

TEST REPORT

Report No.: BCTC2207416378-2E

Applicant: Gigastone Corporation

Product Name: Power Bank

Model/Type Ref.: SP-20000

Tested Date: 2022-07-28 to 2022-08-03

Issued Date: 2022-08-03

Shenzhen BCTC Testing Co., Ltd.



FCC ID: 2AR89-SP-20000

Product Name: Power Bank
Trademark: N/A
Model/Type Ref.: SP-20000
PBT-203B
Prepared For: Gigastone Corporation
Address: 12F, No. 480, Rueiguang Road Neihu District, Taipei 114, Taiwan, R.O.C, Taipei, Taiwan
Manufacturer: Shenzhen U-Angel Technology Co., Ltd
Address: 4th Floor, Block C, Phase 2 Of Hongmen Industrial Park, No.399, Jihua Road, Jihua Street, Longgang District, Shenzhen City, Guangdong Province China
Prepared By: Shenzhen BCTC Testing Co., Ltd.
Address: 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date: 2022-07-28
Sample tested Date: 2022-07-28 to 2022-08-03
Issue Date: 2022-08-03
Report No.: BCTC2207416378-2E
Test Standards: FCC CFR 47 part1, 1.1307(b), 1.1310
KDB 680106 D01 RF Exposure Wireless Charging App v03r01
Test Results: PASS

Tested by:



Brave Zeng/ Project Handler

Approved by:



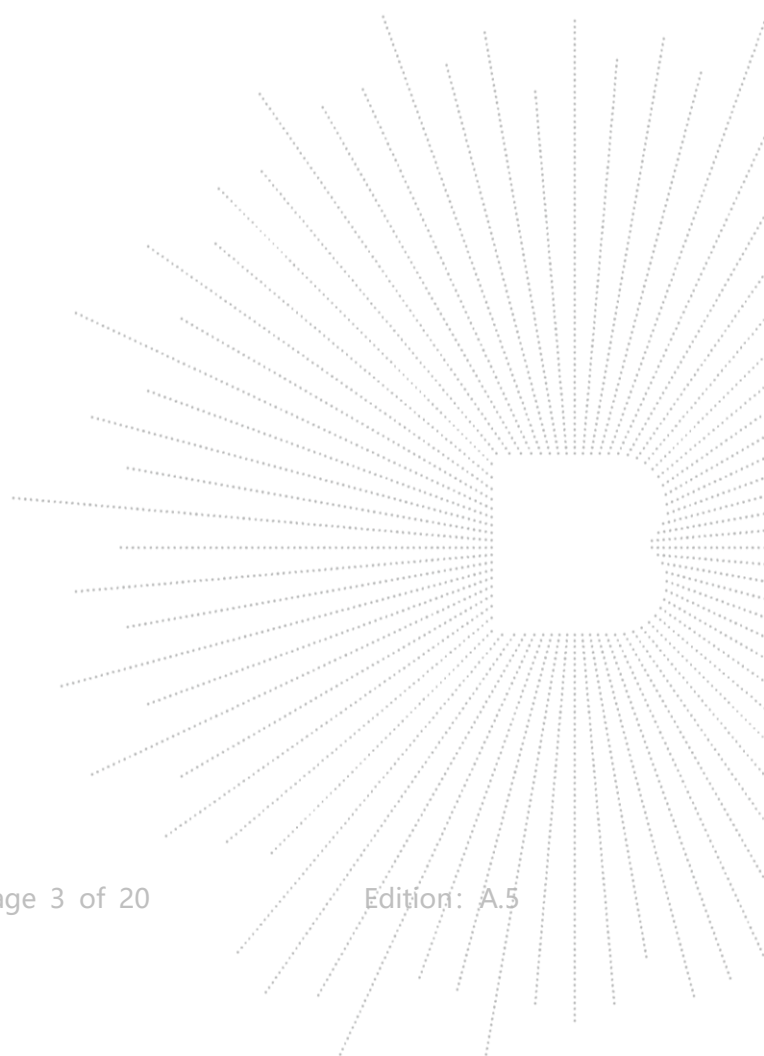
Zero Zhou/Reviewer

The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.

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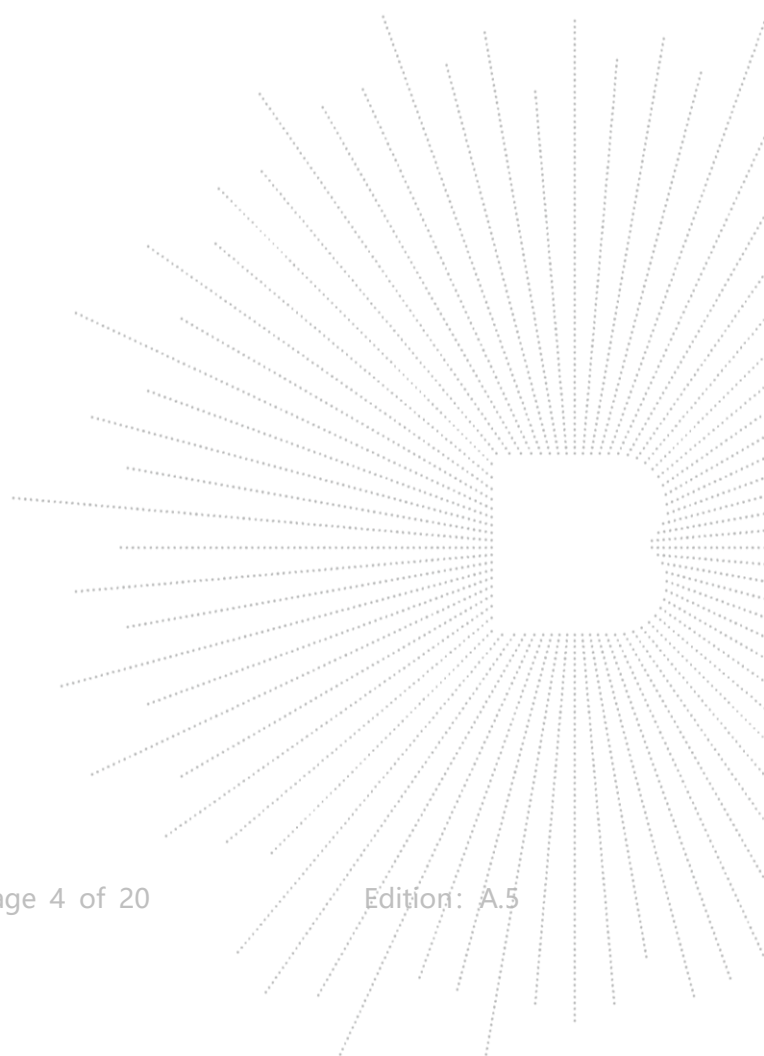
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(Note: N/A Means Not Applicable)



