

TEST REPORT

FCC ID..... :	2A4DZ-TSB4250	
Test Report No..... :	TCT220225E033	
Date of issue..... :	Mar. 09, 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..... :	Mita Expeditions LLC	
Address..... :	3821 BEDFORD AVE BROOKLYN, NY 11229 United States	
Manufacturer's name ... :	MITA EXPEDITIONS LLC	
Address..... :	3821 Bedford Avenue, Brooklyn, New York 11229, United States	
Standard(s)	FCC CFR Title 47 Part 1.1310 KDB 680106 D01 RF Exposure Wireless Charging App v03r01	
Product Name..... :	MagBoost Portable Charger 5K Ring	
Trade Mark	TECHSMARTER	
Model/Type reference..... :	TSB4250	
Rating(s)..... :	Rechargeable Li-ion Battery DC 3.7V	
Date of receipt of test item	Feb. 25, 2022	
Date (s) of performance of test..... :	Feb. 25, 2022 - Mar. 09, 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.....:	MagBoost Portable Charger 5K Ring
Model/Type reference.....:	TSB4250
Sample Number.....:	TCT220225E032-0101
Operation Frequency	113.14kHz – 141.82kHz
Modulation Technology	Load modulation
Max. Wireless Output Power:	15W
Antenna Type.....:	Inductive loop coil Antenna
Rating(s).....:	Rechargeable Li-ion Battery DC 3.7V

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

None.

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:

- (1) Power transfer frequency is less than 1 MHz.
Yes
 - (2) Output power from each primary coil is less than or equal to 15 watts.
Yes
 - (3) The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.
Yes
 - (4) Client device is placed directly in contact with the transmitter.
Yes
 - (5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
No
- (Note: According to April 2018 TCB Workshop, for inductive applications where the primary does not physically attach (clip, lock on) to the client, and it is intended for desktop use, the desktop guidance in KDB 680106 D01 may be applied.)
- (6) The aggregate H-field strengths at 0 cm surrounding the device and all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.
Yes

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)

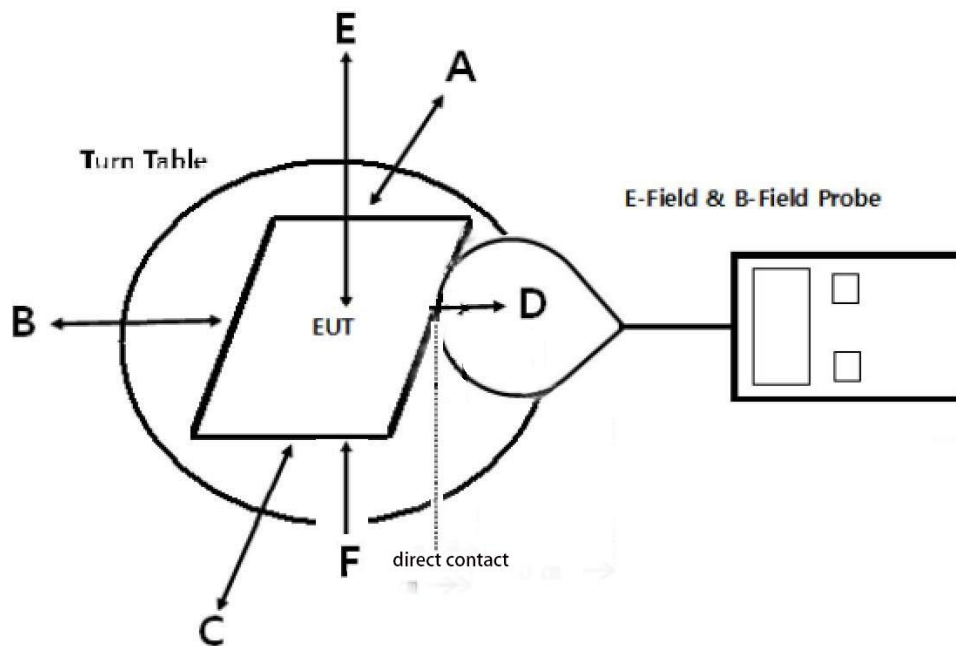
Limits for Maximum Permissible Exposure (MPE)

