RF EVALUATION TEST REPORT

Applicant	:	MAGFAST LLC
Address	:	1 GRANDVIEW AVE Cornwall on Hudson, NY 12520 USA
Manufacturer	:	Shenzhen QiAo Communication Tech Co., Ltd
Address	:	Room ABCDEFGH OF 16F, Block C, Central Avenue, interchange between XiXiang Road and Baoyuan, Laodong Community, XiXiang Road, Baoan District, ShenZhen
Factory	:	Dongguan IRice Electronics Development Co.,Ltd.
Address	:	Building 1, No.17, Hudie 1st Road, Tianxin village, Huangjiang town, Dongguan city, Guangdong province, PRC 523763 China
Product Name	:	Wireless charger
FCC ID	:	2A2Y4-AIR
Brand Name	:	MAGFAST®
Model No.	:	SBNP-NPK-AC-UU-PP-AW-01
Measurement Standard	:	47 CFR PART 2, Section 2.1091& 2.1093
Receipt Date of Samples	:	October 27, 2021
Date of Tested	:	October 27, 2021 to February 11, 2022
Date of Report	:	January 05, 2023

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.

Prepared by

Jenny Liu / Project Engineer

Approved by

Iori Fan / Authorized Signatory

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Revision History

Report Number	Description	Issued Date
NTC2110279FV01	Initial Issue	2023-01-05

1. General Description of EUT

Product Information	
Product name:	Wireless charger
Main Model Name:	SBNP-NPK-AC-UU-PP-AW-01
Additional Model Name:	N/A
Model Difference:	N/A
S/N:	Not stated
Brand Name:	MAGFAST®
Hardware version:	Not Stated
Software version:	Not Stated
Rating:	INPUTS: USB-C: DC 5V 3A, 9V 2A Micro-USB: DC 5V 2A MAGFAST: DC 5V 2A OUTPUTS: Qi: 5W, 7.5W, 10W, 15W
Typical Arrangement:	Tabletop
I/O Port:	Reference manual
Accessories Information	
Adapter:	N/A
Cable:	N/A
Other:	N/A
Additional information	
Note:	N/A
Remark:	All the information above are provided by the manufacturer. More detailed feature of the EUT please refers to the user manual.

Technical Specification	
Frequency Range:	110.5-210KHz
Modulation Type:	FSK
Antenna Type:	Coil Antenna
Number of Antenna:	2
Remark:	Both of the antennas cannot be transmitting simultaneously, and the features in hardware design are identical the same. Both the antennas have considered during the test, and only the worst case was recorded in the report.

