



FCC ID: 2BD7Q-CB02

EUT:	Multi-function charger
Trade Mark:	RORRY
Model Number:	CB02 CB01, CB03, CB04, CB05, CB06, CB07, CB08, CB09, CB10, CB11, CB12
Transmitting mode	Keep the EUT in continuously wireless charging mode
Power supply:	AC Mode AC Input: 100-240V/50/60Hz/0.8A C1 Type-C Output: 5V/3A, 9V/2.22A, 12V/1.67A (20W Max) C2 Output: 5V/2A Cable Output: 5V/2A Power Bank Mode C2 Type-C Input: 5V/3A, 9V/2.2A, 12V/1.5A (18W Max) C2 Type-C Output: 5V/3A, 9V/2.22A, 12V/1.67A (22.5W Max) Cable Output: 5V/2.4A, 9V/2.22A (22.5W Max) Watch wireless charging: 3.3W Simultaneous Output of multi-ports: 5V/3A(Max) Both Discharging and Charging Output: 5V/2A Battery capacity: 5200mAh/3.8V Rated capacity: 2900mAh (5V/2A)
Date of Receipt:	Dec. 07, 2023
Test Date:	Dec. 07, 2023 - Dec. 15, 2023
Date of Report:	Dec. 15, 2023



AC Mode

- Mode1. AC Input + Watch wireless charging Output Mode(Full Load, 1%/50%/99%)
- Mode2. AC Input + Watch wireless charging Output Mode(Half Load, 1%/50%/99%)
- Mode3. AC Input + Watch wireless charging Output Mode(No Load, 1%/50%/99%)
- Mode4. AC Input + C1 Type-C Output + Watch wireless charging Output Mode(Full Load, 1%/50%/99%)
- Mode5. AC Input + C1 Type-C Output + Watch wireless charging Output Mode(Half Load, 1%/50%/99%)
- Mode6. AC Input + C1 Type-C Output + Watch wireless charging Output Mode(No Load, 1%/50%/99%)
- Mode7. AC Input + C2 Output + Watch wireless charging Output Mode(Full Load, 1%/50%/99%)
- Mode8. AC Input + C2 Output + Watch wireless charging Output Mode(Half Load, 1%/50%/99%)
- Mode9. AC Input + C2 Output + Watch wireless charging Output Mode(No Load, 1%/50%/99%)
- Mode10. AC Input + Cable Output + Watch wireless charging Output Mode(Full Load, 1%/50%/99%)
- Mode11. AC Input + Cable Output + Watch wireless charging Output Mode(Half Load, 1%/50%/99%)
- Mode12. AC Input + Cable Output + Watch wireless charging Output Mode(No Load, 1%/50%/99%)
- Mode13. AC Input + C1 Type-C Output Mode(Full Load)
- Mode14. AC Input + C1 Type-C Output Mode(Half Load)
- Mode15. AC Input + C1 Type-C Output Mode(No Load)
- Mode16. AC Input + C2 Output Mode(Full Load)
- Mode17. AC Input + C2 Output Mode(Half Load)
- Mode18. AC Input + C2 Output Mode(No Load)
- Mode19. AC Input + Cable Output Mode(Full Load)
- Mode20. AC Input + Cable Output Mode(Half Load)
- Mode21. AC Input + Cable Output Mode(No Load)

Power Bank Mode

- Mode1. C2 Type-C Input + Watch wireless charging Output Mode(Full Load, 1%/50%/99%)
- Mode2. C2 Type-C Input + Watch wireless charging Output Mode(Half Load, 1%/50%/99%)
- Mode3. C2 Type-C Input + Watch wireless charging Output Mode(No Load, 1%/50%/99%)
- Mode4. C2 Type-C Output + Watch wireless charging Output Mode(Full Load, 1%/50%/99%)
- Mode5. C2 Type-C Output + Watch wireless charging Output Mode(Half Load, 1%/50%/99%)
- Mode6. C2 Type-C Output + Watch wireless charging Output Mode(No Load, 1%/50%/99%)
- Mode7. Cable Output + Watch wireless charging Output Mode(Full Load, 1%/50%/99%)
- Mode8. Cable Output + Watch wireless charging Output Mode(Half Load, 1%/50%/99%)
- Mode9. Cable Output + Watch wireless charging Output Mode(No Load, 1%/50%/99%)
- Mode10. Simultaneous Output of multi-ports Mode(Full Load)
- Mode11. Simultaneous Output of multi-ports Mode(Half Load)
- Mode12. Simultaneous Output of multi-ports Mode(No Load)
- Mode13. Both Discharging and Charging Output Mode(Full Load)
- Mode14. Both Discharging and Charging Output Mode(Half Load)
- Mode15. Both Discharging and Charging Output Mode(No Load)

Note: 1. We have evaluated 1%, 50% and 99% battery charging mode, and the worst mode (99%) is showed in this report.

