RF Exposure Evaluation
FCC ID: 2BOMP-830

Applicant:	Shenzhen Ruipusen technology Co., Ltd.
Address:	3rd Floor, Building 6, Yuxiang, Longcheng High-tech Industrial Park, No.39, Longguan West Road, Longhua District, Shenzhen, Guangdong, China
Manufacturer:	Shenzhen Ruipusen technology Co., Ltd.
Address:	3rd Floor, Building 6, Yuxiang, Longcheng High-tech Industrial Park, No.39, Longguan West Road, Longhua District, Shenzhen, Guangdong, China
EUT:	Power Bank
Trade Mark:	N/A
Model Number:	830
Date of Receipt:	Apr. 01, 2025
Test Date:	Apr. 01, 2025 - Apr. 11, 2025
Date of Report:	Apr. 11, 2025
Prepared By:	Shenzhen DL Testing Technology Co., Ltd.
Address:	101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China
Applicable Standards:	FCC CFR 47 PART 1,§1.1310 KDB 680106 D01 Wireless Power Transfer v04
Test Result:	Pass
Report Number:	DLE-250410006R-1

Prepared by(Engineer):	Ken Tan
Reviewer(Supervisor):	Jack Bu
Approved(Manager):	Jade Yang

This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.

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1. TEST FACILITY

Test lab: Shenzhen DL Testing Technology Co., Ltd.
Address: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China
FCC Test Firm Registration Number: 854456
Designation Number: CN1307
IC Registered No.: 27485
CAB ID.: CN0118

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name:	Power Bank
Trade Mark:	N/A
Model No.:	830
Model Difference:	N/A
Serial No.:	N/A
Sample No.:	DLE-250410006-001#
Operation Frequency:	111kHz ~ 205KHz
Modulation type:	MSK
Antenna Type:	Inductive loop coil Antenna
Antenna gain:	0 dBi
Power supply:	Type-C Input: 5V/3A, 9V/2A, 12V/1.5A Lightning Input: 5V/2A Type-C Output: 5V/3A, 9V/2A, 12V/1.5A Wireless Output: 15W(max) DC 3.85V by Rechargeable Li-ion Battery, 10000mAh

Note:
1.For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2.The EUT's all information provided by client.

2.2 TEST MODE DESCRIPTION

Mode 1. AC/DC Adapter+ EUT + Phone(Battery Status:< 1%)
Mode 2. AC/DC Adapter+ EUT +Phone(Battery Status:< 50%)
Mode 3. AC/DC Adapter+ EUT + Phone(Battery Status:< 99%)
Mode 4. EUT + Phone(Battery Status:< 1%)
Mode 5. EUT + Phone(Battery Status:< 50%)
Mode 6. EUT + Phone(Battery Status:< 99%)
Mode 7. Stand-By

Note: All modes have been tested, and the report only shows the results of the worst mode 1.

2.3 TEST AUXILIARY EQUIPMENT

Mobile phone (Provide by test lab):
Manufacturer: Apple
Model: iPhone 14 Pro

Adapter (Provide by test lab):
Manufacturer: XIAOMI
Model: AD65G
I/P: AC 100-240V 50/60Hz
O/P: DC 5V/3A, DC 9V/3A, DC 10V/5A, DC 12V/3A, DC 15V/3A, DC 20V/3.25A

2.4 TEST INSTRUMENT USED

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
Exposure Level Tester	Narda	ELT-400	O-0895	Oct. 17, 2024	Oct. 16, 2025
B-Field Probe	Narda	100cm²	101421	Oct. 17, 2024	Oct. 16, 2025

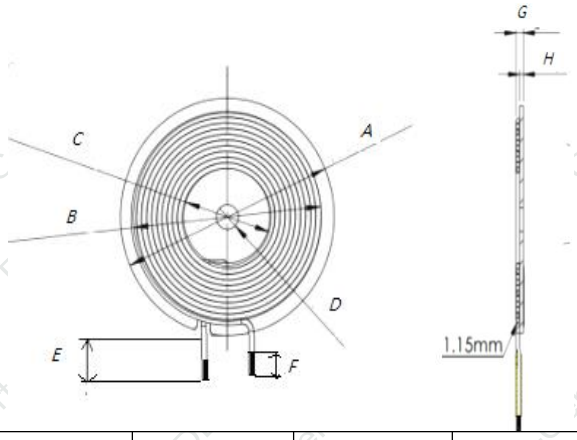
2.5 ELT-400 DETAILED PARAMETERS ARE AS FOLLOWS

Common parameter	
Operating temperature	-10 °C ~ +50 °C
Operation humidity	< 95 % (30 °C) or < 29 g/m³
Weight	910 g
Size	180 mm x 100 mm x 55 mm(Main engine) / 290 mm x 125 mm Ø (Probe)
Display	LCD backlit display, 4 refresh rates per second
Battery	Nimh battery (4 x Mignon, AA), rechargeable
Operating time, typical	12 h
Power supply	100 ~240 V AC / 47 ~ 63 Hz
Charging time, typical	2 hours
Recommended calibration cycle	24 months
Country of origin	Germany

2.6 MEASUREMENT UNCERTAINTY

Test Item	Frequency Range	Uncertainty
Test Item	1Hz ~ 400kHz	1%
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of *k*=2.		