2. Test Facility and Location

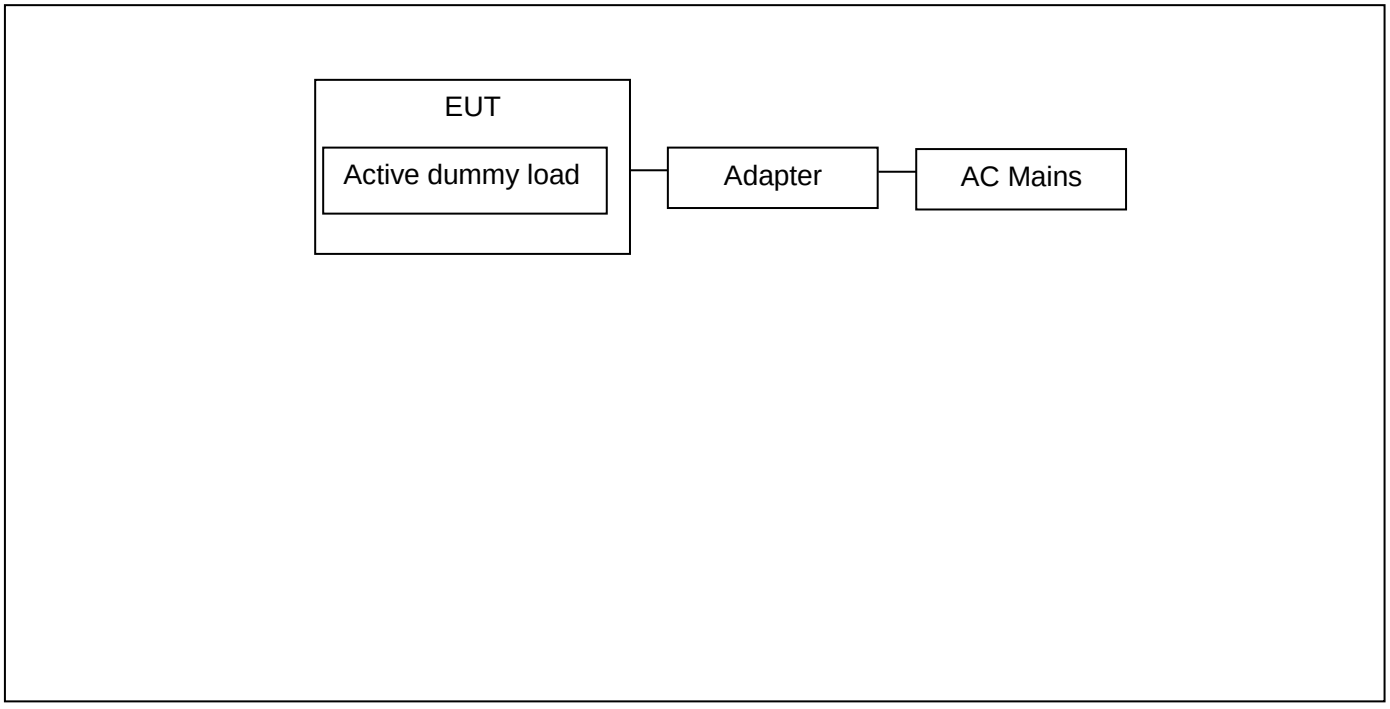
Test Site	:	Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)
Accreditations and Authorizations	:	The Laboratory has been assessed and proved to be in compliance with CNAS/CL01 Listed by CNAS, August 13, 2018 The Certificate Registration Number is L5795. The Certificate is valid until August 13, 2024 The Laboratory has been assessed and proved to be in compliance with ISO17025 Listed by A2LA, November 01, 2017 The Certificate Registration Number is 4429.01 Listed by FCC, November 06, 2017 Test Firm Registration Number: 907417 Listed by Industry Canada, June 08, 2017 The Certificate Registration Number. Is 46405-9743A
Test Site Location	:	Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong Province, China

3. Test Modes Detail

Test Mode	Test Setup Configuration	Remark
1	Wireless charging (5W)	---
2	Wireless charging (7.5W)	---
3	Wireless charging (10W)	---
4	Wireless charging (15W)	

Note: Both the internal li-ion battery and external AC/DC adapter power modes are considered, and only the worst case was recorded in the report.

4. Configuration of EUT



5. Modification of EUT

No modifications are made to the EUT during all test items.

6. Description of Support Device

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Brand	M/N	S/N	Cable Specification	Remarks
1.	Active dummy load	EESON	5W/7.5W/10W/ 15W	---	---	Provided by the Lab
2.	Adapter	HUAWEI	HW-200325CP0	---	---	Provided by the Lab
3.	Adapter	HUAWEI	65W	---	---	Provided by the Lab

7. Deviations and Abnormalities from Standard Conditions

No additions, deviations and exclusions from the standard.

8. Applicable Standards and References

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

Test Standards:

47 CFR Part 1, 1.1307(b) and 1.1310

KDB 680106 D01v03

9. Equipment approval considerations

No.	Requirements	Conditions of the EUT
1.	Power transfer frequency is less than 1MHz	Yes, the operated frequency range is 110.5-210KHz.
2.	Output power from each primary coil is less than or equal to 15 watts	Yes, the maximum output power of primary coil is 15W
3.	The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time	Yes
4.	Client device is placed directly in contact with the transmitter.	Yes
5.	Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	Yes
6.	The aggregate H-field strengths at 15cm surrounding the device and 20cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.	Yes
Remark: ☐ need PAG process ■ no need PAG process		

10. Measurement Uncertainty

No.	Test Item	Uncertainty	Remarks
1.	Magnetic Field Emissions	±0.15 dB	---
2.	Electric Field Emissions	±0.36 dB	

Note:
1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

11. Maximum Permissible Exposure

LIMIT

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm2)	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/f2)	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/f2)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,00	/	/	1.0	30