1. Version

Report No.	Issue Date	Description	Approved
BCTC2207416378-2E	2022-08-03	Original	Valid



2. Product Information

2.1 Product Information

Model/Type Ref.:	SP-20000 PBT-203B
Model differences:	All the model are the same circuit and RF module, except model names.
Product Description:	Power bank
Operation Frequency:	115kHz-205kHz
Antenna installation:	loop coil antenna
Ratings:	DC 5V from adapter/ DC 3.7V from battery
Hardware Version:	N/A
Software Version:	N/A

Cable of Product

No.	Cable Type	Quantity	Provider	Length (m)	Shielded	Note
1	--	--	Applicant	---	Yes/No	With a ferrite ring in mid Detachable
2	--	--	BCTC	--	Yes/No	--

2.2 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
1.	Adapter	---	BCTC001	---	---
2.	mobile phone	---	Apple 12	---	---

Notes:

- All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

2.3 Test Mode

Test Modes 1	Charging+Wireless (5W)
Test Modes 2	Wireless (5W)

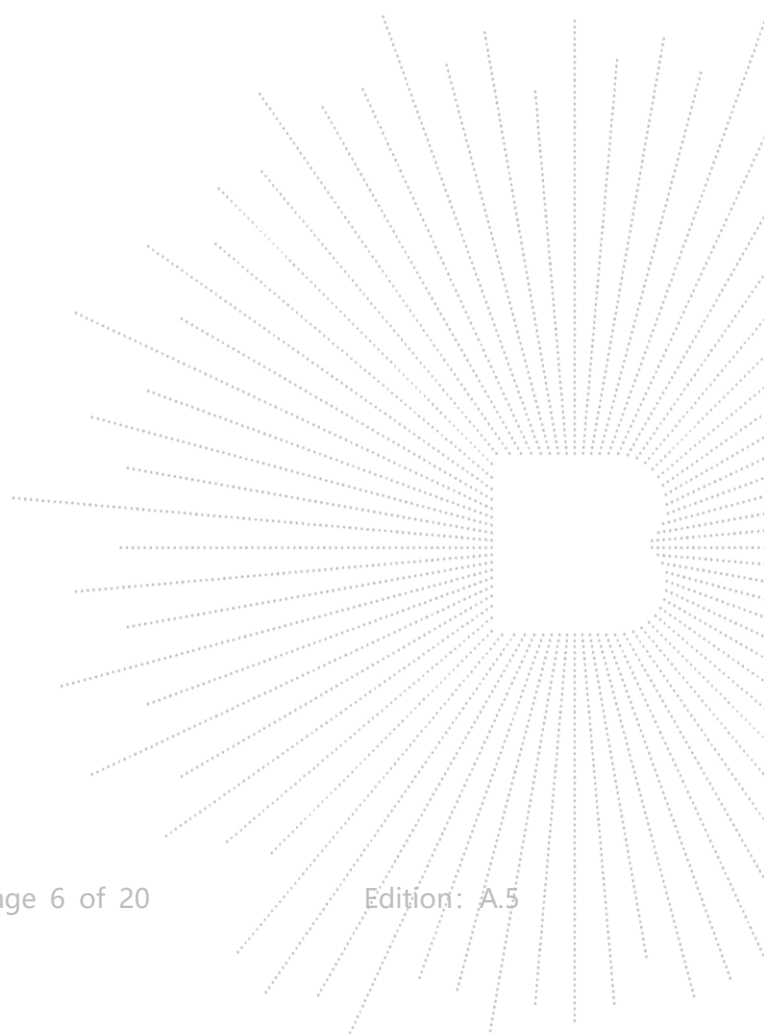
3. Test Facility And Test Instrument Used

3.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address: 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.
 FCC Test Firm Registration Number: 712850
 IC Registered No.: 23583

3.2 Test Instrument Used

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Electromagnetic radiation tester	Wavecontrol	SMP160	19SN0980	May 26, 2022	May 25, 2023
Electromagnetic field probe	Wavecontrol	WP400-3	20WP120082	Aug. 30, 2021	Aug. 29, 2022
843 Chamber	ETS	843	84301	Aug. 27, 2020	Aug. 26, 2023
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\

