

FCC Test Report

Applicant : JMTek Industries(Shenzhen) Co.,Ltd

Address : 14G, Innovation Tech Building , Quanzhi
Science and Technology innovation Park,
ShaJing Street, Bao'an District, ShenZhen,
China

Product Name : Power Bank

Report Date : Mar. 06, 2024

Shenzhen Anbotech Compliance Laboratory Limited



Contents

1. General Information	5
1.1. Client Information	5
1.2. Description of Device (EUT)	5
1.3. Auxiliary Equipment Used During Test	6
1.4. Test Equipment List	6
1.5. Measurement Uncertainty	6
1.6. Description of Test Facility	6
2. Measurement and Result	7
2.1. Requirements	7
2.2. Test Setup	8
2.3. Test Procedure	9
2.4. Test Result	10
APPENDIX I -- TEST SETUP PHOTOGRAPH	15
APPENDIX II -- EXTERNAL PHOTOGRAPH	15
APPENDIX III -- INTERNAL PHOTOGRAPH	15



TEST REPORT

Applicant : JMTek Industries(Shenzhen) Co.,Ltd

Manufacturer : JMTek Industries(Shenzhen) Co.,Ltd

Product Name : Power Bank

Test Model No. : MPBC500

Reference Model No. : MPBC500B, MPBC500W

Trade Mark : N/A

Rating(s)

Type C input: 5V $\overline{=}$ 3A 9V $\overline{=}$ 2A 12V $\overline{=}$ 1.5AType C Output: 5V $\overline{=}$ 3A 9V $\overline{=}$ 2.22A 12V $\overline{=}$ 1.67A

Wireless Output: 15W

Built lightning cable:5V $\overline{=}$ 2ABuilt Type C cable: 5V $\overline{=}$ 3A 9V $\overline{=}$ 2A 12V $\overline{=}$ 1.5A

Battery: DC 3.7V, 5000mAh

Test Standard(s) : FCC Part 1.1310, 1.1307(b)

Test Method(s) : KDB680106 D01 RF Exposure Wireless Charging Apps v04
October 25, 2023 TCB Workshop

The device described above is tested by Shenzhen Anbotech Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotech Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 1.1307 & KDB680106 D01 & TCB Workshop, October 25, 2023 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotech Compliance Laboratory Limited.

Date of Receipt

Dec. 19, 2023

Date of Test

Dec. 19~26, 2023

Prepared By

Ella Liang

(Ella Liang)

Approved & Authorized Signer

Edward Pan

(Edward Pan)



Revision History

Report Version	Description	Issued Date
R00	Original Issue.	Mar. 06, 2024



1. General Information

1.1. Client Information

Applicant	:	JMTek Industries(Shenzhen) Co.,Ltd
Address	:	14G, Innovation Tech Building , Quanzhi Science and Technology innovation Park, Shajing Street, Bao'an District, ShenZhen, China
Manufacturer	:	JMTek Industries(Shenzhen) Co.,Ltd
Address	:	14G, Innovation Tech Building , Quanzhi Science and Technology innovation Park, Shajing Street, Bao'an District, ShenZhen, China
Factory	:	JMTek Industries(Shenzhen) Co.,Ltd
Address	:	14G, Innovation Tech Building , Quanzhi Science and Technology innovation Park, Shajing Street, Bao'an District, ShenZhen, China

1.2. Description of Device (EUT)

Product Name	:	Power Bank
Test Model No.	:	MPBC500
Reference Model No.	:	MPBC500B, MPBC500W (Note: All samples are the same except the Plastic shell materials and colors and charging cable color, so we prepare "MPBC500" for test only.)
Trade Mark	:	N/A
Test Power Supply	:	AC 120V, 60Hz for adapter/ DC 3.7V battery inside
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	N/A
RF Specification		
Operation Frequency	:	110.1-205kHz
Modulation Type	:	ASK
Antenna Type	:	Inductive loop coil Antenna
Antenna Gain(Peak)	:	0 dBi (Provided by customer)
Remark: 1) All of the RF specification are provided by customer. 2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.		



