

Shenzhen Zhiwei Wuxian Technology Co., Ltd.

Shenzhen ForWireless Technology Co.,Ltd

Acknowledgement

APPROVAL SHEET

Product Code:		Customer name :	Shenzhen Zhifu New Energy Co., Ltd.
Product model :	ZF-10W-2PIN	Customer Model:	
Size of product :	10W Wireless Charging Transceiver (TX-)	Customer Part Number:	3. 02. 06. 0028
Edition :	V1. 1	Sample Submission Date:	2022. 06. 27
Sample size :	3		

Manufacturer App-
roval:

Proposed	Examine and verify	Ratify
Zhong Yuan	Zhang Chengwei	Zhang Liang

Customer acknowledges:

Xiang Page	test result	Tester	examine and verify	核准(盖公章)
Function		张成伟	2021	慈的20
Structure				研发专用章

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Note:Please carefully compare your samples with the test results. After confirmation, sign and stamp the document before returning it. Failure to return within 7 working days will be deemed accepted by the customer. Our company shall not be liable for any issues arising during subsequent production.

I. Scope of Application

This specification document outlines the product overview, specifications, and technical parameters.

II. Overview

This wireless charging transmitter module is a dedicated 10W transmitter designed to meet Qi-standard wireless reception requirements. It complies with the WPC 1.24 standard and holds CE/FCC product certifications. Featuring Yingjixin's IP6806 solution, it offers stable performance and low standby power consumption. The unique PWM modulation mode significantly enhances conversion efficiency, delivering effortless wireless convenience. With high output efficiency and built-in calibration of the transmitter-to-receiver power ratio, it precisely controls energy loss. The module incorporates minimal components for excellent cost-effectiveness and requires no configuration—ready-to-use immediately. It fully meets all certification requirements and is ideal for various Qi-compliant wireless charging devices, such as Bluetooth speakers with wireless charging functionality, desk lamps, or portable power banks.

Module Features:

- 1: Designed strictly in accordance with Qi standards, compatible with all receivers compliant with these standards;
- 2: The module features overvoltage protection (OVP: 13.5 V ± 0.5), undervoltage protection (UVP: 4.2 V ± 0.2), and overcurrent protection (OCP: 5 V ± 2 A).

0.2–9 V/12 V, 1.7 A ±0.1); overtemperature protection (power reduction at 60°C, automatic charging termination at 65°C, and resumption of operation when temperature drops below 50°C); foreign object detection (FOD), etc.

- 3: Features a 12V input, standby power consumption below 20mA, efficiency exceeding 75%, and a simple peripheral circuit design with excellent cost-effectiveness.

size of product :

- 1. Input port: one 2-pin 2.0 cable (pin 1 connects to red wire, pin 2 to black wire); cable specifications: 323922 AWG, length 150 mm. Input voltage/current: 12 V/1.5 A; Output voltage/current: 5 V/1 A, 7.5 V/1 A, 9 V/1.12 A.
- 2. Output port: one A11 transmission coil with a 2.5 mm back-coated sponge pad; dimensions: diameter 50 mm; inductance: 6.3 μH ± 10%.
- 3. PCB dimensions: 65 mm × 55 mm × 1.0 mm (length × width × thickness);
- 4. Environmental Temperature: Storage: -20°C to 60°C; Operating: -10°C to 40°C.
- 5. Operating frequency: 110 K–205 K;
- 6. Charging distance: 1–8 mm; horizontal displacement range: ±8 mm (indicating the offset distance between the emission coil and the center of the phone's receiving coil).
- 7. NTC thermistor specifications and protection mechanism: 100 KNTC, resistance value 3950 Ω, wire length 50 mm; when the temperature exceeds 60°C, power output from the Tx terminal is reduced (power decreases with rising temperature) to prevent overheating and charging interruption on the mobile device. If the temperature remains above 65°C for one minute, Tx termination stops charging the Rx terminal; normal operation resumes once the temperature drops below 50°C.