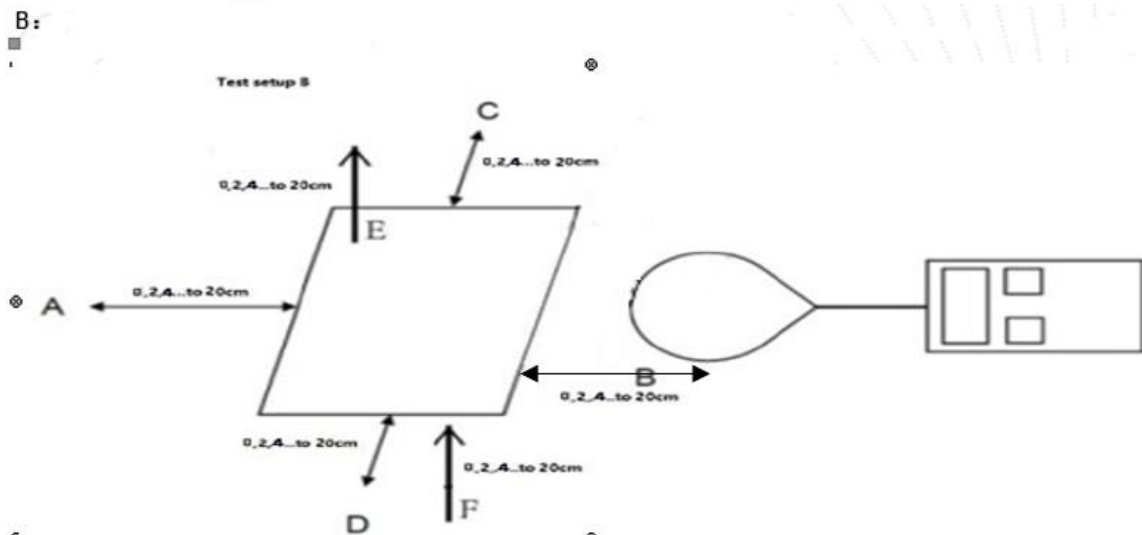
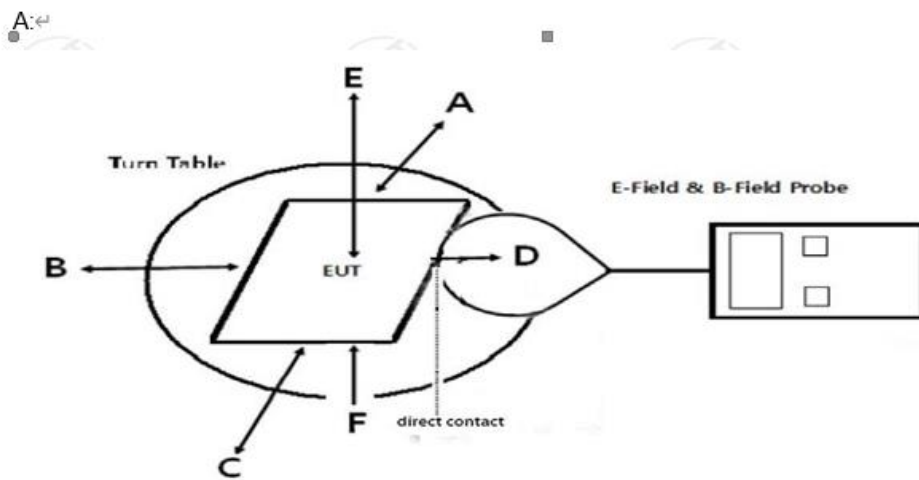


4. Method Of Measurement

4.1 Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines. According to §1.1310 and §2.1093 RF exposure is calculated. According KDB680106 D01v03: RF Exposure Wireless Charging Apps v02.

4.2 Block Diagram Of Test Setup



4.3 Limit

Limits for Occupational / Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

Limits for General Population / Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180 / f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1	30

4.4 Test Procedure

- a) he RF exposure test was performed in anechoic chamber.
- b) The measurement probe was placed at 0 cm surrounding the device for test setup A; and the measurement Probe was placed from 0 cm to 20 cm, in 2 cm maximum increment measured from the edge of the device For the test setup B.
- c)The highest emission level was recorded and compared with limit as soon as measurement of eachd) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed.
- d)The EUT was measured according to the dictates of KDB680106
- D01v03r01
- f)Remark:
The EUT's test position A, B, C, D , E and F is valid for the E and H field measurements.

4.5 Equipment Approval Considerations

The EUT does comply with item 5(b) of KDB 680106 D01v03

1) Power transfer frequency is less than 1MHz

Yes, the device operate in the frequency range from 115-205KHz

2) Output power from each primary coil is less than or equal to 10 watts.

Yes, the maximum output power of the primary coil is 5W.

3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that able to detect and allow coupling only between individual pair of coils.

Yes, the transfer system includes only single primary and secondary coils.

4) Client device is inserted in or placed directly in contact with the transmitter.