2.7 COIL PARAMETER



A	B	C	D	E	F	G	Uint
41.5±0.5	38±0.5	13.5±0.3	8±0.2	30±2	3±1	1.9±0.3	mm

3. METHOD OF MEASUREMENT

3.1 APPLICABLE STANDARD

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 §2.1091 RF exposure is calculated.
According KDB 680106 D01 RF Exposure Wireless Charging App v04

3.2 EVALUATION METHOD AND LIMIT

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

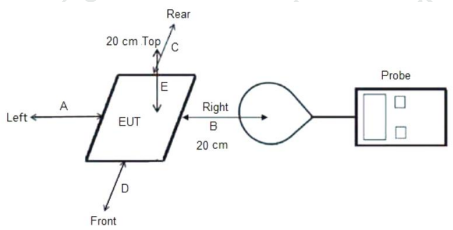
Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

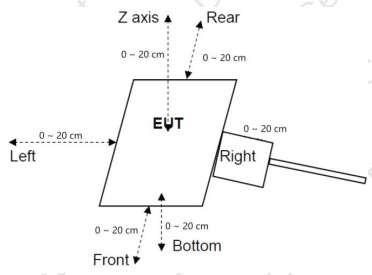
*=Plane-wave equivalent power density

3.3 TEST SETUP

For mobile exposure conditions:



For portable exposure conditions:



3.4 MEASUREMENT PROCEDURE

For portable exposure conditions:

a) The RF exposure test was performed in anechoic chamber.
b) The measurement probe was placed at test distance (20 cm from all sides) which is between the edge of the charger and the geometric centre of probe.
c) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed.
d) The EUT were measured according to the dictates of KDB 680106 D01 RF Exposure Wireless Charging App v04.

For portable exposure condition:

a) The RF exposure test was performed in anechoic chamber.
b) Perform H-field measurements for each edge/top surface of the host/client pair at every 2 cm, starting from as close as possible out to 20 cm
c) The highest emission level was recorded and compared with limit.
d) The EUT was measured according to the KDB 680106 D01 Wireless Power Transfer v04.

4. TEST RESULTS

4.1 FOR MOBILE EXPOSURE CONDITION:

MPE					
Test distance	Battery levels	Probe from EUT Side	E-field (V/m)	uT	H-field (A/m)
20cm	< 1%	Top	0.169	0.13125	0.105
20cm	< 1%	Left	0.059	0.04875	0.039
20cm	< 1%	Right	0.186	0.14000	0.112
20cm	< 1%	Front	0.152	0.10250	0.082
20cm	< 1%	Rear	0.136	0.10125	0.081
Limit			614	/	1.63
Margin Limit (%)			0.03%	/	6.87%

MPE					
Test distance	Battery levels	Probe from EUT Side	E-field (V/m)	uT	H-field (A/m)
20cm	< 50%	Top	0.154	0.13125	0.105
20cm	< 50%	Left	0.050	0.04625	0.037
20cm	< 50%	Right	0.163	0.12500	0.100
20cm	< 50%	Front	0.136	0.09000	0.072
20cm	< 50%	Rear	0.131	0.0925	0.074
Limit			614	/	1.63
Margin Limit (%)			0.03%	/	6.40%

MPE					
Test distance	Battery levels	Probe from EUT Side	E-field (V/m)	uT	H-field (A/m)
20cm	< 99%	Top	0.142	0.12625	0.101
20cm	< 99%	Left	0.044	0.03125	0.025
20cm	< 99%	Right	0.140	0.11375	0.091
20cm	< 99%	Front	0.124	0.08875	0.071
20cm	< 99%	Rear	0.121	0.08500	0.068
Limit			614	/	1.63
Margin Limit (%)			0.02%	/	6.20%

Note:1. All test modes were pre-tested, but we only recorded the worst case in this report.

2. The field intensity value A/m in the report is converted from uT, and the formula is as follows:

uT to A/m $A/m = \frac{uT}{1.25}$

4.2 FOR PORTABLE EXPOSURE CONDITION:

Note :

(1). The portable test modes have covered the considerations of the mobile test, only record the test data of the portable conditions in this report.

(2) Operating modes with client device (1 %, 50%, 99% battery status of client device) have been test, only show the data of worst case of 1% battery status of client device.

