FCC TEST REPORT

Test report
On Behalf of
MDIFF Co.,LTD.
For
Magnetic Wireless Charger
Model No.: ADVQ-T8, ADVQ-T8S, AD-CHAC01, AD-CHAC02, AD-CHAC03, AD-CHAC04, AD-CHAC05

FCC ID: 2AZWM-ADVQT8

Prepared for :	**MDIFF Co.,LTD.** **#929, Dongmin Tower2 358-25, Hosuro Ilsanding-gu, Goyangsi, gyenggi-do, Korea**
Prepared By :	**Shenzhen Tongzhou Testing Co.,Ltd** **1th Floor, Building 1, Haomai High-tech Park, Huating Road 387, Dalang Street, Longhua, Shenzhen, China**

Date of Test:	**Apr. 28, 2021 ~ May. 6, 2021**
Date of Report:	**May. 7, 2021**
Report Number:	**TZ210302115-E2**

The test report apply only to the specific sample(s) tested under stated test conditions
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TEST RESULT CERTIFICATION

Applicant's name ..... :	MDIFF Co.,LTD.
Address ..... :	#929, Dongmin Tower2 358-25, Hosuro Ilsanding-gu, Goyangsi, gyenggi-do, Korea
Manufacture's Name..... :	Shenzhen Whakin Innovation Technology Co.,Ltd.
Address ..... :	South of the fourth floor, L bldg, jingtie technology industrial park, no.49 changjiang pu road, heao community, yuanshan street, Longgang district, Shenzhen city, China
Product description	
Trade Mark ..... :	AIRDOCK
Product name ..... :	Magnetic Wireless Charger
Model and/or type reference :	ADVQ-T8
Standards ..... :	FCC Rules and Regulations Part 2.1091, KDB680106 D01v03

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Date of Test .....:	
Date (s) of performance of tests .....:	Apr. 28, 2021 ~ May. 6, 2021
Date of Issue.....:	May. 7, 2021
Test Result.....:	**Pass**

Testing Engineer : Nancy Li

(Nancy Li)

Technical Manager : Hugo Chen

(Hugo Chen)

Authorized Signatory : Andy Zhang

(Andy Zhang)

1. GENERAL INFORMATION

1.1 General Description of EUT

Equipment	Magnetic Wireless Charger
Model Name	ADVQ-T8
Serial No.	ADVQ-T8S, AD-CHAC01, AD-CHAC02, AD-CHAC03, AD-CHAC04, AD-CHAC05
Model Difference	All the same except for the model name
Trade Mark	AIRDOCK
FCC ID	2AZWM-ADVQT8
Antenna Type	Coil Antenna
Antenna Gain	0dBi
Operation frequency	110-205KHz
Modulation Type	ASK
Power Rating	Input: 5V⎓2A, 9V⎓2A, 12V⎓1.5A Output: 5V⎓1A, 7.5V⎓1A, 9V⎓1.12A, 9V⎓1.67A
Test Sample ID	TZ210302115-1#

Note:

1. For a more detailed features description, please refer to the manufacturer’s specifications or the User's Manual.

   The EUT antenna is Coil Antenna. No antenna other than that furnished by the responsible party shall be used with the device.

2. SUMMARY OF TEST RESULTS

2.1 Test procedures according to the technical standards:

FCC KDB680106 D01 RF Exposure Wireless Charging Apps v03

FCC CFR 47			
Standard Section	Test Item	Judgment	Remark
FCC CFR 47 part1, 1.1310 KDB680106 D01v03 (3)(3)	Electric Field Strength (E) (V/m)	PASS	
	Magnetic Field Strength (H) (A/m)	PASS	

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ±U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

No.	Item	Uncertainty
1	All emissions, radiated(<30M)(9KHz-30MHz)	±2.45dB
2	Temperature	±0.5°C
3	Humidity	±2%