F=frequency in MHz

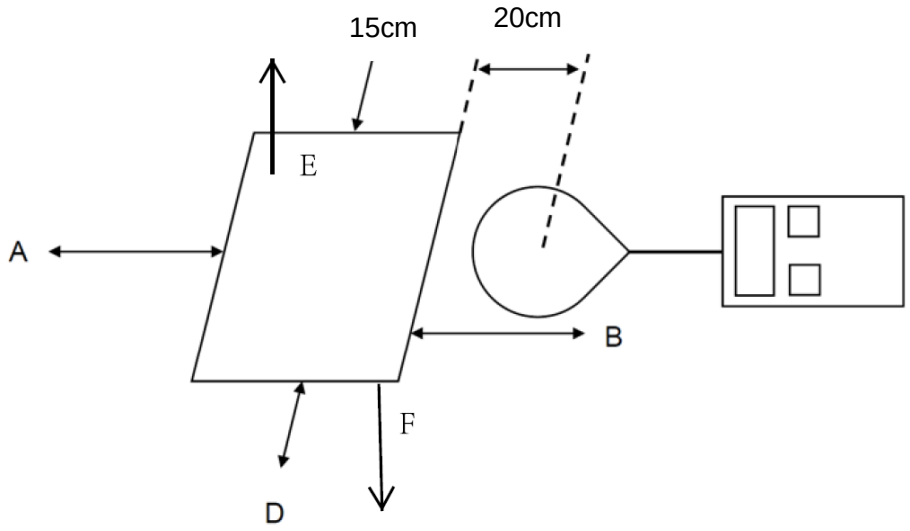
*=Plane-wave equivalent power density

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).

Per KDB 680106 D01 v03 r01, RF exposure evaluation at 15cm surrounding the device and 20cm above the top surface. Emission between 50 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 1.63/Am and aggregate H-field strengths from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

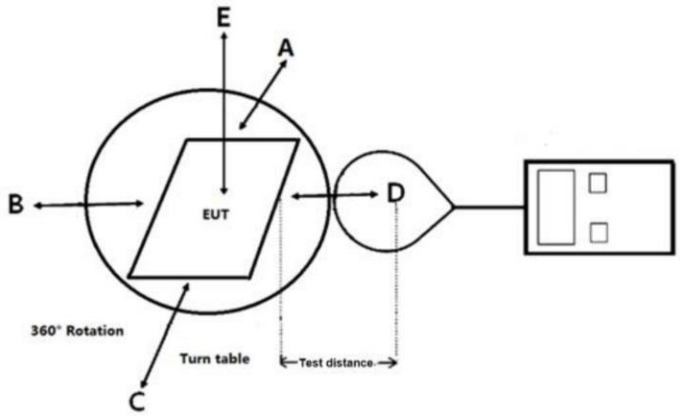
BLOCK DIAGRAM OF TEST SETUP

For Mobile:



Note: The distance of the points A/B/C/D is 15cm, and the point E is 20cm.

For Portable:



Note: The distance of the points A/B/C/D/E is 2,4,6,8,10,12,14,16,18, 20cm.

TEST PROCEDURES

a. The EUT was placed on a non-conductive table top of shielding room or anechoic chamber, and the ancillary equipment (e.g., mobile phone, dummy loads) was placed on the EUT for charging.

b. Maximum E-field and H-field measurements were tested 2/4/6/8/10/12/14/16/18/20cm (portable device) or 15/20cm (mobile device) from each side of the EUT.

c. Along the side of the EUT to center of E-field probe and H-field probe were positioned at the location to search maximum field strength and record the results.

d. Repeat the steps a~c on each test modes and configurations until the end of the test.

TEST RESULTS

PASS

Please refer to the following pages of the worst case (15W wireless charging).

Test Mode 1						
Test Distance (cm)	**Test Position**	**E-Field Measure Result (V/m)**	**H-Field Measure Result (A/m)**	**E-Field Limit (V/m)**	**H-Field Limit (A/m)**	**50% H-Field Limit (V/m)**
15	Side A	2.44	0.18	614	1.63	0.815
	Side B	2.98	0.19	614	1.63	0.815
	Side C	2.99	0.18	614	1.63	0.815
	Side D	3.20	0.18	614	1.63	0.815
	Side E	---				
20	Side A	---				
	Side B	---				
	Side C	---				
	Side D	---				
	Side E	1.99	0.18	614	1.63	0.815

Test Mode 2						
Test Distance (cm)	**Test Position**	**E-Field Measure Result (V/m)**	**H-Field Measure Result (A/m)**	**E-Field Limit (V/m)**	**H-Field Limit (A/m)**	**50% H-Field Limit (V/m)**
15	Side A	2.99	0.18	614	1.63	0.815
	Side B	3.44	0.19	614	1.63	0.815
	Side C	3.65	0.18	614	1.63	0.815
	Side D	3.88	0.18	614	1.63	0.815
	Side E	---				
20	Side A	---				
	Side B	---				
	Side C	---				
	Side D	---				
	Side E	2.58	0.18	614	1.63	0.815