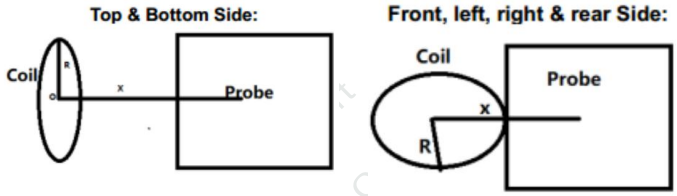
(3) Test performed with all the radiating structures operating at maximum power at the same time.

(4) H-field measurements are taken along all three axes the device from 0cm~20cm in 2cm minimum increment for each edge surface of the host/client pair. If the center of the probe sensing element is more than 5mm from the probe outer edge, the field strengths need to be estimated for the positions that are not reachable.

(5) According to Calibration information and specification about ETL-400 Probe, The Probe ETL-400 Probe's sensitive elements center is located in the probe's center, and thedistance from the sensitive elements center to the tip of probe is 6.25cm.

(6) The actual 0cm field strengths need to be estimated for the positions that are not reachable via numerical calculation.

(7) Use Biot-Savart formula theory to estimate the strength of the magnetic field that the measuring instrument cannot measure. According to Biot-Savart formula:



$$B = \frac{\mu_0 * I * N * R^2}{2 * (R^2 + x^2)^{3/2}} \qquad B = \frac{\mu_0 * I * N}{2 * x}$$

B(Unit:A/m): means H-field value;
μ0 is space permeability; μ0=4π*10-7 ;
I(Unit:A): A current element passing through a radiated coil;
R(Unit:m): means the Radius of radiated coil, according to provided Antenna specification: R=41.5/2=20.75mm=0.275m;

Test Distance(Unit:m) : The distance from the sensing element of the probe to the edge of the device surface.

x(Unit:m): means the center of the coil to the sensing elements of the probe. (x=test distance+R)
N: Number of turns, according to providing "Antenna specification" files: N=14.

(8) For validation purposes: If the value to show a 30% agreement between the mode and the probe measurements for the two closest points to the device surface, and with 2cm increments. Then this extrapolation method is reasonable.

H-Field Strength result

Note: <1%, 50%, >95% load all have been tested, only worse case Max load (<1%) is reported. H-Filed Strength at (distance 0cm to 20cm at 2cm iteration, i.e. at a distance of 20cm, 18cm, 16cm, 0cm, which is between the edge of the charger edge and the probe'stip) surrounding the EUT (A/m).

Magnetic Field Emissions							
Test Distance(cm)	Top	Left	Right	Rear	Front	Bottom	Conclusion
	Unit: Agreement (%); H-field (A/m)						
Agreement	8.33%	-1.97%	-0.65%	1.18%	0.77%	1.74%	Compliance (Within 30%)
8cm(estimated)	0.0025	0.0151	0.0459	0.0681	0.0911	0.0988	
8cm(measured)	0.0023	0.0154	0.0462	0.0673	0.0904	0.0971	

Magnetic Field Emissions							
Test Distance(cm)	Top	Left	Right	Rear	Front	Bottom	Conclusion
	Unit: Agreement (%); H-field (A/m)						
Agreement	-20.00%	-4.14%	-2.24%	-4.65%	-1.36%	-1.16%	Compliance (Within 30%)
10cm(estimated)	0.0018	0.0142	0.0442	0.0630	0.0876	0.0941	
10cm(measured)	0.0022	0.0148	0.0452	0.0660	0.0888	0.0952	

Mode	Measuring distance (cm)	uT					
		Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F
Mode 1	0	0.027375	0.146375	0.270875	0.408625	0.542875	0.620500
Mode 1	2	0.022750	0.106125	0.173250	0.450625	0.453875	0.821000
Mode 1	4	0.007375	0.039875	0.096500	0.177875	0.178375	0.270750
Mode 1	6	0.003250	0.019875	0.058750	0.085250	0.114500	0.123000
Mode 1	8	0.002875	0.019250	0.057750	0.084125	0.113000	0.121375
Mode 1	10	0.002750	0.018500	0.056500	0.082500	0.111000	0.119000
Mode 1	12	0.002375	0.017875	0.055500	0.081125	0.109500	0.117125
Mode 1	14	0.002250	0.017375	0.054625	0.079875	0.108000	0.115250
Mode 1	16	0.002250	0.017250	0.054125	0.078625	0.106250	0.113000
Mode 1	18	0.002250	0.017125	0.053500	0.077625	0.104625	0.111125
Mode 1	20	0.001875	0.016625	0.052625	0.076625	0.341625	0.348000

