

TEST REPORT

FCC ID..... :	2A6NJ-A27	
Test Report No..... :	TCT220411E016	
Date of issue..... :	Apr. 24, 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..... :	DONGGUAN CHUANGYI NEW ENERGY TECHNOLOGY CO., LTD	
Address..... :	ROOM301, BUILDING 1, NO.2, LONGBEI1ST STREET, TANGXIA TOWN, DONGGUAN CITY, GUANGDONG PROVINCE, China	
Manufacturer's name ... :	DONGGUAN CHUANGYI NEW ENERGY TECHNOLOGY CO., LTD	
Address..... :	ROOM301, BUILDING 1, NO.2, LONGBEI1ST STREET, TANGXIA TOWN, DONGGUAN CITY, GUANGDONG PROVINCE, China	
Standard(s)..... :	FCC CFR Title 47 Part 1.1310 KDB 680106 D01 RF Exposure Wireless Charging App v03r01	
Product Name..... :	Jump starter	
Trade Mark..... :	N/A	
Model/Type reference..... :	A27, ET03, ET17, ET27, ET10	
Rating(s)..... :	Refer to EUT description of page 3	
Date of receipt of test item..... :	Apr. 11, 2022	
Date (s) of performance of test..... :	Apr. 11, 2022 - Apr. 24, 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.....:	Jump starter
Model/Type reference.....:	A27
Sample Number.....:	TCT220411E015-0101
Operation Frequency	119.59kHz - 149.72kHz
Modulation Technology	Load modulation
Max. Wireless Output Power:	10W
Antenna Type.....:	Inductive loop coil Antenna
Rating(s).....:	Rechargeable Li-ion Battery DC 16.8V Input: DC 5V, 2A/ DC 9V, 2A Micro In: DC 5V, 2A USB Output 1: DC 5V, 3A/ DC 9V, 2A/ DC 12V, 1.5A USB Output 2: DC 5V, 2.1A Wireless output: 5W/7.5W/10W MAX

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	A27	☒
Other models	ET03, ET17, ET27, ET10	☐

Note: A27 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 A27 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 119.59kHz -149.72kHz
Output power from each primary coil is less than or equal to 15 watts	Yes	The maximum output power of the primary coil is 10W.
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).	No	portable 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 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)

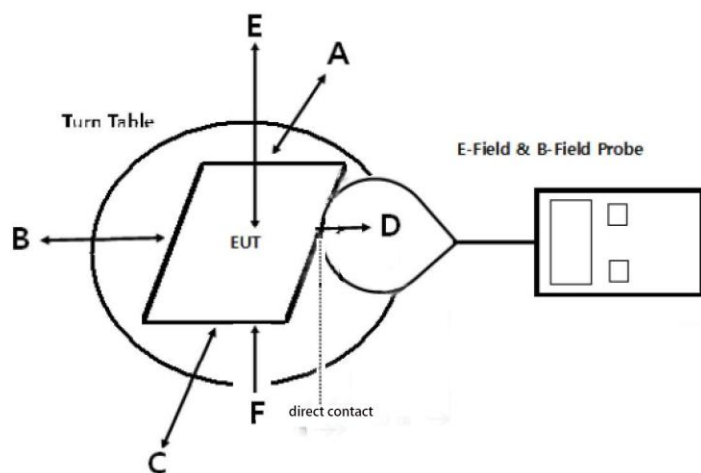
Limits for Maximum Permissible Exposure (MPE)

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

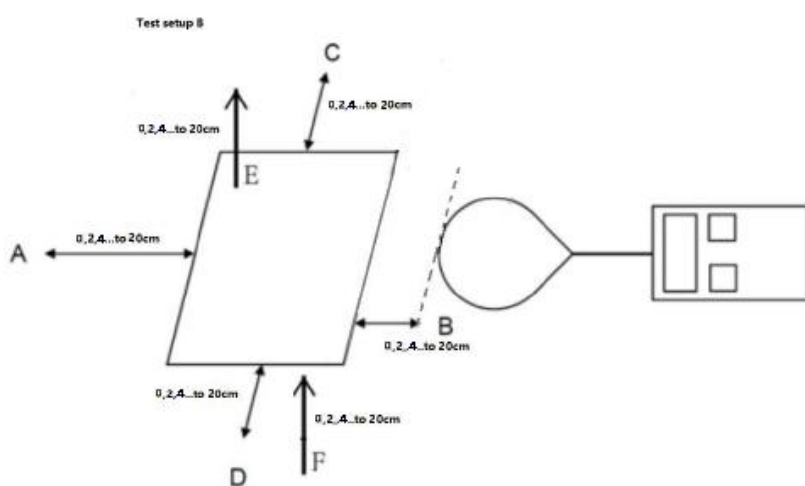
F=frequency in MHz
 *=Plane-wave equivalent power density
 RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

