

TEST REPORT

FCC ID.	2A4MT-PB1018	
Test Report No.	TCT220324E013	
Date of issue	Apr. 07, 2022	
Testing laboratory	SHENZHEN TONGCE TESTING LAB	
Testing location/ address:	TCT Testing Industrial Park Fuqiao 5th Industrial Zone, Fuhai Street, Bao'an District Shenzhen, Guangdong, 518103, People's Republic of China	
Applicant's name	Shenzhen Zhenghaixin Technology Co., Ltd.	
Address	Area 301A, No.7 Xiongyu Road, Tangxiachong Community, Yanchuan Street, Baoan District, Shenzhen, China	
Manufacturer's name ...	Shenzhen Zhenghaixin Technology Co., Ltd.	
Address	Area 301A, No.7 Xiongyu Road, Tangxiachong Community, Yanchuan Street, Baoan District, Shenzhen, China	
Standard(s)	FCC CFR Title 47 Part 1.1310 KDB 680106 D01 RF Exposure Wireless Charging App v03r01	
Product Name	Magnetic Wireless Power Bank	
Trade Mark	N/A	
Model/Type reference	ZHX-PB12, ZHX-PB10, ZHX-PB14, ZHX-PB16, ZHX-PB19	
Rating(s)	Rechargeable Li-ion Battery DC 3.85V	
Date of receipt of test item	Mar. 24, 2022	
Date (s) of performance of test	Mar. 24, 2022 - Apr. 07, 2022	
Tested by (+signature) ...	Rleo LIU	
Check by (+signature)	Beryl ZHAO	
Approved by (+signature):	Tomsin	



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1. General Product Information

1.1. EUT description

Product Name.....:	Magnetic Wireless Power Bank
Model/Type reference.....:	ZHX-PB12
Sample Number.....:	TCT220324E009-0101
Operation Frequency	107.58kHz - 149.93kHz
Modulation Technology	Load modulation
Max. Wireless Output Power:	15W
Antenna Type.....:	Inductive loop coil Antenna
Rating(s).....:	Rechargeable Li-ion Battery DC 3.85V

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

1.2. Model(s) list

No.	Model No.	Tested with
1	ZHX-PB12	☒
Other models	ZHX-PB10, ZHX-PB14, ZHX-PB16, ZHX-PB19	☐

Note: ZHX-PB12 is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names. So the test data of ZHX-PB12 can represent the remaining models.

2. Facilities and Accreditations

2.1. Facilities

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

- FCC - Registration No.: 645098

SHENZHEN TONGCE TESTING LAB

Designation Number: CN1205

The testing lab has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

SHENZHEN TONGCE TESTING LAB

CAB identifier: CN0031

The testing lab has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

2.2. Location

SHENZHEN TONGCE TESTING LAB

Address: TCT Testing Industrial Park Fuqiao 5th Industrial Zone, Fuhai Street, Bao'an District Shenzhen, Guangdong, 518103, People's Republic of China

TEL: +86-755-27673339

3. Technical Requirements Specification

3.1. Requirements

According to the item 5 of KDB 680106 D01 RF Exposure Wireless Charging App v03r01:

According to the item 5 of KDB 680106 D01 v03r01:

Requirement of KDB 680106 D01	Yes/No	Description
Power transfer frequency is less than 1MHz	Yes	The device operate in the frequency range 107.58kHz - 149.93kHz
Output power from each primary coil is less than or equal to 15 watts	Yes	The maximum output power of the primary coil is 15W.
The transfer system includes only single primary and secondary coils.This includes charging system 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.
Portable exposure conditions are not covered by this exclusion.	No	Mobile and portable exposure conditions.
The aggregate H-field strengths at 15 cm surrounding the device and 20cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.	Yes	The EUT H-field strengths at 0 cm surrounding the device and from 0 cm to 20 cm, in 2 cm maximum increment measured from the edge of the device. all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

Limits

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)

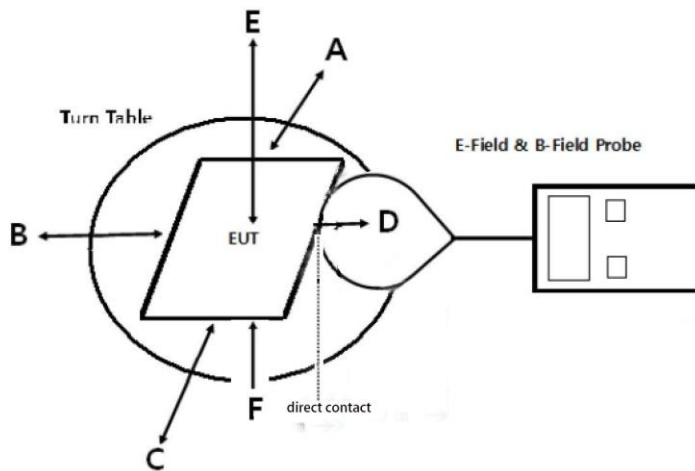
Limits for Maximum Permissible Exposure (MPE)

