FCC TEST REPORT

Client Name	:	SHENZHEN XPGTECH Co., Ltd
Address	:	F2, BuildingA, #282, HuanGuan Middle Road GuanLan, Longhua Shenzhen, Guangdong province China 518000
Product Name	:	magnetic wireless car charger and magnetic wireless charger
Date	:	Jan. 08, 2021

Shenzhen Anbotek Compliance Laboratory Limited

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Contents

1. General Information....4
1.1. Client Information....4
1.2. Description of Device (EUT)....4
1.3. Auxiliary Equipment Used During Test....5
1.4. Test Equipment List....5
1.5. Measurement Uncertainty....5
1.6. Description of Test Facility....6
2. Measurement and Result....7
2.1. Requirements....7
2.2. Test Setup....8
2.3. Test Procedure....8
2.4. Test Result....8
2.4.1. Equipment Approval Considerations item 5.b of KDB 680106 D01 v03....8
2.4.2. Environmental evaluation and exposure limit according to FCC CFR 47 part 1, 1.1307(b), 1.1310....10
APPENDIX I -- TEST SETUP PHOTOGRAPH....13

TEST REPORT

Applicant	:	SHENZHEN XPGTECH Co., Ltd
Manufacturer	:	SHENZHEN XPGTECH Co., Ltd
Product Name	:	magnetic wireless car charger and magnetic wireless charger
Model No.	:	X-16, X-17, X-18, X-19, X-20, X-21, X-23, X-24, X-25, X-26, X-27
Trade Mark	:	LOIC
Rating(s)	:	Input: DC 9V, 2A Output: 15W/10W/7.5W/5W
Test Standard(s)	**:**	**FCC Part 1.1310, 1.1307(b)**
Test Method(s)	**:**	**KDB680106 D01 RF Exposure Wireless Charging Apps v03**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 1.1307 & KDB680106 D01 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt	Dec. 14, 2020
Date of Test	Dec. 14~28, 2020
Prepared By	Yilia Zhong (Engineer / Yilia Zhong)
Reviewer	Bibo Zhang (Supervisor / Bibo Zhang)
Approved & Authorized Signer	Kingkong Jin (Manager / Kingkong Jin)

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1. General Information

1.1. Client Information

Applicant	:	SHENZHEN XPGTECH Co., Ltd
Address	:	F2, BuildingA, #282, HuanGuan Middle Road GuanLan, Longhua Shenzhen, Guangdong province China 518000
Manufacturer	:	SHENZHEN XPGTECH Co., Ltd
Address	:	F2, BuildingA, #282, HuanGuan Middle Road GuanLan, Longhua Shenzhen, Guangdong province China 518000
Factory	:	SHENZHEN XPGTECH Co., Ltd
Address	:	F2, BuildingA, #282, HuanGuan Middle Road GuanLan, Longhua Shenzhen, Guangdong province China 518000

1.2. Description of Device (EUT)

Product Name	:	magnetic wireless car charger and magnetic wireless charger	
Model No.	:	X-16, X-17, X-18, X-19, X-20, X-21, X-23, X-24, X-25, X-26, X-27 (Note: All samples are the same except the model number, so we prepare "X-16" for test only.)	
Trade Mark	:	LOIC	
Test Power Supply	:	AC 120V, 60Hz for adapter	
Test Sample No.	:	1-2-1(Normal Sample), 1-2-1(Engineering Sample)	
Product Description	:	Operation Frequency:	110.1-205KHz
		Modulation Type:	FSK
		Antenna Type:	Inductive loop coil Antenna
		Antenna Gain(Peak):	0 dBi
Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.			

1.3. Auxiliary Equipment Used During Test

Adapter	:	M/N: A2013 Input: 100-240V-0.7A 50-60Hz Output: 3.6-5.5V 3A / 6.5-9V 2A / 9-12V 1.5A

1.4. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Magnetic field meter	NARDA	ELT-400	423623	Dec. 24, 2018	3 Year
2	E-Field Probe	Narda	EF0391	Q15221	Nov.17, 2020	3 Year
3	H-Field Probe	Narda	HF3061	Q15835	Nov.17, 2020	3 Year

1.5. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 3.9 dB (Horizontal)
		Ur = 3.8 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4 dB

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1.6. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed 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 No. 184111, September 30, 2020.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A, September 30, 2020.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.
1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China. 518102

2. Measurement and Result

2.1. Requirements

According to the item 5.b) of KDB 680106 D01v03:

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

1) Power transfer frequency is less that 1 MHz

2) Output power from each primary coil is less than or equal to 15 watts.