2. All modes have been tested, and the report only shows the results of the worst mode10(AC Mode) and mode7(Power Bank Mode).



RF Exposure Evaluation

1 Measuring Standard

KDB 680106 RF Exposure Wireless Charging Apps v03r01

2 Requirements

Three different categories of transmitters are defined by the FCC in OET Bulletin 65. These categories are fixed installation, mobile, and portable and are defined as follows:

- o Fixed Installations: fixed location means that the device, including its antenna, is physically secured at a permanent location and is not able to be easily moved to another location. Additionally, distance to humans from the antenna is maintained to at least 2 meters.
- o Mobile Devices: a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to be generally used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structures and the body of the user or nearby persons. Transmitters designed to be used by consumers or workers that can be easily re-located, such as a wireless modem operating in a laptop computer, are considered mobile devices if they meet the 20 centimeter separation requirement. The FCC rules for evaluating mobile devices for RF compliance are found in 47 CFR §2.1091.
- o Portable Devices: a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user. Portable device requirements are found in Section 2.1093 of the FCC's Rules (47 CFR§2.1093).

The FCC also categorizes the use of the device as based upon the user's awareness and ability to exercise control over his or her exposure. The two categories defined are Occupational/ Controlled Exposure and General Population/Uncontrolled Exposure. These two categories are defined as follows:

Occupational/Controlled Exposure: In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. Awareness of the potential for RF exposure in a workplace or similar environment can be provided through specific training as part of a RF safety program. If appropriate, warning signs and labels can also be used to establish such awareness by providing prominent information on the risk of potential exposure and instructions on methods to minimize such exposure risks.

General Population/Uncontrolled Exposure: The general population / uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.



According to the item 5 of KDB 680106 v04:

Inductive wireless power transfer applications that meet all of the following requirements are excluded from submitting an RF exposure evaluation.

(1) The power transfer frequency is below 1 MHz.	Yes; the device operate in the frequency range from 115 KHz to 205 KHz
(2) 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 primary coil is 3.3W.
(3) For systems with more than one radiating structure, the conditions specified in (5) must be met when the system is fully loaded (i.e., clients absorbing maximum power available), and with all the radiating structures operating at maximum power at the same time, as per design conditions. If the design allows one or more radiating structures to be powered at a higher level while other radiating structures are not powered, then those cases must be tested as well. For instance, a device may use three RF coils powered at 5 W, or one coil powered at 15 W: in this case, both scenarios shall be tested.	Yes; the transfer system includes only one primary coils.
(4) 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.
(5) Only § 2.1091- <i>Mobile</i> exposure conditions apply (i.e., this provision does not cover § 2.1093- <i>Portable</i> exposure conditions).	Yes, mobile exposure conditions only.
(6) 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, per KDB 447498, Table 1. These measurements shall be taken along the principal axes of the device, with one axis oriented along the direction of the estimated maximum field strength, and for three points per axis or until a $1/d$ (inverse distance from the emitter structure) field strength decay is observed. Symmetry considerations may be used for test reduction purposes. The device shall be operated in documented worst-case compliance scenarios (i.e., the ones that lead to the maximum field components), and while all the radiating structures (e.g., coils or antennas) that by design can simultaneously transmit are energized at their nominal maximum power.	Yes, see test result in item 8.

from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.

Remark: Meet all the above requirements.