III. Performance Parameter Tests (at Ambient Temperature of 26°C):

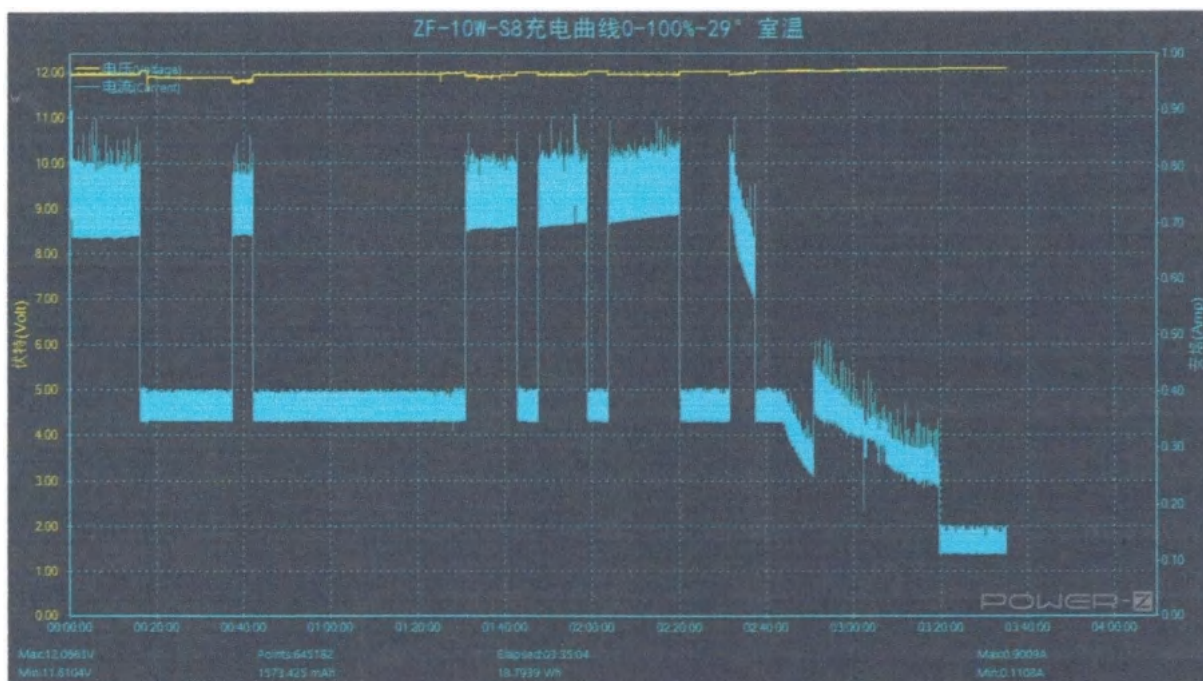
Electrical Testing Items				
NO	Test Item	Testing standard	Test Description	Result
1	Standby State and Power Consumption	<20mA	Power supply voltage:12 V; Standby current: 15 mA;	OK
2	Compatibility Testing	Receiving Compatibility	Test whether the TI/Xinjie/Cooper 5W receiving patch, standard 10W/15W connectors, and devices such as iPhone X, iPhone 12, and Samsung S8 are compatible (J) or not ().	OK
		Adapter	For Qc2.0/3.0 adapters and PD adapters subjected to repeated switching impacts from DC power supplies: Is charging normal? (√) Yes / () No	OK
3	Load efficiency test (regulated DC power supply + electronic load)	>72%	TX is 12 V, RX is a 5 W fixture. Vout: 5 V, Iout: 1 A \vin:12.1 V, Iin:0.521 A Efficiency: 79.3%	OK
			TX: 12 V;RX: 7.5 W; Vout: 7.5 V, Iout: 1 A Vin: 12.1 V, Iin: 0.80 A; Efficiency: 77.7%	OK
			TX: 12 V, RX: 10 W fixture. Vout: 9 V, Iout: 1.12 A; Vin:12.1 V, Iin: 1.10 A; Efficiency: 75%.	OK
4	FOD Foreign Body Detection	TX output disconnected	Use a 1-yuan coin at the center of the coil to test static FOD.Does it not charge Samsung or iPhone devices? (√) or ()	OK
			Test the static FOD by placing a 1-yuan coin tangentially inside the coil. For Samsung and iPhone devices, indicate whether charging is not possible: (√) yes, () no.	OK
5	NTC Temperature Protection	Recommended protection temperature: 65°C (± 10%)	Set the hot air gun to 100°C to heat the NTC resistor on the PCBA for 1 minute. The TX output will be disconnected; the cut-off temperature is 70°C. Operation resumes once the temperature drops below 50°C.	OK