3.2. Test Setup

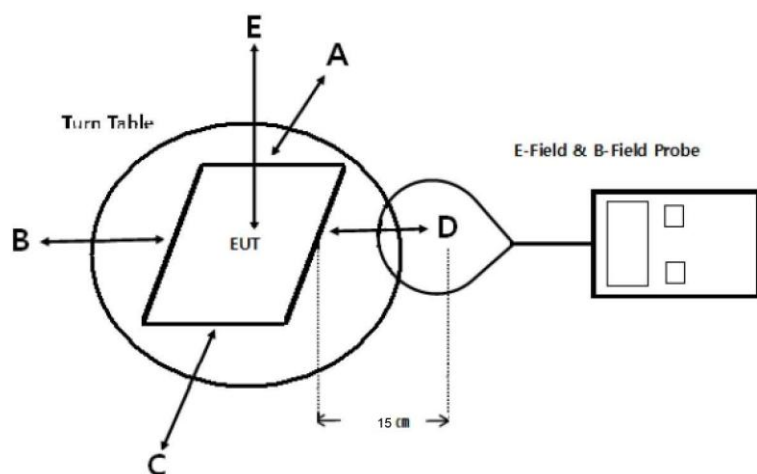
A:



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 0 cm to 20 cm, in 2 cm maximum increment measured from the edge of the device For the test setup B; and the measurement Probe was placed at 15cm surrounding the device 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

H-Filed Strength at 0 cm from edges surrounding the EUT (uT)

Frequency Range (KHz)	Operation condition	Test Position A(uT)	Test Position B(uT)	Test Position C(uT)	Test Position D(uT)	Test Position E(uT)	Test Position F(uT)
119.59 - 149.72	Full load	0.251	0.240	0.255	0.245	0.239	0.242
119.59 - 149.72	Half load	0.248	0.239	0.242	0.236	0.237	0.235
119.59 - 149.72	No load	0.243	0.224	0.236	0.227	0.225	0.221

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)
119.59 - 149.72	Full load	0.201	0.192	0.204	0.196	0.191	0.194	1.63
119.59 - 149.72	Half load	0.198	0.191	0.194	0.189	0.190	0.188	1.63
119.59 - 149.72	No load	0.194	0.179	0.189	0.182	0.180	0.177	1.63

Note: $\mu T = 1.25 \times (A/m)$, $1mT = 1000\mu T$

For setup C:

Note: Internal battery power mode

H-Filed Strength at (15 cm surrounding the device and 20 cm above the top) surface of the EUT (uT)

Frequency Range (KHz)	Operation condition	Test Position A(uT)	Test Position B(uT)	Test Position C(uT)	Test Position D(uT)	Test Position E (uT)
119.59 - 149.72	Full load	0.252	0.241	0.240	0.243	0.233
119.59 - 149.72	Half load	0.249	0.239	0.244	0.235	0.228
119.59 - 149.72	No load	0.243	0.222	0.246	0.237	0.229

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(A/m)	Limits (A/m)
119.59 - 149.72	Full load	0.202	0.193	0.192	0.194	0.186	1.63
119.59 - 149.72	Half load	0.199	0.191	0.195	0.188	0.182	1.63
119.59 - 149.72	No load	0.194	0.178	0.197	0.190	0.183	1.63

Note: $\mu T = 1.25 \times (A/m)$, $1mT = 1000\mu T$

For setup B:

Note: Internal battery power mode

Full Load

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

Test distance (cm)	Test Position A(uT)	Test Position B(uT)	Test Position C(uT)	Test Position D(uT)	Test Position E(uT)	Test Position F(uT)
0	0.271	0.258	0.298	0.220	0.209	0.194
2	0.299	0.231	0.219	0.258	0.273	0.281
4	0.181	0.199	0.286	0.210	0.261	0.276
6	0.284	0.285	0.271	0.231	0.223	0.253
8	0.263	0.275	0.204	0.209	0.216	0.231
10	0.186	0.176	0.184	0.189	0.286	0.199
12	0.235	0.280	0.193	0.183	0.189	0.180
14	0.283	0.210	0.194	0.256	0.191	0.219
16	0.236	0.256	0.231	0.211	0.184	0.231
18	0.240	0.228	0.208	0.290	0.184	0.273
20	0.206	0.199	0.226	0.285	0.228	0.256

