

RF Exposure evaluation

Report Reference No. : **CTL2507151031-WFH**

Compiled by: Happy Guo
(position+printed name+signature) (File administrators)

Tested by: Lydia Ou
(position+printed name+signature) (Test Engineer)

Approved by: Ivan Xie
(position+printed name+signature) (Manager)



Product Name : Power Bank

Model/Type reference : C51PW

List Model(s)..... : N/A

Trade Mark..... : N/A

FCC ID..... : **2AZK8-C51PW**

Applicant's name : **Yuwei Technology (Dongguan) Co., Ltd.**

Address of applicant : Room 301, No.15 Longjing Road, Guanjingtuo, Fenggang Town, Dongguan City, Guangdong Province, China

Test Firm..... : **Shenzhen CTL Testing Technology Co., Ltd.**

Address of Test Firm : Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

Test specification..... : **47CFR §1.1310**

Standard : **47CFR §2.1093**
KDB680106 D01 v04

TRF Originator : Shenzhen CTL Testing Technology Co., Ltd.

Master TRF..... : Dated 2017-01

Date of receipt of test item : Jul. 30, 2025

Date of Test : Jul. 30, 2025–Aug. 12, 2025

Date of Issue : Aug. 13, 2025

Result..... : **Pass**

Shenzhen CTL Testing Technology Co., Ltd. All rights reserved.

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen CTL Testing Technology Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen CTL Testing Technology Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

TEST REPORT

Test Report No. :	CTL2507151031-WFH	Aug. 13, 2025
		Date of issue

Product Name : Power Bank

Sample No : CTL2507151031

Model /Type : C51PW

Listed Models : N/A

Applicant : **Yuwei Technology (Dongguan) Co., Ltd.**

Address : Room 301, No.15 Longjing Road, Guanjingtou, Fenggang Town,
Dongguan City, Guangdong Province, China

Manufacturer : **Yuwei Technology (Dongguan) Co., Ltd.**

Address : Room 301, No.15 Longjing Road, Guanjingtou, Fenggang Town,
Dongguan City, Guangdong Province, China

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory.

**** Modified History ****

[illegible]

Contents

1 GENERAL INFORMATION	5
1.1 ENVIRONMENTAL CONDITIONS	5
1.2 PRODUCT DESCRIPTION	5
1.3 TEST FACILITY	6
1.4 STATEMENT OF THE MEASUREMENT UNCERTAINTY	6
2 EVALUATION METHOD	7
3 EVALUATION LIMIT	7
3.1 REFER EVALUATION METHOD	7
3.2 LIMIT	8
4 TEST STRUCTURE DIAGRAM	9
5 TEST EQUIPMENT	9
EHP-200A	9
6 TEST PROCEDURE	9
7 RF EXPOSURE EVALUATION RESULTS	10
8 TEST SETUP PHOTOS.....	12

1 GENERAL INFORMATION

1.1 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C -35°C
Relative Humidity:	35%-55 %
Air Pressure:	101 KPa

1.2 Product Description

Product Name:	Power Bank
Model/Type reference:	C51PW
Power supply voltage:	Input: 5V===3A 9V===2A Output: 5V===3A 9V===2.22A 12V===1.67A Earphone output: 3W(Max) iWatch output: 2.5W(Max) Wireless Charging: 15W(Max) Battery Capacity: 3.85V 5000mAh/19.2Wh
WPT:	
Operation frequency:	114.25KHz
Modulation type:	CW (Continuous Wave)
Antenna type:	loop coil Antenna
Antenna Gain:	0dBi

Note 1: For more details, refer to the user's manual of the EUT.

Note 2: Antenna gain and cable loss provided by the applicant.

1.3 Test Facility

1.3.1 Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 32/EN 55032 requirements.

1.3.2 Laboratory accreditation

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

A2LA-Lab Cert. No. 4343.01

Shenzhen CTL Testing Technology Co., Ltd, EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

IC Registration No.: 9618B

CAB identifier: CN0041

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements with Registration No.: 9618B.