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

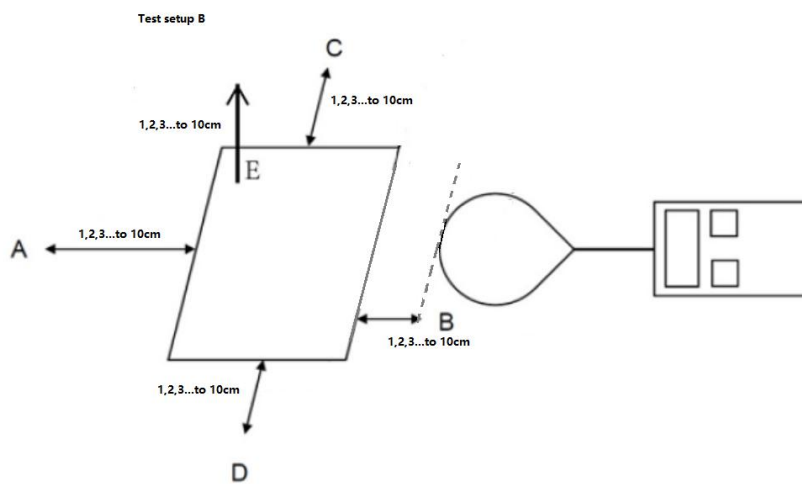
F=frequency in MHz
 *=Plane-wave equivalent power density
 RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

3.2. Test Setup

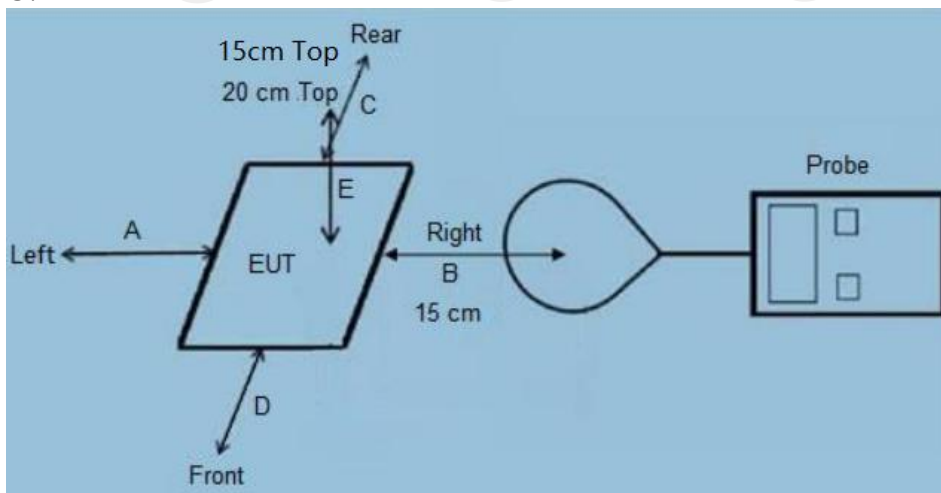
A:



B:



C:



3.3. Test Procedure

1. The RF exposure test was performed in anechoic chamber.
2. The measurement probe was placed at 0 cm surrounding the device for test setup A; and the measurement Probe was placed from 1 cm to 10 cm, in 1 cm maximum increment measured from the edge of the device For the test setup B; and the measurement Probe was placed at 15 cm surrounding the device and both 15 cm and 20 cm above the top for setup C.
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 KDB680106 D01v03r01.
5. Remark;
The EUT's test position A, B, C, D, E and F is valid for the E and H field measurements.

3.4. Test Instruments List

Equipment	Manufacturer	Model No.	Calibration Due
Magnetic field meter	NARDA	ELT-400	Feb. 24, 2023
Mobile Phone	SAMSUNG	SM-G9350	/
Adapter	SAMSUNG	EP-TA200	/

3.5. Test Result

For setup A:

Note: Internal battery power mode

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

Frequency Range (KHz)	Operation condition	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	Reference Limits Test (V/m)	Limits Test (V/m)
107.58 - 149.93	Full load	1.27	1.28	1.29	1.26	1.27	1.28	307	614
107.58 - 149.93	Half load	1.24	1.26	1.25	1.23	1.25	1.26	307	614
107.58 - 149.93	No load	1.21	1.25	1.23	1.20	1.21	1.23	307	614

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)
107.58 - 149.93	Full load	0.203	0.196	0.204	0.198	0.185	0.192	1.63
107.58 - 149.93	Half load	0.195	0.187	0.195	0.194	0.184	0.186	1.63
107.58 - 149.93	No load	0.191	0.184	0.190	0.179	0.180	0.182	1.63

For setup C:

Note: AC mode

E-Filed Strength at (15 cm surrounding the device and 20 cm above the top) surface of the EUT (V/m)

Frequency Range (KHz)	Operation condition	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E 15cm	Test Position E 20cm	Reference Limits Test (V/m)	Limits Test (V/m)
107.58 - 149.93	Full load	1.21	1.23	1.22	1.26	1.25	1.24	307	614
107.58 - 149.93	Half load	1.20	1.21	1.18	1.23	1.22	1.19	307	614
107.58 - 149.93	No load	1.18	1.19	1.16	1.20	1.21	1.17	307	614

H-Filed Strength at (15 cm surrounding the device and 20 cm above the top) surface of 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 15cm (A/m)	Test Position E 20cm (A/m)	Limits (A/m)
107.58 - 149.93	Full load	0.205	0.198	0.196	0.194	0.197	0.190	1.63
107.58 - 149.93	Half load	0.197	0.189	0.192	0.190	0.193	0.187	1.63
107.58 - 149.93	No load	0.192	0.185	0.190	0.187	0.191	0.183	1.63

Note: $uT=1.25*(A/m)$, $1mT=1000uT$

For setup B:

Note: Internal battery power mode

Full Load

E-Filed Strength at (distance from 1cm to 10cm at 1cm 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)	Reference Limits Test (V/m)	Limits Test (V/m)
1	1.27	1.28	1.29	1.26	1.25	307	614
2	1.25	1.28	1.29	1.26	1.24	307	614
3	1.25	1.27	1.28	1.25	1.24	307	614
4	1.24	1.26	1.27	1.25	1.23	307	614
5	1.24	1.26	1.27	1.24	1.23	307	614
6	1.23	1.25	1.26	1.21	1.23	307	614
7	1.23	1.25	1.24	1.21	1.21	307	614
8	1.22	1.24	1.24	1.20	1.21	307	614
9	1.22	1.23	1.22	1.17	1.20	307	614
10	1.21	1.23	1.22	1.17	1.20	307	614

Half Load

E-Filed Strength at (distance from 1cm to 10cm at 1cm 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)	Reference Limits Test (V/m)	Limits Test (V/m)
1	1.26	1.25	1.27	1.28	1.24	307	614
2	1.26	1.25	1.27	1.28	1.24	307	614
3	1.25	1.24	1.25	1.27	1.24	307	614
4	1.24	1.24	1.25	1.26	1.23	307	614
5	1.23	1.24	1.23	1.26	1.23	307	614
6	1.21	1.23	1.23	1.24	1.21	307	614
7	1.21	1.22	1.21	1.24	1.21	307	614
8	1.19	1.22	1.19	1.23	1.20	307	614
9	1.19	1.20	1.17	1.19	1.19	307	614
10	1.17	1.20	1.17	1.19	1.19	307	614

NO-load

E-Filed Strength at (distance from 1cm to 10cm at 1cm 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)	Reference Limits Test (V/m)	Limits Test (V/m)
1	1.25	1.27	1.24	1.26	1.25	307	614
2	1.25	1.27	1.24	1.26	1.25	307	614
3	1.23	1.25	1.23	1.24	1.23	307	614
4	1.23	1.25	1.21	1.24	1.23	307	614
5	1.20	1.24	1.21	1.21	1.22	307	614
6	1.20	1.24	1.20	1.21	1.21	307	614
7	1.17	1.22	1.20	1.20	1.21	307	614
8	1.17	1.22	1.19	1.20	1.18	307	614
9	1.15	1.20	1.19	1.18	1.18	307	614
10	1.15	1.20	1.18	1.17	1.16	307	614

Full Load

H-Filed Strength at (distance from 1cm to 10cm at 1cm 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)	Limits (A/m)
1	0.205	0.194	0.208	0.203	0.212	1.63
2	0.203	0.190	0.205	0.201	0.210	1.63
3	0.197	0.188	0.200	0.198	0.208	1.63
4	0.194	0.183	0.195	0.196	0.207	1.63
5	0.192	0.180	0.193	0.191	0.203	1.63
6	0.186	0.178	0.189	0.185	0.201	1.63
7	0.181	0.175	0.186	0.182	0.198	1.63
8	0.179	0.173	0.182	0.176	0.195	1.63
9	0.176	0.172	0.178	0.171	0.193	1.63
10	0.173	0.170	0.176	0.168	0.190	1.63

Half Load

H-Filed Strength at (distance from 1cm to 10cm at 1cm 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)	Limits (A/m)
1	0.198	0.194	0.191	0.203	0.196	1.63
2	0.196	0.192	0.188	0.201	0.193	1.63
3	0.194	0.190	0.186	0.198	0.191	1.63
4	0.192	0.187	0.183	0.196	0.189	1.63
5	0.190	0.185	0.181	0.193	0.187	1.63
6	0.187	0.183	0.179	0.190	0.185	1.63
7	0.186	0.181	0.176	0.187	0.182	1.63
8	0.183	0.178	0.173	0.185	0.180	1.63
9	0.180	0.175	0.171	0.182	0.178	1.63
10	0.176	0.172	0.168	0.180	0.176	1.63