1.3. Auxiliary Equipment Used During Test

Description	Rating(s)
Mobile Phone	iPhone 13
Adapter	Model: MDY-11-EX Input: 100-240V-0.7A, 50-60Hz USB-A output: 5V $\equiv$ 3A, 9V $\equiv$ 3A, 12V $\equiv$ 2.25A, 20V $\equiv$ 1.35A, 11V $\equiv$ 3A

1.4. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Electric and Magnetic field Analyzer	NARDA	EHP-200A	180ZX10202	Oct. 16, 2023	1 Year

1.5. Measurement Uncertainty

Parameter	Uncertainty
Magnetic Field Reading(A/m)	+/-0.04282(A/m)
Electric Field Reading(V/m)	+/-0.03679(V/m)

1.6. Description of Test Facility

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

FCC-Registration No.: 434132

Shenzhen Anbotek Compliance Laboratory Limited, 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 No. 434132.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.



2. Measurement and Result

2.1. Requirements

According to the item 5.b) of KDB 680106 D01v04:

Inductive wireless power transfer applications that meet all of the following requirements are excluded from submitting an RF exposure evaluation.

- (1) The power transfer frequency is below 1 MHz.
- (2) The output power from each transmitting element (e.g., coil) is less than or equal to 15 watts.
- (3) A client device providing the maximum permitted load is placed in physical contact with the transmitter (i.e., the surfaces of the transmitter and client device enclosures need to be in physical contact)
- (4) Only § 2.1091-Mobile exposure conditions apply (i.e., this provision does not cover § 2.1093-Portable exposure conditions).
- (5) The E-field and H-field strengths, at and beyond 20 cm surrounding the device surface, are demonstrated to be less than 50% of the applicable MPE limit, per KDB 447498, Table 1. These measurements shall be taken along the principal axes of the device, with one axis oriented along the direction of the estimated maximum field strength, and for three points per axis or until a 1/d (inverse distance from the emitter structure) field strength decay is observed. Symmetry considerations may be used for test reduction purposes. The device shall be operated in documented worst-case compliance scenarios (i.e., the ones that lead to the maximum field components), and while all the radiating structures (e.g., coils or antennas) that by design can simultaneously transmit are energized at their nominal maximum power.
- (6) For systems with more than one radiating structure, the conditions specified in (5) must be met when the system is fully loaded (i.e., clients absorbing maximum power available), and with all the radiating structures operating at maximum power at the same time, as per design conditions. If the design allows one or more radiating structures to be powered at a higher level while other radiating structures are not powered, then those cases must be tested as well. For instance, a device may use three RF coils powered at 5 W, or one coil powered at 15 W: in this case, both scenarios shall be tested.

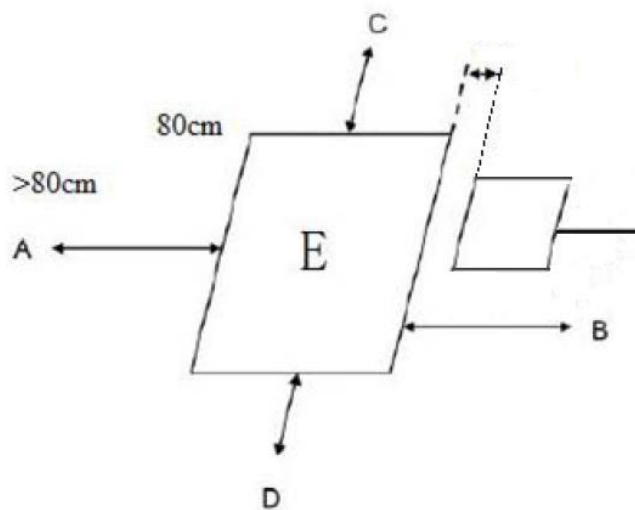


Limits For Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	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
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	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
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

