Human Exposure Report

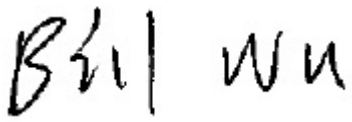
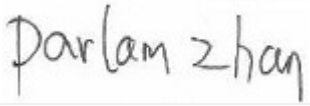
Application No.:	SHEM1908016200CR
FCC ID:	2AMIN-WPB100
Applicant:	ZIMI CORPORATION
Address of Applicant:	Room A913, No.159 Chengjiang Road, Jiangyin City, Jiangsu Province, 214431, P.R.C
Manufacturer:	ZIMI CORPORATION
Address of Manufacturer:	Room A913, No.159 Chengjiang Road, Jiangyin City, Jiangsu Province, 214431, P.R.C
Factory:	1, Dongguan DBK Energy Technology Co.,Ltd. 2, Tianjin Zowee Technology Development Co., Limited 3, Kunshan Xuanchuang Electronic Co., Ltd.
Address of Factory:	1, No.51 Zhangshen Middle Road,Xuzhen Community,Zhangmutou Town,Dongguan,Guangdong,P.R.China. 2, No.71 South Street Xinhuan.West Zone.Economic Development Zone of Tianjin,Tianjin,China. 3, No.218 Changxing Ease Road, Zhoushi Town, KunShan City, Jiangsu Province, 215300, P.R.C.
Equipment Under Test (EUT):	
EUT Name:	Wireless Charge Power Bank
Model No.:	WPB100
Standards:	47 CFR PART 1, Subpart I, Section 1.1310 KDB 680106
Date of Receipt:	2019-08-14
Date of Test:	2019-09-17 to 2019-09-22
Date of Issue:	2019-09-25
Test Result :	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Parlam Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2019-09-25	/

Authorized for issue by:				
				
		Bill Wu / Project Engineer		
				
		Parlam /Reviewer		

2 Contents

3 General Information

3.1 Details of E.U.T.

Power supply: DC 3.7V 10000mAh rechargeable battery
Input: DC 5V 3A; 9V 2A; 12V 1.5A by USB-C
DC 5V 2.4A by Lightning
Output:DC 5V 3A; 9V 2A; 12V 1.5A by USB-C only
DC 5V 2.1A by USB-A only
DC 5V 3A by USB-A & USB-C
Wireless & cable charging simultaneously output:
Wireless: 5W
USB-A only: 5V 2.1A
USB-C only: 5V 2.5A
USB-A & USB-C: 5V 2.1A (USB-A); 5V 1A (USB-C)
Wireless charging only: 5W/7.5W/10W

Cable: Lightning cable 40cm

Operation frequency: 110-205 kHz

Antenna type: Inductive Loop Coil Antenna

Remark: Tests were conducted in three loads and the worst case is reported only.

3.2 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.	Serial No.
Load Resistor	provided by client	N/A	N/A
Mobile Phone	Samaung	Galaxy S8	N/A
Mobile Phone	Apple	IPhone X	N/A
Mobile Phone	HUAWEI	Mate 20	N/A

3.3 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678
No tests were sub-contracted.

3.4 Test Facility

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **NVLAP (Certificate No. 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

- **FCC –Designation Number: CN5033**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.
Designation Number: CN5033. Test Firm Registration Number: 479755.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by ISED as an accredited testing laboratory.
IC Registration No.: 8617A-1. CAB identifier: CN0020.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

3.5 Deviation from Standards

None.

3.6 Abnormalities from Standard Conditions

None.

4 Equipments Used during Test

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ST	N/A	SHEM078-2	2017-07-20	2020-07-21
2	Electromagnetic Field Probe	WANDEL & GOLTERMANN	EMR-20	SHEM0907	2019-04-10	2020-04-11

5 Test Results

5.1 RF Exposure test

Test Requirement: 47 CFR PART 1, Subpart I, Section 1.1310
Tracking number: 467146

Measurement Distance: 15 cm for surrounding the device and 20 cm for above the top surface.

Test voltage DC 3.7V (Wireless Output：5W/7.5W/10W)

Limit:

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).