Half Load

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

Test distance (cm)	Test Position A(uT)	Test Position B(uT)	Test Position C(uT)	Test Position D(uT)	Test Position E(uT)	Test Position F(uT)
0	0.261	0.215	0.208	0.223	0.215	0.283
2	0.298	0.286	0.178	0.273	0.191	0.261
4	0.181	0.235	0.255	0.231	0.243	0.269
6	0.250	0.253	0.201	0.251	0.198	0.179
8	0.299	0.234	0.288	0.285	0.286	0.226
10	0.184	0.270	0.208	0.216	0.195	0.173
12	0.269	0.293	0.280	0.264	0.273	0.204
14	0.191	0.231	0.274	0.266	0.219	0.233
16	0.260	0.291	0.221	0.265	0.295	0.193
18	0.293	0.239	0.208	0.185	0.224	0.198
20	0.208	0.210	0.178	0.206	0.196	0.216

NO-load

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

Test distance (cm)	Test Position A(uT)	Test Position B(uT)	Test Position C(uT)	Test Position D(uT)	Test Position E(uT)	Test Position F(uT)
0	0.181	0.279	0.261	0.244	0.265	0.234
2	0.286	0.189	0.573	0.261	0.285	0.204
4	0.285	0.219	0.216	0.168	0.276	0.269
6	0.246	0.286	0.215	0.231	0.281	0.299
8	0.216	0.285	0.240	0.291	0.268	0.178
10	0.261	0.234	0.268	0.218	0.211	0.215
12	0.190	0.286	0.294	0.253	0.178	0.180
14	0.276	0.291	0.255	0.184	0.294	0.239
16	0.280	0.185	0.254	0.215	0.199	0.201
18	0.295	0.176	0.256	0.268	0.239	0.220
20	0.188	0.233	0.271	0.285	0.229	0.269

Full Load

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	0.217	0.206	0.238	0.176	0.167	0.155	1.63
2	0.239	0.185	0.175	0.206	0.218	0.225	1.63
4	0.145	0.159	0.229	0.168	0.209	0.221	1.63
6	0.227	0.228	0.217	0.185	0.178	0.202	1.63
8	0.210	0.220	0.163	0.167	0.173	0.185	1.63
10	0.149	0.141	0.147	0.151	0.229	0.159	1.63
12	0.188	0.224	0.154	0.146	0.151	0.144	1.63
14	0.226	0.168	0.155	0.205	0.153	0.175	1.63
16	0.189	0.205	0.185	0.169	0.147	0.185	1.63
18	0.192	0.182	0.166	0.232	0.147	0.218	1.63
20	0.165	0.159	0.181	0.228	0.182	0.205	1.63

Half Load

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	0.209	0.172	0.166	0.179	0.172	0.226	1.63
2	0.238	0.229	0.142	0.218	0.153	0.209	1.63
4	0.145	0.188	0.204	0.185	0.194	0.215	1.63
6	0.200	0.202	0.161	0.201	0.158	0.143	1.63
8	0.239	0.187	0.230	0.228	0.229	0.181	1.63
10	0.147	0.216	0.166	0.173	0.156	0.138	1.63
12	0.215	0.234	0.224	0.211	0.218	0.163	1.63
14	0.153	0.185	0.219	0.213	0.175	0.186	1.63
16	0.208	0.233	0.177	0.212	0.236	0.154	1.63
18	0.234	0.191	0.166	0.148	0.179	0.158	1.63
20	0.166	0.168	0.142	0.165	0.157	0.173	1.63