Mode	Measuring distance (cm)	Measured H-Field Strength Values (A/m)						FCC H-Field Strength Limits (A/m)	Max. Percentage (%)
		Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F		
Mode 1	0	0.0219	0.1171	0.2167	0.3269	0.4343	0.4964	1.63	30.45%
Mode 1	2	0.0182	0.0849	0.1386	0.3605	0.3631	0.6568	1.63	40.29%
Mode 1	4	0.0059	0.0319	0.0772	0.1423	0.1427	0.2166	1.63	13.29%
Mode 1	6	0.0026	0.0159	0.047	0.0682	0.0916	0.0984	1.63	6.04%
Mode 1	8	0.0023	0.0154	0.0462	0.0673	0.0904	0.0971	1.63	5.96%
Mode 1	10	0.0022	0.0148	0.0452	0.066	0.0888	0.0952	1.63	5.84%
Mode 1	12	0.0019	0.0143	0.0444	0.0649	0.0876	0.0937	1.63	5.75%
Mode 1	14	0.0018	0.0139	0.0437	0.0639	0.0864	0.0922	1.63	5.66%
Mode 1	16	0.0018	0.0138	0.0433	0.0629	0.085	0.0904	1.63	5.55%
Mode 1	18	0.0018	0.0137	0.0428	0.0621	0.0837	0.0889	1.63	5.45%
Mode 1	20	0.0015	0.0133	0.0421	0.0613	0.2733	0.2784	1.63	17.08%
Remark: All test modes were pre-tested, but we only recorded the worst case in this report.									

4.3 EQUIPMENT APPROVAL CONSIDERATIONS

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

Requirements of KDB 680106 D01	Yes / No	Description
The power transfer frequency is below 1 MHz.	Yes	The device operate in the frequency range is below 1MHz.
The output power from each transmitting element (e.g., coil) is less than or equal to 15 watts.	Yes	The maximum output power of the transmitting element is 15W
A client device providing the maximum permitted load is placed in physical contact with the transmitter (i.e., the surfaces of the transmitter and client device enclosures need to be in physical contact)	Yes	Client device is placed directly in contact with the transmitter.
Only § 2.1091-Mobile exposure conditions apply (i.e., this provision does not cover § 2.1093-Portable exposure conditions).	No	Mobile and Portable exposure conditions.
The E-field and H-field strengths, at and beyond 20 cm surrounding the device surface, are demonstrated to be less than 50% of the applicable MPE limit,	Yes	The E-field and H-field strengths at and beyond 20 cm surrounding the device from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.
For systems with more than one radiating structure, the conditions specified in (5) must be met when the system is fully loaded.	Yes	The EUT equipped one radiating structure only.

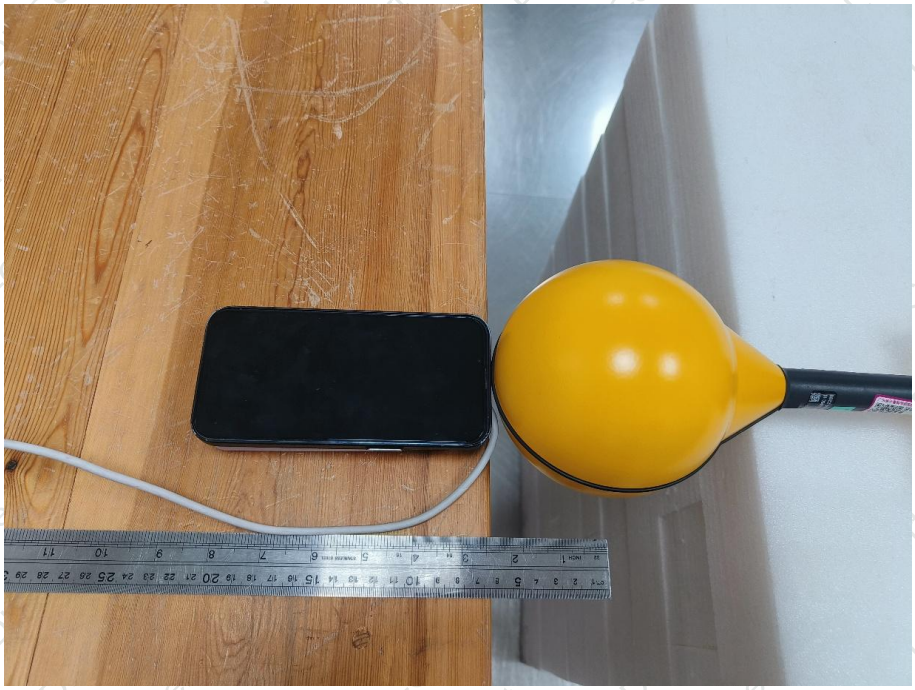
4.5 CONCLUSION

For Mobile exposure conditions, the detected emissions with a distance of 20cm surrounding the device are below the FCC E-Field Strength & H-Field Strength limits; and comply with the requirements of FCC KDB 680106 D01.