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

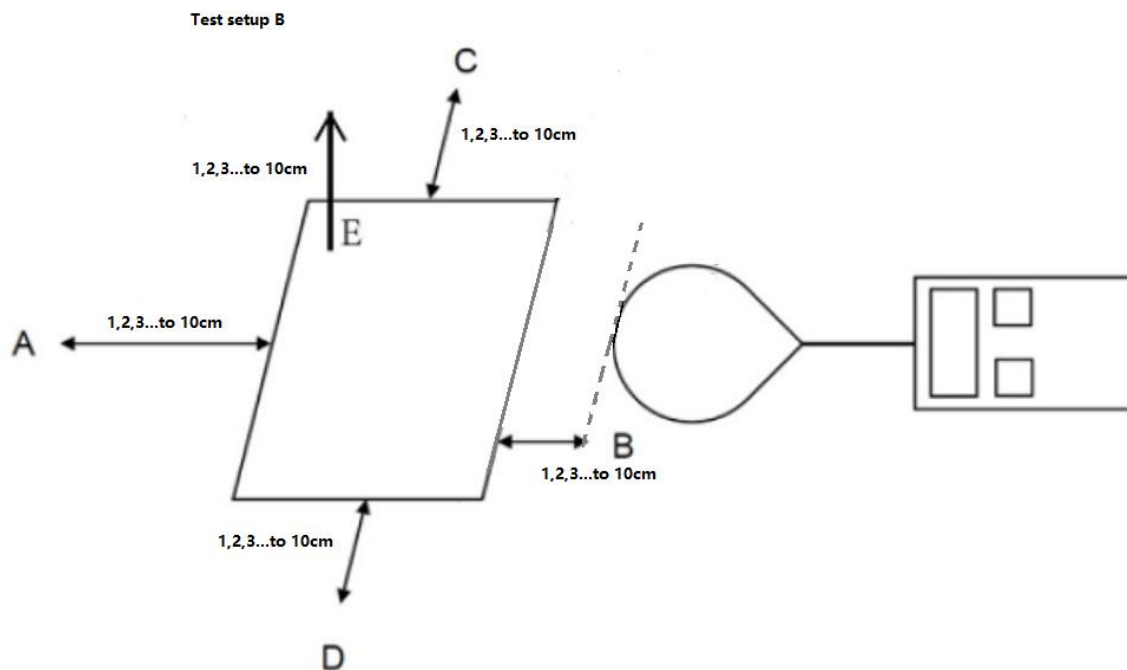
F=frequency in MHz
 *=Plane-wave equivalent power density
 RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

3.2. Test Setup

Setup A:



Setup B:



Note: Measurements should be made from all sides of the primary/client pair, with the 0cm measured from the center of the probe(s) to the edge of the device.

3.3. Test Procedure

1. The RF exposure test was performed in anechoic chamber.
2. The measurement probe was placed at 0cm surrounding the device
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. In addition to what is described in KDB 680106 D01, please measure and provide magnetic and electrical field strength at a distance 10cm to 1cm at 1cm iteration, i.e. at a distance of 10cm, 9cm, 8cm, 1cm. Which is between the edge of the charger and the edge of of probe, for test setup B;
5. The EUT was measured according to the dictates of KDB 680106 D01v03.

Remark;

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

3.4. Test Instruments List

Equipment	Manufacturer	Model No.	Calibration Due
Magnetic field meter	NARDA	ELT-400	Feb. 24, 2023
Load	LHX	LHX901RX	/
Adapter	SAMSUNG	EP-TA20CBC	/

3.5. Test Result

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 (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)
113.14kHz -141.82kHz	Full load	1.72	1.69	1.64	1.72	1.53	1.73	614
113.14kHz -141.82kHz	Half load	1.36	1.57	1.52	1.66	1.47	1.65	614
113.14kHz -141.82kHz	No load	1.32	1.43	1.41	1.58	1.42	1.58	614

E-Filed Strength at (15 cm from edges A,B,C,D, 20 cm and 15cm from top E) surrounding the EUT (V/m)

Charging Load Worse case	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)20cm	Test Position E (V/m)15cm	Limits (V/m)
<5%	1.27	1.26	1.32	1.42	1.25	1.43	614
50%	1.29	1.28	1.34	1.45	1.27	1.45	614
>90 %	1.38	1.34	1.38	1.53	1.35	1.49	614

Note: Position ABCD 15cm distance is from probe center to eut edge ; Position E 15cm and 20cm distance is from probe center to top surface

H-Filed Strength at 0cm 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)
113.14kHz -141.82kHz	Full load	0.217	0.178	0.194	0.191	0.187	0.196	1.63
113.14kHz -141.82kHz	Half load	0.199	0.185	0.195	0.182	0.185	0.198	1.63
113.14kHz -141.82kHz	No load	0.179	0.173	0.186	0.184	0.174	0.173	1.63

H-Filed Strength at (15 cm from edges A,B,C,D, 20 cm and 15cm from top E) surrounding the EUT (A/m)