NO-load

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

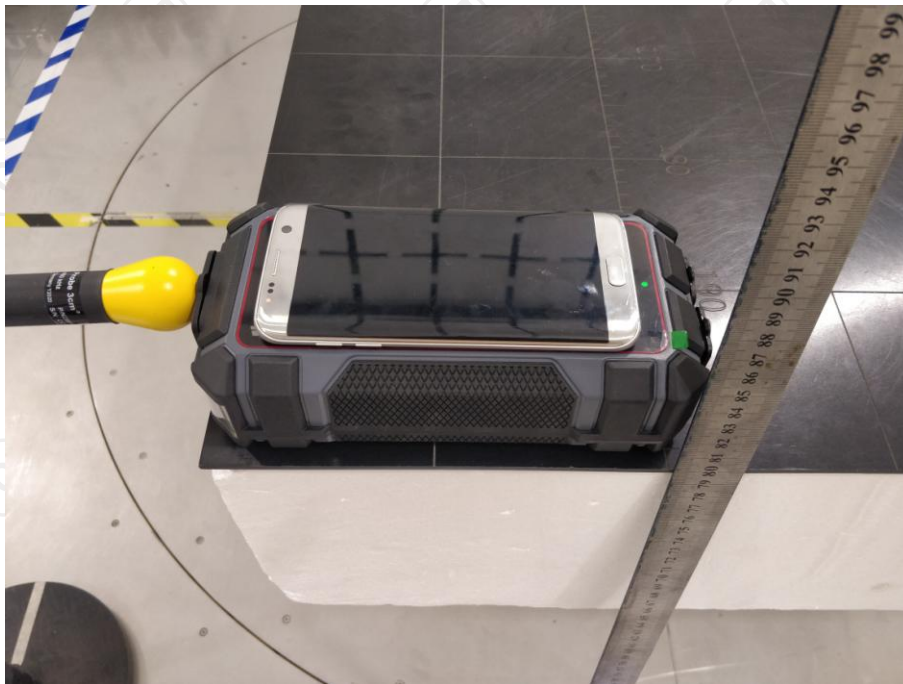
Test distance (cm)	Test Position A(A/m)	Test Position B(A/m)	Test Position C(A/m)	Test Position D(A/m)	Test Position E(A/m)	Test Position F(A/m)	Limits (A/m)
0	0.145	0.223	0.209	0.195	0.212	0.187	1.63
2	0.229	0.151	0.458	0.209	0.228	0.163	1.63
4	0.228	0.175	0.173	0.134	0.221	0.215	1.63
6	0.197	0.229	0.172	0.185	0.225	0.239	1.63
8	0.173	0.228	0.192	0.233	0.214	0.142	1.63
10	0.209	0.187	0.214	0.174	0.169	0.172	1.63
12	0.152	0.229	0.235	0.202	0.142	0.144	1.63
14	0.221	0.233	0.204	0.147	0.235	0.191	1.63
16	0.224	0.148	0.203	0.172	0.159	0.161	1.63
18	0.236	0.141	0.205	0.214	0.191	0.176	1.63
20	0.150	0.186	0.217	0.228	0.183	0.215	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.