NO-load

H-Filed Strength at (distance from 1cm to 10cm at 1cm 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)	Limits (A/m)
1	0.205	0.197	0.199	0.201	0.203	1.63
2	0.203	0.194	0.196	0.200	0.201	1.63
3	0.201	0.191	0.193	0.198	0.199	1.63
4	0.198	0.189	0.190	0.195	0.197	1.63
5	0.195	0.186	0.187	0.192	0.193	1.63
6	0.192	0.183	0.185	0.190	0.191	1.63
7	0.188	0.181	0.183	0.188	0.187	1.63
8	0.186	0.178	0.180	0.186	0.184	1.63
9	0.182	0.175	0.176	0.183	0.181	1.63
10	0.180	0.173	0.174	0.181	0.177	1.63

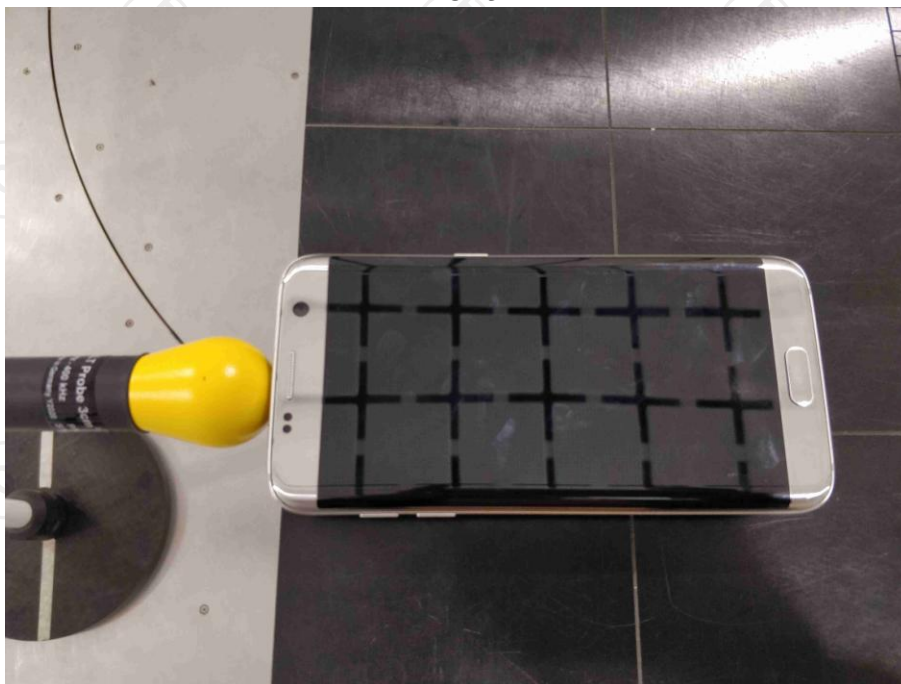
Note: In the frequency range of 1k-10M, except the fundamental frequency, other transmissions of the power transmission system are less than 20dB lower than the maximum fundamental transmission, so it is not necessary to evaluate.

4. Test Set-up Photo

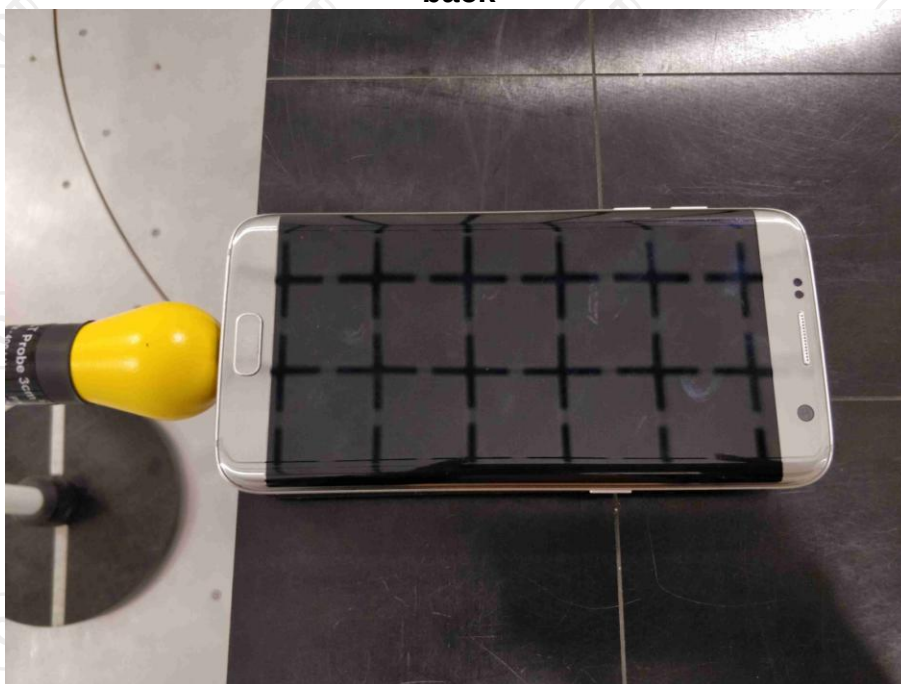
Setup A:

Internal battery mode

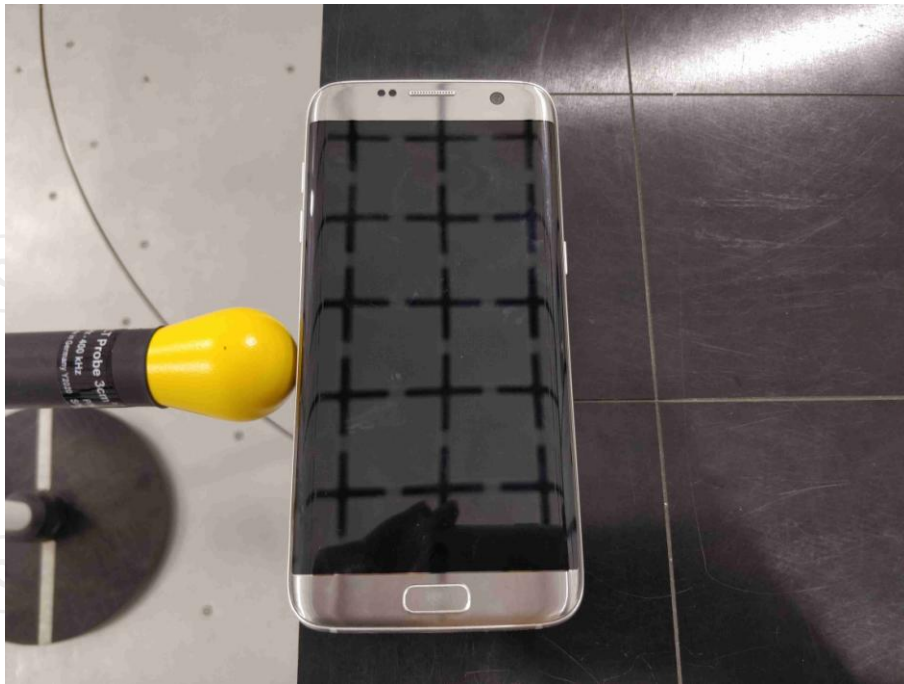
front



back



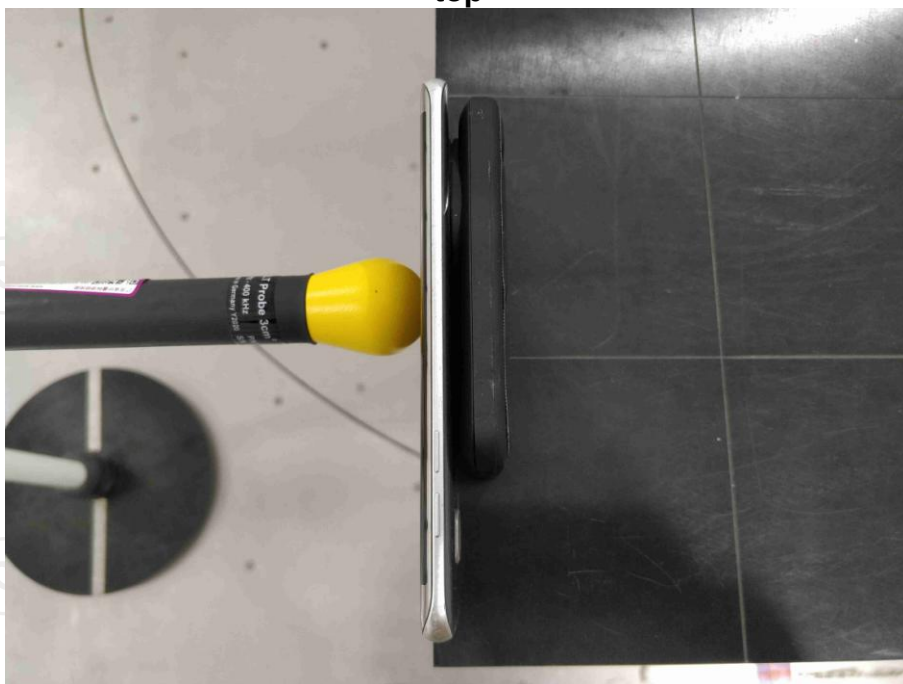
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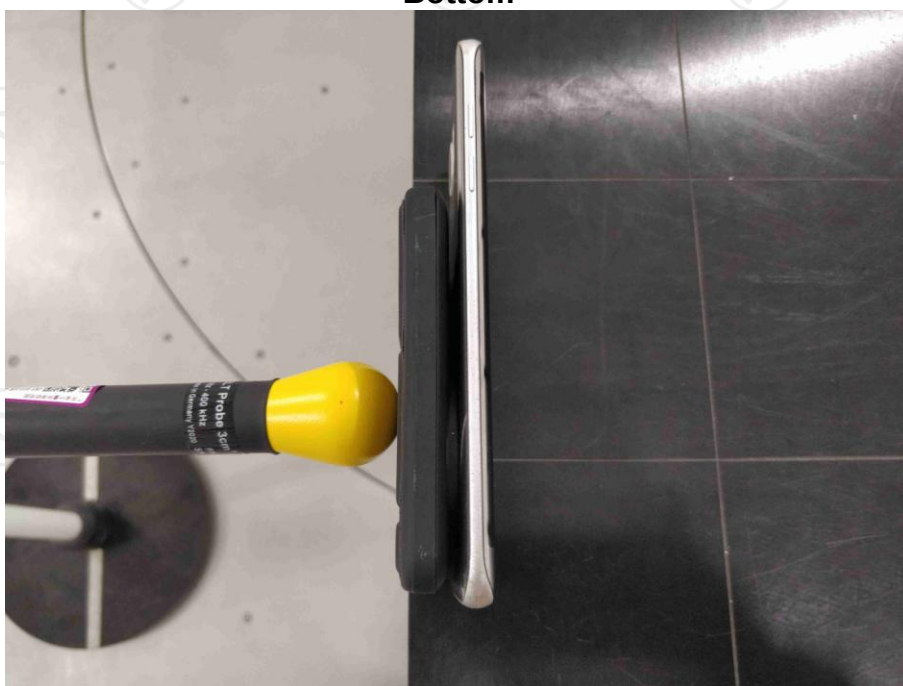
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top