3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils

4) Client device is inserted in or placed directly in contact with the transmitter

5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion)

6) The aggregate H-field strengths at 0-15 cm for each edge/top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

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).

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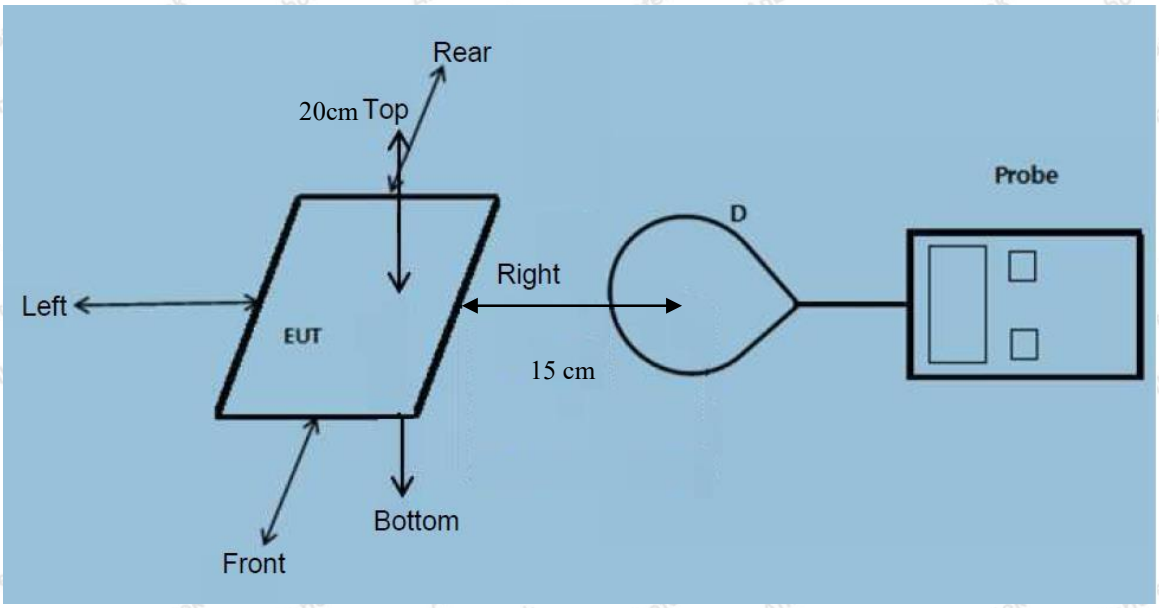
2.2. Test Setup



Note: Perform H-field measurements for each edge/top surface of the host/client pair at every 2 cm, starting from 0cm out to 10 cm, and 15cm. (See TCB Workshop November 2019)

2.3. Test Procedure

1) The RF exposure test was performed in anechoic chamber.
2) The measurement probe was placed at required test distance 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 points
(A, B, C, D, E) were completed.(A is the right, B is the back, C is the left, D is the front, and E is the top.)
4) The EUT was measured according to the dictates of KDB 680106 D01 v03.
Remark;
The EUT's test position A, B, C, D and E is valid for the E and H field measurements.

2.4. Test Result

2.4.1. Equipment Approval Considerations item 5.b of KDB 680106 D01 v03.

1) Power transfer frequency is less that 1 MHz
- The device operate in the frequency range 110.1~205KHz

2) Output power from each primary coil is less than 15 watts
- The maximum output power of the primary coil is 15W.

3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils

- The transfer system including a charging system with only single primary coils is to detect and allow only between individual pairs of coils.

4) Client device is inserted in or placed directly in contact with the transmitter

- Client device is placed directly in contact with the transmitter.

5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion)

- The EUT is a Mobile exposure conditions

6) The aggregate H-field strengths at 0-15 cm for each edge/top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

- Conducted the measurement with the required distance and the test results please refer to the section 2.4.