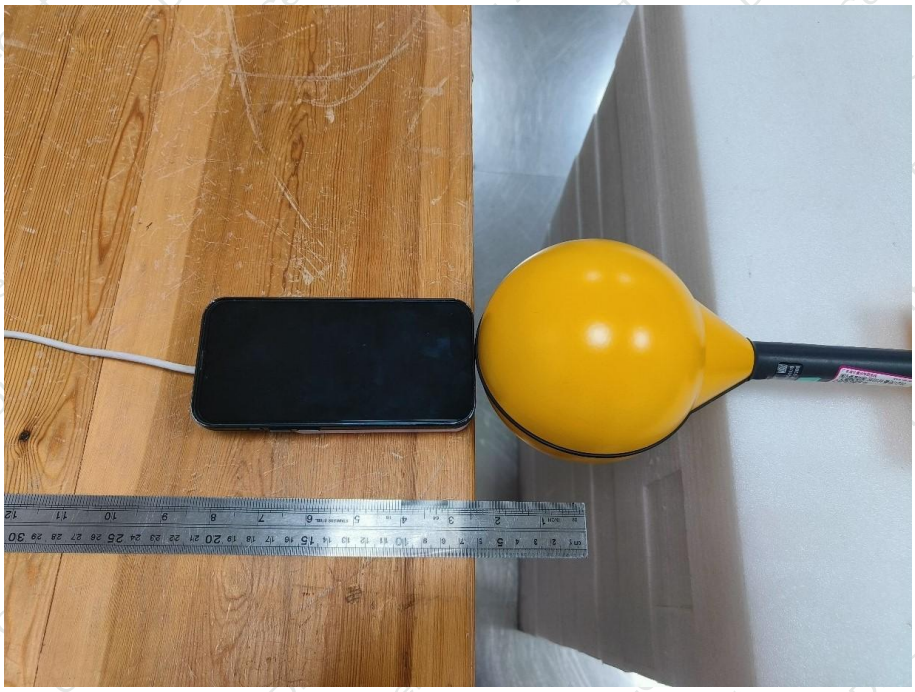
For Portable exposure conditions, a minimum safety distance of 0 cm to the antenna is required when the device is charging a smart phone for portable exposure. The detected emissions are below the limitations according FCC KDB 680106 D01.

