



RF Exposure Report

For

Applicant name: Shenzhen Torras Technology Co., Ltd.
Address: RM1215, BLK C, Zhantao Technology BLDG, Minzhi Avenue, Minzhi ST, Longhua DIST, Shenzhen, China
EUT name: Power Bank
Brand name: TORRAS
Model number: PB20B
Series model number: N/A
FCC ID: 2AN4Y-PB20B

Issued By

Company name: BTF Testing Lab (Shenzhen) Co., Ltd.
Address: 101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China
Report number: BTF250418R00402
Test standards: 47 CFR Part 1 Subpart I Section 1.1310
Test conclusion: Pass
Date of sample receipt: 2025-04-18
Test date: 2025-04-19 to 2024-05-09
Date of issue: 2025-06-17
Test by: Sean He

Sean He / Tester

Prepared by:

Chris Liu

Chris Liu / Project engineer



Ryan.CJ / EMC manager

Note: All the test results in this report only related to the testing samples. Which can be duplicated completely for the legal use with approval of applicant; it shall not be reproduced except in full without the written approval of BTF Testing Lab (Shenzhen) Co., Ltd., All the objections should be raised within thirty days from the date of issue. To validate the report, you can contact us.

Revision History		
Version	Issue Date	Revisions Content
R_V0	2025-06-17	Original
Note:		Once the revision has been made, then previous versions reports are invalid.

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1. Introduction

1.1 Laboratory Location

Test location:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China
Phone number:	+86-0755-23146130
Fax number:	+86-0755-23146130

1.2 Laboratory Facility

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

- **FCC - Designation No.: CN1409**
BTF Testing Lab (Shenzhen) Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The test firm Registration No. is 518915.
- **CNAS - Registration No.: CNAS L17568**
BTF Testing Lab (Shenzhen) Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L17568.
- **A2LA - Registration No.: 6660.01**
BTF Testing Lab (Shenzhen) Co., Ltd. is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories.

1.3 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2. Product Information

2.1 Application Information

Company name:	Shenzhen Torras Technology Co., Ltd.
Address:	RM1215, BLK C, Zhantao Technology BLDG, Minzhi Avenue, Minzhi ST, Longhua DIST, Shenzhen, China

2.2 Manufacturer Information

Company name:	Shenzhen Torras Technology Co., Ltd.
Address:	RM1215, BLK C, Zhantao Technology BLDG, Minzhi Avenue, Minzhi ST, Longhua DIST, Shenzhen, China

2.3 Factory Information

Company name:	Shenzhen Torras Technology Co., Ltd.
Address:	RM1215, BLK C, Zhantao Technology BLDG, Minzhi Avenue, Minzhi ST, Longhua DIST, Shenzhen, China

2.4 General Description of Equipment under Test (EUT)

EUT name:	Power Bank
Under test model name:	PB20B
Series model name:	N/A
Description of model name differentiation:	N/A
Hardware version:	N/A
Software version:	N/A
Rating:	Multi-port Output:15W MAX Wireless Charging Output:15W MAX Lithium Battery Energy:10000mAh/3.85V/38.5Wh Output: Power:22.5W MAX Rate Capacity:6000mAh(5.0V---2.0A) Cell Capacity:10000mAh

2.5 Test Auxiliary Equipment

Description	Manufacturer	Model	Serial No.	Length	Description
USB-C Power Adapter	Apple Inc.	A2166	/	/	/
Wireless load	YBZ	F18			
Mobile Phone	XiaoMi	xiaomi 14			