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2.4.2. Environmental evaluation and exposure limit according to FCC CFR 47 part 1, 1.1307(b), 1.1310

Temperature:	23.6° C	Relative Humidity:	54%
Pressure:	1012 hPa	Test Voltage:	AC 120V, 60Hz for adapter

H-Field Strength at 0 cm surrounding the EUT

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.6291	0.4184	0.3855	0.4011	0.3658	0.815	1.63
50%	110.1-205	0.6681	0.4521	0.4250	0.4362	0.4076	0.815	1.63
99%	110.1-205	0.6703	0.4504	0.4272	0.4298	0.4113	0.815	1.63
Stand-by	110.1-205	0.6602	0.4498	0.4219	0.4300	0.4004	0.815	1.63

H-Field Strength at 2 cm surrounding the EUT

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.5398	0.3491	0.2969	0.3728	0.3207	0.815	1.63
50%	110.1-205	0.5265	0.3376	0.2885	0.3609	0.3126	0.815	1.63
99%	110.1-205	0.5186	0.3343	0.2775	0.3503	0.3003	0.815	1.63
Stand-by	110.1-205	0.5325	0.3352	0.2855	0.3599	0.3109	0.815	1.63

H-Field Strength at 4 cm surrounding the EUT

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.4689	0.2977	0.2808	0.3087	0.2901	0.815	1.63
50%	110.1-205	0.4668	0.2979	0.2819	0.3099	0.2967	0.815	1.63
99%	110.1-205	0.4472	0.2685	0.2576	0.2785	0.2703	0.815	1.63
Stand-by	110.1-205	0.4745	0.3061	0.2846	0.3093	0.2953	0.815	1.63

H-Field Strength at 6 cm surrounding the EUT

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.4141	0.2504	0.2100	0.2672	0.2284	0.815	1.63
50%	110.1-205	0.3959	0.2387	0.2075	0.2661	0.2184	0.815	1.63
99%	110.1-205	0.4087	0.2672	0.2325	0.2903	0.2490	0.815	1.63
Stand-by	110.1-205	0.4052	0.3040	0.2762	0.3285	0.2872	0.815	1.63

H-Field Strength at 8 cm surrounding the EUT

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.3293	0.1994	0.1918	0.2200	0.1927	0.815	1.63
50%	110.1-205	0.3598	0.2330	0.2183	0.2551	0.2291	0.815	1.63
99%	110.1-205	0.4067	0.2742	0.2700	0.2957	0.2642	0.815	1.63
Stand-by	110.1-205	0.3266	0.2019	0.1940	0.2165	0.1977	0.815	1.63

H-Field Strength at 10 cm surrounding the EUT

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.2569	0.1600	0.1424	0.1706	0.1429	0.815	1.63
50%	110.1-205	0.1984	0.1969	0.1689	0.2103	0.1778	0.815	1.63
99%	110.1-205	0.2813	0.1796	0.1557	0.1909	0.1657	0.815	1.63
Stand-by	110.1-205	0.2782	0.1677	0.1495	0.1889	0.1597	0.815	1.63

H-Field Strength at 15 cm surrounding the EUT

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.1491	0.0896	0.0740	0.1029	0.0792	0.815	1.63
50%	110.1-205	0.1288	0.0736	0.0598	0.0844	0.0687	0.815	1.63
99%	110.1-205	0.1571	0.0987	0.0871	0.1017	0.0872	0.815	1.63
Stand-by	110.1-205	0.1032	0.1417	0.0986	0.0997	0.0787	0.815	1.63

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H-Field Strength at 20 cm surrounding the EUT

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.1450	0.0891	0.0649	0.0879	0.0787	0.815	1.63
50%	110.1-205	0.1253	0.0653	0.0421	0.0752	0.0654	0.815	1.63
99%	110.1-205	0.1074	0.0966	0.0869	0.0899	0.0820	0.815	1.63
Stand-by	110.1-205	0.0948	0.0958	0.0947	0.0917	0.0748	0.815	1.63

Remark: All the conditions have been tested. It is found that Wireless Output(15W) work simultaneously is the worst mode, and the data in the report only reflects the worst mode.