Test Mode 3						
Test Distance (cm)	**Test Position**	**E-Field Measure Result (V/m)**	**H-Field Measure Result (A/m)**	**E-Field Limit (V/m)**	**H-Field Limit (A/m)**	**50% H-Field Limit (V/m)**
15	Side A	3.25	0.25	614	1.63	0.815
	Side B	3.67	0.27	614	1.63	0.815
	Side C	3.54	0.24	614	1.63	0.815
	Side D	3.80	0.22	614	1.63	0.815
	Side E	---				
20	Side A	---				
	Side B	---				
	Side C	---				
	Side D	---				
	Side E	2.91	0.19	614	1.63	0.815

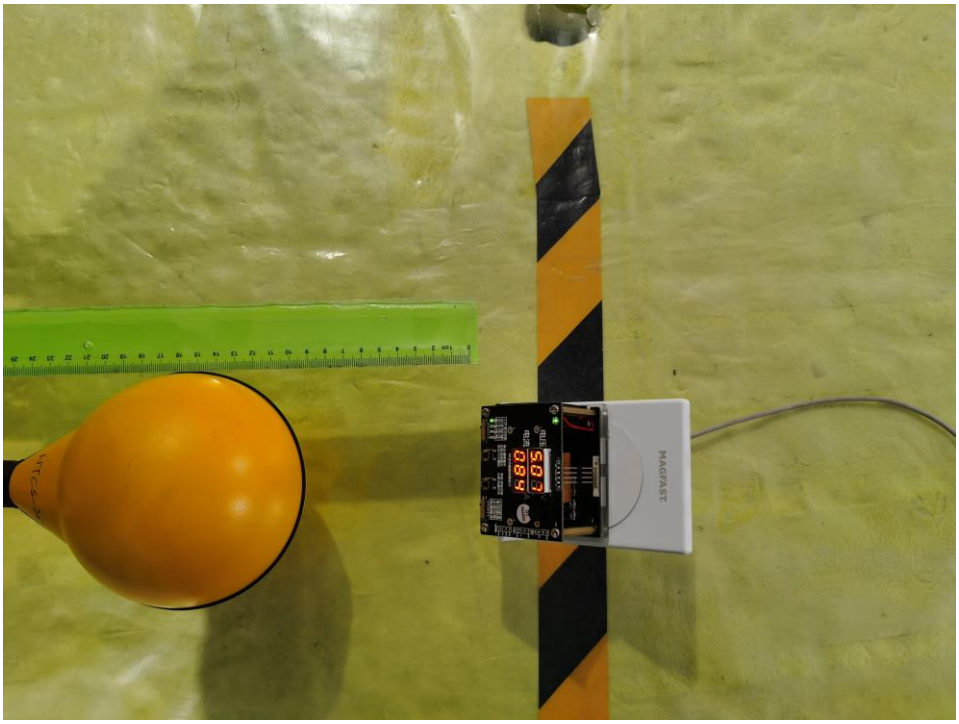
Test Mode 4						
Test Distance (cm)	**Test Position**	**E-Field Measure Result (V/m)**	**H-Field Measure Result (A/m)**	**E-Field Limit (V/m)**	**H-Field Limit (A/m)**	**50% H-Field Limit (V/m)**
15	Side A	3.32	0.31	614	1.63	0.815
	Side B	3.89	0.33	614	1.63	0.815
	Side C	3.76	0.29	614	1.63	0.815
	Side D	4.01	0.30	614	1.63	0.815
	Side E	---				
20	Side A	---				
	Side B	---				
	Side C	---				
	Side D	---				
	Side E	3.03	0.22	614	1.63	0.815