3. Test Requirement

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

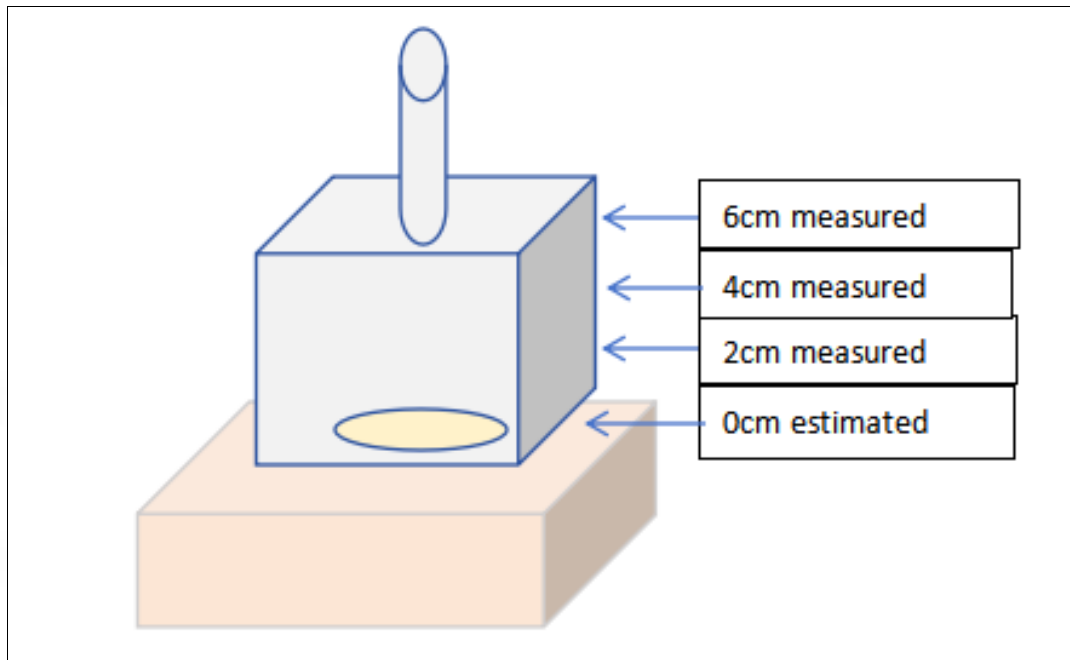
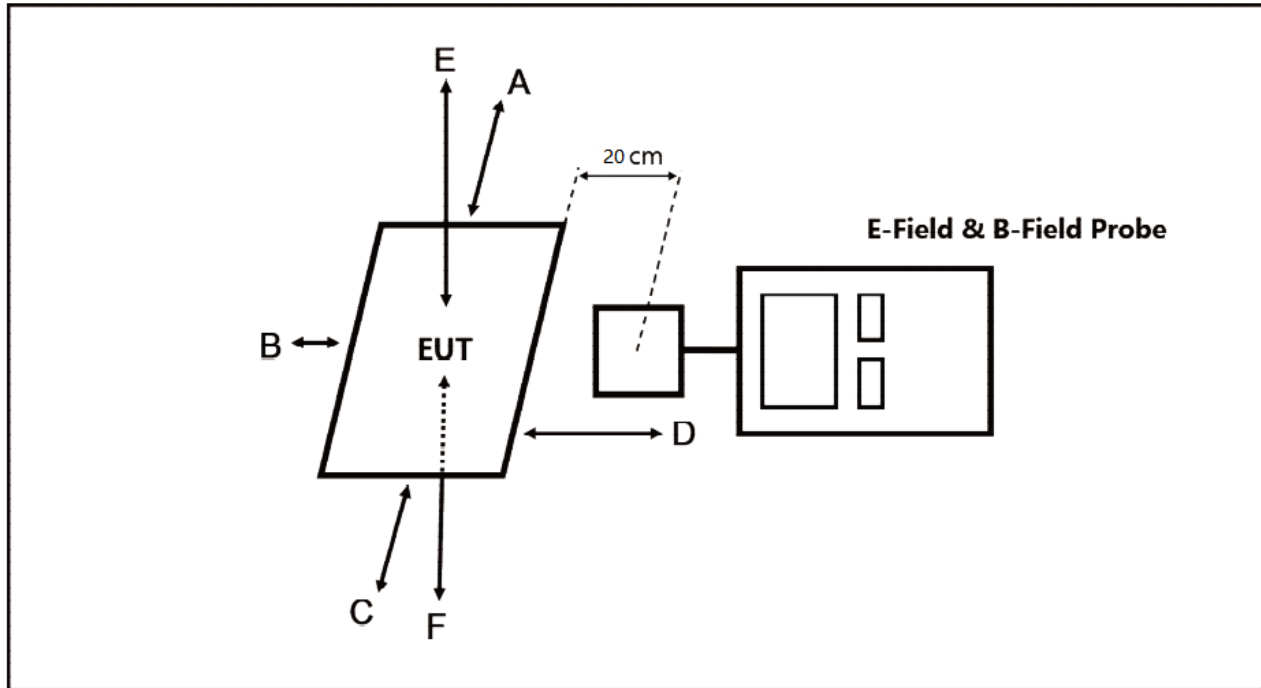
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