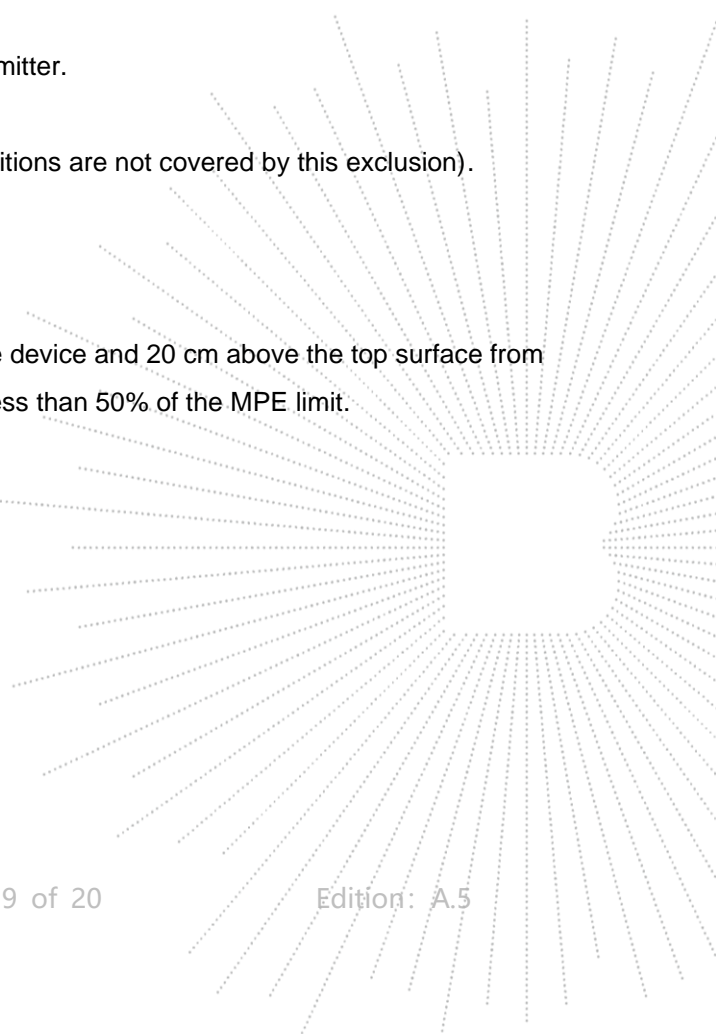
Yes, client device is placed directly in contact with the transmitter.

5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).

No, EUT is a portable device

6) 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, the EUT field strength levels are 10% x MPE limit.



4.6 E And H Field Strength

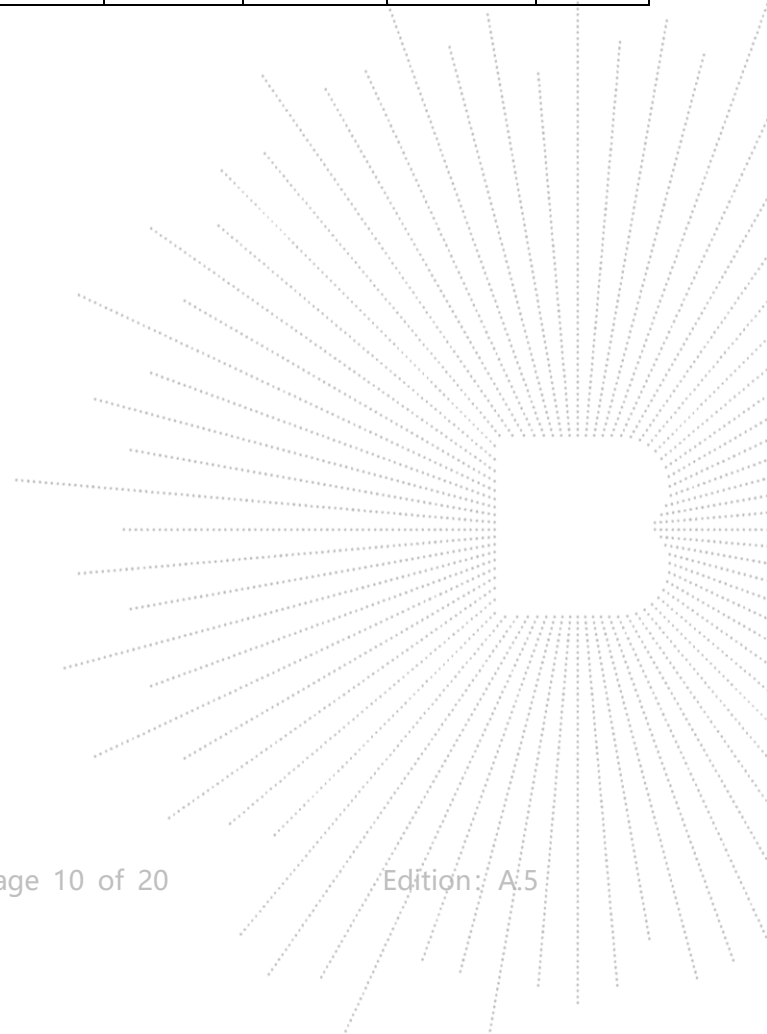
For setup A:
Worst Case Operating Mode: Mode 2

H-Filed Strength at 0 cm from edges surrounding the EUT (A/m)

Frequency Range (KHz)	Operation condition	Test Position A (A/m)	Test Position B (A/m)	Test Position C (A/m)	Test Position D (A/m)	Test Position E (A/m)	Test Position F (A/m)	Limits (A/m)
115kHz-205kHz	1% battery	0.366	0.179	0.155	0.286	0.208	0.312	1.63
115kHz-205kHz	50% battery	0.400	0.379	0.289	0.374	0.338	0.245	1.63
115kHz-205kHz	99% battery	0.184	0.265	0.247	0.404	0.103	0.264	1.63

E-Filed Strength at 0 cm from edges surrounding the EUT (V/m)

Frequency Range (KHz)	Operation condition	Test Position A (V/m)	Test Position B (V/m)	Test Position C (V/m)	Test Position D (V/m)	Test Position E (V/m)	Test Position F (V/m)	Limits (V/m)
115kHz-205kHz	1% battery	0.077	0.070	0.068	0.062	0.069	0.017	614
115kHz-205kHz	50% battery	0.075	0.075	0.061	0.063	0.070	0.045	614
115kHz-205kHz	99% battery	0.067	0.066	0.062	0.068	0.061	0.037	614