Limits

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	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 ²	6
30-300	61.4	0.163	1.0	6
300-1,500	/	/	f/300	6
1,500-100,000	/	/	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/cm ²)	Averaging Time (minute)
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
300-1,500	/	/	f/1500	30
1,500-100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density

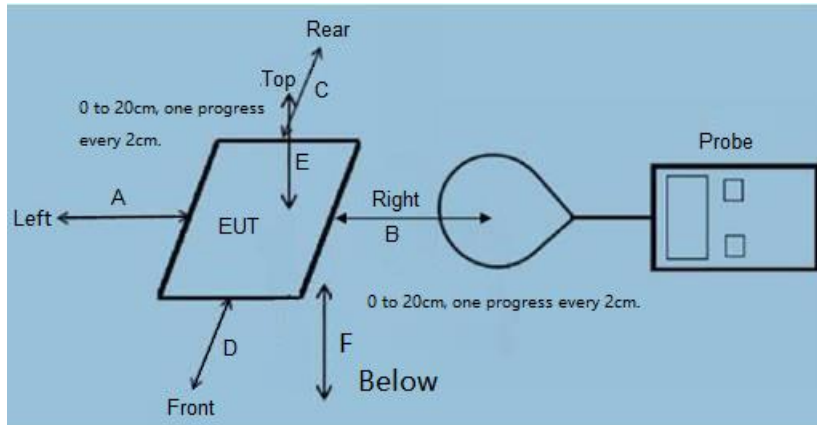
According to FCC 680106 RF Exposure Wireless Charging Apps v04. RF Exposure Requirements clause 3 the Emission-Limits in the frequency range from 100 KHz to 300 KHz should be assessed versus the limits at 300 KHz in Table 1 of CFR 47 - Section 1.310 as following (measured distance shall be 15cm from the center of the probe to the edge of the device):

	E-Field	*/*	B-Field
Frequency	V/m	A/m	uT
0.3 MHz – 3.0 MHz	614	1.613	2.0
3.0 MHz – 30 MHz	824/f (=27.5 _{30MHz})	2.19/f (=0.073 _{30MHz})	--

A KDB inquire was required to determine/confirm the applicable limits below 100 KHz.



3 Test Setup



4 Test Procedure

For portable exposure conditions:

- 1) The RF exposure test was performed on 360 degree turn table in anechoic chamber.
- 2) The measurement probe was placed at test distance (0-20 cm, in 2 cm maximum increment) 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 point (A, B, C, D, E, F) were completed.
- 4) The EUT were measured according to the dictates of 680106 RF Exposure Wireless Charging Apps v04

For mobile exposure conditions:

- 1) The RF exposure test was performed on 360 degree turn table in anechoic chamber.
- 2) The measurement probe was placed at test distance (The test distance of the four directions A, B, C and D is 15cm, and the test distance of the direction top is 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 point (A, B, C, D, E) were completed.
- 4) The EUT were measured according to the dictates of 680106 RF Exposure Wireless Charging Apps v04



5 Description of Support Units

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	Mobile phone (Provide by test lab): Manufacturer: SAMSUNG Model: Galaxy S21 5G Watch (Provide by test lab): Manufacturer: Apple Model: Series 6
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6 Test Instruments list

Test Equipment	Manufacturer	Model No.	SN.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
Exposure Level Tester	Narda	ELT-400	N-0231	June. 24 2023	June. 25 2024
Magnetic field probe 100cm ²	Narda	ELT probe 100cm ²	M0675	June. 24 2023	June. 25 2024
Field Probe	ETS	HI-6105	/	June. 24 2023	June. 25 2024
Laser Data Interface	ETS	HI-6113	/	June. 24 2023	June. 25 2024

7 Test Uncertainty

E-Filed Strength : $\pm 0.08\text{V/m}$

H-Filed Strength : $\pm 0.02\text{A/m}$

μT : ± 0.01

Note: The field intensity value A/m in the report is converted from μT , and the formula is as follows:

$$\mu\text{T to A/m} \quad A/m = \frac{\mu T}{1.25}$$

Site Description

Test Lab: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China

FCC Test Firm Registration Number: 854456

Designation Number: CN1307

IC Registered No.: 27485

CAB ID.: CN0118



8 Test Result

Portable exposure conditions

Mode	measuring distance (cm)	Measured H-Field Strength Values (ut)					
		Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F
No Load	0	0.523	0.665	0.632	0.613	0.643	0.613
Half Load	0	0.565	0.514	0.564	0.564	0.555	0.552
Full Load	0	0.514	0.456	0.518	0.485	0.418	0.434
No Load	2	0.457	0.518	0.586	0.523	0.584	0.513
Half Load	2	0.533	0.465	0.631	0.565	0.534	0.534
Full Load	2	0.522	0.636	0.568	0.646	0.632	0.674
No Load	4	0.613	0.558	0.676	0.537	0.552	0.573
Half Load	4	0.534	0.436	0.434	0.444	0.424	0.425
Full Load	4	0.625	0.552	0.516	0.536	0.516	0.569
No Load	6	0.463	0.527	0.494	0.578	0.525	0.552
Half Load	6	0.414	0.526	0.653	0.435	0.433	0.446
Full Load	6	0.536	0.534	0.634	0.553	0.555	0.536
No Load	8	0.485	0.422	0.332	0.435	0.436	0.468
Half Load	8	0.441	0.498	0.338	0.458	0.414	0.474
Full Load	8	0.433	0.415	0.466	0.433	0.468	0.424
No Load	10	0.315	0.336	0.316	0.348	0.322	0.387
Half Load	10	0.358	0.348	0.397	0.323	0.393	0.376
Full Load	10	0.366	0.434	0.363	0.364	0.385	0.368
No Load	12	0.321	0.417	0.417	0.318	0.321	0.354
Half Load	12	0.452	0.495	0.434	0.463	0.464	0.496
Full Load	12	0.414	0.416	0.473	0.414	0.485	0.416
No Load	14	0.236	0.258	0.354	0.234	0.236	0.214
Half Load	14	0.363	0.234	0.238	0.244	0.246	0.253
Full Load	14	0.233	0.227	0.326	0.328	0.387	0.336
No Load	16	0.215	0.234	0.268	0.233	0.264	0.217
Half Load	16	0.274	0.263	0.245	0.351	0.319	0.366
Full Load	16	0.322	0.226	0.396	0.398	0.325	0.387
No Load	18	0.183	0.254	0.147	0.144	0.146	0.125
Half Load	18	0.218	0.208	0.235	0.235	0.267	0.232
Full Load	18	0.233	0.283	0.146	0.168	0.146	0.148
No Load	20	0.115	0.241	0.278	0.114	0.167	0.134
Half Load	20	0.134	0.248	0.154	0.183	0.252	0.133
Full Load	20	0.148	0.134	0.237	0.237	0.287	0.287



Mode	measuring distance (cm)	Measured H-Field Strength Values (A/m)						FCC H-Field Strength 50% Limits (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		
No Load	0	0.418	0.532	0.506	0.490	0.514	0.490	0.815	1.63
Half Load	0	0.452	0.411	0.451	0.451	0.444	0.442	0.815	1.63
Full Load	0	0.411	0.365	0.414	0.388	0.334	0.347	0.815	1.63
No Load	2	0.366	0.414	0.469	0.418	0.467	0.410	0.815	1.63
Half Load	2	0.426	0.372	0.505	0.452	0.427	0.427	0.815	1.63
Full Load	2	0.418	0.509	0.454	0.517	0.506	0.539	0.815	1.63
No Load	4	0.490	0.446	0.541	0.430	0.442	0.458	0.815	1.63
Half Load	4	0.427	0.349	0.347	0.355	0.339	0.340	0.815	1.63
Full Load	4	0.500	0.442	0.413	0.429	0.413	0.455	0.815	1.63
No Load	6	0.370	0.422	0.395	0.462	0.420	0.442	0.815	1.63
Half Load	6	0.331	0.421	0.522	0.348	0.346	0.357	0.815	1.63
Full Load	6	0.429	0.427	0.507	0.442	0.444	0.429	0.815	1.63
No Load	8	0.388	0.338	0.266	0.348	0.349	0.374	0.815	1.63
Half Load	8	0.353	0.398	0.270	0.366	0.331	0.379	0.815	1.63
Full Load	8	0.346	0.332	0.373	0.346	0.374	0.339	0.815	1.63
No Load	10	0.252	0.269	0.253	0.278	0.258	0.310	0.815	1.63
Half Load	10	0.286	0.278	0.318	0.258	0.314	0.301	0.815	1.63
Full Load	10	0.293	0.347	0.290	0.291	0.308	0.294	0.815	1.63
No Load	12	0.257	0.334	0.334	0.254	0.257	0.283	0.815	1.63
Half Load	12	0.362	0.396	0.347	0.370	0.371	0.397	0.815	1.63
Full Load	12	0.331	0.333	0.378	0.331	0.388	0.333	0.815	1.63
No Load	14	0.189	0.206	0.283	0.187	0.189	0.171	0.815	1.63
Half Load	14	0.290	0.187	0.190	0.195	0.197	0.202	0.815	1.63
Full Load	14	0.186	0.182	0.261	0.262	0.310	0.269	0.815	1.63
No Load	16	0.172	0.187	0.214	0.186	0.211	0.174	0.815	1.63
Half Load	16	0.219	0.210	0.196	0.281	0.255	0.293	0.815	1.63
Full Load	16	0.258	0.181	0.317	0.318	0.260	0.310	0.815	1.63
No Load	18	0.146	0.203	0.118	0.115	0.117	0.100	0.815	1.63
Half Load	18	0.174	0.166	0.188	0.188	0.214	0.186	0.815	1.63
Full Load	18	0.186	0.226	0.117	0.134	0.117	0.118	0.815	1.63
No Load	20	0.092	0.193	0.222	0.091	0.134	0.107	0.815	1.63
Half Load	20	0.107	0.198	0.123	0.146	0.202	0.106	0.815	1.63
Full Load	20	0.118	0.107	0.190	0.190	0.230	0.230	0.815	1.63