Charging Load Worse case	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)20cm	Test Position E (A/m)15cm	Limits (A/m)
<5%	0.154	0.163	0.176	0.173	0.165	0.163	1.63
50%	0.158	0.165	0.178	0.175	0.169	0.167	1.63
>90 %	0.165	0.169	0.180	0.178	0.178	0.182	1.63

Note: Position ABCD 15cm distance is from probe center to eut edge ; Position E 15cm and 20cm distance is from probe center to top surface

Note: AC Mode

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)
113.14kHz -141.82kHz	Full load	1.74	1.70	1.66	1.74	1.58	1.74	614
113.14kHz -141.82kHz	Half load	1.58	1.58	1.54	1.68	1.49	1.66	614
113.14kHz -141.82kHz	No load	1.52	1.46	1.43	1.60	1.44	1.63	614

E-Filed Strength at (15 cm from edges A,B,C,D, 20 cm and 15cm from top E) surrounding the EUT (V/m)

Charging Load Worse case	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)20cm	Test Position E (V/m)15cm	Limits (V/m)
<5%	1.42	1.35	1.30	1.52	1.31	1.50	614
50%	1.45	1.37	1.33	1.54	1.34	1.54	614
>90 %	1.48	1.38	1.37	1.60	1.42	1.58	614

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

Frequency Range	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)
113.14kHz -141.82kHz	Full load	0.214	0.198	0.195	0.194	0.181	0.192	1.63
113.14kHz -141.82kHz	Half load	0.180	0.180	0.197	0.185	0.174	0.183	1.63
113.14kHz -141.82kHz	No load	0.181	0.174	0.183	0.189	0.175	0.180	1.63

H-Filed Strength at (15 cm from edges A,B,C,D, 20 cm and 15cm from top E) surrounding the EUT (A/m)

Charging Load Worse case	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 E(A/m)	Limits (A/m)
<5%	0.168	0.159	0.172	0.177	0.163	0.167	1.63
50%	0.172	0.162	0.174	0.179	0.164	0.169	1.63
>90 %	0.176	0.165	0.175	0.183	0.167	0.174	1.63

Note: Position ABCD 15cm distance is from probe center to eut edge ; Position E 15cm and 20cm distance is from probe center to top surface

Setup B:

Note: Internal battery power mode

<5% ,50% ,>90% load all have been tested ,only worse case Max load (>90%) is reported.

E-Filed Strength at (distance 10cm to 1cm at 1cm iteration, i.e. at a distance of 10cm, 9cm, 8cm, 1cm, Which is between the edge of the charger and the edge of of probe,) 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)	Limits (V/m)
1	2.76	2.63	2.98	3.08	2.85	614
2	2.55	2.60	2.74	2.78	2.79	614
3	2.37	2.38	2.45	2.69	2.68	614
4	2.18	2.19	2.26	2.58	2.74	614
5	2.07	2.07	2.2	2.36	2.52	614
6	2.01	2.02	2.14	2.27	2.41	614
7	1.87	1.98	2.07	2.12	2.26	614
8	1.85	1.94	1.99	2.07	2.13	614
9	1.74	1.86	1.76	1.85	2.08	614
10	1.72	1.76	1.54	1.79	1.9	614

H-Filed Strength at (distance 10cm to 1cm at 1cm iteration, i.e. at a distance of 10cm, 9cm, 8cm, 1cm, Which is between the edge of the charger and the edge of of probe,) surrounding the EUT (A/m)