6	Light Display	As required	No lighting display requirements	OK
7	Enter fast charging compatibility test	Adaptation	For different adapters: Does Samsung and Apple phones support fast charging? Does the adapter have a fast-charging output? Yes (J), No ().	OK
8	Undervoltage/Overvoltage Protection	Deficit pressure	During undervoltage alarm, the power supply voltage is 4.4 V	OK
		Overvoltage	When an overvoltage alarm occurs, the power supply voltage is <u>13.8 V</u> .	OK
9	Phone Charging Stability	No interrupted charging	Use your phone while charging (for recording, navigation, etc.) and check for any charging interruptions: Apple (√) Samsung (√)	OK
10	Noise testing	Mild	Is there any noise or abnormal sound during charging: <u>slight noise under low electronic load</u>	OK
11	Full-load aging and temperature effects	≤80℃	Under the maximum stable load current, after aging for 60 minutes, the highest temperature point of the <u>main control IC</u> is <u>65</u> °C.	OK
12	Load elevation and switching tests	Normal	Whether wireless charging functions normally during changes in electronic load or switching is (√) yes, () no.	OK
13	Overcurrent Protection Output	Protect	Whether the electronic load output setting turns off protection: Yes (√), No ()	OK
14	The phone has enough battery time.	Within 300 minutes	At 28℃, the charging time for Samsung phones from 0% to 100% is: Samsung S83 <u>20 minutes</u>	OK
			At 28℃, the charging time for an iPhone from 0% to 100% is: Apple X <u>3 hours and 46 minutes</u>	OK
			At 28℃, the charging time for an iPhone from 0% to 100% is: Apple 123 <u>hours and 5 minutes</u> .	OK
15	Mobile Phone Charging Curve	Be filled with	The mobile phone test images are shown in Figures 1, 2, and 3.	OK