**Mobile exposure conditions**

Mode	measuring distance (cm)	Measured H-Field Strength Values (ut)				
		Test Position A	Test Position B	Test Position C	Test Position D	Test Position E
No Load	20	0.424	0.721	0.732	0.626	0.733
Half Load	20	0.536	0.563	0.792	0.637	0.635
Full Load	20	0.655	0.757	0.654	0.724	0.766

Mode	measuring distance (cm)	Measured H-Field Strength Values (A/m)					FCC H-Field Strength 50% Limits (A/m)	FCC H-Field Strength Limits (A/m)
		Test Position A	Test Position B	Test Position C	Test Position D	Test Position E		
No Load	20	0.339	0.577	0.586	0.501	0.586	0.815	1.63
Half Load	20	0.429	0.450	0.634	0.510	0.508	0.815	1.63
Full Load	20	0.524	0.606	0.523	0.579	0.613	0.815	1.63



9 Test Set-up Photo

Portable exposure conditions(0cm)

Front



Left





Right



Rear





Top



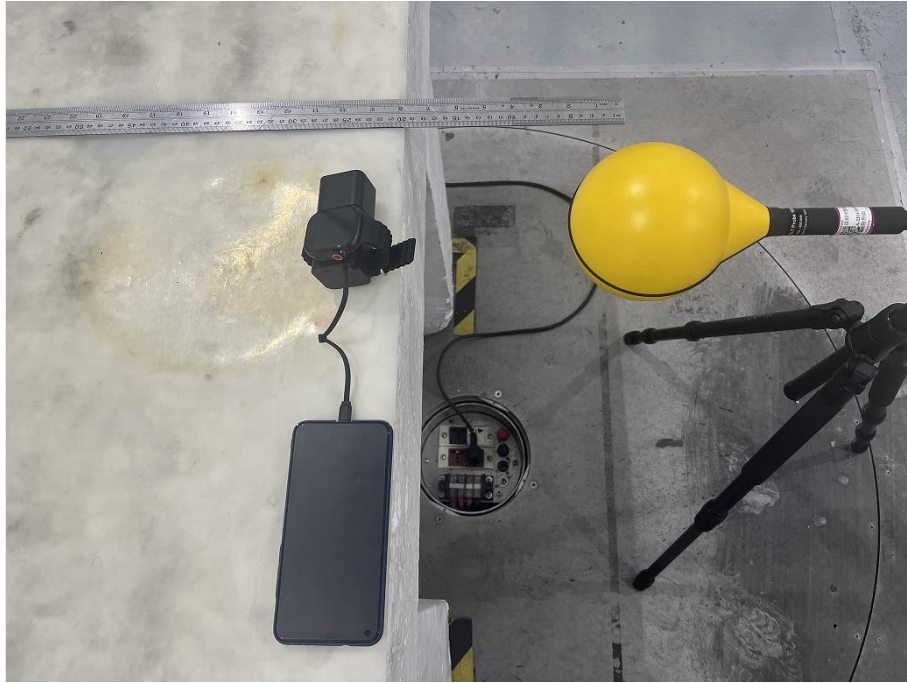
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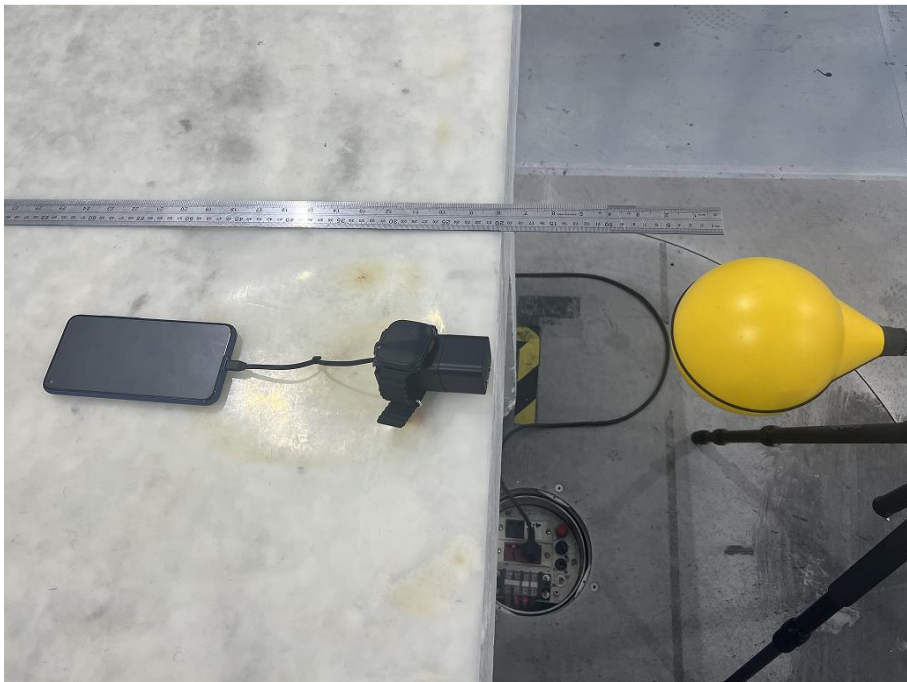


Portable exposure conditions(20cm)