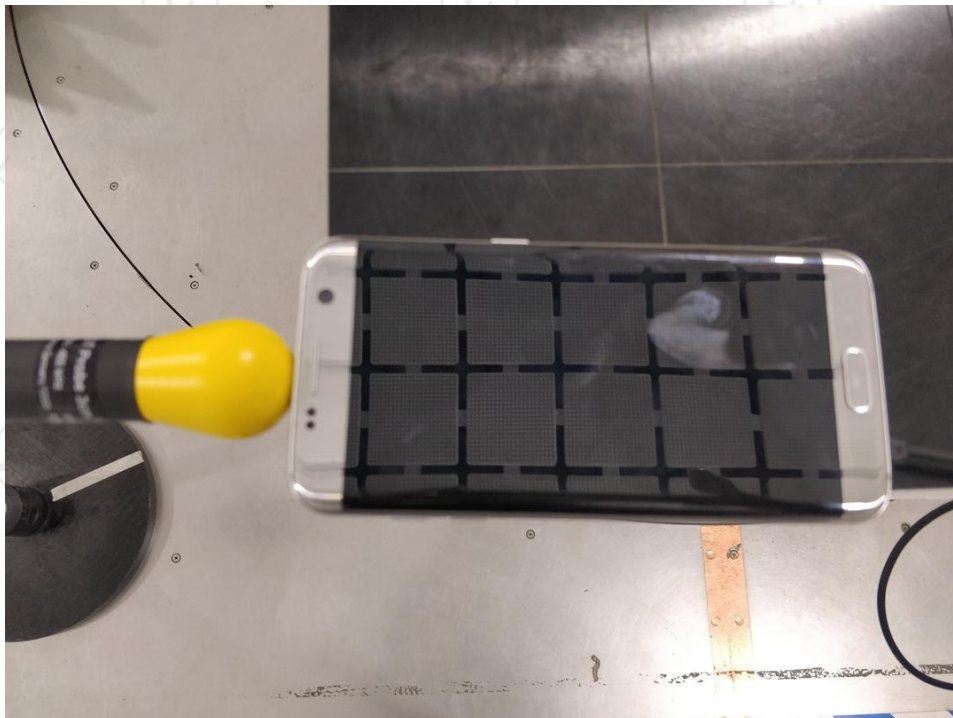
Test distance (cm)	Test Position A(A/m)	Test Position B(A/m)	Test Position C(A/m)	Test Position D(A/m)	Test Position E(A/m)	Limits (A/m)
1	0.308	0.294	0.317	0.322	0.295	1.63
2	0.302	0.283	0.312	0.316	0.286	1.63
3	0.288	0.276	0.304	0.309	0.280	1.63
4	0.284	0.265	0.287	0.302	0.274	1.63
5	0.260	0.242	0.265	0.295	0.262	1.63
6	0.252	0.235	0.252	0.274	0.257	1.63
7	0.230	0.217	0.249	0.259	0.230	1.63
8	0.215	0.209	0.232	0.221	0.216	1.63
9	0.194	0.187	0.216	0.216	0.202	1.63
10	0.182	0.180	0.203	0.204	0.194	1.63

According to KDB 680106 D01 v03 section 5, b, satisfy the following conditions.

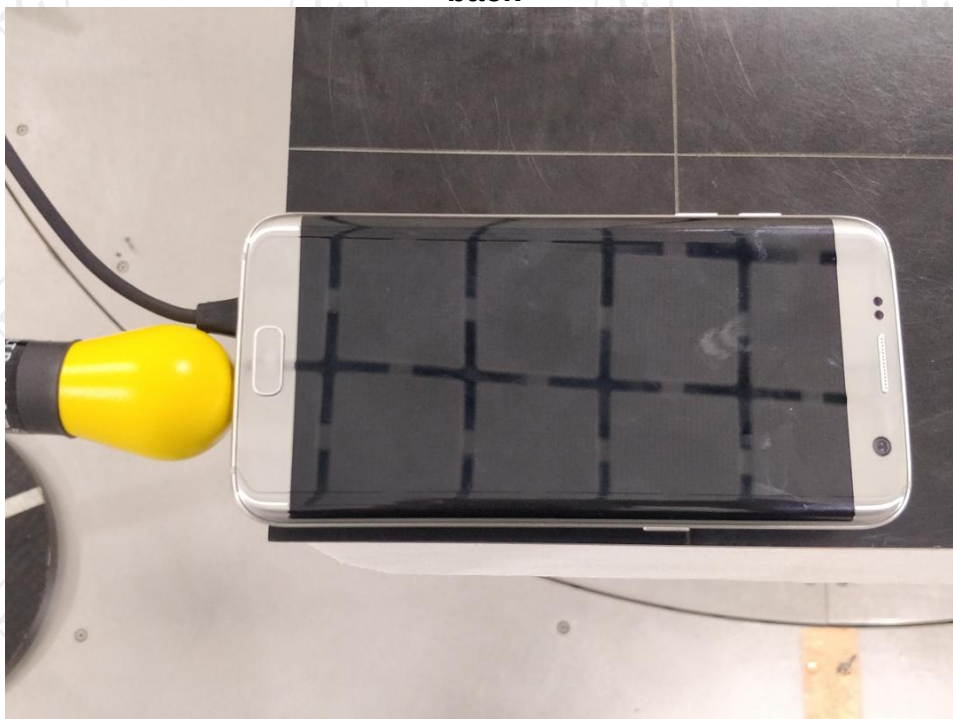
Requirement of KDB 680106 D01	Yes/No	Description
Power transfer frequency is less than 1MHz	Yes	The device operate in the frequency range 113.14kHz–141.82kHz
Output power from each primary coil is less than or equal to 15 watts	Yes	The maximum output power of the primary coil is 15W.
The transfer system 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.
Mobile exposure conditions only(portable exposure conditions are not covered by this exclusion).	Yes	Mobile exposure conditions only
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 , all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

