



FCC TEST REPORT

FCC ID: 2AR7W-PB-MAG

On Behalf of

Shenzhen BNY Industrial Co.,Ltd

Magnetic Power Bank

**Model No.: PB_MAG_G_PB, PB_MAG_GM_PB, BNY-50GW,
BNY-50GWA**

Prepared for : Shenzhen BNY Industrial Co.,Ltd
Address : No.332 Liangji Building, Donghuan No.1 Road, 518109 Longhua district,
Shenzhen, China

Prepared By : Shenzhen PSI Testing Co., Ltd.
Address : 1-2/F., Building 5, Yudafu Industrial Park, No.10, Xingye West Road,
Shajing Subdistrict, Bao'an District, Shenzhen, Guangdong, China

Report Number : psi2412010-C01-R02
Date of Receipt : December 5, 2024
Date of Test : December 5, 2024-December 12, 2024
Date of Report : December 13, 2024
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TEST REPORT DECLARATION

Applicant : Shenzhen BNY Industrial Co.,Ltd
Address : No.332 Liangji Building, Donghuan No.1 Road, 518109 Longhua district,
Shenzhen, China
Manufacturer : Shenzhen BNY Industrial Co.,Ltd
Address : No.332 Liangji Building, Donghuan No.1 Road, 518109 Longhua district,
Shenzhen, China
EUT Description : Magnetic Power Bank
(A) Model No. : PB_MAG_G_PB, PB_MAG_GM_PB, BNY-50GW,
BNY-50GWA
(B) Trademark : N/A

Measurement Standard Used:

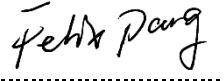
FCC CFR 47 PART 1, FCC CFR 47 part1, 1.1307(b), 1.1310, 2.1093

KDB 680106 D01 Wireless Power Transfer v04

Test Result: PASS

The device described above is tested by Shenzhen PSI Testing Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test results are contained in this test report and Shenzhen PSI Testing Co., Ltd. is assumed full responsibility for the accuracy and completeness test. Also, this report shows that the EUT is technically compliant with the KDB 680106 D01 requirements.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen PSI Testing Co., Ltd.

Tested by (name + signature).....: Felix Pang
Test Engineer 

Approved by (name + signature).....: Simple Guan
Project Manager 

Date of issue.....: December 13, 2024

Revision History

Revision	Issue Date	Revisions	Revised By
REV0	December 13, 2024	Initial released Issue	Felix Pang

1. Test Result Summary

Requirement	CFR 47 Section	Result
RF EXPOSURE	§1.1307(b)(1), §1.1310, §2.1093 & KDB680106 D01	PASS

Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.
5. Decision rules for the conclusion of this test report: decision by actual test data without considering measurement uncertainty.

2. EUT Description

2.1. Description of Device (EUT)

EUT Name : Magnetic Power Bank
Model No. : PB_MAG_G_PB, PB_MAG_GM_PB, BNY-50GW, BNY-50GWA
DIFF. : There is no difference except for the appearance, shape and model name. So all the test were performed on the model BNY-50GW.
Type-C Input: 5V $\overline{=}$ 3A, 9V $\overline{=}$ 2A
Power supply : Type-C Output: 5V $\overline{=}$ 3A, 9V $\overline{=}$ 2.22A, 12V $\overline{=}$ 1.67A
Wireless Output: 15W, 10W, 7.5W, 5W
Battery: DC 3.85V 5000mAh

Radio Technology : Wireless power transmission systems

Operation frequency : 110KHz -205KHz

Modulation : ASK

Antenna Type : Coil Antenna

Connector cable loss : 0.5dB

Software version : V1.0

Hardware version : V1.0

Note : Antenna information is provided by applicant.
Testing lab is not responsible for the accuracy of the information.