2.3 Test Instruments

Description	Brand	Model No.	Frequency Range	Calibrated Date	Calibrated Until
Broadband Field Meter	NARDA	NBM-550	-	Dec. 27, 2020	Dec. 27, 2021
Magnetic Field Meter	NARDA	ELT-400	1 – 400kHz	Dec. 27, 2020	Dec. 27, 2021
Magnetic Probe	NARDA	HF-3061	300kHz – 30MHz	Dec. 27, 2020	Dec. 27, 2021
Magnetic Probe	NARDA	HF-0191	27 – 1000MHz	Dec. 27, 2020	Dec. 27, 2021
Broadband Field Meter	NARDA	NBM-550	-	Dec. 27, 2020	Dec. 27, 2021
Electric Field Meter	COMBINOVA	EFM 200	5Hz – 400kHz	Dec. 27, 2020	Dec. 27, 2021
E-Field Probe	NARDA	EF-0391	100kHz – 3GHz	Dec. 27, 2020	Dec. 27, 2021
E-Field Probe	NARDA	EF-6091	100MHz – 60GHz	Dec. 27, 2020	Dec. 27, 2021

NOTE: 1. The calibration interval of the above test instruments is 12 months.

2.4 Special Accessories

No.	Equipment	Manufacturer
1	Intelligent wireless charging full function test module	YBZ

2.5 Operation of EUT during testing

Test Modes:		
Mode 1	AC/DC Adapter (12V/1.5A) + EUT + Wireless charger tester (Load 15W)	Record
Mode 2	AC/DC Adapter (12V/1.5A) + EUT + Wireless charger tester (Load 10W)	Record
Mode 3	AC/DC Adapter (12V/1.5A) + EUT + Wireless charger tester (Load 7.5W)	Record
Mode 4	AC/DC Adapter (12V/1.5A) + EUT + Wireless charger tester (Load 5W)	Record
Mode 5	AC/DC Adapter (9V/2A) + EUT + Wireless charger tester (Load 15W)	Pre-test
Mode 6	AC/DC Adapter (9V/2A) + EUT + Wireless charger tester (Load 10W)	Pre-test
Mode 7	AC/DC Adapter (9V/2A) + EUT + Wireless charger tester (Load 7.5W)	Pre-test
Mode 8	AC/DC Adapter (9V/2A) + EUT + Wireless charger tester (Load 5W)	Pre-test
Mode 9	AC/DC Adapter (5V/2A) + EUT + Wireless charger tester (Load 15W)	Pre-test
Mode 10	AC/DC Adapter (5V/2A) + EUT + Wireless charger tester (Load 10W)	Pre-test
Mode 11	AC/DC Adapter (5V/2A) + EUT + Wireless charger tester (Load 7.5W)	Pre-test
Mode 12	AC/DC Adapter (5V/2A) + EUT + Wireless charger tester (Load 5W)	Pre-test
Note: All test modes were pre-tested, but we only recorded the worst case in this report.		

3. MAXIMUM PERMISSIBLE EXPOSURE

Limit of Maximum Permissible Exposure

Limits for Occupational / Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6
Limits for General Population / Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180 / f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1	30