4. Test Set-up Photo

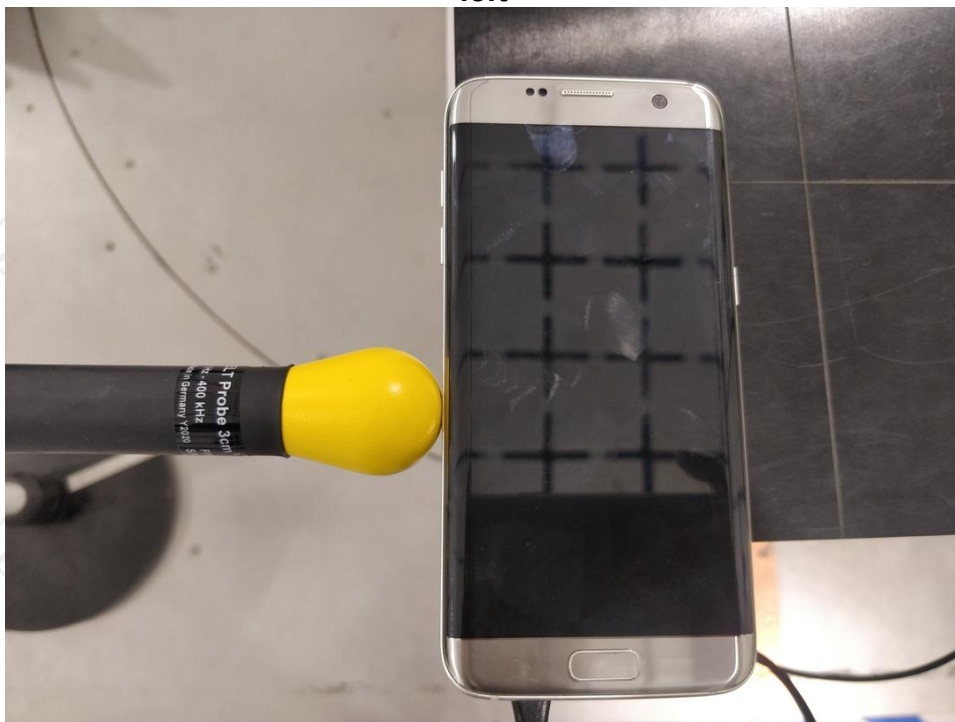
AC power in mode
front



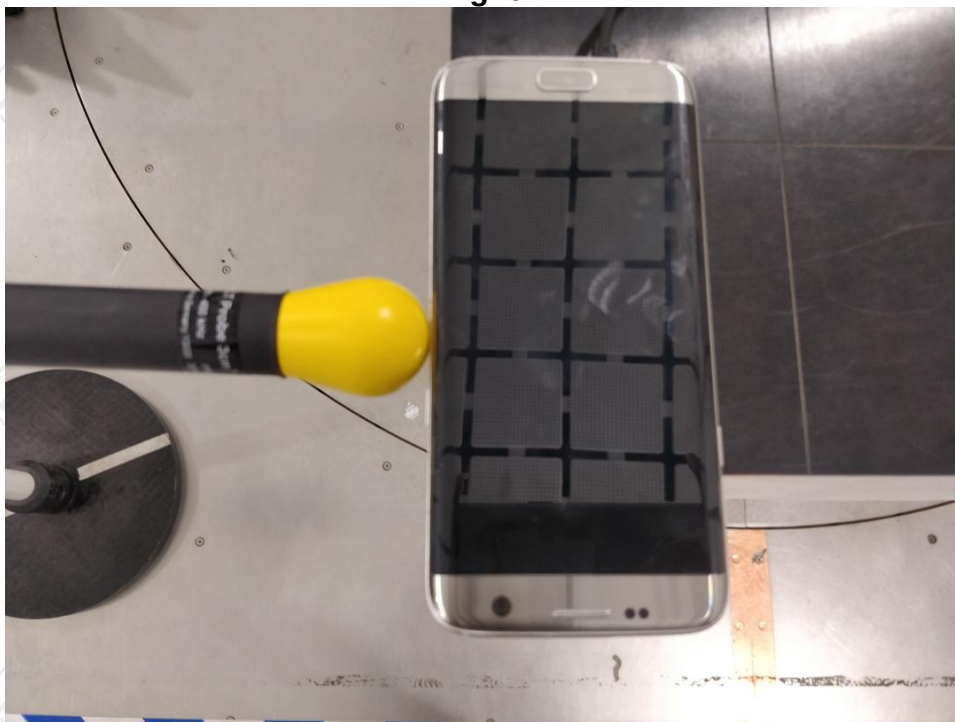