4. Test Equipment List

Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. (mm-dd-yy)	Next Cal. (mm-dd-yy)
Electric and Magnetic Field Analyzer	Narda	EHP-200A	180ZX11001	2024/11/16	2025/11/15

5. Test Setup



Note1: The sensitive elements are located approximately 8mm below the external surface

Note2: Measurements should be made from all sides and the top of the primary/client pair, with the 0/2/4/6/8/10/12/14/16/18/20cm measured from the center of the probe(s) to the edge of the device.

1) The RF exposure test was performed in anechoic chamber.

- 2) The measurement probe was placed at test distance (0/2/4/6/8/10/12/14/16/18/20cm) 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, F) were completed.
- 4) The EUT was measured according to the dictates of KDB 680106 D01 v04.

6. Assessment Result

Note: The sensitive elements are located approximately 8mm below the external surface

6.1 E-Field Strength Test Date

E-Field Strength at 2/4/6/8/10/12/14/16/18/20cm from the edges surrounding the EUT

Charging Battery Level	Measured Distance (cm)	Measured E-Field Strength Values (V/m)						FCC E-Field Strength Limits (V/m)
		Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	
99%	2	4.4325	4.8625	4.4268	4.5568	7.4632	7.3251	614
50%	2	4.3225	5.1214	4.7523	4.7632	7.8562	7.4965	614
1%	2	4.6325	5.1235	4.6235	4.4562	7.6852	7.6225	614
99%	4	4.0209	4.5456	4.1344	4.2189	7.2829	6.9444	614
50%	4	3.9102	4.7445	4.3078	4.2478	7.4929	7.1172	614
1%	4	4.2229	4.8782	4.3945	4.2515	7.5892	7.2885	614
99%	6	3.6609	4.4052	3.9505	3.9478	7.1449	6.7778	614
50%	6	3.7839	4.5441	4.1045	3.9945	7.3885	6.9502	614
1%	6	4.01	4.7035	4.2135	4.1145	7.5192	7.1772	614
99%	8	3.515	4.3552	3.8274	3.8274	7.0602	6.6649	614
50%	8	3.7035	4.4683	3.9782	3.9405	7.2864	6.8534	614
1%	8	3.892	4.6191	4.0913	4.0536	7.5126	7.0796	614
99%	10	2.761	3.7143	3.2996	3.2619	6.08	5.7224	614
50%	10	2.9118	3.8651	3.4127	3.375	6.3062	5.9109	614
1%	10	3.0626	3.9782	3.5258	3.4881	6.4947	6.0994	614
99%	12	2.0824	3.2242	2.8472	2.8095	5.2506	4.9307	614
50%	12	2.1955	3.2996	2.9226	2.8849	5.4391	5.0815	614
1%	12	2.3463	3.4127	3.0357	2.998	5.5899	5.2323	614
99%	14	1.4792	2.7718	2.4325	2.4325	4.5343	4.2144	614
50%	14	1.5923	2.8472	2.5079	2.5079	4.6851	4.3652	614
1%	14	1.7054	2.9226	2.5833	2.5833	4.8359	4.516	614
99%	16	0.9891	2.3571	2.0932	2.0932	3.9311	3.6489	614
50%	16	1.0645	2.4325	2.1686	2.1309	4.0442	3.762	614
1%	16	1.1776	2.5079	2.244	2.2063	4.1573	3.8751	614

99%	18	0.5367	2.0178	1.7916	1.7916	3.4033	3.1211	614
50%	18	0.6498	2.0932	1.867	1.8293	3.4787	3.2342	614
1%	18	0.7252	2.1686	1.9047	1.9047	3.5918	3.3096	614
99%	20	0.1597	1.7539	1.5277	1.5277	2.9509	2.6687	614
50%	20	0.2351	1.7916	1.6031	1.5654	3.0263	2.7818	614
1%	20	0.3105	1.867	1.6408	1.5922	3.1017	2.8572	614

Note: $V/m = A/m \cdot 377$

6.2 H-Field Strength Test Date:

H-Field Strength at 2/4/6 8/10/12/14/16/18/20cm from the edges surrounding the EUT