E.U.T. Operation

Operating Environment:

Temperature: 24.0 °C Humidity: 52% RH Atmospheric Pressure: 1015 mbar

EUT Operation:

This device has been tested the worst status(AC input) of full load and the device has been tested with mobile phone at zero charge, intermediate charge, and full charge.

Measurement Data:

1: When use three type load to test, the worst case is Output Voltage=DC 10V; The max output power =10W;Calculation of resistor value=9Ω (DC 9V/1.1A)

Electric Field Emissions

Test Position	Operating Frequency	Test Distance (cm)	Probe Measure Result (V/m)	Limit (V/m)	50% Limit (V/m)
Side 1	132KHz	15	9.96	614	307
Side 2	132KHz	15	9.71	614	307
Side 3	132KHz	15	9.93	614	307
Side 4	132KHz	15	9.79	614	307
Top	132KHz	20	8.95	614	307
Bottom	132KHz	15	9.24	614	307

Magnetic Field Emissions

Test Position	Operating Frequency	Test Distance (cm)	Probe Measure Result (A/m)	Limit (A/m)	50% Limit (A/m)
Side 1	132KHz	15	0.1356	1.63	0.815
Side 2	132KHz	15	0.1424	1.63	0.815
Side 3	132KHz	15	0.1435	1.63	0.815
Side 4	132KHz	15	0.1412	1.63	0.815
Top	132KHz	20	0.2256	1.63	0.815
Bottom	132KHz	15	0.1428	1.63	0.815

2: When use three type load to test, the worst case is Output Voltage=DC 5V; The max output power =7.5W;Calculation of resistor value=3.3Ω (DC 5V/1.5A)

Electric Field Emissions

Test Position	Operating Frequency	Test Distance (cm)	Probe Measure Result (V/m)	Limit (V/m)	50% Limit (V/m)
Side 1	132KHz	15	9.84	614	307
Side 2	132KHz	15	9.70	614	307
Side 3	132KHz	15	9.78	614	307
Side 4	132KHz	15	9.69	614	307
Top	132KHz	20	8.54	614	307
Bottom	132KHz	15	9.30	614	307

Magnetic Field Emissions

Test Position	Operating Frequency	Test Distance (cm)	Probe Measure Result (A/m)	Limit (A/m)	50% Limit (A/m)
Side 1	132KHz	15	0.1298	1.63	0.815
Side 2	132KHz	15	0.1379	1.63	0.815
Side 3	132KHz	15	0.1406	1.63	0.815
Side 4	132KHz	15	0.1396	1.63	0.815
Top	132KHz	20	0.2248	1.63	0.815
Bottom	132KHz	15	0.1416	1.63	0.815

3: When use three type load to test, the worst case is Output Voltage=DC 5V; The max output power =5W;Calculation of resistor value=5Ω (DC 5V/1A)

Electric Field Emissions

Test Position	Operating Frequency	Test Distance (cm)	Probe Measure Result (V/m)	Limit (V/m)	50% Limit (V/m)
Side 1	128KHz	15	9.62	614	307
Side 2	128KHz	15	9.33	614	307
Side 3	128KHz	15	9.75	614	307
Side 4	128KHz	15	8.86	614	307
Top	128KHz	20	9.42	614	307
Bottom	128KHz	15	9.07	614	307

Magnetic Field Emissions

Test Position	Operating Frequency	Test Distance (cm)	Probe Measure Result (A/m)	Limit (A/m)	50% Limit (A/m)
Side 1	128KHz	15	0.1125	1.63	0.815
Side 2	128KHz	15	0.1344	1.63	0.815
Side 3	128KHz	15	0.1219	1.63	0.815
Side 4	128KHz	15	0.1156	1.63	0.815
Top	128KHz	20	0.2047	1.63	0.815
Bottom	128KHz	15	0.1242	1.63	0.815

4:Mobile phone has been charge at zero charge, intermediate charge, and full charge. The Maximum value has been recorded in the below table.(DC 9V 10W)