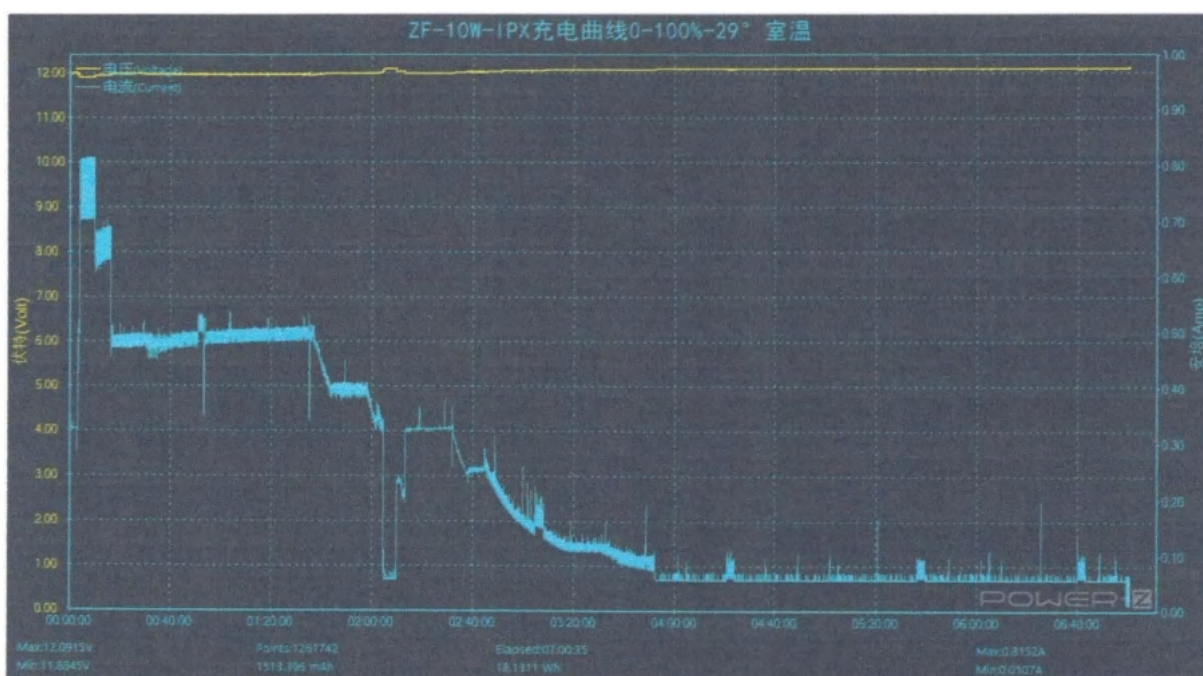
Charging test curve for the EB system of Apple and Samsung smartphones at an ambient temperature of 28℃

Charging Process Monitoring	Send via mobile phone Thermal conditions	Have or not Different Effects	Charging interruption frequency (≤2 cycles during the 0–100% range)	Remarks
	<40℃	Not have	Not have	The following mobile phone charging curves are for reference only (wireless charging performance is significantly affected by factors such as ambient temperature and placement, so these curves should not be used as a definitive reference).

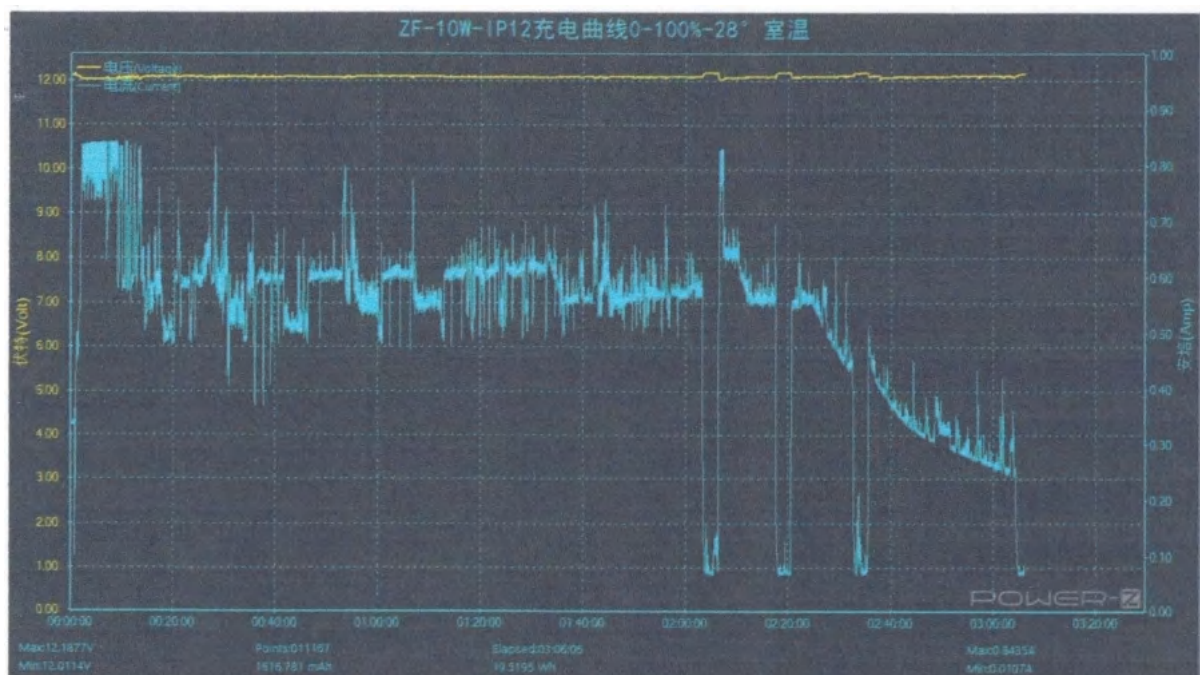
1 Three-Star S8 Smartphone Charging Curve Graph