Left

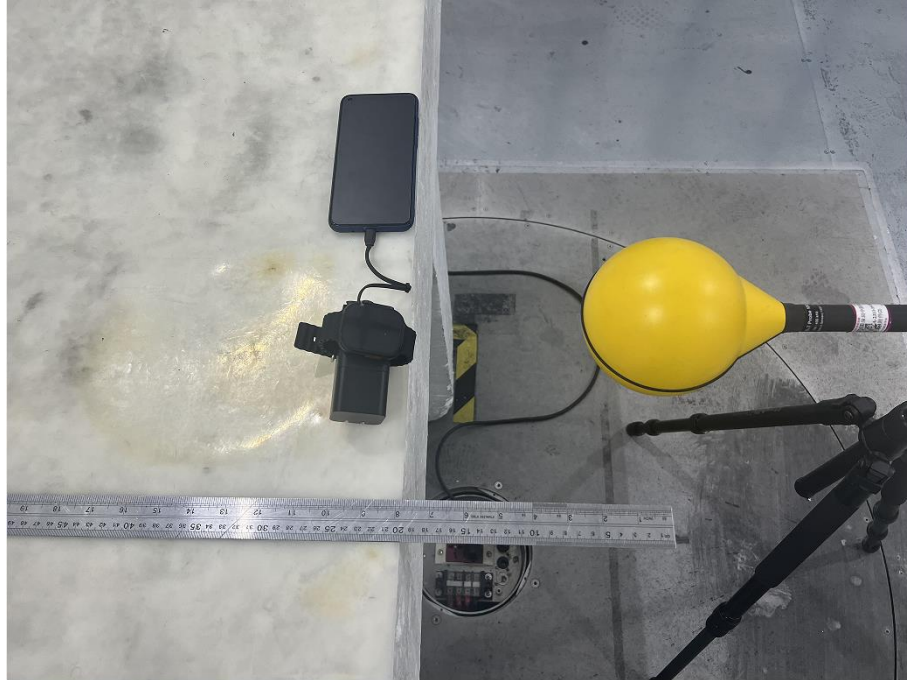


Front

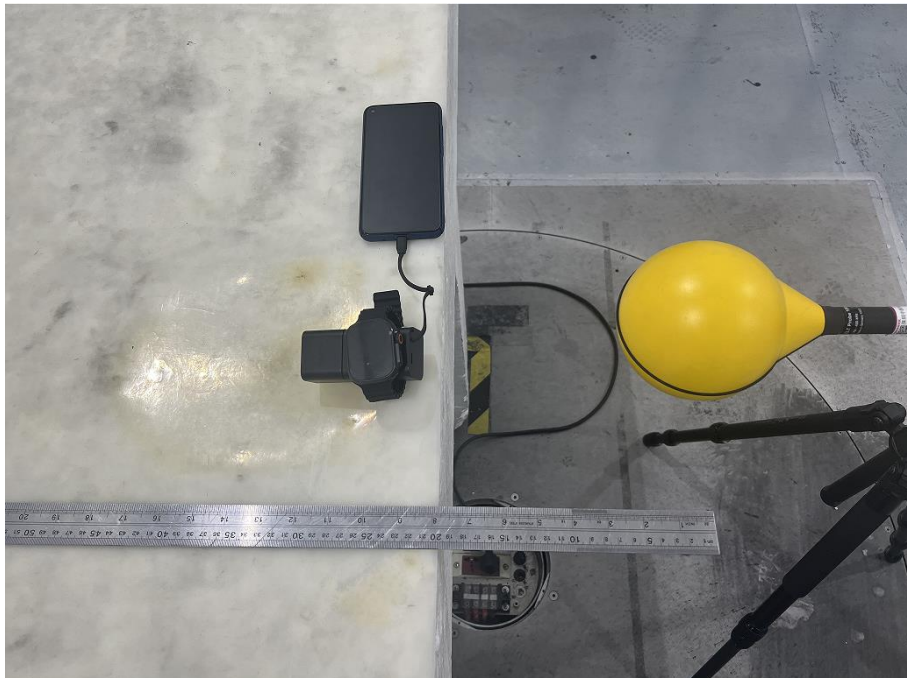




Rear

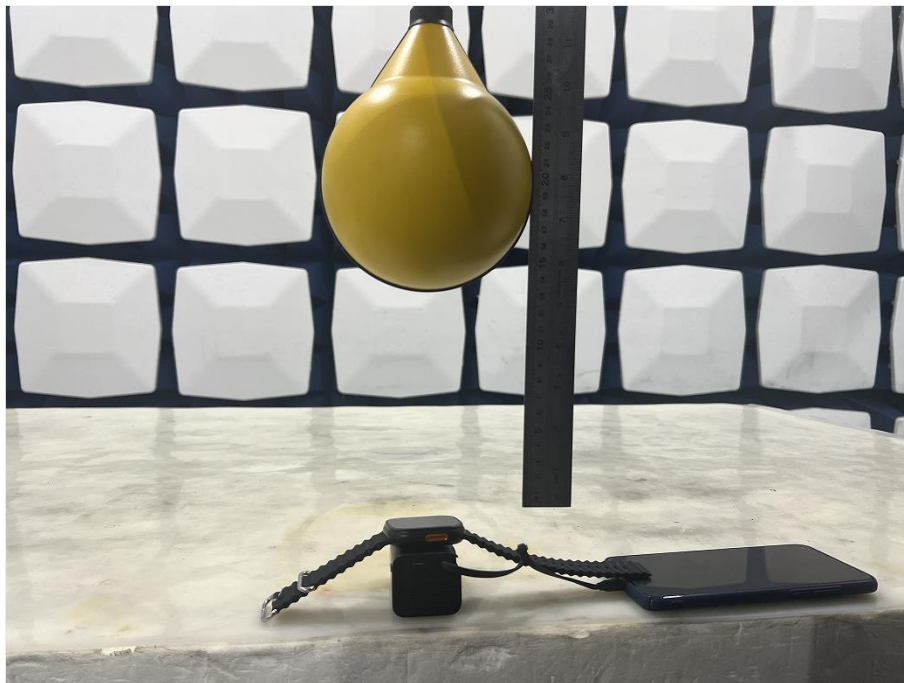