back



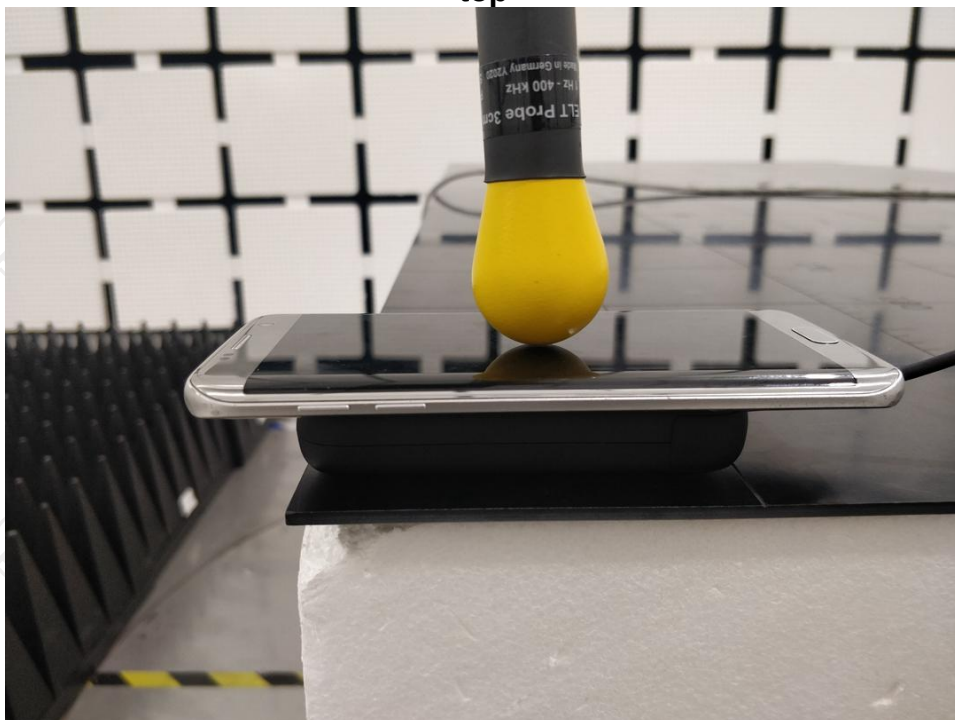
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top