For setup B:
Worst Case Operating Mode: Mode 2

1% battery

H-Filed Strength at (distance from 0cm to 20cm at 2cm iteration) surrounding the EUT (A/m)

Test distance (cm)	Test Position A(A/m)	Test Position B(A/m)	Test Position C(A/m)	Test Position D(A/m)	Test Position E(A/m)	Test Position F(A/m)	Limits (A/m)
0	0.138	0.083	0.101	0.149	0.033	0.130	1.63
2	0.036	0.083	0.145	0.068	0.012	0.124	1.63
4	0.080	0.094	0.112	0.150	0.126	0.080	1.63
6	0.016	0.090	0.086	0.149	0.156	0.015	1.63
8	0.093	0.067	0.102	0.043	0.118	0.022	1.63
10	0.048	0.087	0.047	0.098	0.015	0.045	1.63
12	0.044	0.004	0.074	0.108	0.093	0.103	1.63
14	0.132	0.061	0.022	0.144	0.104	0.064	1.63
16	0.131	0.155	0.064	0.114	0.045	0.049	1.63
18	0.096	0.150	0.044	0.029	0.151	0.012	1.63
20	0.089	0.126	0.080	0.070	0.133	0.079	1.63

E-Filed Strength at (distance from 0cm to 20cm at 2cm iteration) surrounding the EUT (V/m)

Test distance (cm)	Test Position A(V/m)	Test Position B(V/m)	Test Position C(V/m)	Test Position D(V/m)	Test Position E(V/m)	Test Position F(V/m)	Limits (V/m)
0	0.096	0.055	0.016	0.031	0.006	0.121	614
2	0.123	0.101	0.015	0.091	0.041	0.062	614
4	0.072	0.031	0.154	0.083	0.153	0.027	614
6	0.068	0.084	0.097	0.009	0.149	0.113	614
8	0.132	0.089	0.102	0.044	0.006	0.014	614
10	0.156	0.096	0.056	0.152	0.072	0.069	614
12	0.151	0.022	0.111	0.020	0.036	0.061	1.63
14	0.053	0.071	0.035	0.082	0.005	0.001	614
16	0.045	0.078	0.099	0.092	0.097	0.128	614
18	0.127	0.150	0.096	0.009	0.087	0.027	614
20	0.007	0.154	0.050	0.053	0.027	0.131	614

50% battery

H-Filed Strength at (distance from 0cm to 20cm at 2cm iteration) surrounding the EUT (A/m)

Test distance (cm)	Test Position A(A/m)	Test Position B(A/m)	Test Position C(A/m)	Test Position D(A/m)	Test Position E(A/m)	Test Position F(A/m)	Limits (A/m)
0	0.132	0.113	0.023	0.015	0.146	0.080	1.63
2	0.100	0.034	0.079	0.079	0.056	0.013	1.63
4	0.126	0.051	0.102	0.155	0.117	0.067	1.63
6	0.009	0.145	0.135	0.152	0.049	0.025	1.63
8	0.088	0.081	0.155	0.053	0.025	0.151	1.63
10	0.034	0.111	0.049	0.089	0.124	0.034	1.63
12	0.004	0.135	0.150	0.060	0.082	0.117	1.63
14	0.088	0.155	0.026	0.134	0.106	0.096	1.63
16	0.010	0.023	0.004	0.049	0.058	0.045	1.63
18	0.089	0.028	0.124	0.041	0.091	0.058	1.63
20	0.154	0.156	0.128	0.101	0.115	0.017	1.63

E-Filed Strength at (distance from 0cm to 20cm at 2cm iteration) surrounding the EUT (V/m)

Test distance (cm)	Test Position A(V/m)	Test Position B(V/m)	Test Position C(V/m)	Test Position D(V/m)	Test Position E(V/m)	Test Position F(V/m)	Limits (V/m)
0	0.048	0.043	0.020	0.153	0.081	0.015	614
2	0.066	0.077	0.140	0.099	0.065	0.033	614
4	0.132	0.054	0.048	0.153	0.131	0.138	614
6	0.154	0.087	0.091	0.078	0.022	0.120	614
8	0.120	0.067	0.116	0.109	0.117	0.001	614
10	0.108	0.093	0.156	0.153	0.028	0.136	614
12	0.149	0.151	0.012	0.097	0.083	0.119	614
14	0.079	0.124	0.120	0.031	0.017	0.031	614
16	0.018	0.090	0.062	0.058	0.027	0.118	614
18	0.010	0.068	0.120	0.143	0.133	0.068	614
20	0.042	0.035	0.044	0.092	0.000	0.060	614

99% battery

H-Filed Strength at (distance from 0cm to 20cm at 2cm iteration) surrounding the EUT (A/m)

Test distance (cm)	Test Position A(A/m)	Test Position B(A/m)	Test Position C(A/m)	Test Position D(A/m)	Test Position E(A/m)	Test Position F(A/m)	Limits (A/m)
0	0.120	0.044	0.043	0.113	0.129	0.030	1.63
2	0.067	0.049	0.020	0.063	0.156	0.009	1.63
4	0.129	0.011	0.013	0.053	0.079	0.027	1.63
6	0.029	0.071	0.103	0.037	0.033	0.098	1.63
8	0.058	0.004	0.022	0.133	0.084	0.084	1.63
10	0.114	0.107	0.148	0.033	0.084	0.082	1.63
12	0.107	0.009	0.097	0.047	0.076	0.025	1.63
14	0.079	0.143	0.141	0.080	0.052	0.047	1.63
16	0.096	0.140	0.058	0.093	0.066	0.048	1.63
18	0.101	0.063	0.112	0.090	0.027	0.114	1.63
20	0.152	0.048	0.012	0.123	0.059	0.021	1.63