Note 1: f = frequency in MHz ; *Plane-wave equivalent power density

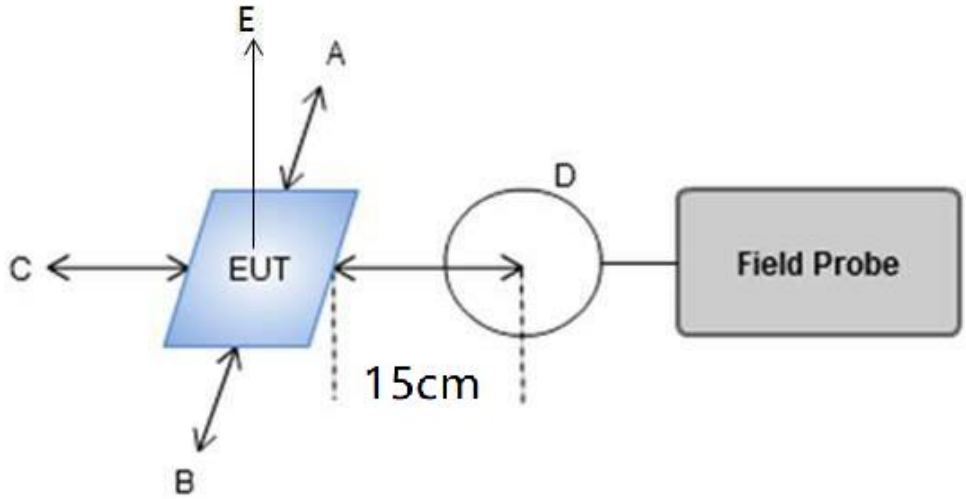
Note 2: For the applicable limit, see FCC 1.1310, 680106 D01 RF Exposure Wireless Charging Apps v03

Note 3: Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m. A KDB inquiry is required to determine the applicable exposure limits below 100 kHz.

4. TEST PROCEDURE

a. For devices designed for typical desktop applications, such a wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 15 cm. E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device.

4.1 TEST SETUP



4.2 RESULT OF MAXIMUM PERMISSIBLE EXPOSURE

Temperature	22.8℃	Humidity	55%
Test Engineer	Tony Luo	Configurations	TM 1 – TM 4

E-Field Strength at 15 cm from the edges surrounding the EUT and 15cm from the top surface of the EUT

Power Load	Unit	Frequency Range (MHz)	Measured E-Field Strength Values (V/m)					FCC E-Field Strength 50% Limits (V/m)	FCC E-Field Strength Limits (V/m)
			Test Position A	Test Position B	Test Position C	Test Position D	Test Position E		
15W	v/m	0.146	89.8820	70.2882	70.9414	79.0607	83.3330	307.0	614.0
10W	v/m	0.146	66.3829	54.6707	48.4214	66.6520	60.8841	307.0	614.0
7.5W	v/m	0.146	58.9332	52.9803	52.1646	61.6553	59.8939	307.0	614.0
5W	v/m	0.146	59.3412	46.9846	52.3422	64.3061	57.5265	307.0	614.0

Note: V/m= A/m *377

H-Field Strength at 15 cm from the edges surrounding the EUT and 15cm from the top surface of the EUT

Power Load	Unit	Frequency Range (MHz)	Measured H-Field Strength Values (A/m)					FCC H-Field Strength50 % 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		
15W	uT	0.146	0.3254	0.2541	0.2654	0.3124	0.3038	--	--
15W	A/m	0.146	0.2603	0.2033	0.2123	0.2499	0.2430	0.815	1.63
10W	uT	0.146	0.2128	0.2214	0.2165	0.2321	0.2688	--	--
10W	A/m	0.146	0.1702	0.1771	0.1732	0.1857	0.2150	0.815	1.63
7.5W	uT	0.146	0.2365	0.2045	0.2121	0.2513	0.2338	--	--
7.5W	A/m	0.146	0.1892	0.1636	0.1697	0.2010	0.1870	0.815	1.63
5W	uT	0.146	0.2664	0.2297	0.2179	0.2766	0.2297	--	--
5W	A/m	0.146	0.2131	0.1838	0.1743	0.2213	0.1838	0.815	1.63

H-Field Strength at 20cm from the top surface of the EUT

Power Load	Unit	Frequency Range (MHz)	Measured H-Field Strength Values (A/m)	FCC H-Field Strength 50% Limits (A/m)	FCC H-Field Strength Limits (A/m)
			Test Position E		
15W	uT	0.146	0.2416	--	--
15W	A/m	0.146	0.1933	0.815	1.63
10W	uT	0.146	0.2100	--	--
10W	A/m	0.146	0.1680	0.815	1.63
7.5W	uT	0.146	0.1901	--	--
7.5W	A/m	0.146	0.1521	0.815	1.63
5W	uT	0.146	0.1801	--	--
5W	A/m	0.146	0.1440	0.815	1.63

Note:A/m=uT/1.25

4.3 Equipment Approval Considerations

The EUT does comply with KDB 680106 D01 as follow table.