2.2. Accessories of Device (EUT)

Accessories	:	N/A
Manufacturer	:	N/A
Model	:	N/A
specifications	:	N/A

2.3. Tested Supporting System Details

No.	Description	Manufacturer	Model	Serial Number	Certification
1	Cellphone	Apple	iPhone 15 Pro Max	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A

2.4. Block Diagram of connection between EUT and simulators



2.5. Equipment Approval Considerations

The EUT does comply with KDB 680106 D01 as follow table.

Requirements of KDB 680106 D01	Yes/No	Description
Mobile Device and Portable Device Configurations	Yes	Portable Device
Equipment Authorization Procedures for Devices Operating at Frequencies Below 4 MHz	Yes	The device operate in the frequency range 110KHz~205KHz

2.6. Description of Test Modes

Mode	Test mode description
1	Wireless output: 15W
2	Wireless output: 10W
3	Wireless output: 7.5W
4	Wireless output: 5W
5	No Load

Note: The client operating modes (client battery status 1%, 50%, 99%) have been tested and only display data for the worst-case scenario Mode 1 of the client battery status.

2.7. Test Conditions

Items	Required	Actual
Temperature range:	15-35°C	26°C
Humidity range:	25-75%	54%
Pressure range:	86-106kPa	101kPa

2.8. Test Facility

Shenzhen PSI Testing Co., Ltd.

1-2/F., Building 5, Yudafu Industrial Park, No.10, Xingye West Road, Shajing Subdistrict, Bao'an District, Shenzhen, Guangdong, China

September 13, 2023 File on Federal Communication Commission

Registration Number: 916281

2.9. Measurement Uncertainty

(95% confidence levels, k=2)

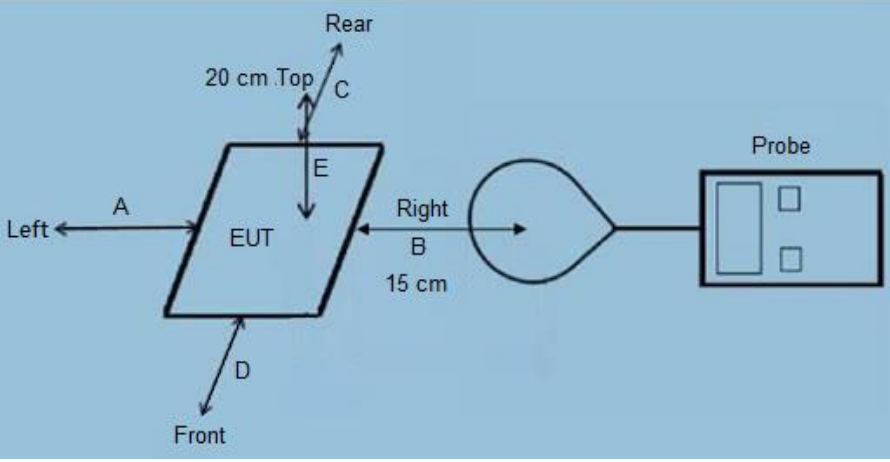
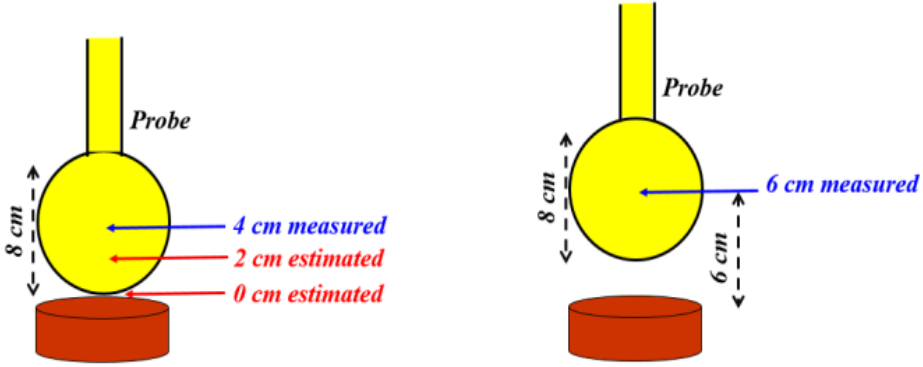
Item	Uncertainty
Uncertainty for H-Field	2.39dB
Uncertainty for E-Field	2.45dB
Uncertainty for conducted RF Power	0.65dB
Uncertainty for temperature	0.2°C
Uncertainty for humidity	1%
Uncertainty for DC and low frequency voltages	0.06%