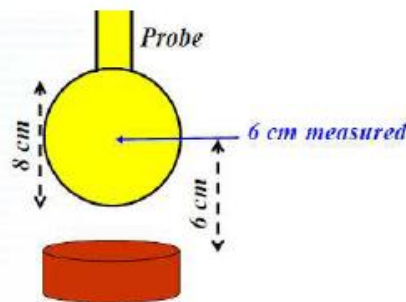
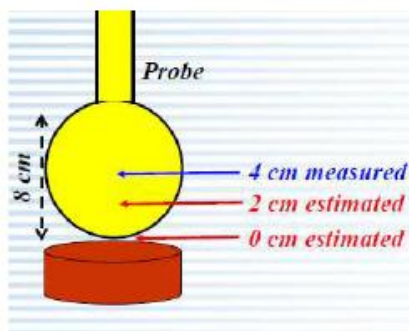
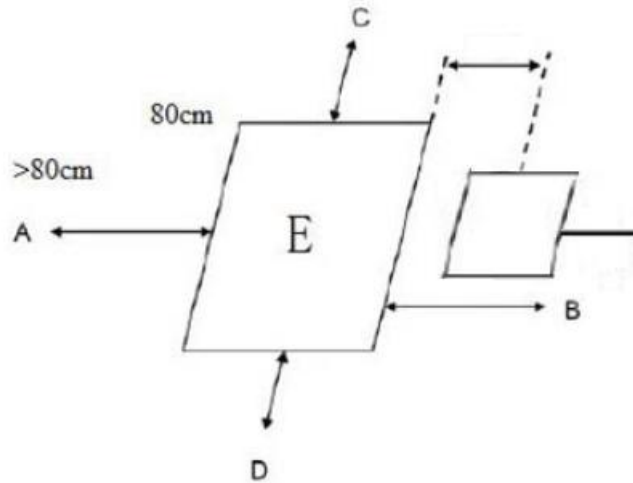
F=frequency in MHz
 *=Plane-wave equivalent power density
 RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

2.2. Test Setup



Note:

H-field data are taken along all three axes the device, from 0 cm to 20 cm, in 2 cm minimum increment measured from the edge of the device, with one axis coincident with the axis of the main coil.



Note: Measurements should be made at 15 cm surrounding the EUT and 20cm above the top surface of the EUT. (probe radius is 4.75cm)

2.3. Test Procedure

- 1) The RF exposure test was performed in anechoic chamber.
- 2) The measurement probe was placed at required test distance (from 0 cm to 20 cm, in 2 cm minimum increment) which is between the edge/top surface of the charger and the edge of probe. and the measurement probe was placed at required test distance 15cm and 20cm which is between the edge of the charger and the geometric center of probe.
- 3) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed. (A is the right, B is the back, C is the left, D is the front, and E is the top side.)
- 4) The EUT was measured according to the dictates of TCB Workshop, October 25, 2023 and KDB 680106 D01 v04.

Remark:

The EUT's test position A, B, C, D and E is valid for the E and H field measurements.



