



CTC Laboratories, Inc.

RF Exposure Test Report

Report No.: CTC2024276402

FCC ID.....: 2A4EP-JP336

Applicant.....: Zhuhai Tessian Power Technology Co.,Ltd.

Address.....: Building 14, Xiangzhou Chuanggang Center, No.199, Weikang Road, Xiangzhou District, Zhuhai, Guangdong Province, China

Manufacturer.....: Zhuhai Tessian Power Technology Co.,Ltd.

Address.....: Building 14, Xiangzhou Chuanggang Center, No.199, Weikang Road, Xiangzhou District, Zhuhai, Guangdong Province, China

Product Name.....: Wireless Power Bank

Trade Mark.....: TESSAN

Model/Type reference.....: JP336

Listed Model(s): /

Standard.....: 47 CFR FCC Part 1.1307
47 CFR FCC Part 1.1310
KDB680106 D01

Date of receipt of test sample...: Nov. 25, 2024

Date of testing.....: Nov. 25, 2024 to Dec. 4, 2024

Date of issue.....: Dec. 12, 2024

Result.....: PASS

Compiled by:
(Printed name+signature) Jim Jiang

Jim Jiang

Supervised by:
(Printed name+signature) Eric Zhang

Eric Zhang

Approved by:
(Printed name+signature) Totti Zhao

Totti Zhao

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CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China

Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn

TRF No: CTC-TR-058_A1

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1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

[ANSI C95.1–1999](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

[FCC KDB publication 680106 D01 Wireless Power Transfer v04](#): RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Applications.

[FCC CFR 47 Part 1.1307](#): Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.

[FCC CFR 47 Part 1.1310](#): Radiofrequency radiation exposure limits.

1.2. Report Version

Revised No.	Report No.	Date of issue	Description
01	CTC2024276402	Dec. 12, 2024	Original



1.3. Test Facility

Address of the report laboratory

CTC Laboratories, Inc.

Add: Room 101 of Building B, Room 107, 108, 207, 208 of Building A, No. 7, Lanqing 1st Road, Luh Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China

Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

A2LA-Lab Cert. No.: 4340.01

CTC Laboratories, Inc. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

Industry Canada (Registration No.: 9783A, CAB Identifier: CN0029)

CTC Laboratories, Inc. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Jan, 2016.

FCC (Registration No.: 951311, Designation Number CN1208)

CTC Laboratories, Inc. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 951311, Aug 26, 2017.



1.4. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the CTC Laboratories, Inc. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Below is the best measurement capability for CTC Laboratories, Inc.

Test	Frequency Range	Uncertainty	Note
Electric Field Strength	100kHz ~ 30MHz	2.5dB	/
Magnetic Field Strength	100kHz ~ 30MHz	4.2dB	/

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

1.5. Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	20~25 °C
Relative Humidity:	50~55 %RH
Atmospheric Pressure:	101 kPa



2. GENERAL INFORMATION

2.1. Client Information

Applicant:	Zhuhai Tessan Power Technology Co.,Ltd.
Address:	Building 14, Xiangzhou Chuanggang Center, No.199, Weikang Road, Xiangzhou District, Zhuhai, Guangdong Province, China
Manufacturer:	Zhuhai Tessan Power Technology Co.,Ltd.
Address:	Building 14, Xiangzhou Chuanggang Center, No.199, Weikang Road, Xiangzhou District, Zhuhai, Guangdong Province, China
Factory:	Shenzhen Joway Power Supply Co.,Ltd.
Address:	Floor 1-5 of Bldg 10th and Bldg 11th, Antuoshan High-Tech Industrial Park, Sha'er Community, Shajing Street, Bao'an District, Shenzhen

2.2. General Description of EUT

Product Name:	Wireless Power Bank
Trade Mark:	TESSAN
Model/Type reference:	JP336
Listed Model(s):	/
Model Differences:	/
Power supply:	Capacity: 10000mAh(38.5Wh) Wireless Output: 15W(Max) Input Type-C: 5V \Rightarrow 3A, 9V \Rightarrow 2A Output Type-C: 5V \Rightarrow 3A, 9V \Rightarrow 2.22A, 12V \Rightarrow 1.67A Total Output: 5V \Rightarrow 3A
Sample ID:	CTC241106-002-S001
Hardware version:	/
Software version:	/
Wireless Charger	
Operation Frequency:	127.8kHz, 360kHz
Modulation Type:	ASK
Antenna Type:	Induction Coil
Exposure category:	General population/uncontrolled environment
Device Type:	Portable Device



2.3. Accessory Equipment information

Equipment Information			
Name	Model	S/N	Manufacturer
iPhone 16 Pro	A3294	FTV1FQNJHG	Apple
iPhone 14	A2884	FN2JW4Q4HQ	Apple
Power Adapter	MDY-12-EF	/	Xiaomi
Cable Information			
Name	Shielded Type	Ferrite Core	Length
/	/	/	/

2.4. Description of Test Modes

As the function of the EUT, test mode selected to test as below to conform this standard.