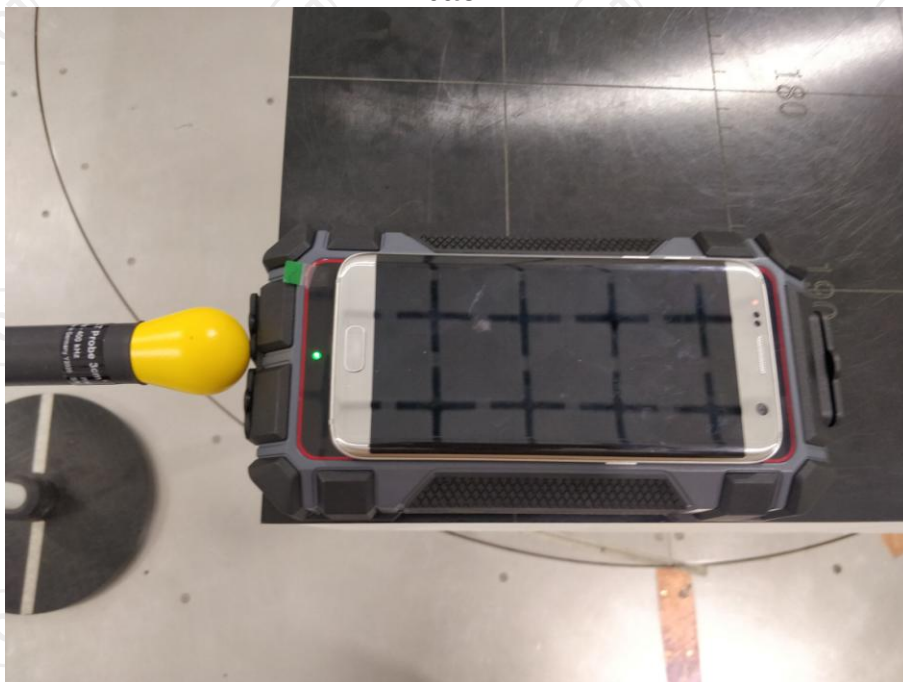
4. Test Set-up Photo

Setup A + B:
Internal battery mode

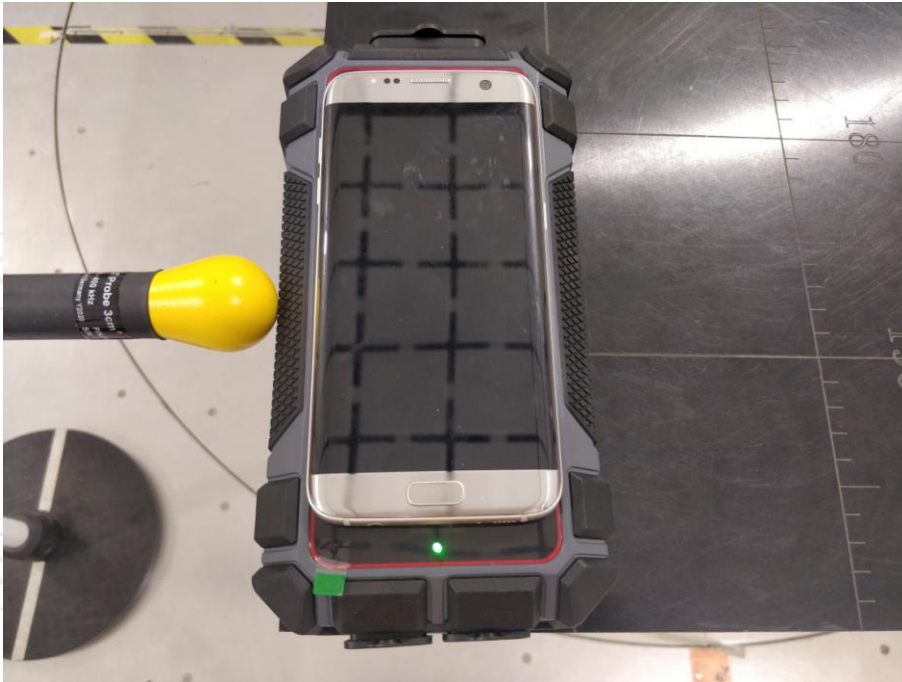
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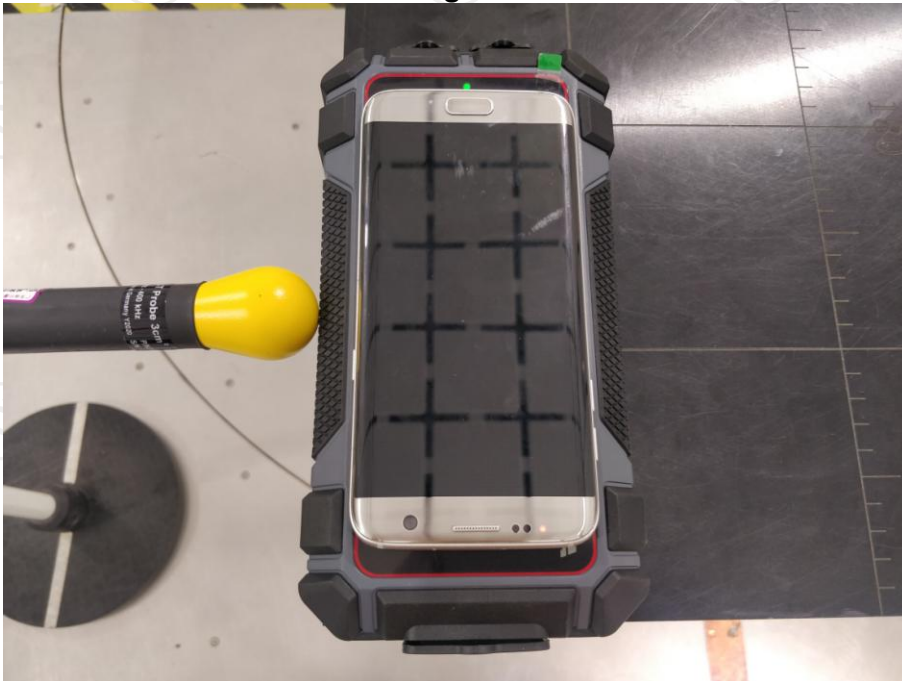