12. Test Equipment List

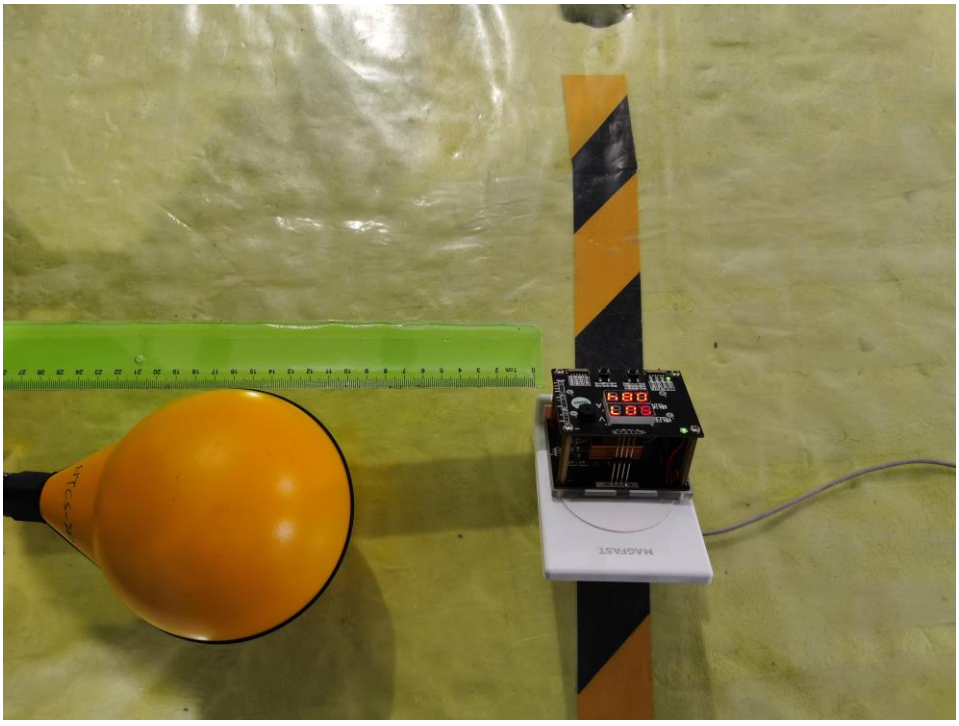
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Magnetic field probe 100cm2	Narda	ETL Probe 1Hz-400KHz	M-1587	Mar. 23, 2021	1 Year
2.	E-Field Probe	Narda	EP-601	611WX70729	Mar. 23, 2021	1 Year