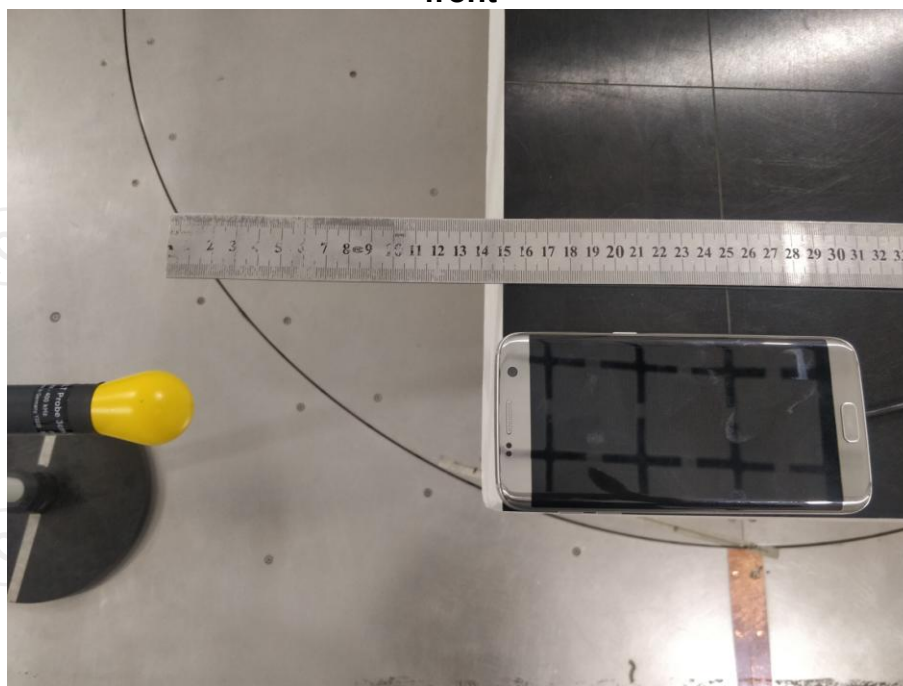


Bottom

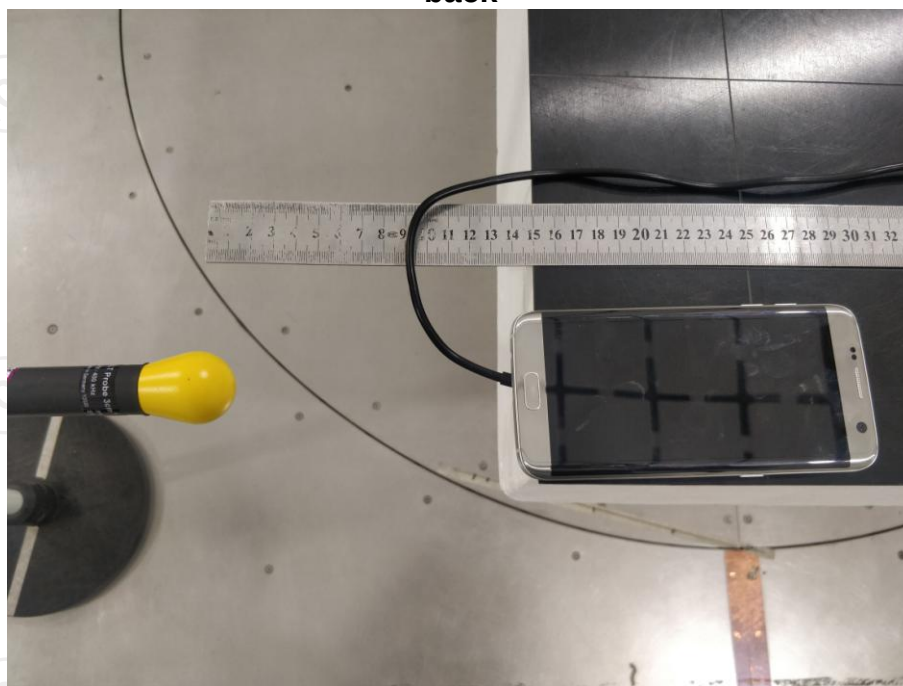


Setup C:
AC mode

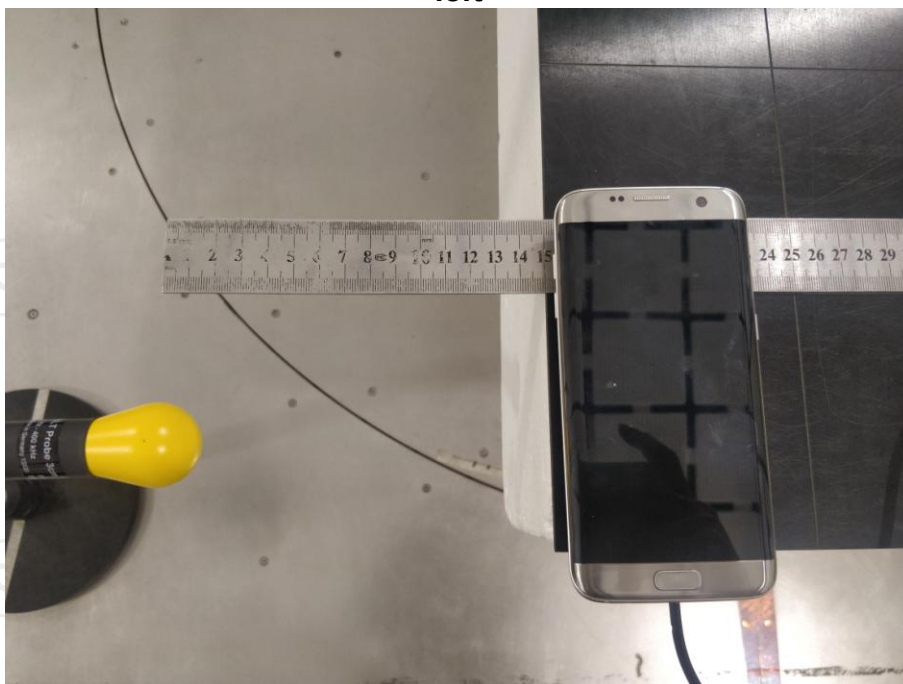
front