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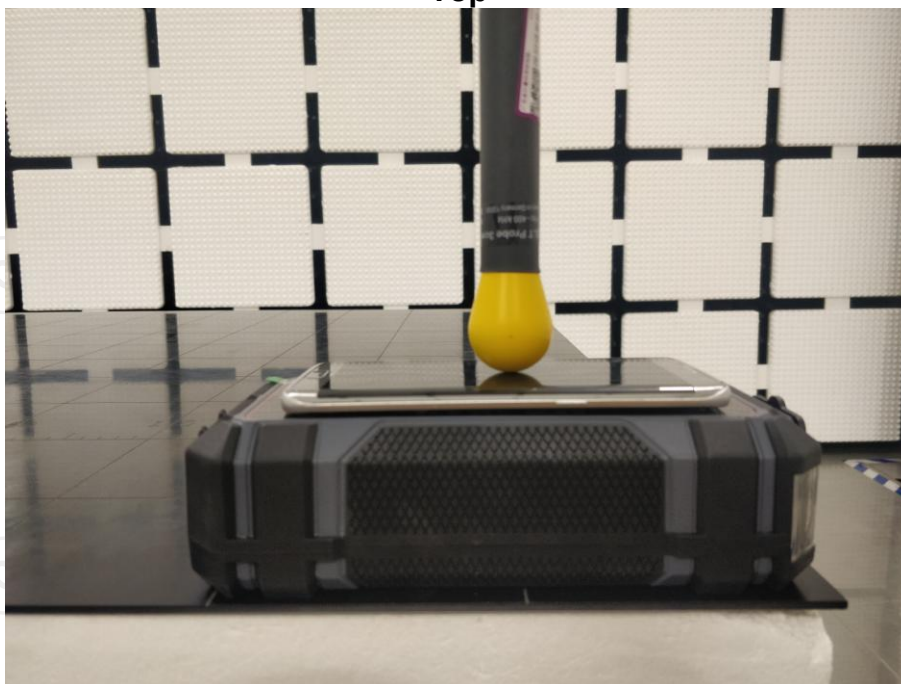
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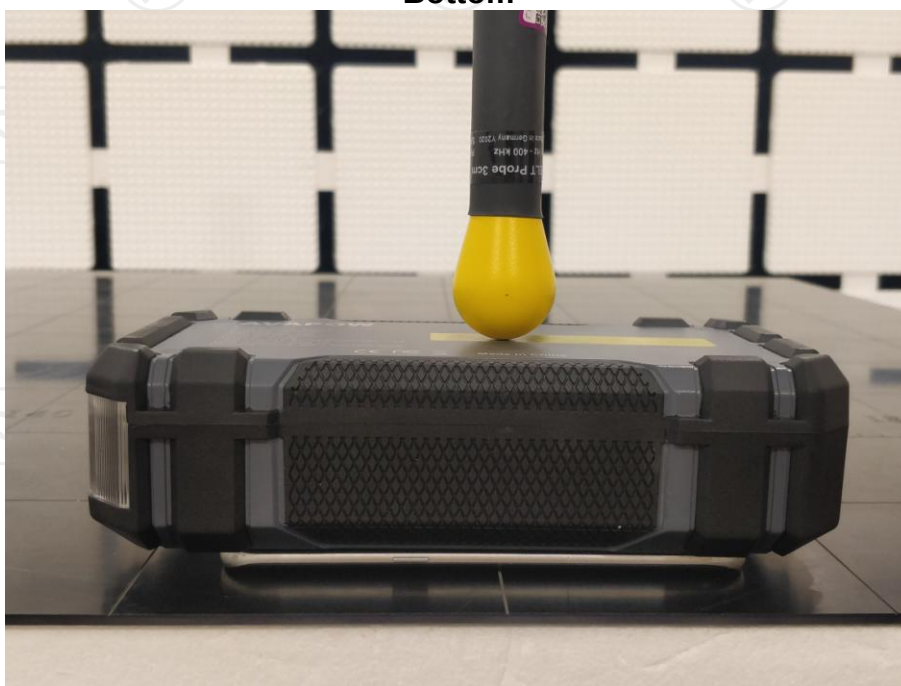
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Top

