | 9V 1.3A | |
| | | | 10:48 | 50% | 27.6 | 36 | 9V 0.78A | |
| | | | 11:48 | 92% | 28 | 35.8 | 9V 0.67A | |
| | | | 12:17 | 100% | 27.9 | 34.6 | 9V 0.16A | |
| 2 | S7edge | Power on | 16:30 | 0% | 28.7 | 28.7 | 9V 1.27A | |
| | | | 17:30 | 31% | 29.2 | 36.6 | 9V 0.59A | |
| | | | 18:30 | 56% | 29.8 | 36.8 | 9V 0.59A | |
| | | | 19:30 | 78% | 30 | 37.2 | 9V 0.58A | |
| 3 | S7 | Power on | 20:30 | 100% | 30 | 37.2 | 9V 0.30A | |
| | | | 13:28 | 0% | 26.6 | 26.6 | 9V 1.29A | |
| | | | 14:28 | 43% | 27.1 | 37.2 | 9V 0.79A | |
| | | | 15:29 | 79% | 27.2 | 36.4 | 9V 0.33A | |
| 4 | NOTE5 | Power on | 16:13 | 100% | 27.1 | 34.8 | 9V 0.30A | |
| | | | 17:45 | 0% | 27 | 27 | 9V 1.31A | |
| | | | 18:45 | 59% | 29 | 37.8 | 9V 0.89A | |
| | | | 19:49 | 100% | 29.9 | 36.8 | 9V 0.32A | |
| 5 | ipone6+ | Power on | | | | | | |
| | | | 14:53 | 0% | 27 | 27 | 9V 1.27A | |
| | | | 15:55 | 42% | 27.3 | 36.2 | 9V 0.33A | |
| | | | 16:53 | 76% | 27.2 | 36.8 | 9V 0.79A | |
| 6 | ipone7 | Power on | 17:40 | 100% | 27.2 | 34.6 | 9V 0.31A | |
| | | | 13:37 | 0% | 27.4 | 27.4 | 9V 0.49A | |
| | | | 14:37 | 35% | 28.3 | 35.2 | 9V 0.51A | |
| | | | 15:37 | 80% | 28 | 35.6 | 9V 0.51A | |
| | | | 16:32 | 100% | 27.6 | 35.8 | 9V 0.28A | |

| | | | |
|---|--------------|-------------|--------------|
|  KINGRONG ENTERPRISE LTD. 景荣企业有限公司 | Approved by: | Checked by: | Prepared by: |
| | 黄秀红 | 吴静雯 | 王苑 |

SPECIFICATION FOR APPROVAL**客户承认书**GPN No.: **KC2010**Model No. 型号: **KRE-Q01**

REV 版本: 1.0

Design No. 设计流水号: **171026-150477-161029-A1****12. Outer Carton Packing Information /包装示意图**

| Material | Measurement (LxWxH) | Q'ty (pcs) | Shipping Mark | G.Part No. On Carton |
|----------|---------------------|------------|---------------|------------------------|
| K=K | 42x26x23cm | 60 | KRECO | KRE008QIP-M 01C02N1 |

13. Certificates /认证证书

| | | | |
|---|--------------|-------------|--------------|
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