13. Test Photos

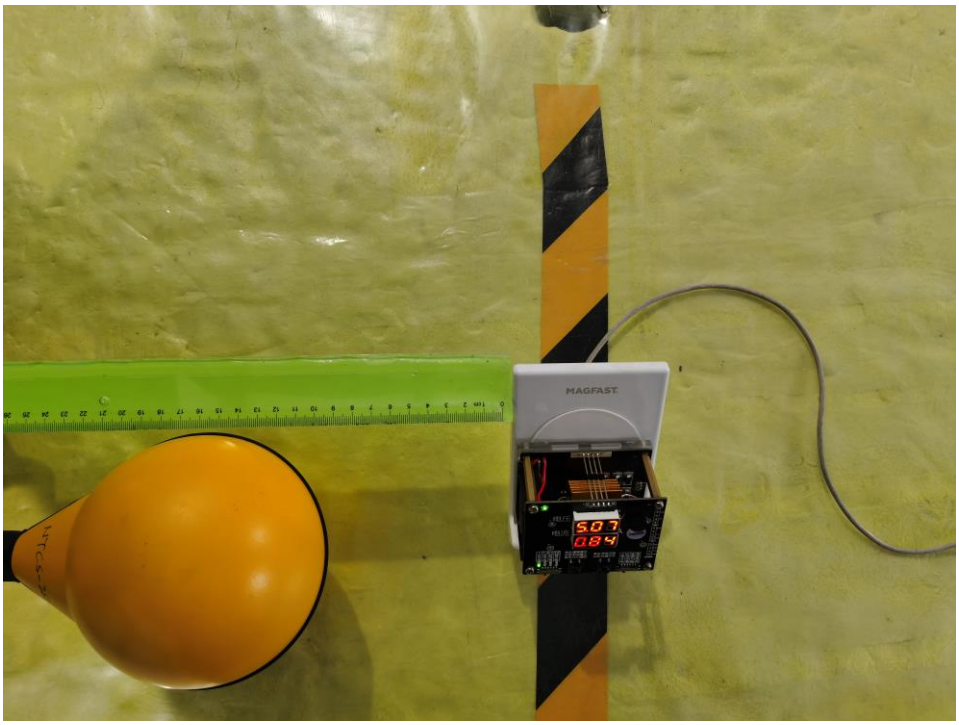
Side A: Test distance 15cm



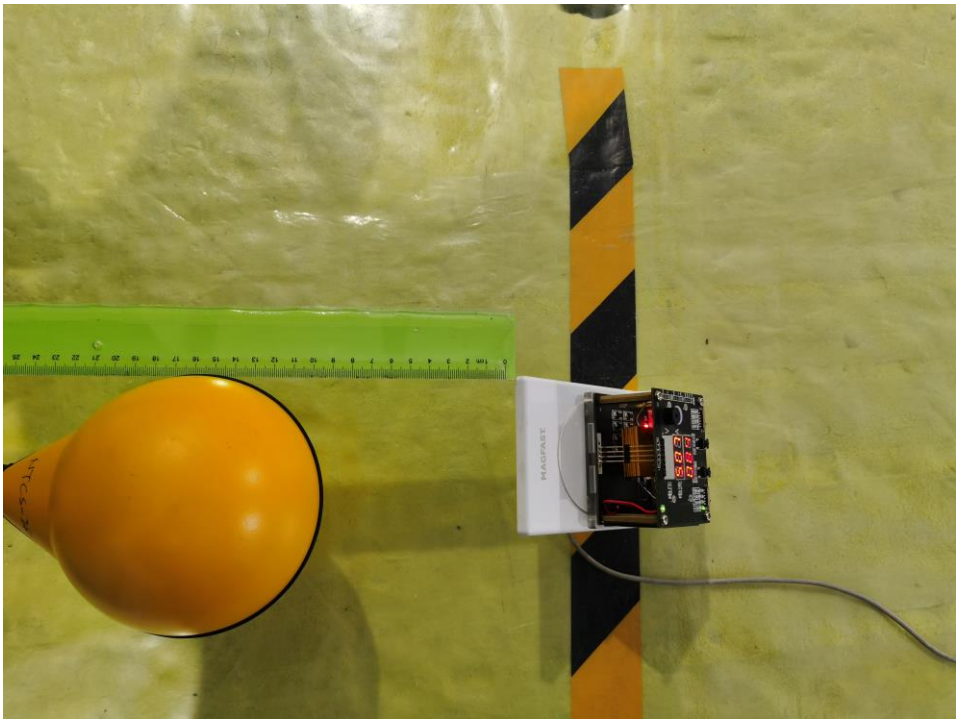
Side B: Test distance 15cm



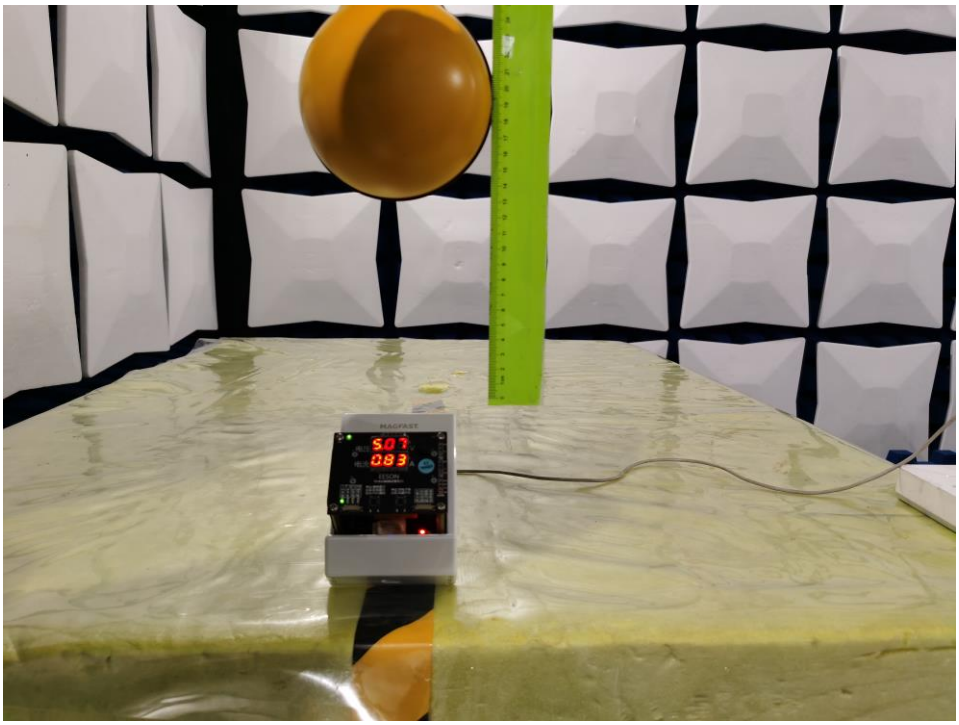
Side C: Test distance 15cm



Side D: Test distance 15cm



Side E: Test distance 20cm



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