Charging Battery Level	Measured Distance (cm)	Unit	Measured H-Field Strength Values (A/m)						FCC H-Field Strength Limits (A/m)
			Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	
99%	2	uT	0.0475	0.0413	0.0332	0.0239	0.0478	0.0425	--
99%	2	A/m	0.0409	0.0377	0.0268	0.263	0.0502	0.0398	1.63
50%	2	uT	0.0455	0.0384	0.0309	0.0231	0.0488	0.0465	--
50%	2	A/m	0.0402	0.0304	0.0266	0.0245	0.0486	0.0419	1.63
1%	2	uT	0.0542	0.0401	0.0315	0.0228	0.0455	0.0423	--
1%	2	A/m	0.0352	0.0395	0.0256	0.0183	0.0423	0.0356	1.63
99%	4	uT	0.0297	0.0253	0.0202	0.0239	0.0358	0.0347	--
99%	4	A/m	0.0238	0.0202	0.0162	0.0191	0.0319	0.0277	1.63
50%	4	uT	0.0335	0.0246	0.0208	0.0231	0.0358	0.0379	--
50%	4	A/m	0.0269	0.0197	0.0167	0.0185	0.0352	0.0303	1.63
1%	4	uT	0.0361	0.0284	0.0241	0.0228	0.0332	0.0342	--
1%	4	A/m	0.0289	0.0227	0.0193	0.0183	0.0312	0.0274	1.63
99%	6	uT	0.0239	0.0207	0.0165	0.0160	0.0328	0.0292	--
99%	6	A/m	0.0191	0.0165	0.0131	0.0127	0.0262	0.0233	1.63
50%	6	uT	0.0239	0.0210	0.0165	0.0168	0.0325	0.0322	--
50%	6	A/m	0.0191	0.0167	0.0131	0.0135	0.0260	0.0257	1.63
1%	6	uT	0.0234	0.0210	0.0182	0.0200	0.0303	0.0292	--
1%	6	A/m	0.0188	0.0167	0.0146	0.0160	0.0242	0.0233	1.63
99%	8	uT	0.0206	0.0154	0.0125	0.0138	0.0253	0.0241	--
99%	8	A/m	0.0165	0.0123	0.0100	0.0110	0.0202	0.0193	1.63
50%	8	uT	0.0214	0.0158	0.0130	0.0141	0.0262	0.0249	--
50%	8	A/m	0.0171	0.0126	0.0104	0.0113	0.0209	0.0198	1.63
1%	8	uT	0.0221	0.0163	0.0133	0.0146	0.0270	0.0256	--
1%	8	A/m	0.0176	0.0130	0.0107	0.0117	0.0216	0.0205	1.63
99%	10	uT	0.0179	0.0131	0.0108	0.0118	0.0218	0.0207	--
99%	10	A/m	0.0143	0.0105	0.0086	0.0094	0.0174	0.0166	1.63
50%	10	uT	0.0184	0.0137	0.0112	0.0122	0.0226	0.0214	--
50%	10	A/m	0.0148	0.0109	0.0089	0.0097	0.0180	0.0171	1.63
1%	10	uT	0.0190	0.0141	0.0116	0.0125	0.0232	0.0221	--
1%	10	A/m	0.0152	0.0112	0.0092	0.0100	0.0186	0.0177	1.63
99%	12	uT	0.0154	0.0114	0.0093	0.0102	0.0187	0.0179	--
99%	12	A/m	0.0123	0.0091	0.0074	0.0081	0.0150	0.0143	1.63