4.6 TEST SETUP PHOTOGRAPHS OF EUT

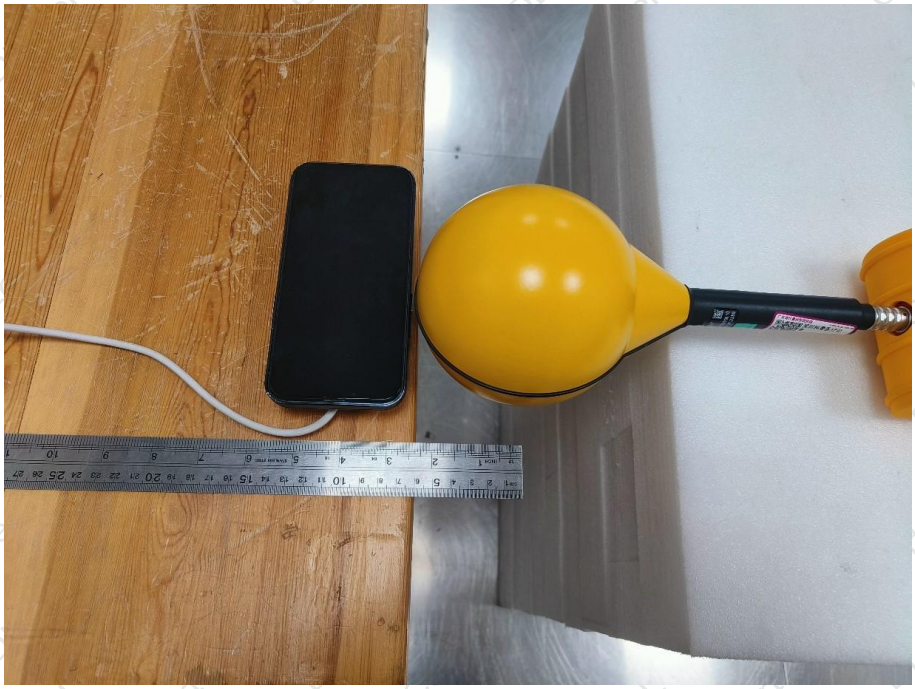
0mm Front



0mm Rear



0mm Left



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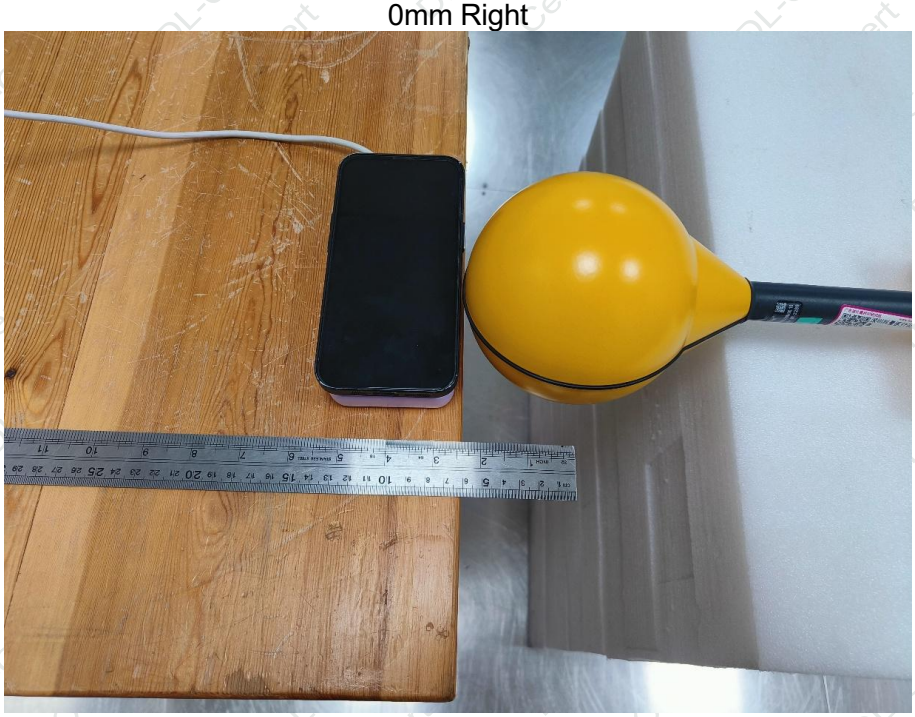
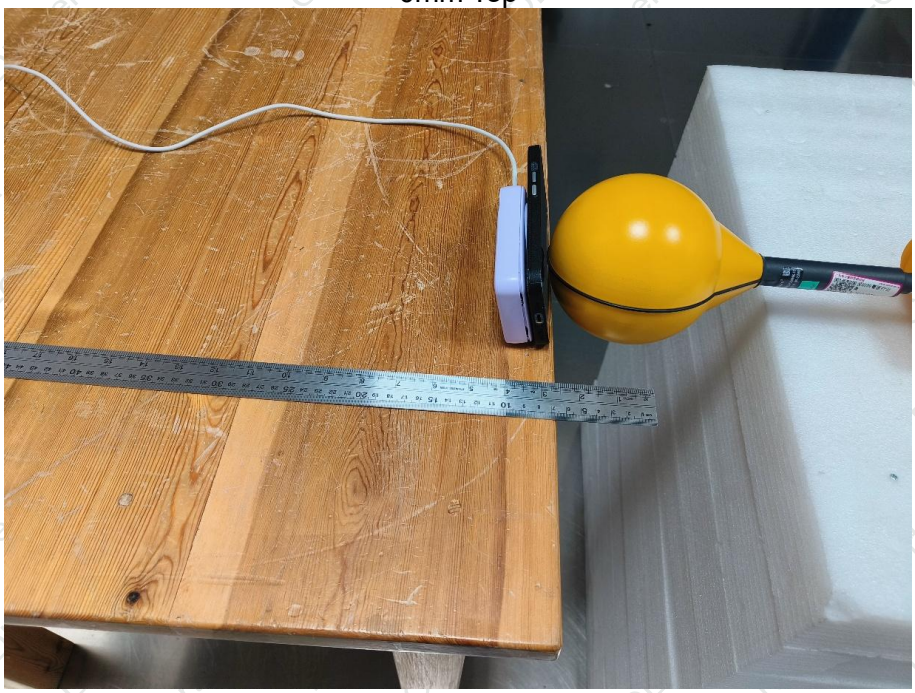