Electric Field Emissions

Test Position	Operating Frequency	Test Distance (cm)	Probe Measure Result(V/m)			Limit(V/m)/ 50%Limit(V/m)
			zero charge	intermediate charge	full charge	
Side 1	132KHz	15	7.89	8.02	8.42	614/307
Side 2	132KHz	15	7.58	8.11	8.38	614/307
Side 3	132KHz	15	7.79	8.15	8.35	614/307
Side 4	132KHz	15	7.67	8.06	8.41	614/307
Top	132KHz	20	7.71	8.11	8.24	614/307
Bottom	132KHz	15	7.61	8.23	8.33	614/307

Magnetic Field Emissions

Test Position	Operating Frequency	Test Distance (cm)	Probe Measure Result(A/m)			Limit(A/m)/ 50%Limit(A/m)
			zero charge	intermediate charge	full charge	
Side 1	132KHz	15	0.0826	0.0898	0.0933	1.63/0.815
Side 2	132KHz	15	0.0822	0.0914	0.0941	1.63/0.815
Side 3	132KHz	15	0.0818	0.0921	0.0923	1.63/0.815
Side 4	132KHz	15	0.0812	0.0890	0.0942	1.63/0.815
Top	132KHz	20	0.0871	0.9190	0.1020	1.63/0.815
Bottom	132KHz	15	0.0881	0.9210	0.0938	1.63/0.815

5:Mobile phone has been charge at zero charge, intermediate charge, and full charge. The Maximum value has been recorded in the below table.(DC 5V 7.5W)

Electric Field Emissions

Test Position	Operating Frequency	Test Distance (cm)	Probe Measure Result(V/m)			Limit(V/m)/ 50%Limit(V/m)
			zero charge	intermediate charge	full charge	
Side 1	132KHz	15	7.84	8.12	8.44	614/307
Side 2	132KHz	15	7.56	8.08	8.36	614/307
Side 3	132KHz	15	7.82	8.12	8.40	614/307
Side 4	132KHz	15	7.65	8.09	8.38	614/307
Top	132KHz	20	7.74	8.04	8.28	614/307
Bottom	132KHz	15	7.63	8.25	8.30	614/307

Magnetic Field Emissions

Test Position	Operating Frequency	Test Distance (cm)	Probe Measure Result(A/m)			Limit(A/m)/ 50%Limit(A/m)
			zero charge	intermediate charge	full charge	
Side 1	132KHz	15	0.0822	0.0894	0.0930	1.63/0.815
Side 2	132KHz	15	0.0830	0.0912	0.0938	1.63/0.815
Side 3	132KHz	15	0.0820	0.0924	0.0926	1.63/0.815
Side 4	132KHz	15	0.0810	0.0886	0.0938	1.63/0.815
Top	132KHz	20	0.0866	0.9192	0.1022	1.63/0.815
Bottom	132KHz	15	0.0878	0.9212	0.0934	1.63/0.815

6:Mobile phone has been charge at zero charge, intermediate charge, and full charge. The Maximum value has been recorded in the below table.(DC 5V 5W)

Electric Field Emissions

Test Position	Operating Frequency	Test Distance (cm)	Probe Measure Result(V/m)			Limit(V/m)/ 50%Limit(V/m)
			zero charge	intermediate charge	full charge	
Side 1	128KHz	15	7.83	8.75	8.97	614/307
Side 2	128KHz	15	7.92	8.64	8.99	614/307
Side 3	128KHz	15	8.21	8.39	9.11	614/307
Side 4	128KHz	15	7.78	8.44	9.10	614/307
Top	128KHz	20	8.10	8.47	8.94	614/307
Bottom	128KHz	15	7.78	8.49	8.79	614/307