E-Filed Strength at (distance from 0cm to 20cm at 2cm iteration) surrounding the EUT (V/m)

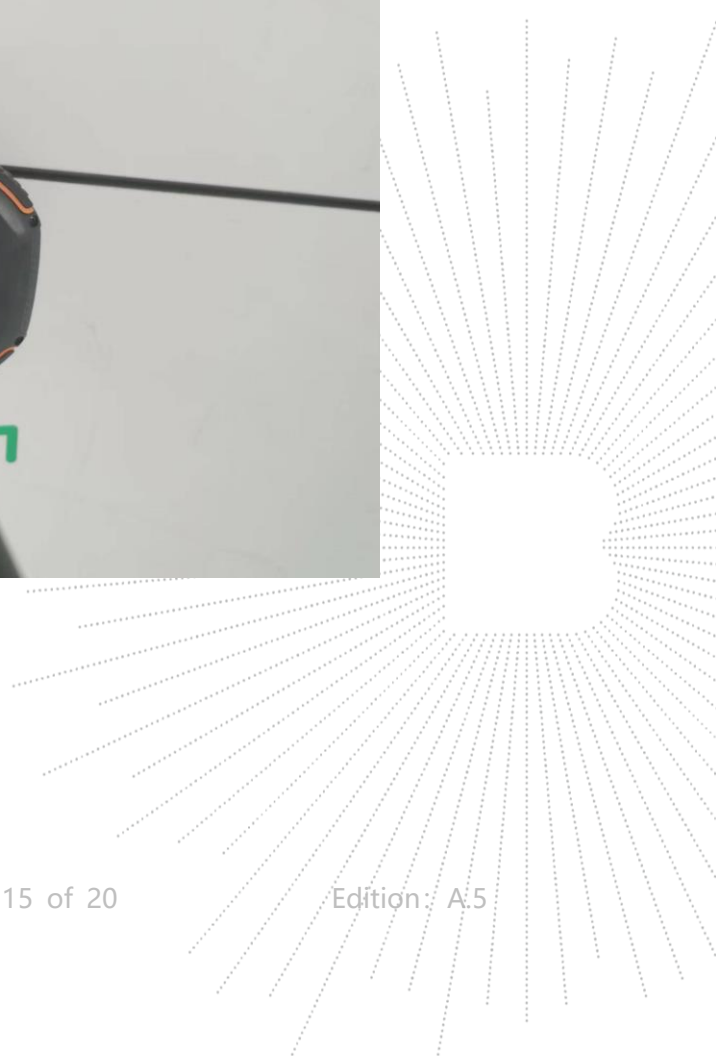
Test distance (cm)	Test Position A(V/m)	Test Position B(V/m)	Test Position C(V/m)	Test Position D(V/m)	Test Position E(V/m)	Test Position F(V/m)	Limits (V/m)
0	0.157	0.100	0.095	0.074	0.008	0.137	614
2	0.031	0.133	0.055	0.043	0.154	0.120	614
4	0.007	0.049	0.122	0.082	0.156	0.085	614
6	0.020	0.030	0.006	0.005	0.153	0.113	614
8	0.111	0.131	0.083	0.027	0.041	0.128	614
10	0.096	0.050	0.048	0.034	0.013	0.014	614
12	0.061	0.025	0.014	0.047	0.053	0.127	614
14	0.064	0.130	0.144	0.079	0.086	0.068	614
16	0.133	0.125	0.022	0.028	0.018	0.048	614
18	0.090	0.021	0.036	0.013	0.152	0.115	614
20	0.096	0.024	0.008	0.030	0.005	0.104	614

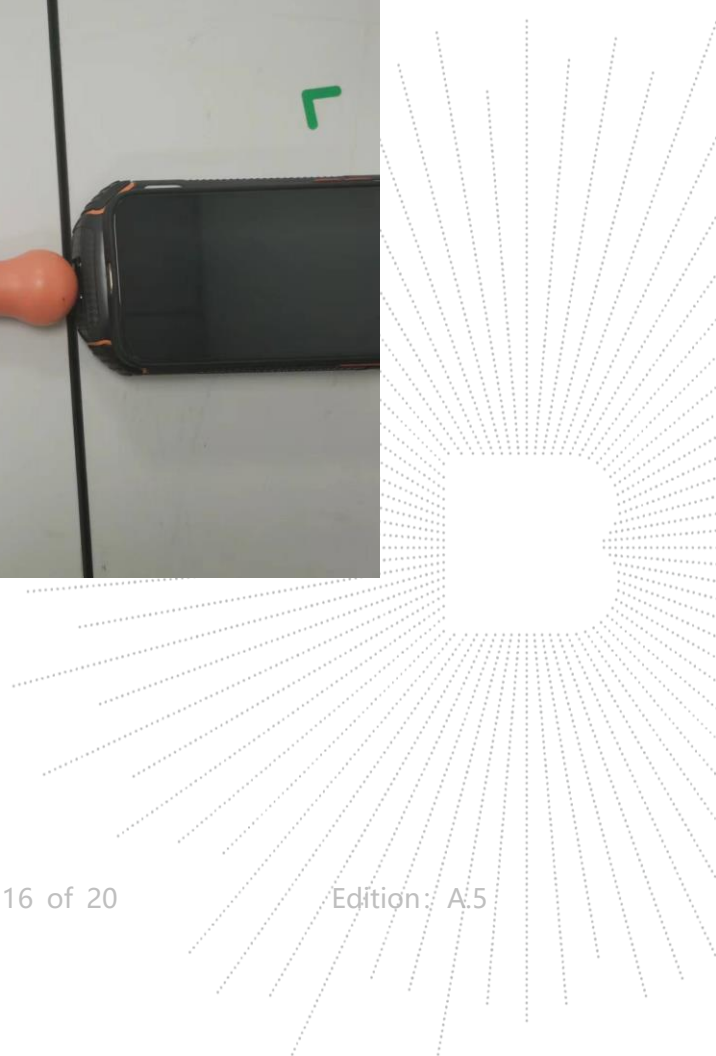
Note: In the frequency range of 1k-10M, except the fundamental frequency, other transmissions of the power transmission system are less than 20dB lower than the maximum fundamental transmission, so it is not necessary to evaluate.