0mm Top



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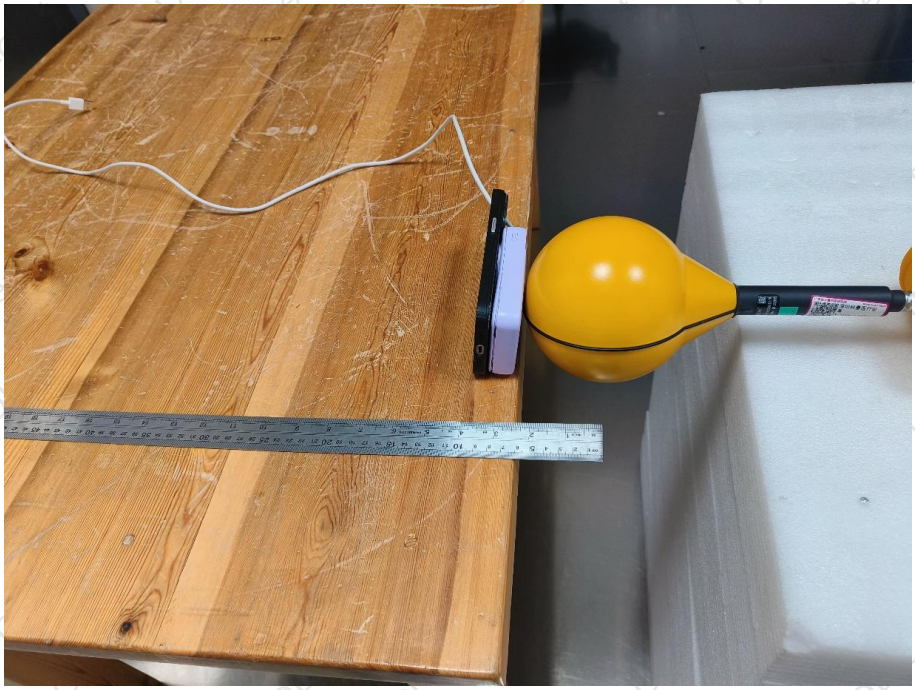
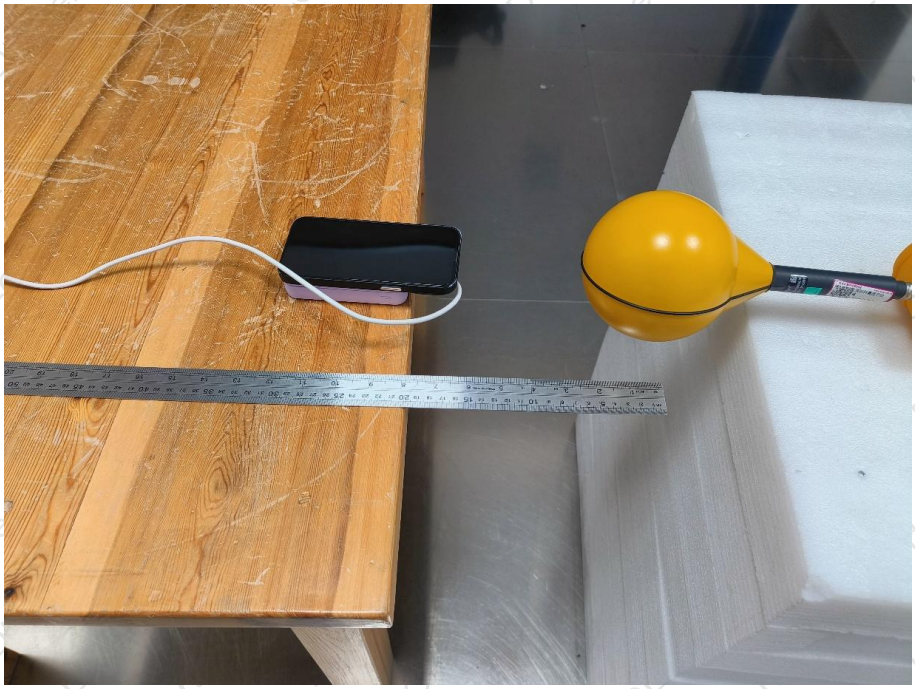
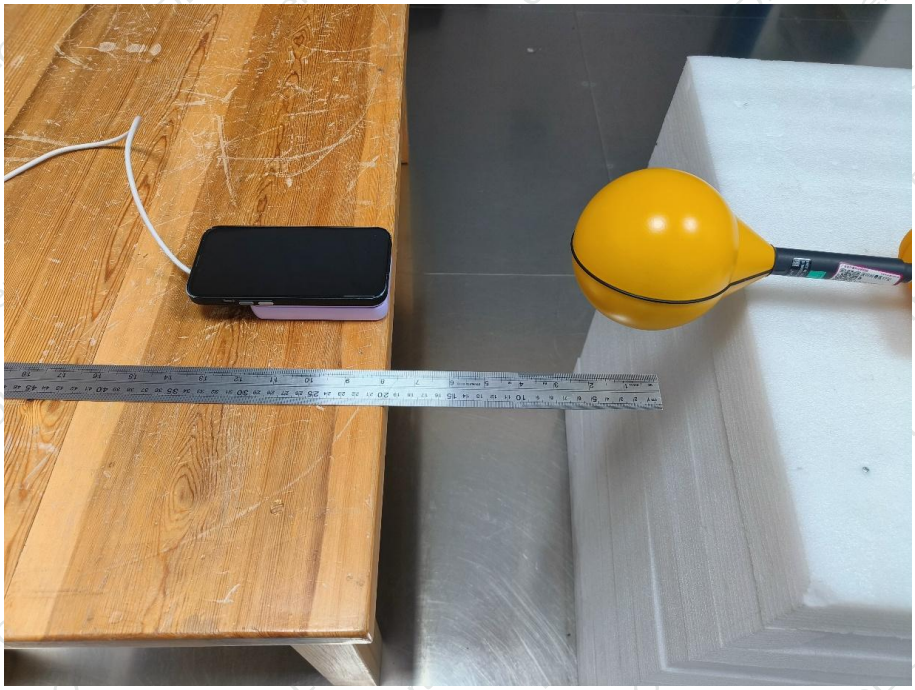