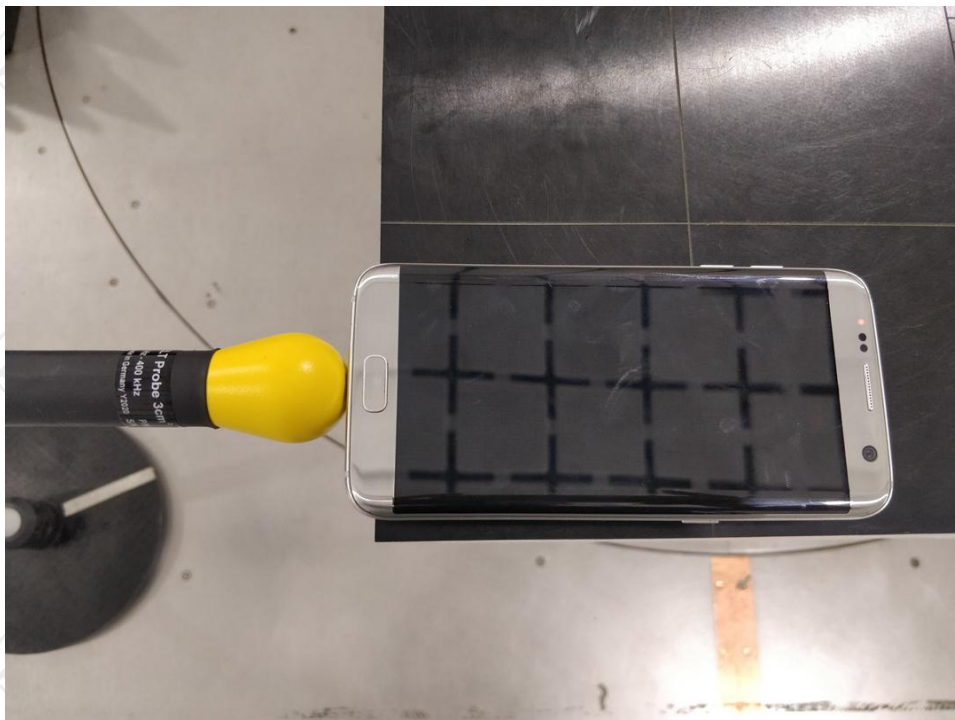
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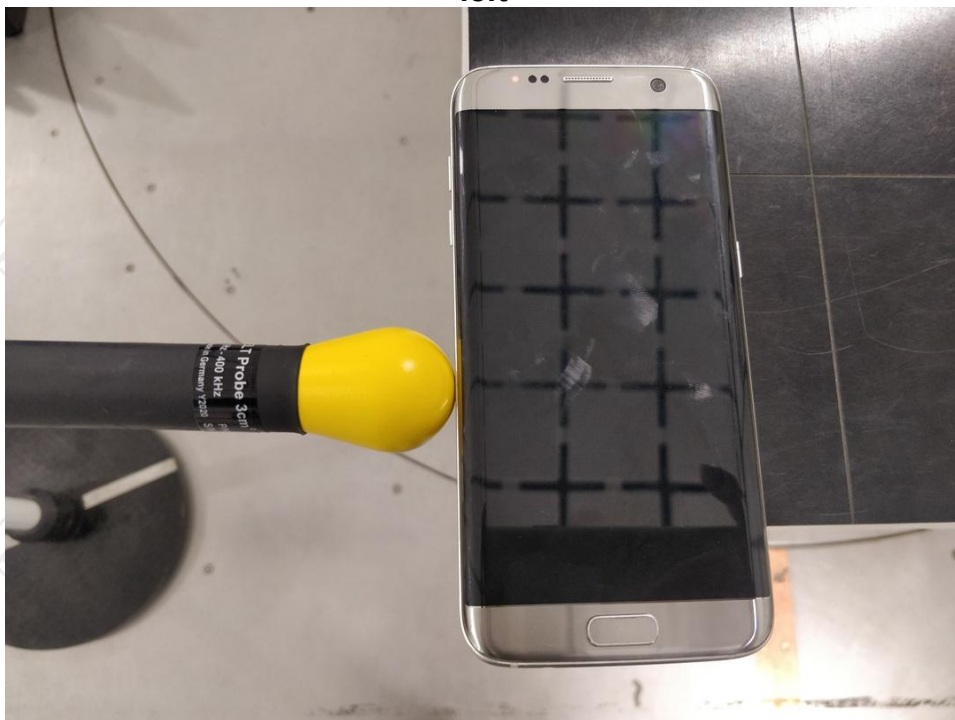
**Internal battery power mode
front**