FCC-Registration No.: 399832

Designation No.: CN1216

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 399832.

1.4 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Magnetic field expanded uncertainty	3KHz~10MH	3.10dB	(1)
Electric Field expanded uncertainty	3KHz~10MH	2.20dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

2 Evaluation Method

Per KDB 680106 D01 v04 RF Exposure Requirements;

- (1) The power transfer frequency is below 1 MHz.
- (2) The output power from each transmitting element (e.g., coil) is less than or equal to 15 watts.
- (3) 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)
- (4) Only § 2.1091-*Mobile* exposure conditions apply (i.e., this provision does not cover § 2.1093-*Portable* exposure conditions).
- (5) 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.
- (6) 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.

3 Evaluation Limit

3.1 Refer Evaluation Method

According to the item 5.2 of KDB680106 D01 RF Exposure Wireless Charging App v04:

Power transfer frequency is less than 1 MHz	The power transfer frequency of ANT is 114.25kHz
The output power from each transmitting element (e.g., coil) is less than or equal to 15 watts.	Out power is less than or equal to $\leq 15W$.
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)	The transmission system has only one coil
Only § 2.1091- <i>Mobile</i> exposure conditions apply (i.e., this provision does not cover § 2.1093- <i>Portable</i> exposure conditions).	Client device is placed directly in contact with the transmitter.
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),	No, The EUT has portable exposure condition

and while all the radiating structures (e.g., coils or antennas) that by design can simultaneously transmit are energized at their nominal maximum power.	
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.	No, and 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 were also evaluated for portable use condition. Please refer to the result of Electric Field Emissions and Magnetic Field Emissions.

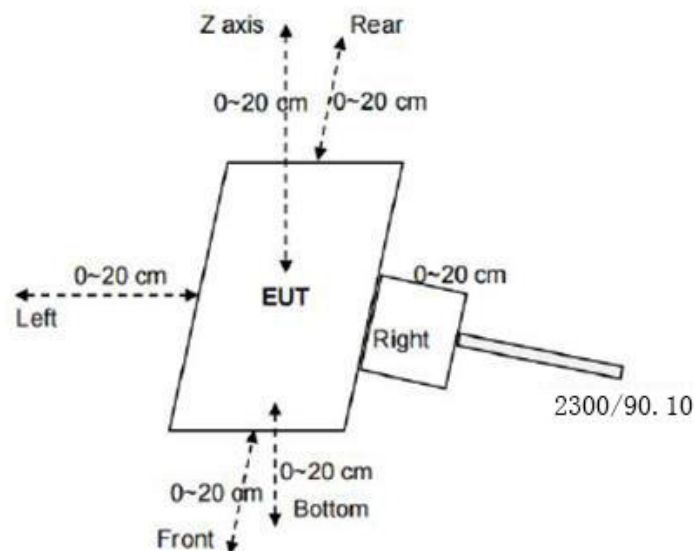
3.2 Limit

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).				

4 Test Structure Diagram



5 Test Equipment

Equipment	Manufacturer	Model	Serial no.	Calibrated date	Calibrated Due
electric and magnetic field analyzer	Narda	EHP-200A	180ZX40222	2025.09.03	2026.09.02

Brand	Product	Model	Serial Number	FCC ID
Apple	iPhone 13 Pro	ML93CH/A	PM70VNX0G4	BCG-E4034A

6 Test Procedure

- The RF exposure test was performed in an echoic chamber;
- The measurement probe was placed at test distance 0cm to 20cm at 2cm iteration, i.e. at a distance of 0cm, 2cm, 4cm, 20cm. Which is between the edge of the charger and the edge of of probe;
- The highest emission level laws recorded and compared with limit as soon as measurement of each points (A,B, C,D, E)were completed;
- According to the requirements if KDB 680106 D01 v04, If the centre of the probe sensing element is located more than 5 mm (The sensitive elements are located approximately 8 mm below the external surface specified in user manual of EHP-200A) from the probe outer surface, the field strengths need to be estimated through modeling for those positions that are not reachable;
- Use Biot-Savart Law, the value of 0 cm can be estimated through the results of 2 cm, according to the formula:

Top & Bottom Side:

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

Front, left, right & rear Side:

$$B = \frac{\mu_0 * I * N}{2 * x}$$

Remark:

B: H-field (Unit: T);

μ_0 : Space permeability= $4 * \pi * 10^{-7}$;

I (Unit: A): The current element passing through a radiated coil;

R: Radius of radiated coil, according to the coil specification: R=0.0215m;

X: The distance from the sensing elements of the probe to the edge of the radiated coil (the dimensions of EUT and load are taken into account) (Unit: m); X=0.008m

N: Turns of the radiated coil, according to the coil specification: N=20

7 RF Exposure Evaluation Results

Note: EUT mode: wireless output 15 W

Mode 1: 100%, Mode 2: 50%, Mode 3: 1% load all have been tested, only worse case Max load (<100%) is reported.

We tested Mode 1, Mode2 and Mode 3 separately, and only recorded the worst Mode 1 in the test data.

H-Filed Strength at (distance 2cm to 20cm at 2cm iteration, i.e. at a distance of 20cm, 18cm, 16cm, 0cm, Which is between the edge of the charger and the edge of probe,) surrounding the EUT (A/m)

Test Result

Test distance (cm)	Test Position Botton(A/m)	Test Position Front(A/m)	Test Position Left(A/m)	Test Position Rear(A/m)	Test Position Right(A/m)	Test Position Top(A/m)	Limit
6	0.016404	0.000280	0.000248	0.000878	0.000878	0.008512	1.63
8	0.007677	0.000176	0.000159	0.000456	0.000456	0.004522	1.63
10	0.004154	0.000118	0.000108	0.000266	0.000266	0.002671	1.63
12	0.002485	0.000083	0.000076	0.000169	0.000169	0.001703	1.63
14	0.001600	0.000060	0.000056	0.000114	0.000114	0.001150	1.63
16	0.001089	0.000045	0.000042	0.000080	0.000080	0.000812	1.63
18	0.000773	0.000035	0.000033	0.000059	0.000059	0.000595	1.63
20	0.000569	0.000028	0.000026	0.000044	0.000044	0.000448	1.63

Verify:

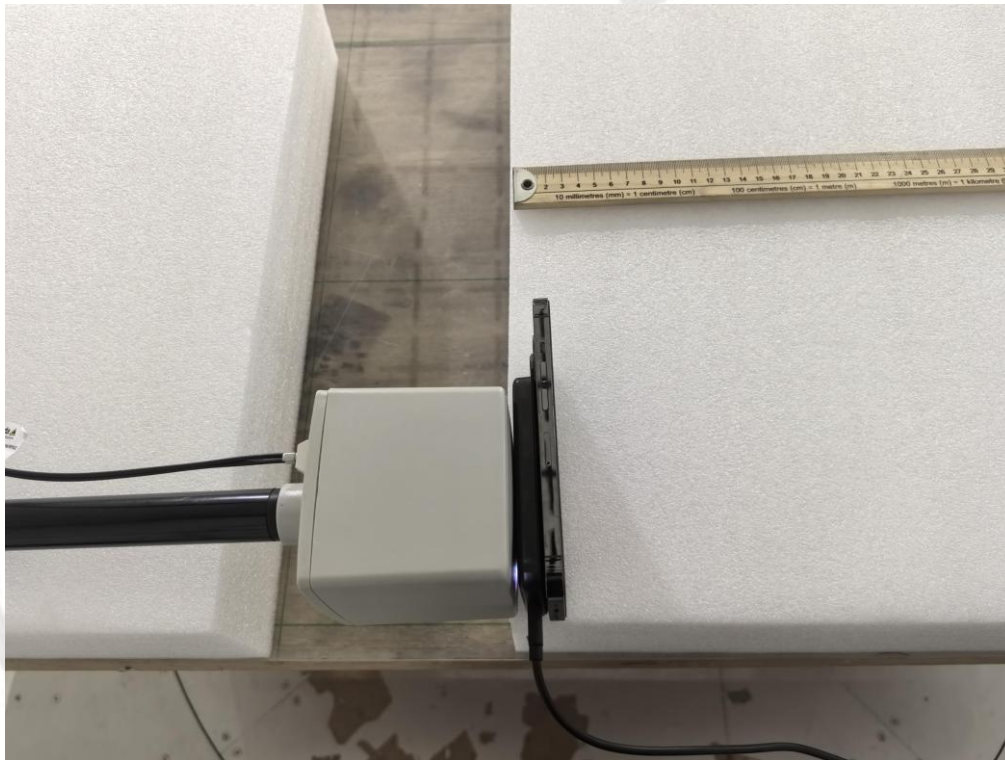
Transmitter Battery level: 100% battery						
Test Position	Test Position Botton(A/m)	Test Position Front(A/m)	Test Position Left(A/m)	Test Position Rear(A/m)	Test Position Right(A/m)	Test Position Top(A/m)
(6cm)Measure Value (A/m)	0.016404	0.000280	0.000248	0.000878	0.000878	0.008512
(6cm)Valuation(A/m)	0.017464	0.00035	0.000278	0.000915	0.000952	0.008742
(6cm)Agreement ratio	6.26%	22.22%	11.41%	4.13%	8.09%	2.67%
(8cm)Measure Value (A/m)	0.007677	0.000176	0.000159	0.000456	0.000456	0.004522
(8cm)Valuation(A/m)	0.007951	0.000217	0.000195	0.000481	0.000512	0.004674
(8cm)Agreement ratio	3.51%	20.87%	20.34%	5.34%	11.57%	3.31%
Limit	30%	30%	30%	30%	30%	30%
Test result	Pass	Pass	Pass	Pass	Pass	Pass

As the model is sufficient, the value of 0-4cm can be estimated through the results of 6-8 cm

Test distance (cm)	Test Position Botton(A/m)	Test Position Front(A/m)	Test Position Left(A/m)	Test Position Rear(A/m)	Test Position Right(A/m)	Test Position Top(A/m)	Limit
0(estimated)	0.472993	0.002240	0.001762	0.045443	0.045443	0.191109	1.63
2(estimated)	0.155045	0.000945	0.000788	0.006531	0.006531	0.051668	1.63
4(estimated)	0.043547	0.000484	0.000418	0.002030	0.002030	0.018689	1.63