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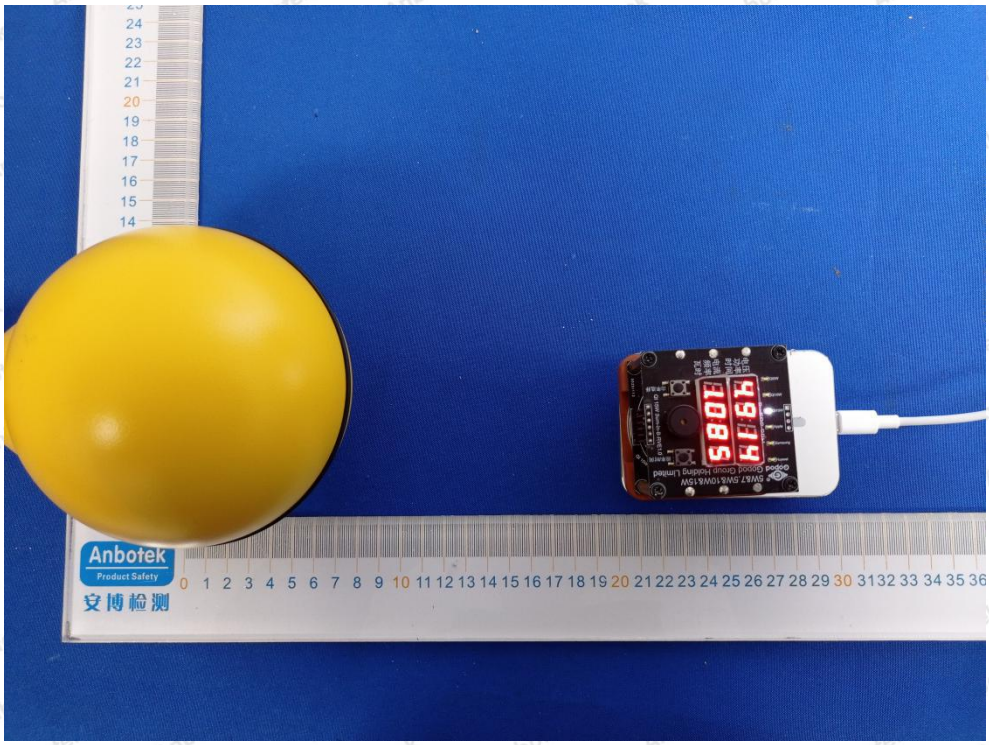
APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of MPE Measurement