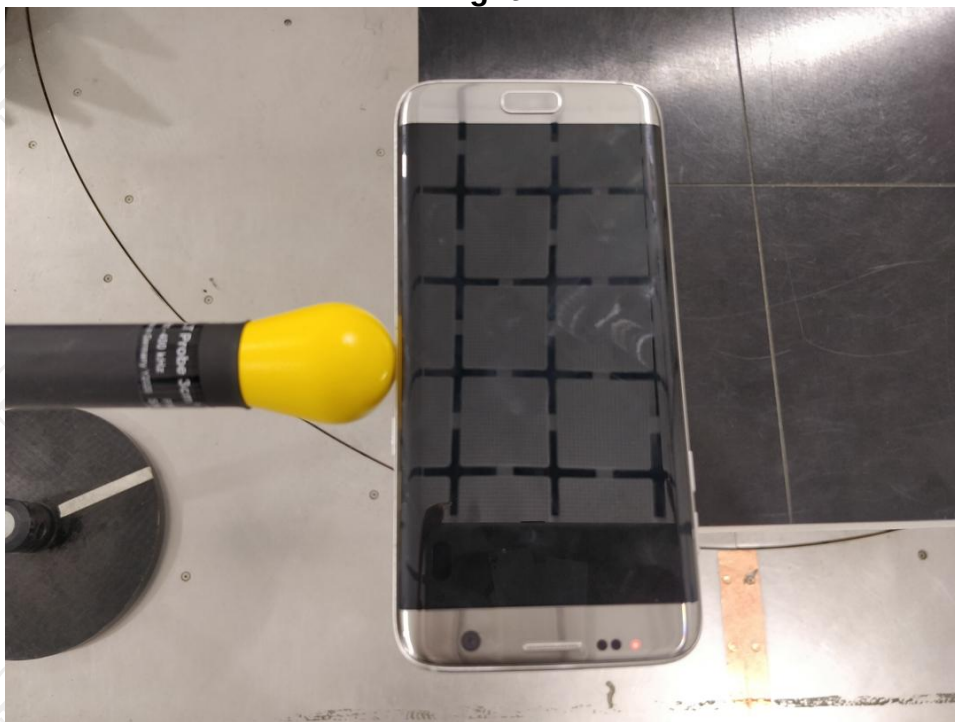
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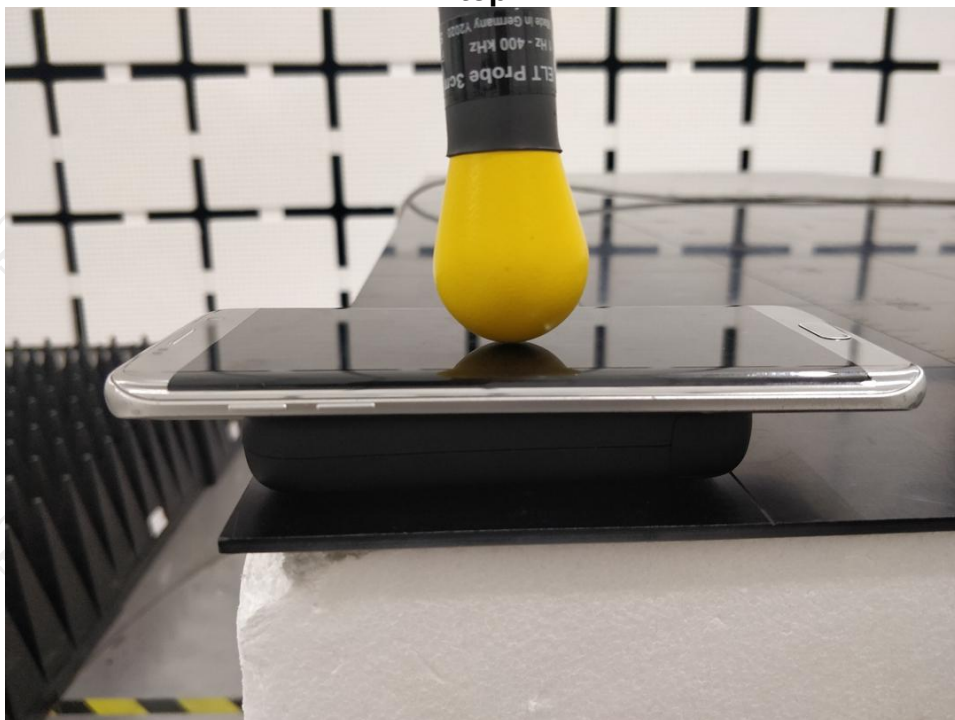
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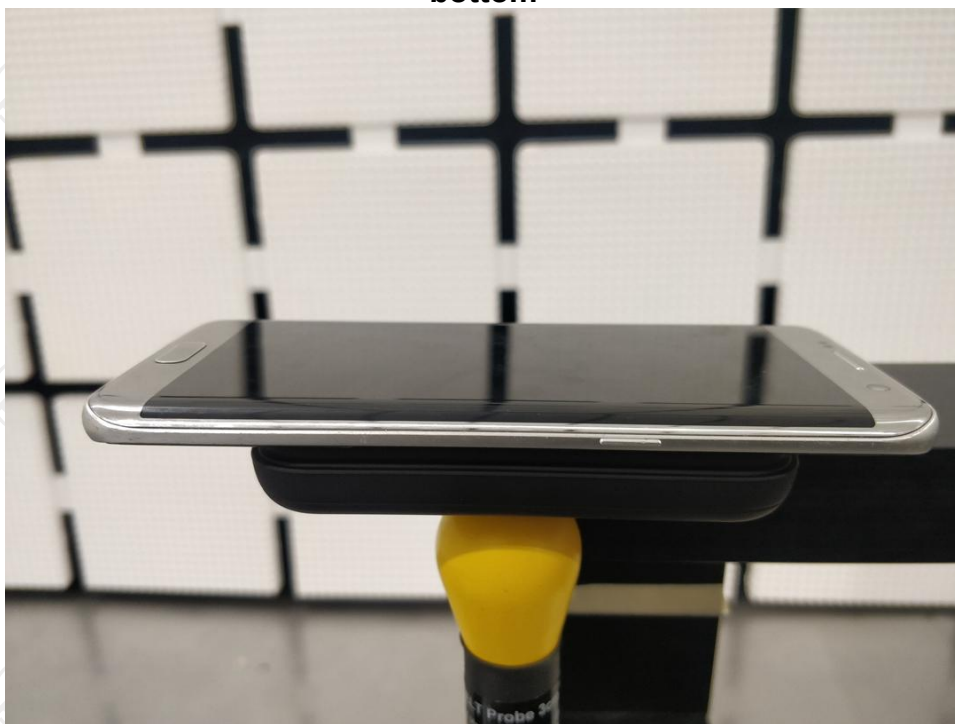
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