5. Photographs Of Test Set-Up

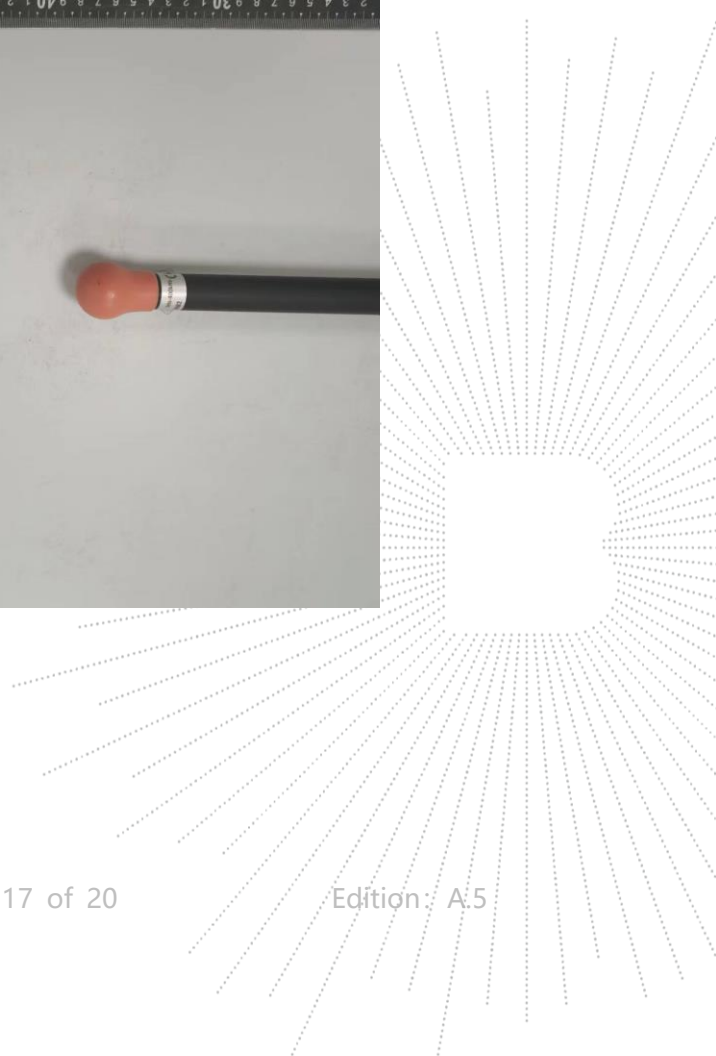
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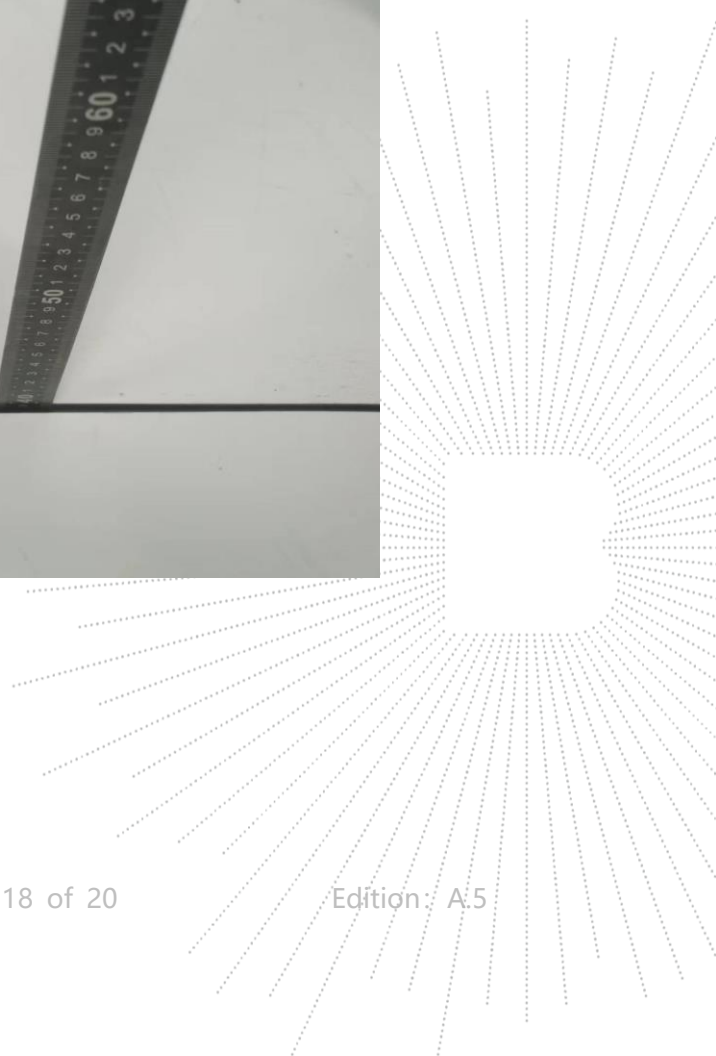
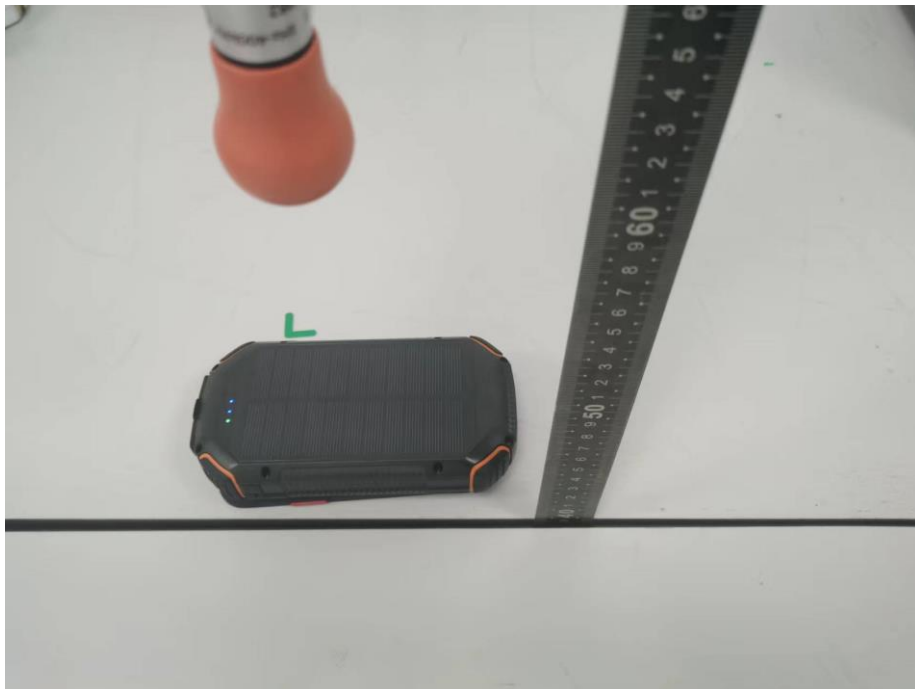