2. iPhone X Charging Curve Diagram

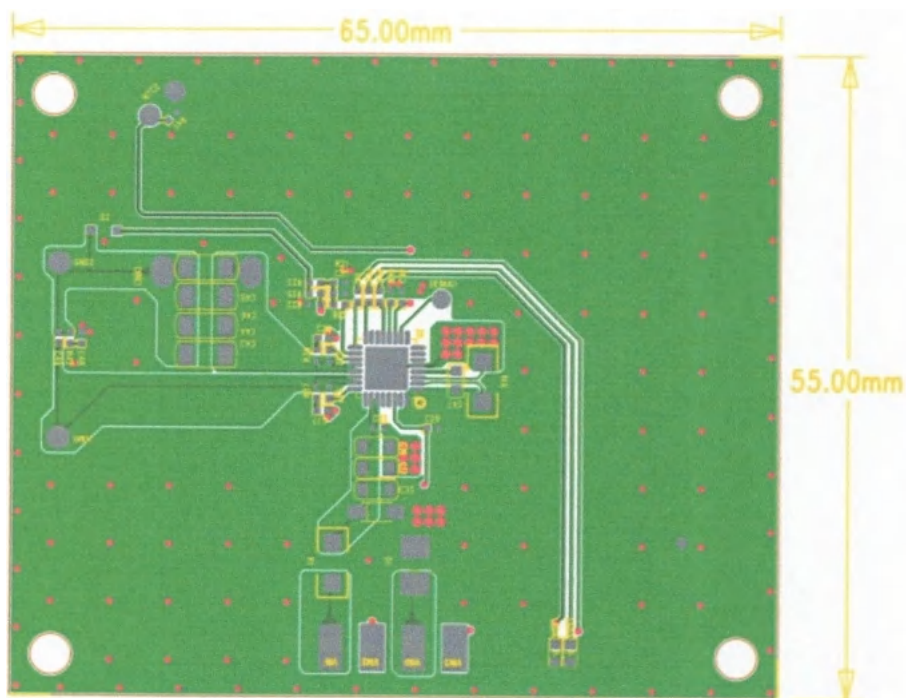


2. iPhone 12 Phone Charging Curve Diagram