2.4. Test Result

2.4.1. Equipment Approval Considerations item 5.b of KDB 680106 D01 v04.

- (1) The power transfer frequency is below 1 MHz.
 - The device operate in the frequency range 110.1-205kHz.
- (2) The output power from each transmitting element (e.g., coil) is less than or equal to 15 watts.
 - The maximum output power of the primary coil is 15W.
- (3) A client device providing the maximum permitted load is placed in physical contact with the transmitter (i.e., the surfaces of the transmitter and client device enclosures need to be in physical contact)
 - The surfaces of the transmitter and client device enclosures is in physical contact.
- (4) Only § 2.1091-Mobile exposure conditions apply (i.e., this provision does not cover § 2.1093-Portable exposure conditions).
 - The EUT is a portable exposure conditions
- (5) The E-field and H-field strengths, at and beyond 20 cm surrounding the device surface, are demonstrated to be less than 50% of the applicable MPE limit, per KDB 447498, Table 1. These measurements shall be taken along the principal axes of the device, with one axis oriented along the direction of the estimated maximum field strength, and for three points per axis or until a 1/d (inverse distance from the emitter structure) field strength decay is observed. Symmetry considerations may be used for test reduction purposes. The device shall be operated in documented worst-case compliance scenarios (i.e., the ones that lead to the maximum field components), and while all the radiating structures (e.g., coils or antennas) that by design can simultaneously transmit are energized at their nominal maximum power.
 - Conducted the measurement with the required distance and the test results please refer to the section 2.4.
- (6) For systems with more than one radiating structure, the conditions specified in (5) must be met when the system is fully loaded (i.e., clients absorbing maximum power available), and with all the radiating structures operating at maximum power at the same time, as per design conditions. If the design allows one or more radiating structures to be powered at a higher level while other radiating structures are not powered, then those cases must be tested as well. For instance, a device may use three RF coils powered at 5 W, or one coil powered at 15 W: in this case, both scenarios shall be tested.
 - The EUT is one radiating structure.



2.4.2. Environmental evaluation and exposure limit according to FCC CFR 47 part 1, 1.1307(b), 1.1310

Temperature:	25.8°C	Relative Humidity:	51 %
Pressure:	101 kPa	Test Voltage:	DC 3.7V battery inside

Between the edge/top surface of the charger and the edge of probe

E-Field Strength									
Test distance	Battery power	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	Reference Limit (V/m)	Limits Test (V/m)
EUT Base support input + Standby									
0cm	1%	0.374	0.466	0.393	0.391	0.499	0.401	307	614
	50%	1.462	1.940	1.399	1.558	1.716	1.424	307	614
	99%	2.475	2.927	2.532	2.467	2.967	2.562	307	614
EUT Base support input + iPhone 13 operating (10% electric quantity worst case)									
0,2,4cm	1%	0.350	0.441	0.353	0.339	0.450	0.414	307	614
	50%	1.461	1.905	1.428	1.575	1.687	1.440	307	614
	99%	2.373	2.838	2.416	2.378	2.867	2.461	307	614
6cm	1%	0.397	0.485	0.394	0.379	0.495	0.306	307	614
	50%	1.424	1.863	1.394	1.534	1.669	1.379	307	614
	99%	2.351	2.808	2.354	2.329	2.824	2.371	307	614
8cm	1%	0.305	0.422	0.324	0.299	0.405	0.319	307	614
	50%	1.421	1.480	1.370	1.400	1.529	1.405	307	614
	99%	2.372	2.831	2.382	2.361	2.828	2.297	307	614
10cm	1%	0.316	0.462	0.319	0.303	0.422	0.305	307	614
	50%	1.304	1.413	1.304	1.336	1.529	1.291	307	614
	99%	2.347	2.806	2.347	2.341	2.796	2.311	307	614
12cm	1%	0.199	0.316	0.201	0.241	0.295	0.306	307	614
	50%	1.293	1.423	1.302	1.331	1.461	1.309	307	614
	99%	2.351	2.775	2.282	2.333	2.771	2.441	307	614



E-Field Strength									
Test distance	Battery power	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	Reference Limit (V/m)	Limits Test (V/m)
14cm	1%	0.257	0.361	0.248	0.229	0.361	0.298	307	614
	50%	1.281	1.395	1.286	1.287	1.446	1.317	307	614
	99%	2.253	2.688	2.190	2.296	2.676	2.355	307	614
16cm	1%	0.199	0.306	0.245	0.197	0.313	0.255	307	614
	50%	1.206	1.386	1.263	1.223	1.392	1.282	307	614
	99%	2.234	2.682	2.159	2.210	2.651	2.262	307	614
18cm	1%	0.184	0.326	0.220	0.196	0.329	0.250	307	614
	50%	1.259	1.356	1.246	1.257	1.455	1.246	307	614
	99%	2.238	2.681	2.221	2.215	2.706	2.216	307	614
20cm	1%	0.200	0.336	0.226	0.213	0.314	0.136	307	614
	50%	1.289	1.363	1.277	1.287	1.482	1.257	307	614
	99%	2.201	2.649	2.198	2.175	2.713	2.220	307	614