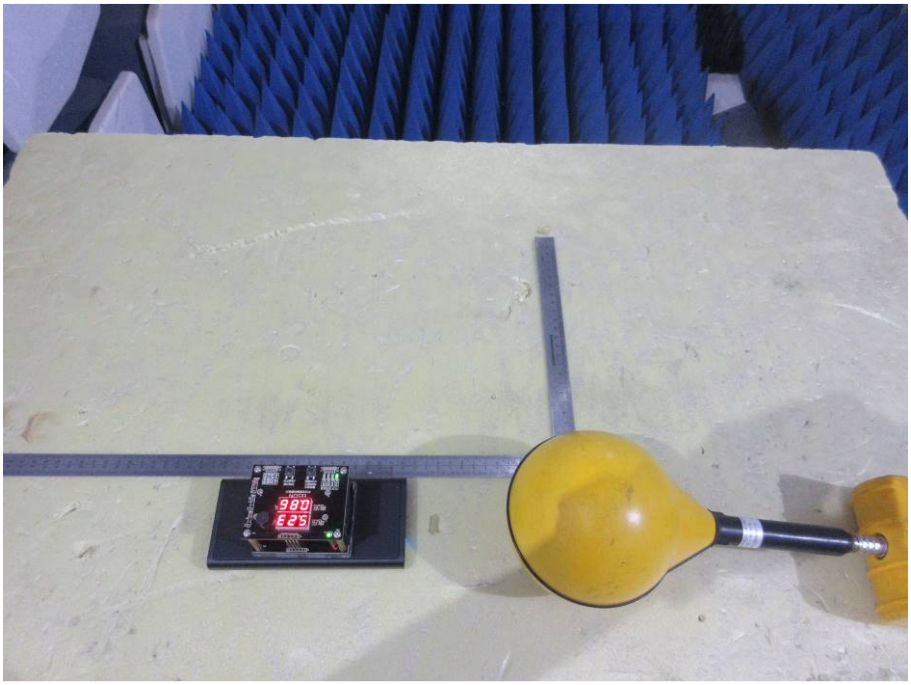
Magnetic Field Emissions

Test Position	Operating Frequency	Test Distance (cm)	Probe Measure Result(A/m)			Limit(A/m)/ 50%Limit(A/m)
			zero charge	intermediate charge	full charge	
Side 1	128KHz	15	0.0812	0.0871	0.0972	1.63/0.815
Side 2	128KHz	15	0.0802	0.0878	0.0978	1.63/0.815
Side 3	128KHz	15	0.0811	0.0901	0.0924	1.63/0.815
Side 4	128KHz	15	0.0821	0.0877	0.1001	1.63/0.815
Top	128KHz	20	0.0901	0.1972	0.2024	1.63/0.815
Bottom	128KHz	15	0.0814	0.0848	0.0917	1.63/0.815

6 Photographs

6.1 Test photos

Side 1



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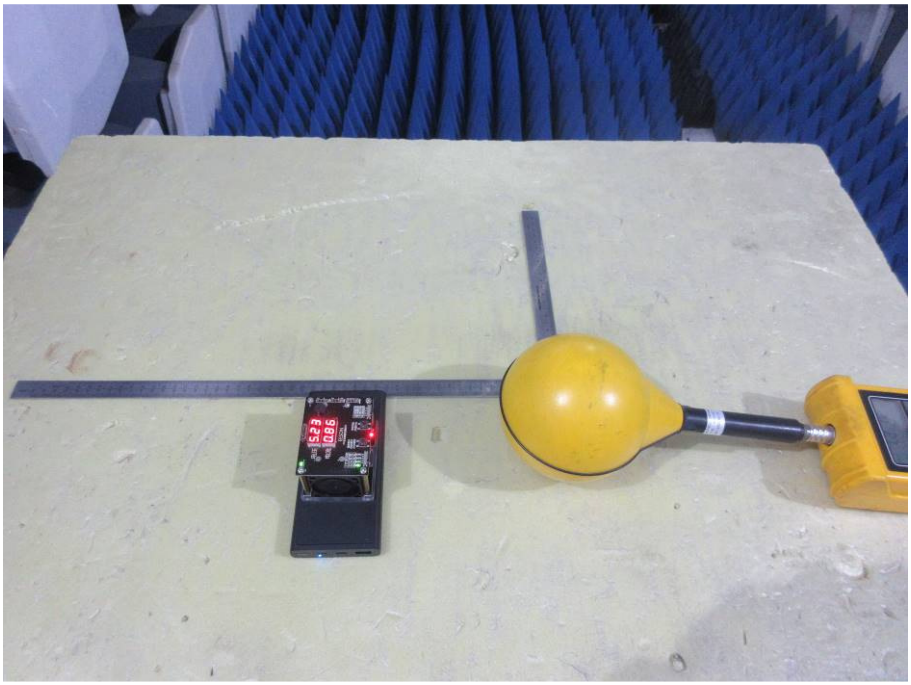