50%	12	uT	0.0159	0.0117	0.0096	0.0104	0.0194	0.0184	--
50%	12	A/m	0.0127	0.0093	0.0076	0.0083	0.0155	0.0147	1.63
1%	12	uT	0.0164	0.0121	0.0099	0.0108	0.0199	0.0190	--
1%	12	A/m	0.0131	0.0096	0.0079	0.0086	0.0160	0.0152	1.63
99%	14	uT	0.0132	0.0099	0.0079	0.0087	0.0161	0.0153	--
99%	14	A/m	0.0105	0.0078	0.0064	0.0070	0.0129	0.0122	1.63
50%	14	uT	0.0137	0.0101	0.0082	0.0091	0.0166	0.0158	--
50%	14	A/m	0.0109	0.0081	0.0066	0.0072	0.0133	0.0126	1.63
1%	14	uT	0.0140	0.0104	0.0084	0.0093	0.0172	0.0164	--
1%	14	A/m	0.0112	0.0083	0.0068	0.0075	0.0138	0.0131	1.63
99%	16	uT	0.0114	0.0084	0.0069	0.0076	0.0139	0.0132	--
99%	16	A/m	0.0091	0.0067	0.0055	0.0060	0.0111	0.0106	1.63
50%	16	uT	0.0117	0.0086	0.0072	0.0077	0.0143	0.0136	--
50%	16	A/m	0.0093	0.0069	0.0057	0.0062	0.0114	0.0109	1.63
1%	16	uT	0.0121	0.0089	0.0074	0.0080	0.0147	0.0141	--
1%	16	A/m	0.0097	0.0071	0.0059	0.0064	0.0118	0.0112	1.63
99%	18	uT	0.0098	0.0072	0.0059	0.0065	0.0120	0.0113	--
99%	18	A/m	0.0078	0.0057	0.0047	0.0052	0.0096	0.0090	1.63
50%	18	uT	0.0101	0.0074	0.0062	0.0066	0.0122	0.0118	--
50%	18	A/m	0.0081	0.0059	0.0049	0.0053	0.0098	0.0094	1.63
1%	18	uT	0.0104	0.0077	0.0063	0.0069	0.0127	0.0120	--
1%	18	A/m	0.0083	0.0061	0.0050	0.0055	0.0101	0.0096	1.63
99%	20	uT	0.0083	0.0063	0.0050	0.0055	0.0103	0.0097	--
99%	20	A/m	0.0067	0.0050	0.0040	0.0044	0.0083	0.0077	1.63
50%	20	uT	0.0087	0.0064	0.0053	0.0057	0.0106	0.0101	--
50%	20	A/m	0.0069	0.0051	0.0042	0.0045	0.0085	0.0081	1.63
1%	20	uT	0.0089	0.0067	0.0054	0.0059	0.0109	0.0104	--
1%	20	A/m	0.0071	0.0053	0.0043	0.0048	0.0087	0.0083	1.63

Note: A/m=uT/1.25

Note: A/m=uT/1.25

6.3 Estimated Model

According to the formula:

The formula for the magnetic field strength at a distance r from the coil is

$$H = I / (2\pi r) * \mu$$

H is A/m

I is the current intensity

μ is the permeability, and its value depends on the medium.

The other parameters are fixed, so H is inversely proportional to r.

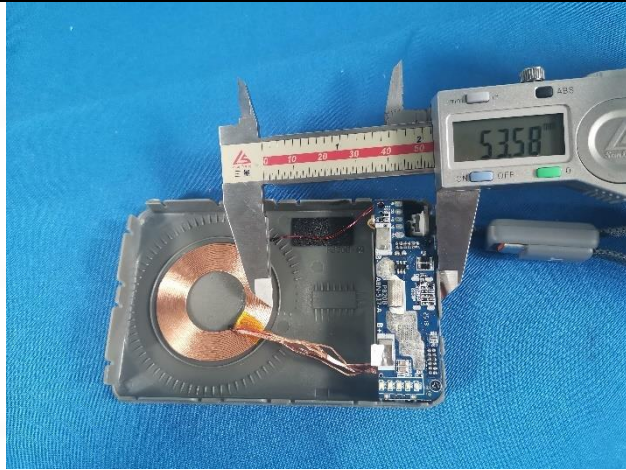
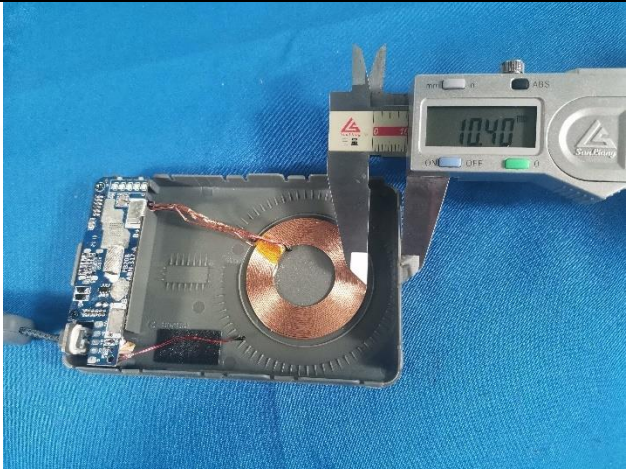
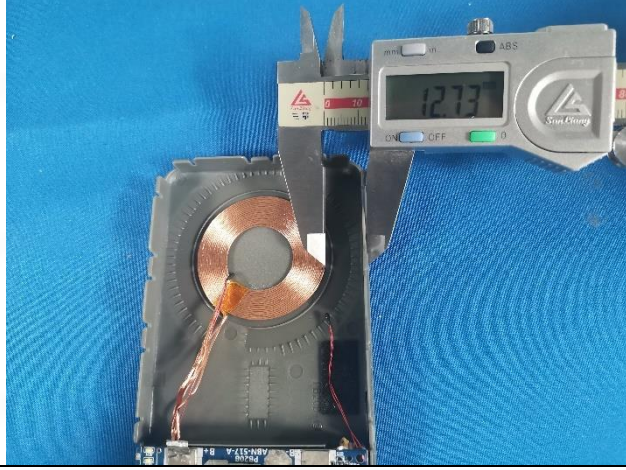
Therefore, From the measurement H6 we can estimate the values of H4,H2,H0:

$$H4=H6*r6/r4$$

$$H2=H6*r6/r2$$

$$H0=H6*r6/r0$$

The values of “r” are shown in the following table:

A:53.58mm 	B:10.40mm 
C:12.73mm 	D:12.70mm 
E:17.58mm 	

ABCDEF direction The actual distance(r) to the antenna coil.

measured distance(cm)	Actual distance r to the antenna (cm)					
	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F
0	5.358	1.04	1.273	1.27	0.835	1.758
2	7.358	3.04	3.273	3.27	2.835	3.758
4	9.358	5.04	5.273	5.27	4.835	5.758
6	11.358	7.04	7.273	7.27	6.835	7.758
8	13.358	9.04	9.273	9.27	8.835	9.758
10	15.358	11.04	11.273	11.27	10.835	11.758
12	17.358	13.04	13.273	13.27	12.835	13.758
14	19.358	15.04	15.273	15.27	14.835	15.758
16	21.358	17.04	17.273	17.27	16.835	17.758
18	23.358	19.04	19.273	19.27	18.835	19.758
20	25.358	21.04	21.273	21.27	20.835	21.758

Note: The phone is 8.35mm thick.

The result is calculated by the above formula:

H-Field Strength at 0/2/4/6cm from the edges surrounding the EUT

Charging Battery Level	Measured Distance (cm)	Unit	Measured H-Field Strength Values (A/m)						FCC H-Field Strength Limits (A/m)
			Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	
99%	0	A/m	0.0405	0.1117	0.0748	0.0727	0.2145	0.1028	1.63
50%	0	A/m	0.0405	0.1130	0.0748	0.0773	0.2128	0.1134	1.63
1%	0	A/m	0.0399	0.1130	0.0834	0.0916	0.1981	0.1028	1.63
99%	2	A/m	0.0295	0.0382	0.0291	0.0282	0.0632	0.0481	1.63
50%	2	A/m	0.0295	0.0387	0.0291	0.0300	0.0627	0.0531	1.63
1%	2	A/m	0.0290	0.0387	0.0324	0.0301	0.0583	0.0453	1.63
99%	4	A/m	0.0232	0.0230	0.0181	0.0175	0.0370	0.0314	1.63
50%	4	A/m	0.0228	0.0233	0.0201	0.0221	0.0342	0.0314	1.63
1%	4	A/m	0.0228	0.0233	0.0201	0.0221	0.0342	0.0314	1.63

6.4 Comparison of evaluation data and test data

We compare the test value of 4cm/2cm with the estimated value:

Charging Battery Level	Measured Distance (cm)	Unit	Measured H-Field Strength Values (A/m)						FCC H-Field Strength Limits (A/m)
			Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	
99%	2	A/m	0.0295	0.0382	0.0291	0.0282	0.0632	0.0481	1.63
50%	2	A/m	0.0295	0.0387	0.0291	0.0300	0.0627	0.0531	1.63
1%	2	A/m	0.0290	0.0387	0.0324	0.0301	0.0583	0.0453	1.63
99%	4	A/m	0.0232	0.0230	0.0181	0.0175	0.0370	0.0314	1.63
50%	4	A/m	0.0228	0.0233	0.0201	0.0221	0.0342	0.0314	1.63
1%	4	A/m	0.0228	0.0233	0.0201	0.0221	0.0342	0.0314	1.63