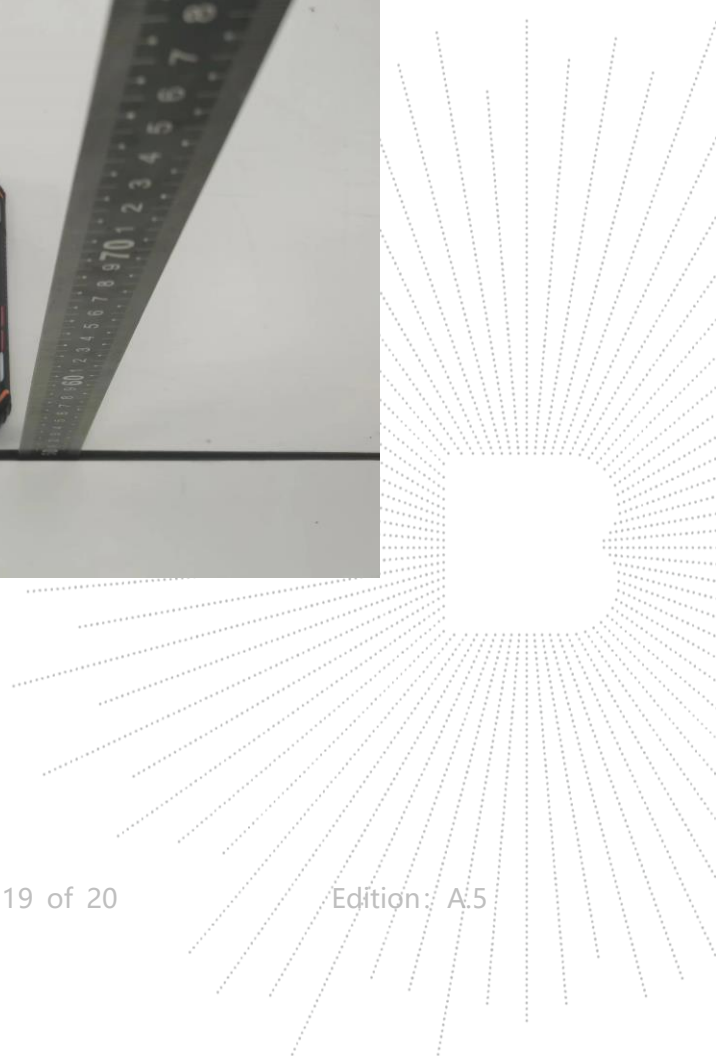




20CM







STATEMENT

1. The equipment lists are traceable to the national reference standards.
2. The test report can not be partially copied unless prior written approval is issued from our lab.
3. The test report is invalid without the "special seal for inspection and testing".
4. The test report is invalid without the signature of the approver.
5. The test process and test result is only related to the Unit Under Test.
6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.
7. The test report without CMA mark is only used for scientific research, teaching, enterprise product development and internal quality control purposes.
8. The quality system of our laboratory is in accordance with ISO/IEC17025.
9. If there is any objection to this test report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:

1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL: 400-788-9558

P.C.: 518103

FAX: 0755-33229357

Website: <http://www.chnbctc.com>

E-Mail: bctc@bctc-lab.com.cn

***** END *****