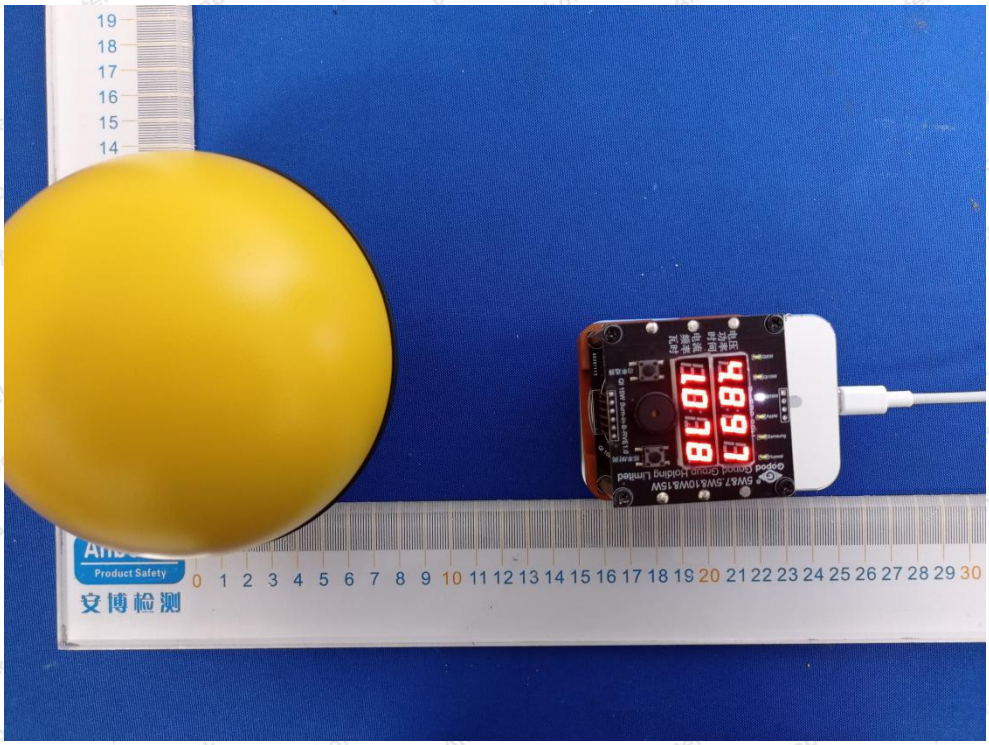
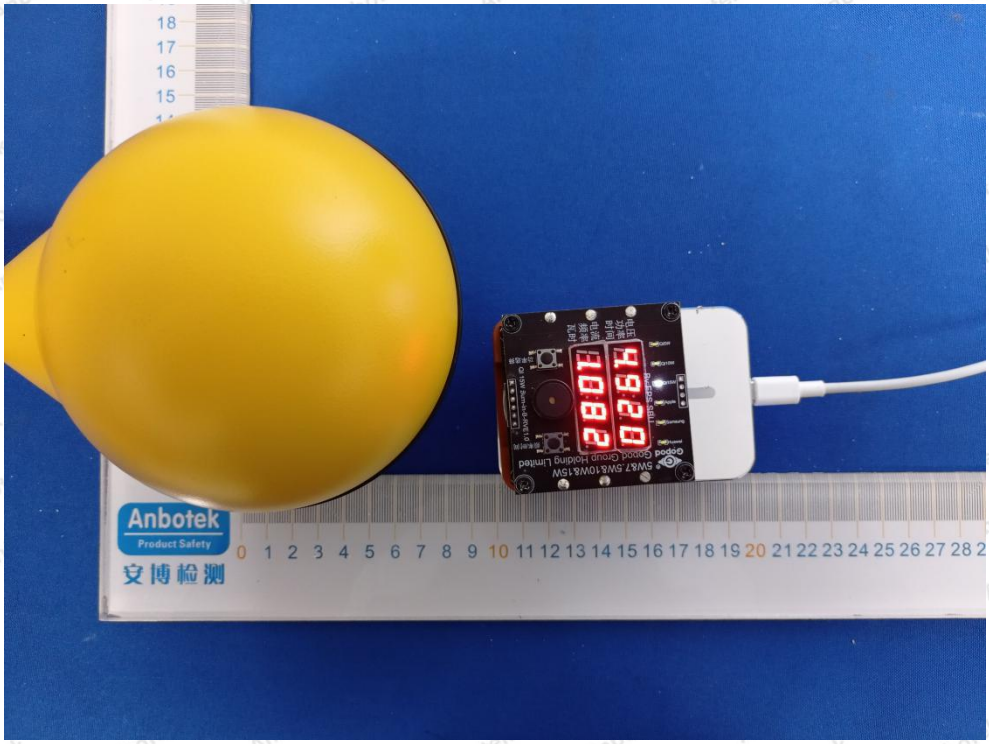
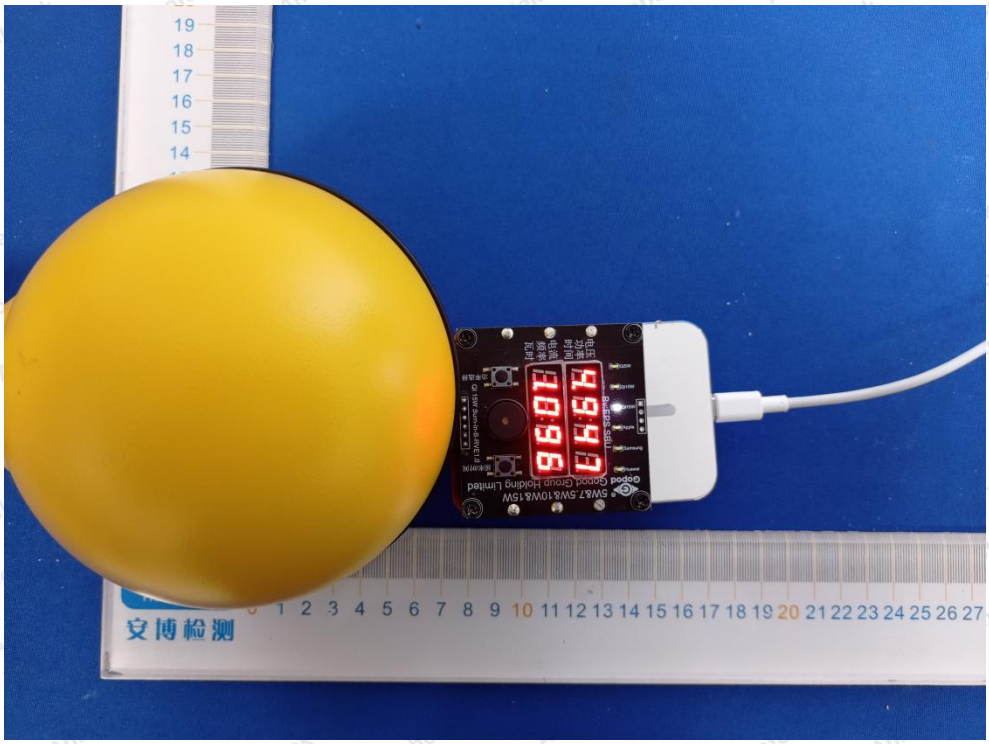


Photo of MPE Measurement





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