8 Test Setup Photos

Model_0cm_Botton



Model_0cm_Front



Mode1_0cm_Left



Mode1_0cm_Rear



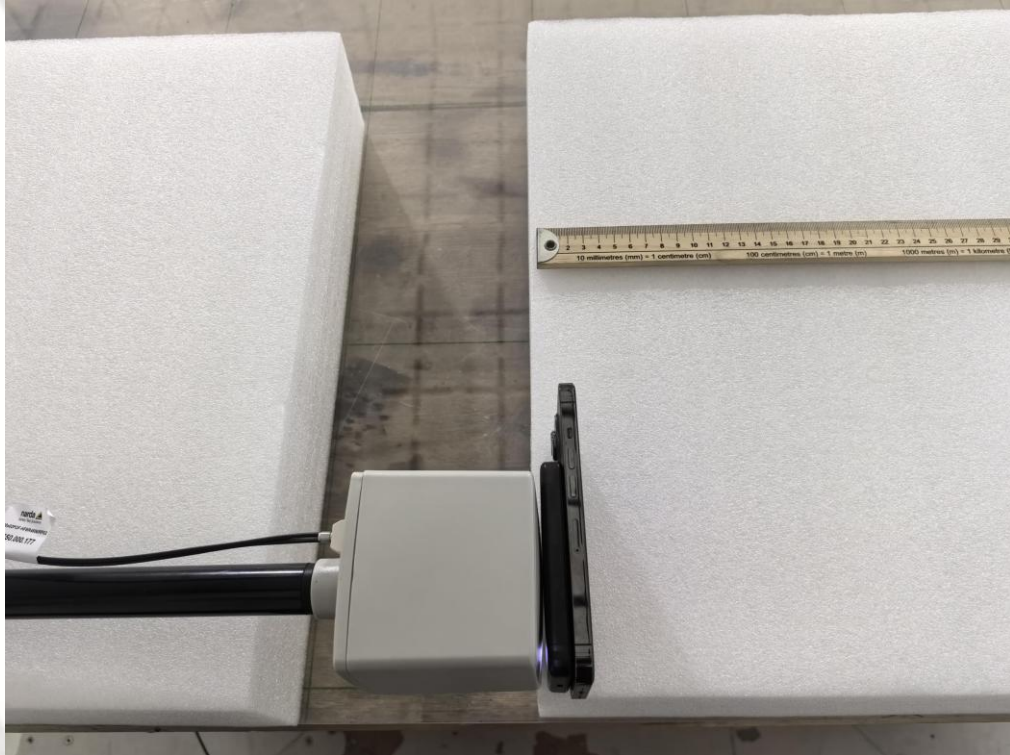
Model_0cm_Right



Model_0cm_Top



Mode2_0cm_Botton



Mode2_0cm_Front



Mode2_0cm_Left



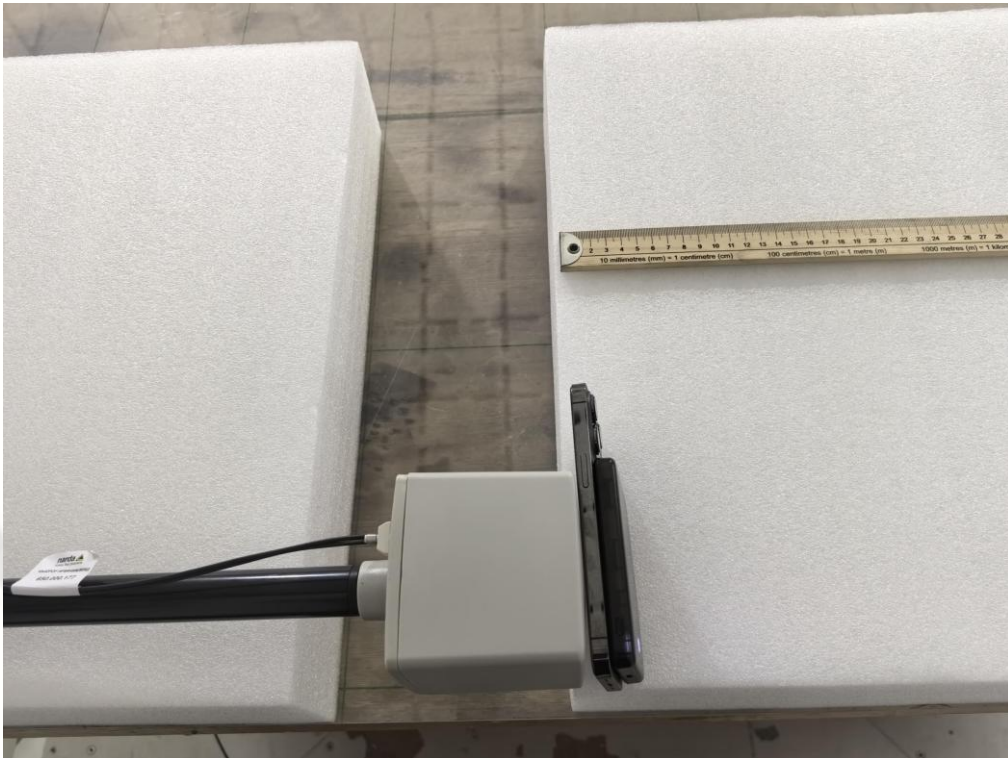
Mode2_0cm_Rear



Mode2_0cm_Right



Mode2_0cm_Top



*****THE END*****