3. Test Results and Measurement Data

3.1. RF EXPOSURE TEST

3.1.1. Test Specification

Test Requirement:	FCC Rules and Regulations KDB680106																																																																				
Test Method:	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 D01: KDB 680106 D01 Wireless Power Transfer v04.																																																																				
Limits:	According to the item 3 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) Mobile Device and Portable Device Configurations (2) Equipment Authorization Procedures for Devices Operating at Frequencies Below 4 MHz (3) The aggregate H-field strengths anywhere at (0/2/4/6/8/10/12/14/16/18/20cm) surrounding the device six surfaces. The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b) Limits for Maximum Permissible Exposure (MPE) <table border="1"> <thead> <tr> <th>Frequency range (MHz)</th><th>Electric field strength (V/m)</th><th>Magnetic field strength (A/m)</th><th>Power density (mW/cm²)</th><th>Averaging time (minutes)</th></tr> </thead> <tbody> <tr> <td colspan="5">(A) Limits for Occupational/Controlled Exposures</td></tr> <tr> <td>0.3-3.0</td><td>614</td><td>1.63</td><td>*(100)</td><td>6</td></tr> <tr> <td>3.0-30</td><td>1842/f</td><td>4.89/f</td><td>*(900/f²)</td><td>6</td></tr> <tr> <td>30-300</td><td>61.4</td><td>0.163</td><td>1.0</td><td>6</td></tr> <tr> <td>300-1500</td><td>/</td><td>/</td><td>f/300</td><td>6</td></tr> <tr> <td>1500-100,000</td><td>/</td><td>/</td><td>5</td><td>6</td></tr> <tr> <td colspan="5">(B) Limits for General Population/Uncontrolled Exposure</td></tr> <tr> <td>0.3-1.34</td><td>614</td><td>1.63</td><td>*(100)</td><td>30</td></tr> <tr> <td>1.34-30</td><td>824/f</td><td>2.19/f</td><td>*(180/f²)</td><td>30</td></tr> <tr> <td>30-300</td><td>27.5</td><td>0.073</td><td>0.2</td><td>30</td></tr> <tr> <td>300-1500</td><td>/</td><td>/</td><td>f/1500</td><td>30</td></tr> <tr> <td>1500-100,000</td><td>/</td><td>/</td><td>1.0</td><td>30</td></tr> </tbody> </table> 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).				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
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Test Setup:	 Figure 1  Figure 2
Test Mode:	Communication Mode (Mobile phone will be charge at zero charge, intermediate charge, and full charge.)
Test Procedure:	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 D01v04. 5) Large size probes may prevent the measurement of E- and/or H-fields near the surface of the radiating structure (e.g., a WPT source coil), as in the example shown in Figure 2. These estimates shall include points spaced no more than 2 cm from each other. Thus, in the example of Figure 2, at least the estimates at 0 cm² and 2 cm are required, while only one point would not be sufficient. In addition, the model needs to be validated through the probe measurements for the two closest points to the device surface, and with 2-cm increments, as indicated in Figure 2. In that example, the same model must also be applied to the 4 cm and 6 cm positions, and then compared with the measured data, for validation purposes. The validation is considered sufficient if a 30% agreement between the model and the (E- and/or H-field) probe measurements is demonstrated. If such a level of agreement cannot be shown, a more accurate model (and/or a smaller probe) shall be used.
Test Result:	PASS

3.1.2. Test Instruments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Exposure Level Tester	narda	ELT-400	N-0231	2023.12.19	1 Year
2	Magnetic field probe 100cm2	narda	ELT probe 100cm2	M0675	2023.12.19	1 Year
3	Isotropic Electric Field Probe	narda	EP-601	511WX60706	2023.12.19	1 Year

Note: The probe radius is 8 cm

3.1.3. Test data

The probe radius is 8 cm.