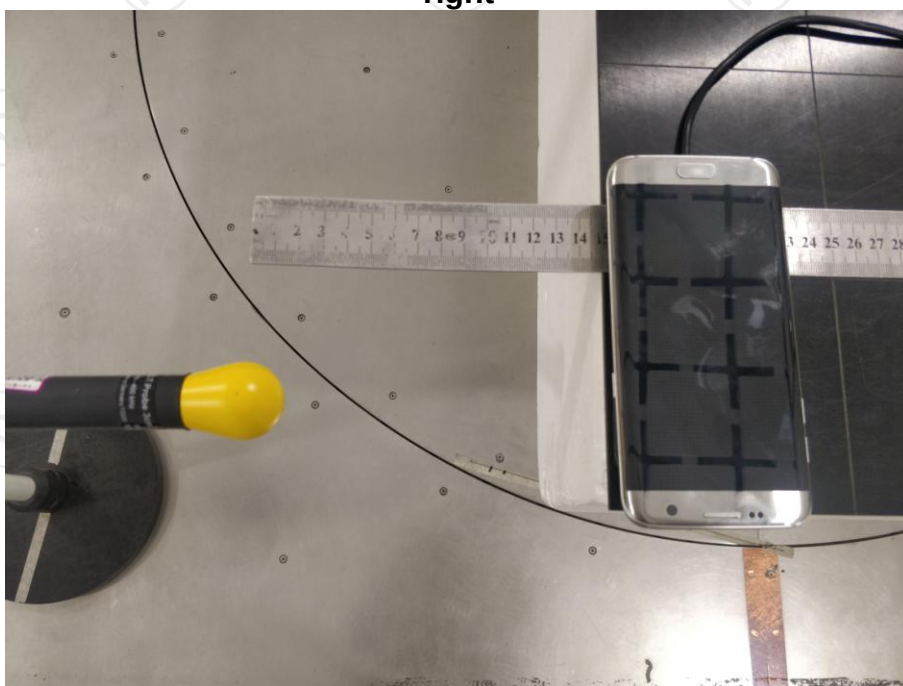
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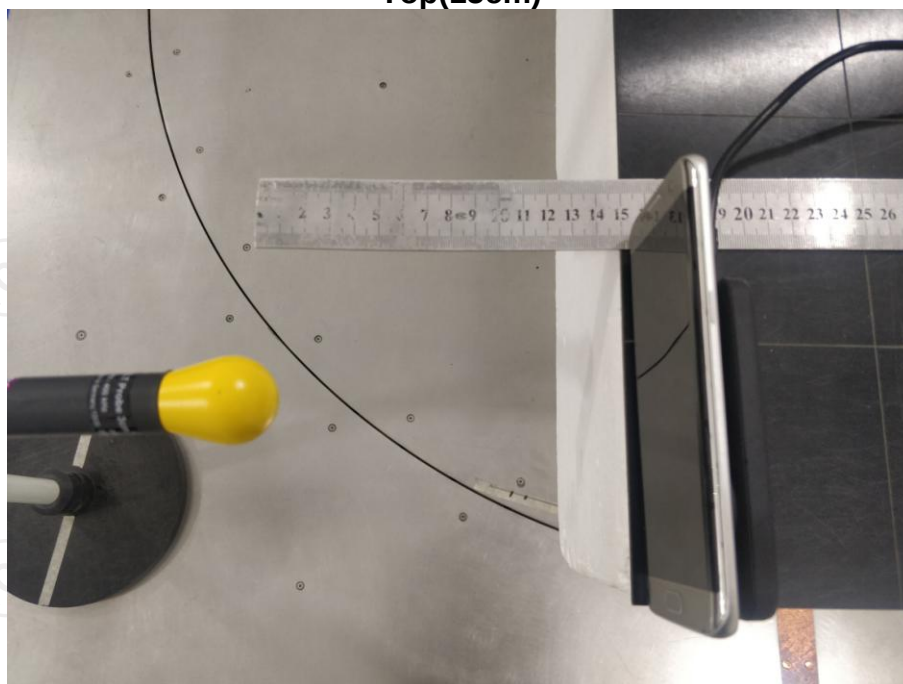
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