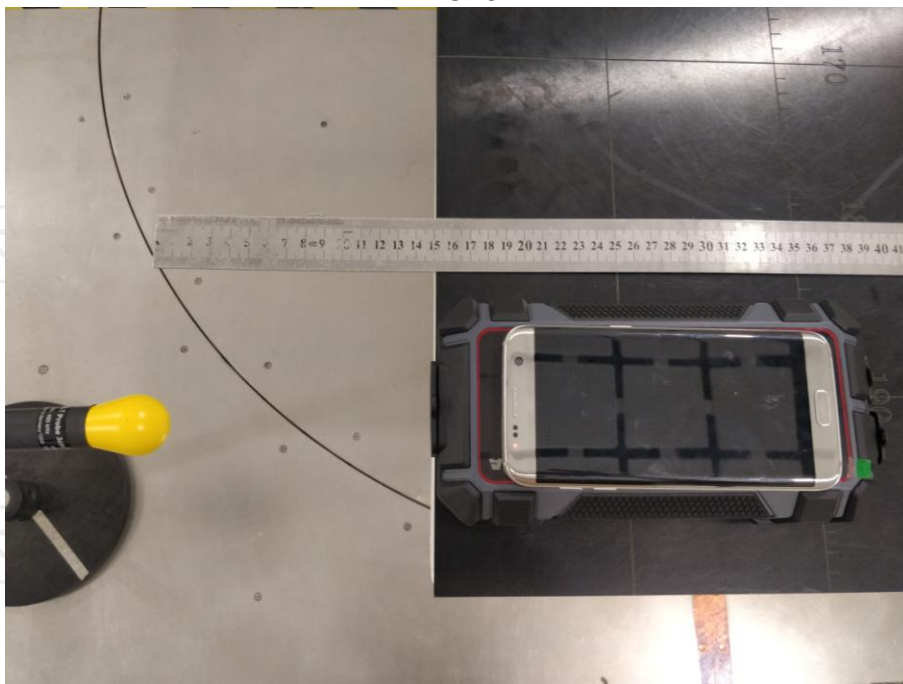


Bottom

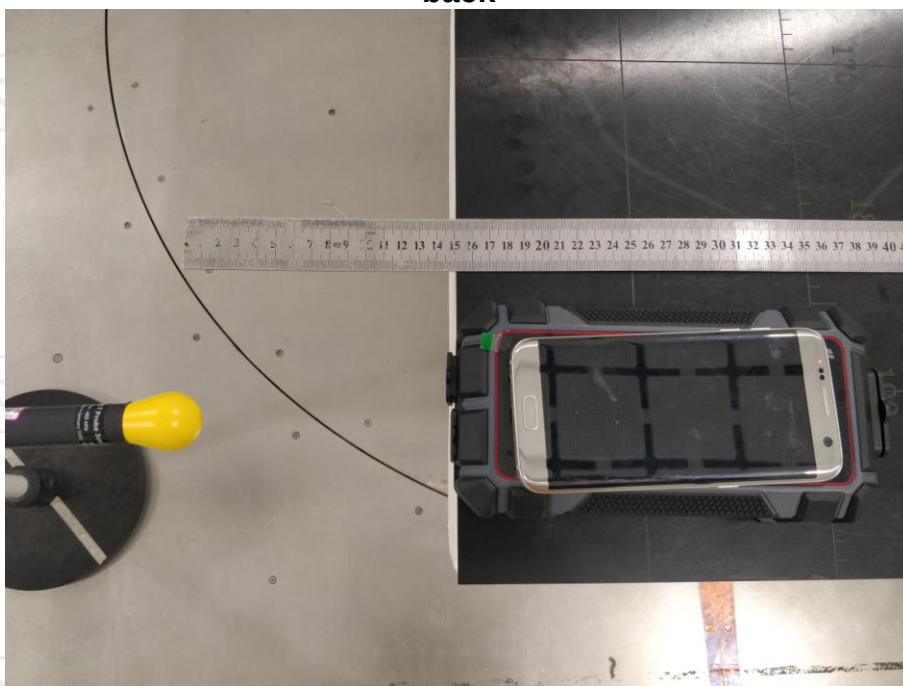


**Setup C:
Internal battery mode**

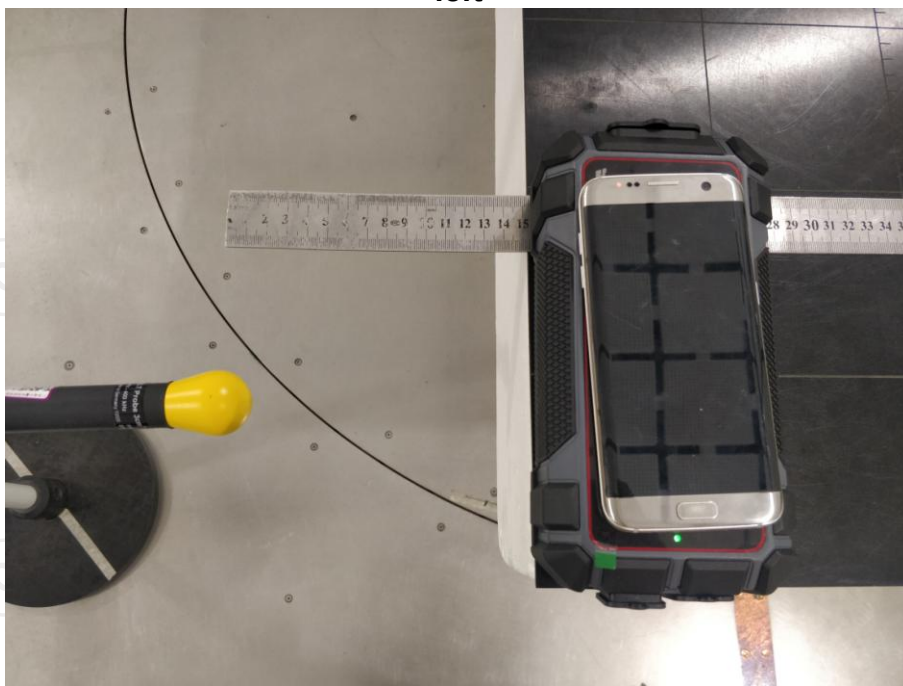
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