20mm Front



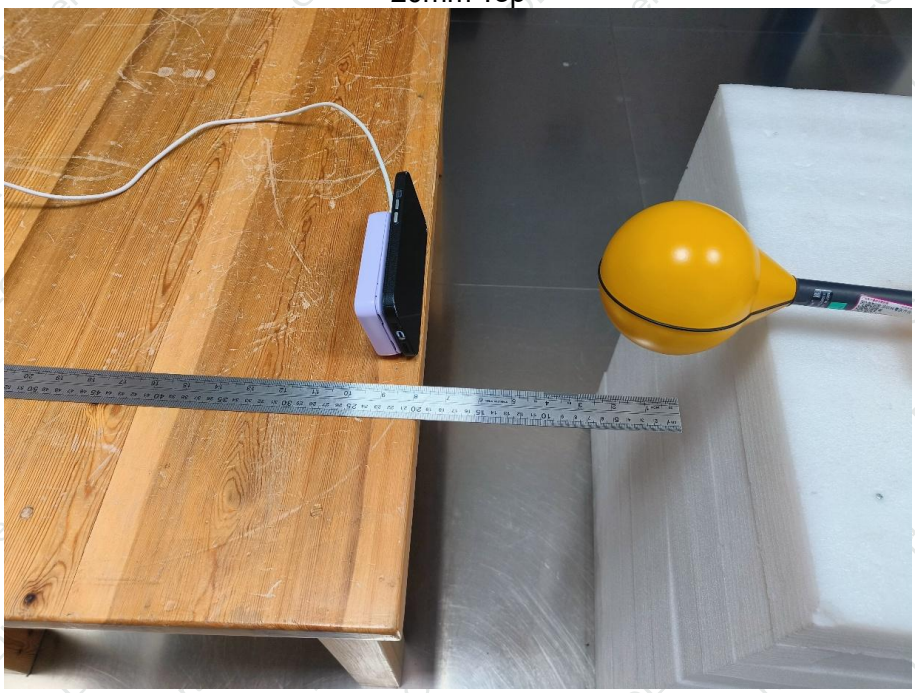
20mm Rear



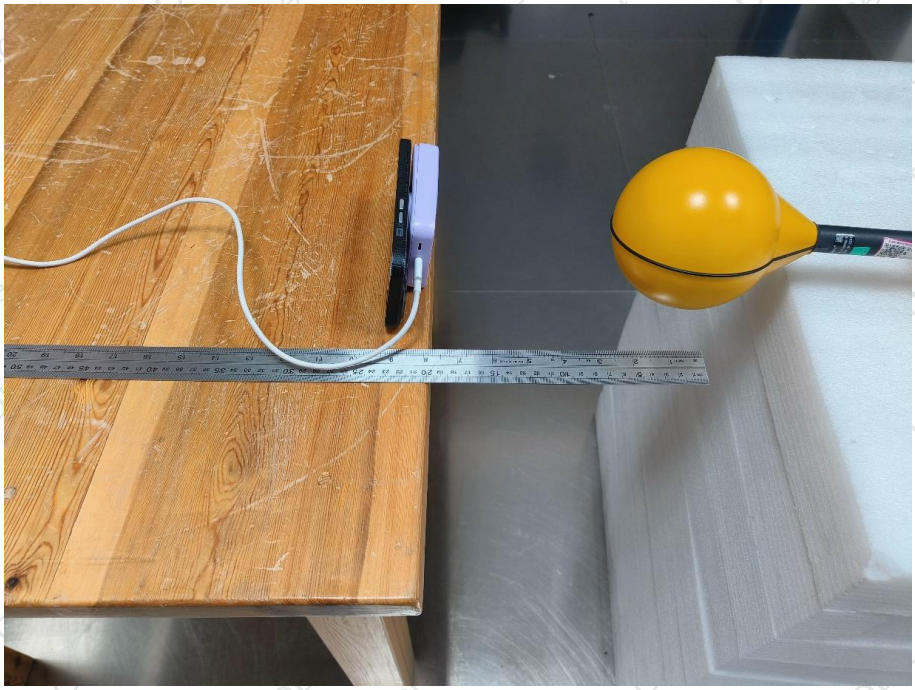
20mm Left

20mm Right

20mm Top



20mm Bottom



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