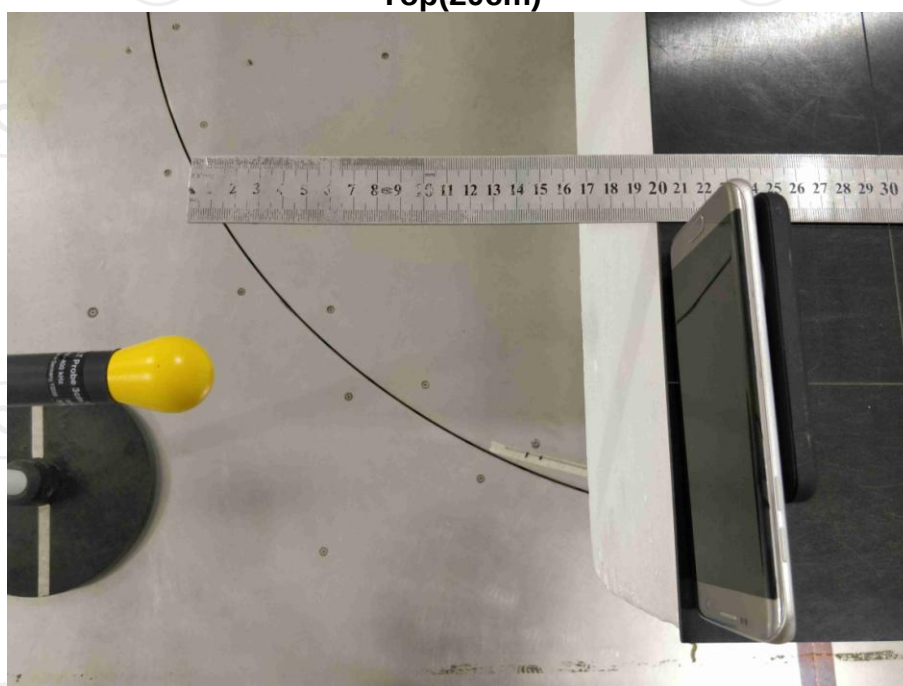
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Top(15cm)



Top(20cm)



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