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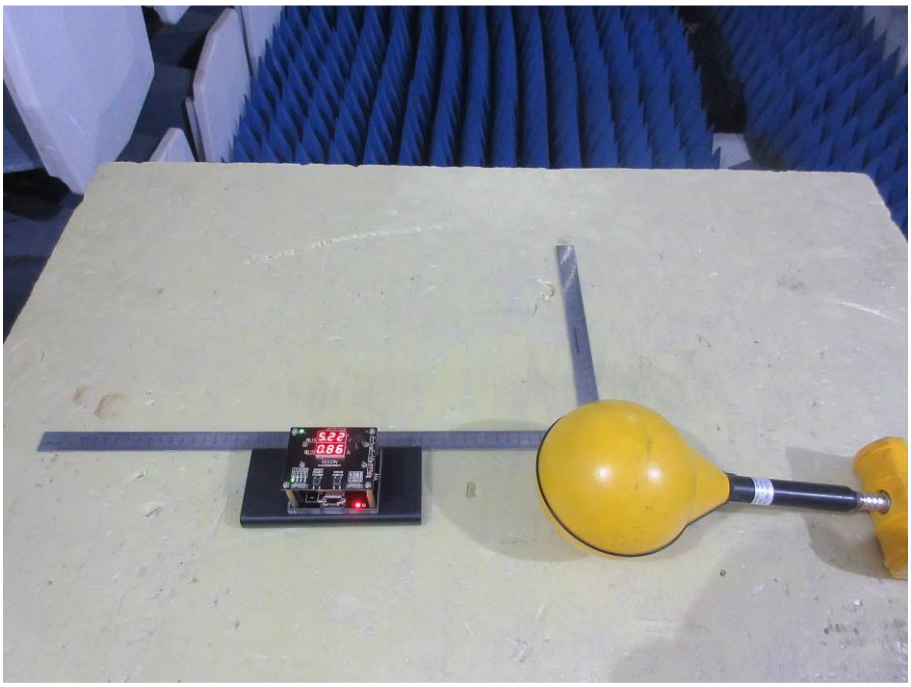
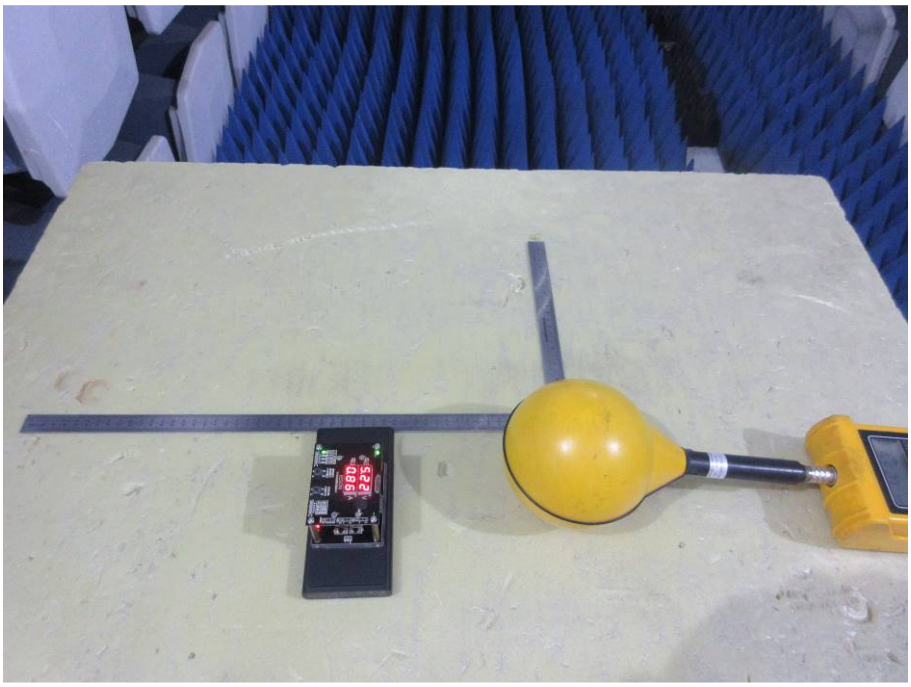