H-Field Strength									
Test distance	Battery power	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	Reference Limit (A/m)	Limits Test (A/m)
EUT Base support input + Standby									
0cm	1%	0.113	0.132	0.135	0.123	0.131	0.021	0.815	1.63
	50%	0.450	0.526	0.435	0.410	0.645	0.456	0.815	1.63
	99%	0.497	0.676	0.569	0.371	0.386	0.453	0.815	1.63
EUT Base support input + iPhone 13 operating (10% electric quantity worst case)									
0,2,4cm	1%	0.126	0.146	0.150	0.135	0.154	0.105	0.815	1.63
	50%	0.380	0.450	0.367	0.365	0.578	0.455	0.815	1.63
	99%	0.477	0.656	0.560	0.366	0.366	0.550	0.815	1.63
6cm	1%	0.129	0.148	0.149	0.137	0.144	0.127	0.815	1.63
	50%	0.345	0.419	0.316	0.339	0.546	0.378	0.815	1.63
	99%	0.511	0.757	0.585	0.457	0.454	0.489	0.815	1.63
8cm	1%	0.177	0.195	0.193	0.184	0.191	0.120	0.815	1.63
	50%	0.446	0.483	0.479	0.432	0.642	0.414	0.815	1.63
	99%	0.410	0.596	0.416	0.317	0.340	0.455	0.815	1.63
10cm	1%	0.181	0.199	0.197	0.188	0.195	0.111	0.815	1.63
	50%	0.392	0.448	0.366	0.397	0.607	0.368	0.815	1.63
	99%	0.462	0.615	0.502	0.405	0.414	0.403	0.815	1.63
12cm	1%	0.156	0.175	0.174	0.163	0.172	0.151	0.815	1.63
	50%	0.344	0.392	0.312	0.343	0.544	0.394	0.815	1.63
	99%	0.400	0.588	0.471	0.337	0.327	0.320	0.815	1.63



H-Field Strength									
Test distance	Battery power	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	Reference Limit (A/m)	Limits Test (A/m)
14cm	1%	0.073	0.092	0.091	0.080	0.117	0.156	0.815	1.63
	50%	0.322	0.411	0.307	0.331	0.572	0.299	0.815	1.63
	99%	0.363	0.586	0.423	0.331	0.323	0.403	0.815	1.63
16cm	1%	0.184	0.203	0.226	0.190	0.199	0.129	0.815	1.63
	50%	0.231	0.311	0.247	0.263	0.452	0.296	0.815	1.63
	99%	0.337	0.543	0.367	0.263	0.257	0.448	0.815	1.63
18cm	1%	0.122	0.135	0.133	0.124	0.131	0.173	0.815	1.63
	50%	0.225	0.329	0.238	0.282	0.462	0.320	0.815	1.63
	99%	0.371	0.554	0.429	0.315	0.304	0.356	0.815	1.63
20cm	1%	0.057	0.076	0.081	0.064	0.073	0.158	0.815	1.63
	50%	0.266	0.397	0.276	0.310	0.488	0.313	0.815	1.63
	99%	0.328	0.418	0.410	0.296	0.277	0.254	0.815	1.63

Note:

- (1) Position E is top side.
- (2) All the situation (full load, half load and empty load) has been tested, only the worst situation (full load 15W) was recorded in the report.
- (3) All three axes the device has been tested, only the worst results reported.
- (4) All positions have been tested, only display photos of Position E and A in the report.



APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph_MPE

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

----- End of Report -----