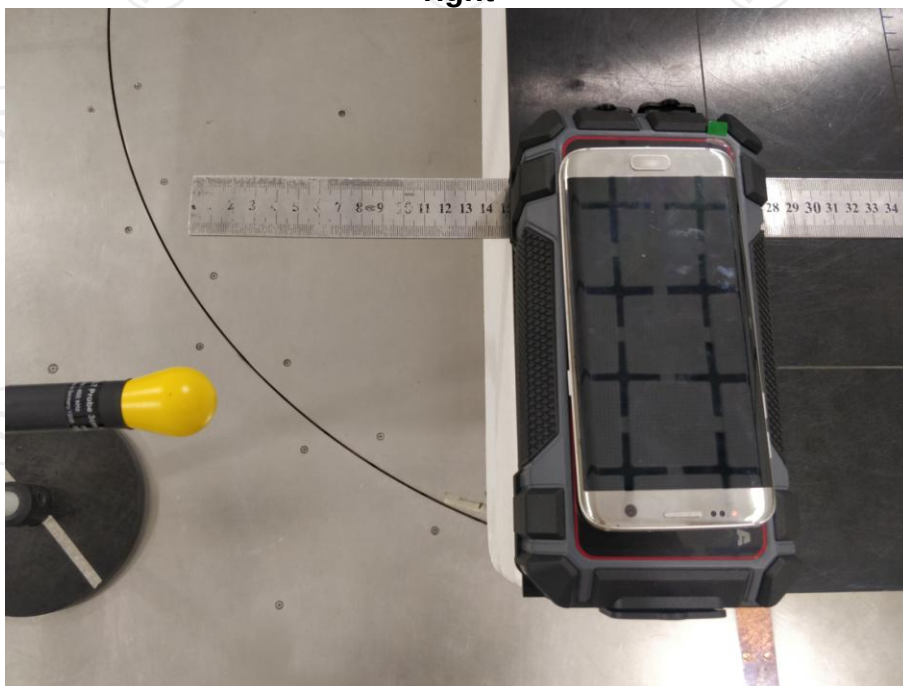
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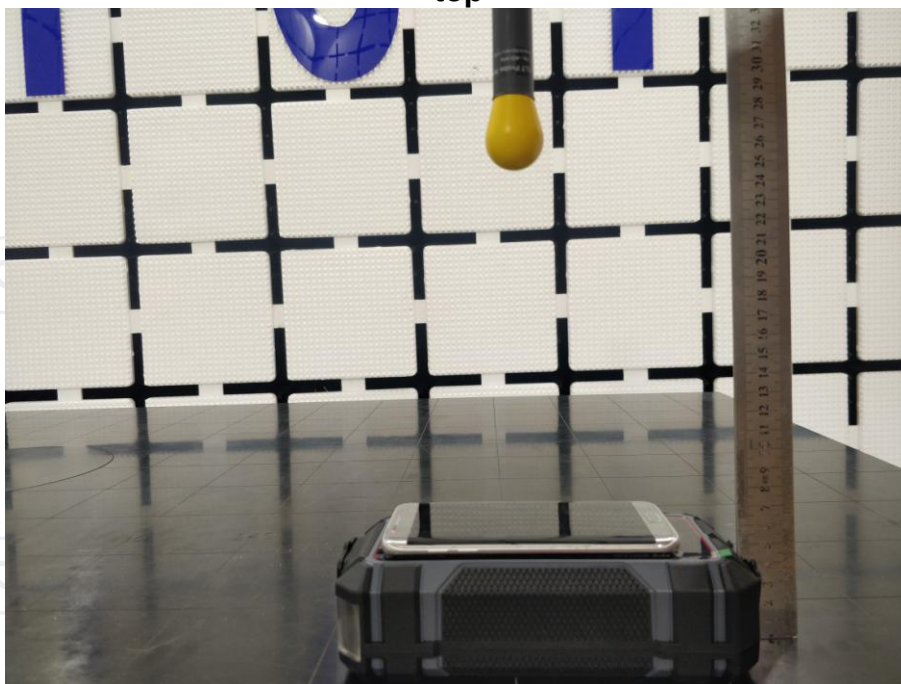
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