E-Field Strength at 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%	8	19.370	21.342	22.426	21.088	24.222	25.441	614
50%	8	19.517	21.888	23.216	21.315	24.957	25.724	614
1%	8	19.880	23.397	22.863	21.441	26.438	26.385	614
99%	10	17.560	19.131	20.025	19.089	21.649	22.732	614
50%	10	17.707	19.677	20.815	19.316	22.384	23.015	614
1%	10	18.070	21.186	20.462	19.442	23.865	23.676	614
99%	12	15.750	16.920	17.624	17.089	19.075	20.023	614
50%	12	15.897	17.466	18.414	17.316	19.810	20.306	614
1%	12	16.260	18.975	18.061	17.442	21.291	20.967	614
99%	14	13.939	14.709	15.222	15.090	16.502	17.314	614
50%	14	14.086	15.255	16.012	15.317	17.237	17.597	614
1%	14	14.449	16.764	15.659	15.443	18.718	18.258	614
99%	16	12.129	12.498	12.821	13.090	13.928	14.606	614
50%	16	12.276	13.044	13.611	13.317	14.663	14.889	614
1%	16	12.639	14.553	13.258	13.443	16.144	15.550	614
99%	18	10.318	10.287	10.420	11.091	11.355	11.897	614
50%	18	10.465	10.833	11.210	11.318	12.090	12.180	614
1%	18	10.828	12.342	10.857	11.444	13.571	12.841	614
99%	20	8.508	8.076	8.019	9.091	8.781	9.188	614
50%	20	8.655	8.622	8.809	9.318	9.516	9.471	614
1%	20	9.018	10.131	8.456	9.444	10.997	10.132	614

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

H-Field Strength at 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%	8	uT	0.064	0.071	0.074	0.070	0.080	0.084	--
99%	8	A/m	0.051	0.057	0.059	0.056	0.064	0.067	1.63
50%	8	uT	0.065	0.073	0.077	0.071	0.083	0.085	--
50%	8	A/m	0.052	0.058	0.062	0.057	0.066	0.068	1.63
1%	8	uT	0.066	0.078	0.076	0.071	0.088	0.087	--
1%	8	A/m	0.053	0.062	0.061	0.057	0.070	0.070	1.63
99%	10	uT	0.058	0.063	0.066	0.063	0.072	0.075	--
99%	10	A/m	0.047	0.051	0.053	0.051	0.057	0.060	1.63
50%	10	uT	0.059	0.065	0.069	0.064	0.074	0.076	--
50%	10	A/m	0.047	0.052	0.055	0.051	0.059	0.061	1.63
1%	10	uT	0.060	0.070	0.068	0.064	0.079	0.079	--
1%	10	A/m	0.048	0.056	0.054	0.052	0.063	0.063	1.63
99%	12	uT	0.052	0.056	0.058	0.057	0.063	0.066	--
99%	12	A/m	0.042	0.045	0.047	0.045	0.051	0.053	1.63
50%	12	uT	0.053	0.058	0.061	0.057	0.066	0.067	--
50%	12	A/m	0.042	0.046	0.049	0.046	0.053	0.054	1.63
1%	12	uT	0.054	0.063	0.060	0.058	0.071	0.070	--
1%	12	A/m	0.043	0.050	0.048	0.046	0.056	0.056	1.63
99%	14	uT	0.046	0.049	0.050	0.050	0.055	0.057	--
99%	14	A/m	0.037	0.039	0.040	0.040	0.044	0.046	1.63
50%	14	uT	0.047	0.051	0.053	0.051	0.057	0.058	--
50%	14	A/m	0.037	0.040	0.042	0.041	0.046	0.047	1.63
1%	14	uT	0.048	0.056	0.052	0.051	0.062	0.061	--
1%	14	A/m	0.038	0.044	0.042	0.041	0.050	0.048	1.63
99%	16	uT	0.040	0.041	0.043	0.043	0.046	0.048	--
99%	16	A/m	0.032	0.033	0.034	0.035	0.037	0.039	1.63
50%	16	uT	0.041	0.043	0.045	0.044	0.049	0.049	--
50%	16	A/m	0.033	0.035	0.036	0.035	0.039	0.039	1.63
1%	16	uT	0.042	0.048	0.044	0.045	0.054	0.052	--
1%	16	A/m	0.034	0.039	0.035	0.036	0.043	0.041	1.63
99%	18	uT	0.034	0.034	0.035	0.037	0.038	0.039	0.023
99%	18	A/m	0.027	0.027	0.028	0.029	0.030	0.032	1.63
50%	18	uT	0.035	0.036	0.037	0.038	0.040	0.040	--
50%	18	A/m	0.028	0.029	0.030	0.030	0.032	0.032	1.63
1%	18	uT	0.036	0.041	0.036	0.038	0.045	0.043	--
1%	18	A/m	0.029	0.033	0.029	0.030	0.036	0.034	1.63
99%	20	uT	0.028	0.027	0.027	0.030	0.029	0.030	--
99%	20	A/m	0.023	0.021	0.021	0.024	0.023	0.024	1.63
50%	20	uT	0.029	0.029	0.029	0.031	0.032	0.031	--
50%	20	A/m	0.023	0.023	0.023	0.025	0.025	0.025	1.63