Charging Battery Level	Measured Distance (cm)	Unit	Estimated H-Field Strength Values (A/m)						FCC H-Field Strength Limits (A/m)
			Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	
99%	2	A/m	0.0295	0.0382	0.0291	0.0282	0.0632	0.0481	1.63
50%	2	A/m	0.0295	0.0387	0.0291	0.03	0.0627	0.0531	1.63
1%	2	A/m	0.029	0.0387	0.0324	0.0301	0.0583	0.0453	1.63
99%	4	A/m	0.0232	0.023	0.0181	0.0175	0.037	0.0314	1.63
50%	4	A/m	0.0228	0.0233	0.0201	0.0221	0.0342	0.0314	1.63
1%	4	A/m	0.0228	0.0233	0.0201	0.0221	0.0342	0.0314	1.63

The corresponding deviation value is calculated

Charging Battery Level	Measured Distance (cm)	Unit	Deviation value						Limits (A/m)	Result
			Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F		
99%	2	A/m	-27.87%	1.33%	8.58%	11.46%	25.90%	20.85%	30%	Pass
50%	2	A/m	-26.62%	27.30%	9.40%	22.45%	29.01%	26.73%	30%	Pass
1%	2	A/m	-17.61%	-2.03%	26.56%	26.47%	28.13%	27.25%	30%	Pass
99%	4	A/m	-2.52%	13.86%	11.73%	-8.38%	15.99%	13.36%	30%	Pass

50%	4	A/m	-15.24%	18.27%	20.36%	19.46%	-2.84%	3.63%	30%	Pass
1%	4	A/m	-21.11%	2.64%	4.15%	20.77%	9.62%	14.60%	30%	Pass

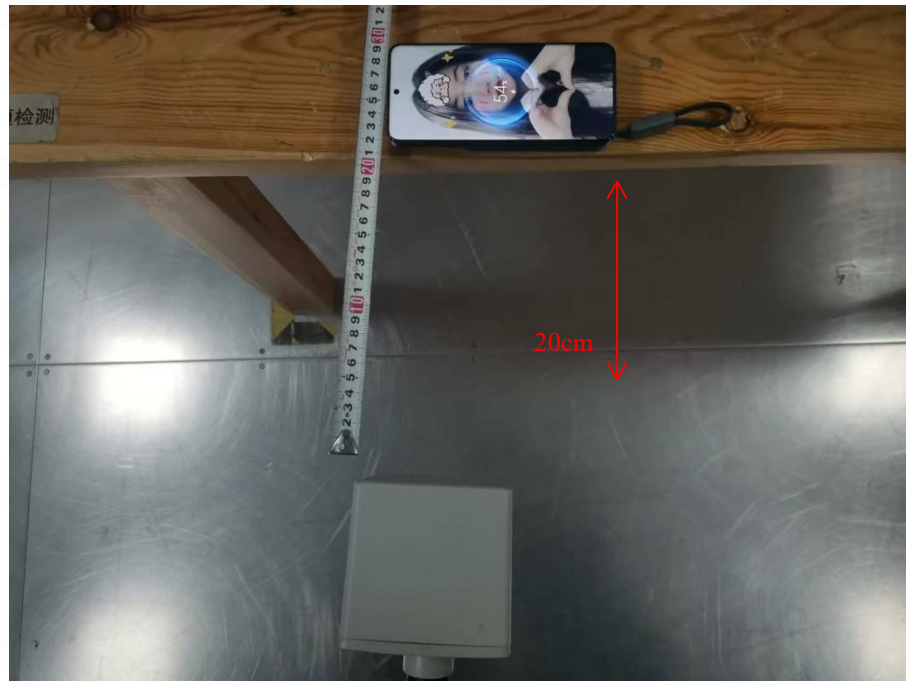
Note: Deviation value=(Hest-Hmea)/Hmea

7. Conclusion

A minimum safety distance of 0 cm to the antenna is required when the device is charging a smart phone for mobile exposure. The detected emissions are below the limitations according FCC KDB 680106. The model was established with a 30% agreement, so it was considered to be approved. The estimated test distances of 0cm are reliable

8. Test Set-up Photo





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