Right





Top



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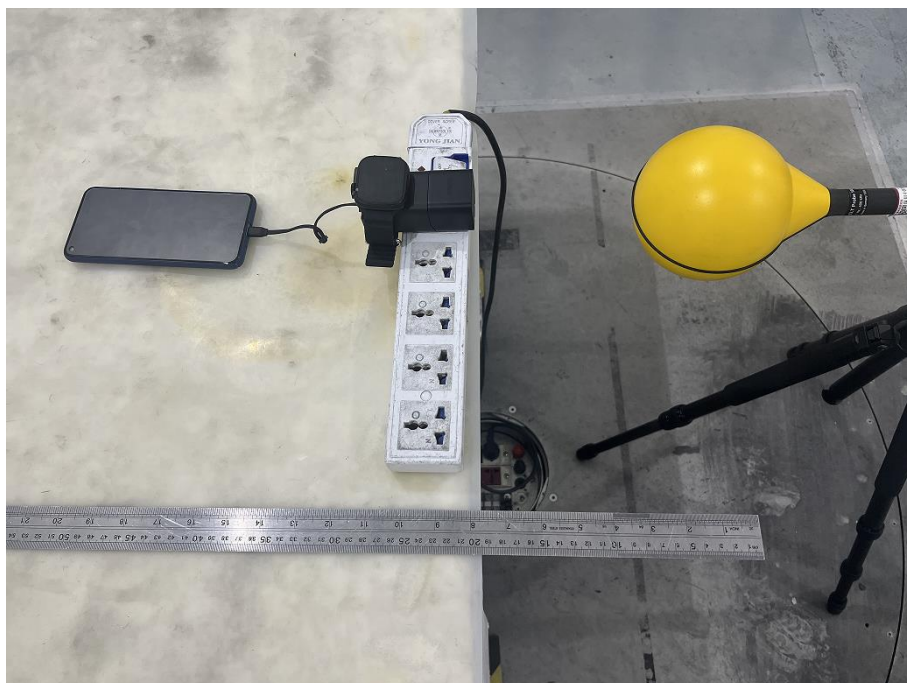