1%	20	uT	0.030	0.034	0.028	0.031	0.036	0.034	0.030
1%	20	A/m	0.024	0.027	0.022	0.025	0.029	0.027	1.63

Note: $A/m = uT/1.25$

According to the formula:

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

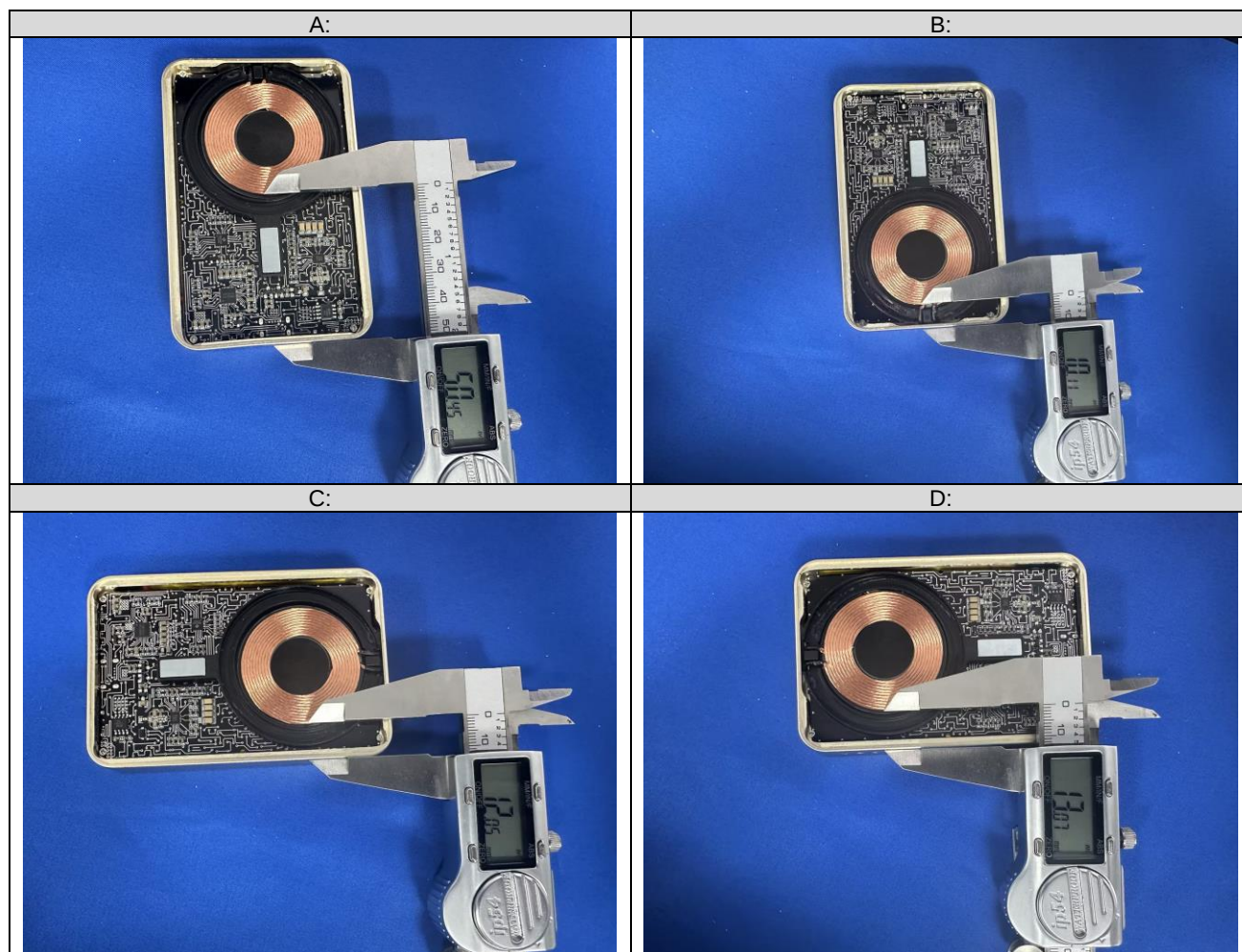
$$H = I/(2\pi r) * \mu$$

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 .



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
20	25.045	21.011	21.205	21.307	20.835	20.620
18	23.045	19.011	19.205	19.307	18.835	18.620
16	21.045	17.011	17.205	17.307	16.835	16.620
14	19.045	15.011	15.205	15.307	14.835	14.620
12	17.045	13.011	13.205	13.307	12.835	12.620
10	15.045	11.011	11.205	11.307	10.835	10.620
8	13.045	9.011	9.205	9.307	8.835	8.620
6	11.045	7.011	7.205	7.307	6.835	6.620
4	9.045	5.011	5.205	5.307	4.835	4.620
2	7.045	3.011	3.205	3.307	2.835	2.620
0	5.045	1.011	1.205	1.307	0.835	0.620

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	
1%	0	A/m	0.208	0.517	0.631	0.338	0.945	1.396	1.63
50%	0	A/m	0.195	0.431	0.580	0.274	0.755	1.358	1.63
99%	0	A/m	0.177	0.353	0.486	0.235	0.529	1.264	1.63
1%	2	A/m	0.095	0.172	0.221	0.083	0.184	0.269	1.63
50%	2	A/m	0.093	0.168	0.214	0.082	0.180	0.262	1.63
99%	2	A/m	0.082	0.138	0.178	0.076	0.149	0.213	1.63
1%	4	A/m	0.080	0.133	0.164	0.074	0.144	0.199	1.63
50%	4	A/m	0.073	0.114	0.143	0.070	0.124	0.170	1.63
99%	4	A/m	0.072	0.110	0.137	0.069	0.120	0.162	1.63
1%	6	A/m	0.067	0.099	0.114	0.066	0.108	0.136	1.63
50%	6	A/m	0.063	0.086	0.103	0.064	0.095	0.119	1.63
99%	6	A/m	0.059	0.079	0.090	0.061	0.086	0.106	1.63

3.1.4. 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.

4. Photos of test setup



-----END OF REPORT-----