Test mode	Description
1	Wireless charging (5W), Frequency: 127.8kHz
2	Wireless charging (7.5W), Frequency: 127.8kHz
3	Wireless charging (10W), Frequency: 127.8kHz
4	Wireless charging (15W), Frequency: 127.8kHz
5	Wireless charging (5W), Frequency: 360kHz
6	Wireless charging (7.5W), Frequency: 360kHz
7	Wireless charging (10W), Frequency: 360kHz
8	Wireless charging (15W), Frequency: 360kHz

Pre-scan above all test mode, Found below test mode which it was worse case mode. So only show the test data for worse case mode (Test mode 8) on the test report.

2.5. Measurement Instruments List

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Magnetic Amplitude and Gradient Probe System	Schmid & Partner Engineering AG	MAGPy -8H3D+E3D	3107	Mar. 15, 2025
2	MAGPy V2.6	Schmid & Partner Engineering AG	MAGPy V2.6	V2.6	/

Note: The Cal. Interval was one year.



2.6. Equipment Approval Considerations

The EUT does comply with KDB 680106 D01 v04 as follows table;

Requirements of KDB 680106 D01	Yes / No	Description
Power transfer frequency is less than 1 MHz	Yes	The device operate in the frequency: 127.8 kHz, 360 kHz.
Output power from each primary coil is less than 15 watts	Yes	The maximum output power of the primary coil is less than 15W.
The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.	Yes	The transfer system includes single coil that is able to detect receiver device.
Client device is placed directly in contact with the transmitter.	Yes	Client device is placed directly in contact with the transmitter.
Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	No	This device is portable
The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.	Yes	See the test result in item 2.7

In all other cases, unless excluded above, an RF exposure evaluation report must be reviewed and accepted through a KDB or PBA inquiry to enable authorization of the equipment. When evaluation is required to show compliance; for example, using field strength, power density, SAR measurements or computational modeling etc., the specific authorization requirements will be determined based on the results of the RF exposure evaluation.



2.7. RF Exposure

LIMIT

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation.

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.1-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500	/	/	f/300	6
1,500-100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.1-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500	/	/	f/1500	30
1,500-100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density

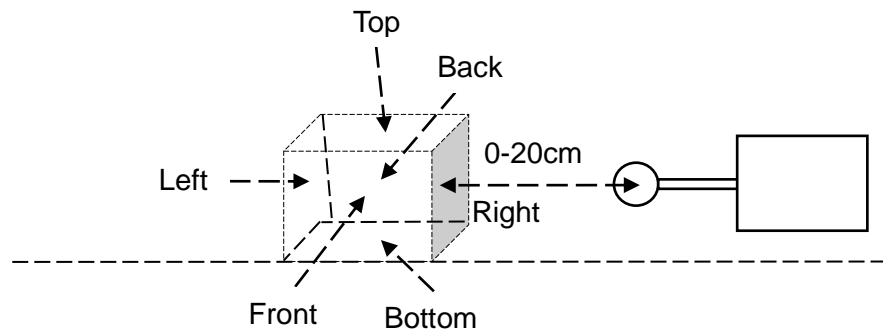
According to FCC KDB 680106 D01 Section 3. RF Exposure Requirements clause 3 the Emission-Limits in the frequency range from 100 KHz to 300 KHz should be assessed versus the limits at 300 KHz in Table 1 of CFR 47 – Section 1.310 as following (measured distance shall be 15cm from the center of the probe to the edge of the device):

	E-filed	H-filed	B-filed
Frequency	V/m	A/m	uT
0.1 MHz – 1.34 MHz	614	1.63	2.0
1.34 MHz – 30 MHz	824/f(=27.5 _{30MHz})	2.19/f(=0.073 _{30MHz})	--

A KDB inquire was required to determine/confirm the applicable limits below 100 KHz.



TEST CONFIGURATION



TEST PROCEDURE

- The RF exposure test was performed in anechoic chamber.
- Perform H-field measurements for each edge/top surface of the host/client pair at every 2 cm, starting from as close as possible out to 20 cm.
- The highest emission level was recorded and compared with limit.
- The EUT was measured according to the dictates of TCB Workshop “41-Part-18-&-Wireless-Power-Transfer - April 27, 2022”

TEST MODE

Please refer to the clause 2.4.

TEST RESULTS

For portable exposure condition:

Operating modes with client device (1 %, 50%, 99% battery status of client device) have been test, only show the data of worst case of 1% battery status of client device.

H-field measurements taken every 2 cm (starting as close to 20 cm as possible) on each edge/top surface of the host/client pair were also evaluated for portable use conditions. The report reflects data for the worst 0 cm test distance mode only.

Test condition 1: Mode 4 operating mode with client device (1 % battery status of client device).



Measurement results directly tested using MAGPy.

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<1%	Top	0	54.1	0.13
<1%	Left	0	10.2	0.2
<1%	Right	0	7.42	0.37
<1%	Front	0	14.3	0.29
<1%	Back	0	39.4	0.07
<1%	Bottom	0	115	0.2
Limit			614	1.63
Margin Limit (%)			18.72%	22.6%

When setting MAGPy to select compliance location as probe tip, the measured value is extrapolated to 0mm as the result.

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<1%	Top	0	44	0.41
<1%	Left	0	96.2	0.97
<1%	Right	0	66.3	1.51
<1%	Front	0	54	0.73
<1%	Back	0	41.3	0.22
<1%	Bottom	0	116	0.58
Limit			614	1.63
Margin Limit (%)			18.8%	92.6%

*****THE END*****