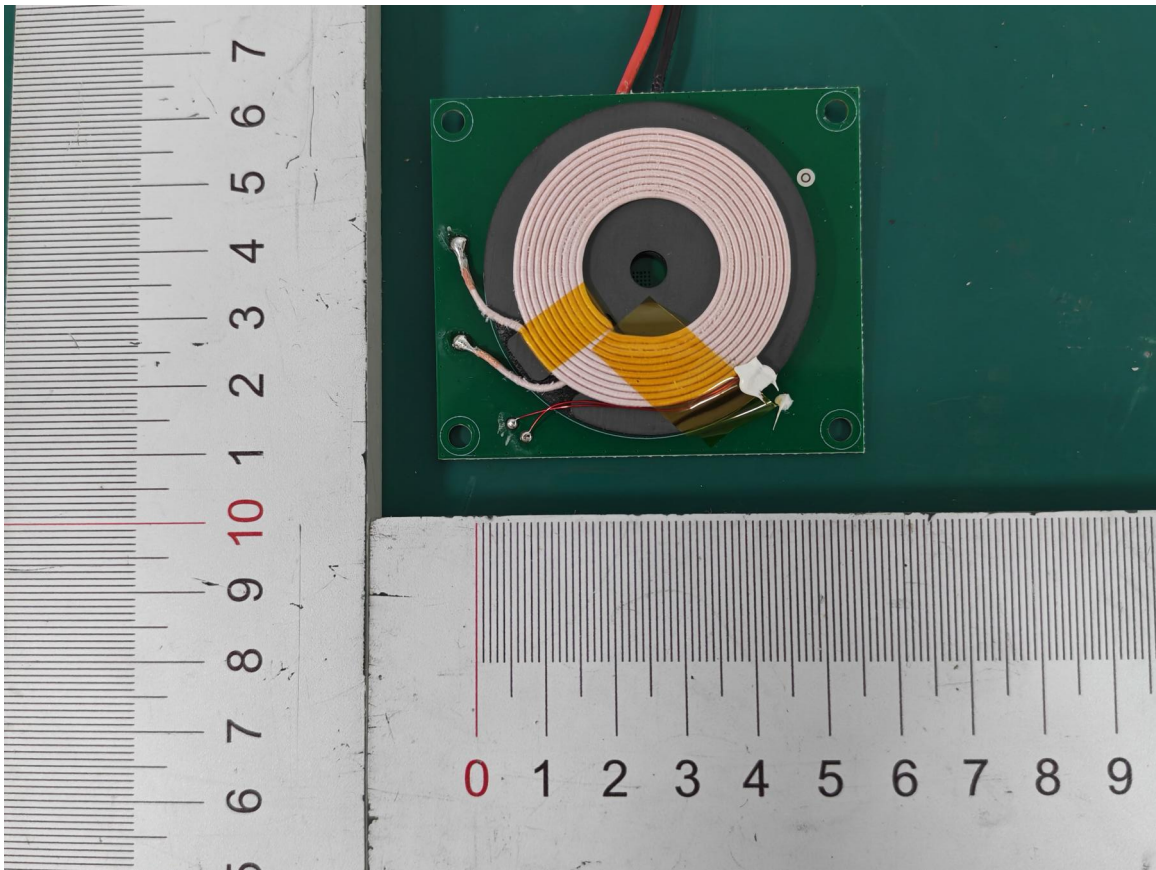
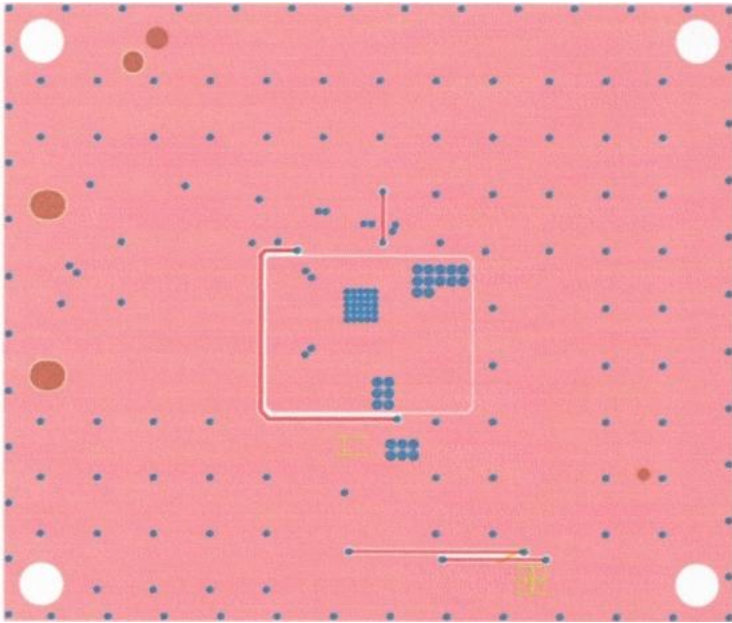


IV.PCB Layout Diagram

Top Level



Ground Floor



Turns : 10Ts