Side 4



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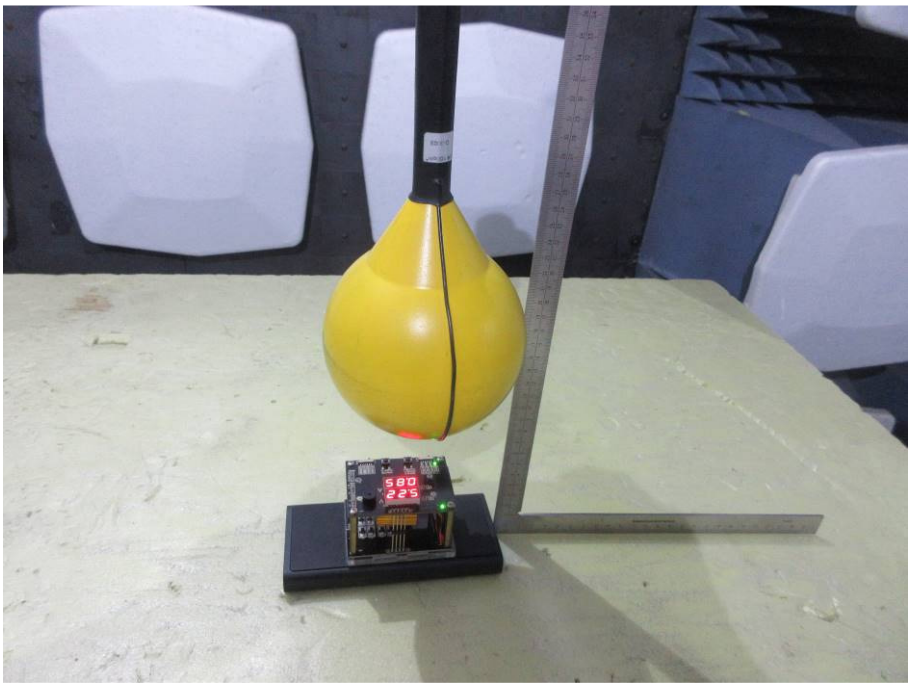

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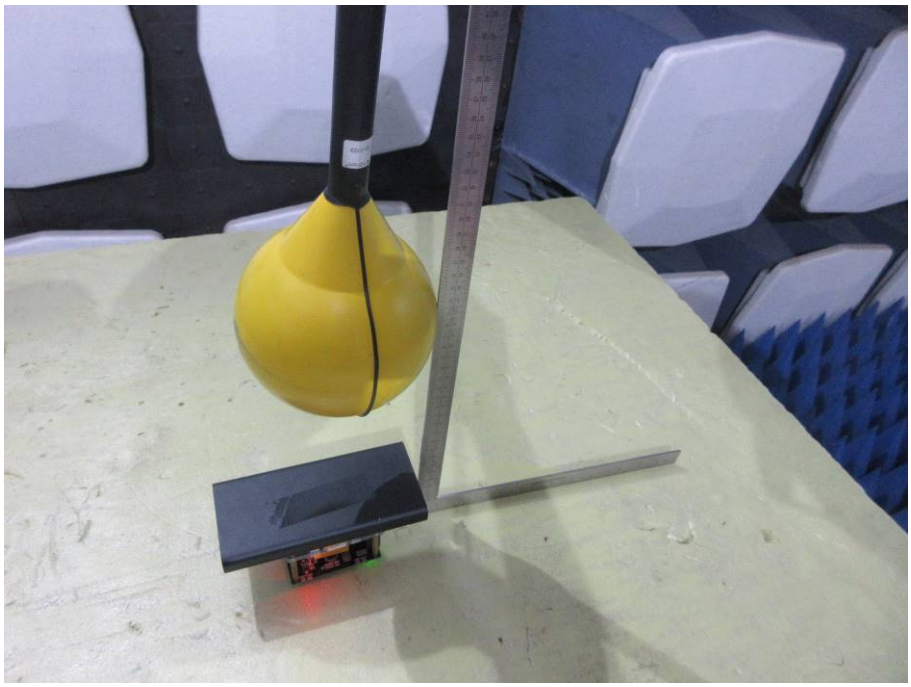

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