Mobile exposure conditions (20cm)

Left

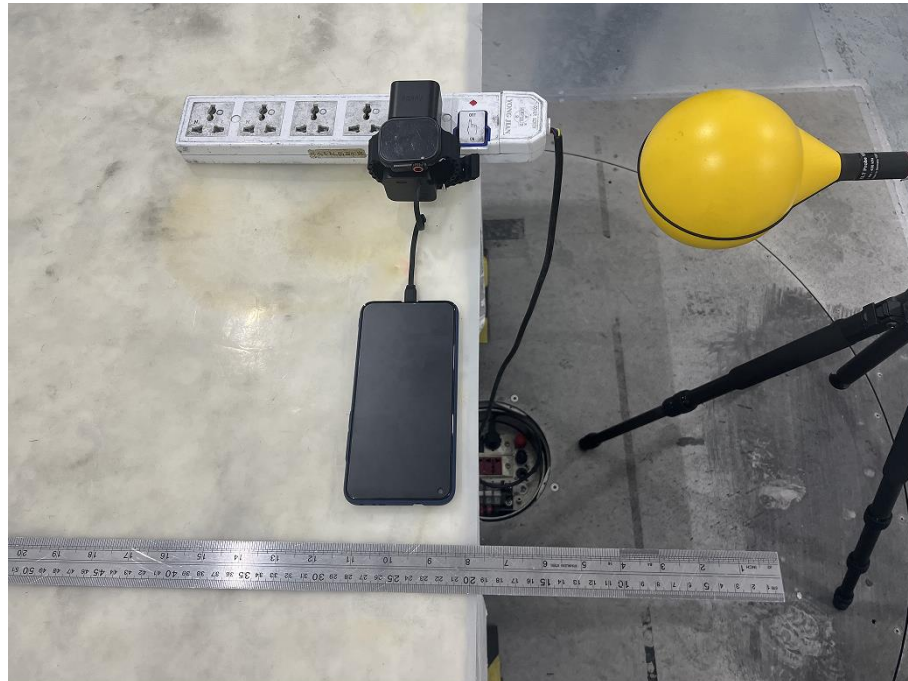


Front





Rear



Right





Mobile exposure conditions (20cm)

Top