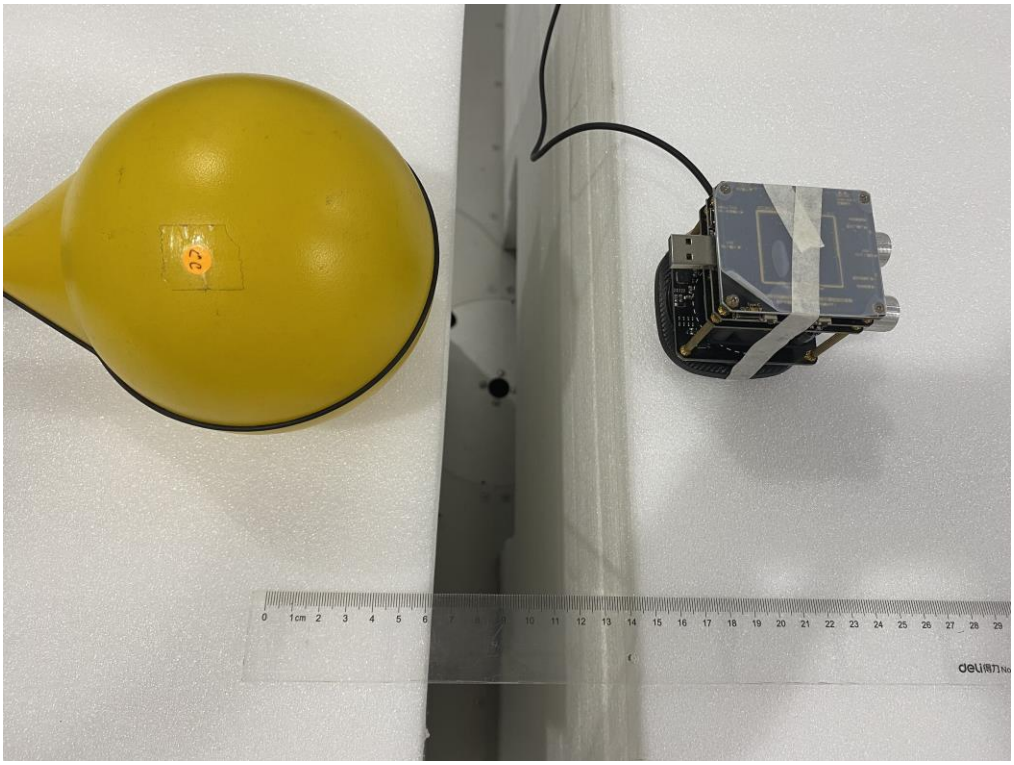
Requirements of KDB 680106 D01	Yes / No	Description
Power transfer frequency is less than 1 MHz	Yes	The device operate in the frequency range 110KHz~205KHz
Output power from each primary coil is less than 15 watts	Yes	The maximum output power for each primary coil is 15W.
The transfer system includes 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.	Yes	The transfer system includes one primary coils and are able to detect and allow coupling only between individual pairs of coils.
Client device is placed directly in contact with the transmitter.	Yes	Client device is placed directly in contact with the transmitter.
Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	Yes	Mobile exposure conditions only
The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.	Yes	The EUT H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

4.4 Conclusion

The detected emissions with a distance of 15cm surrounding the device and 20 cm above the top surface of the device are below the FCC E-Field Strength & H-Field Strength limits; and comply with the requirements of FCC KDB 680106 D01.

PHOTOGRAPH OF TEST

Position A



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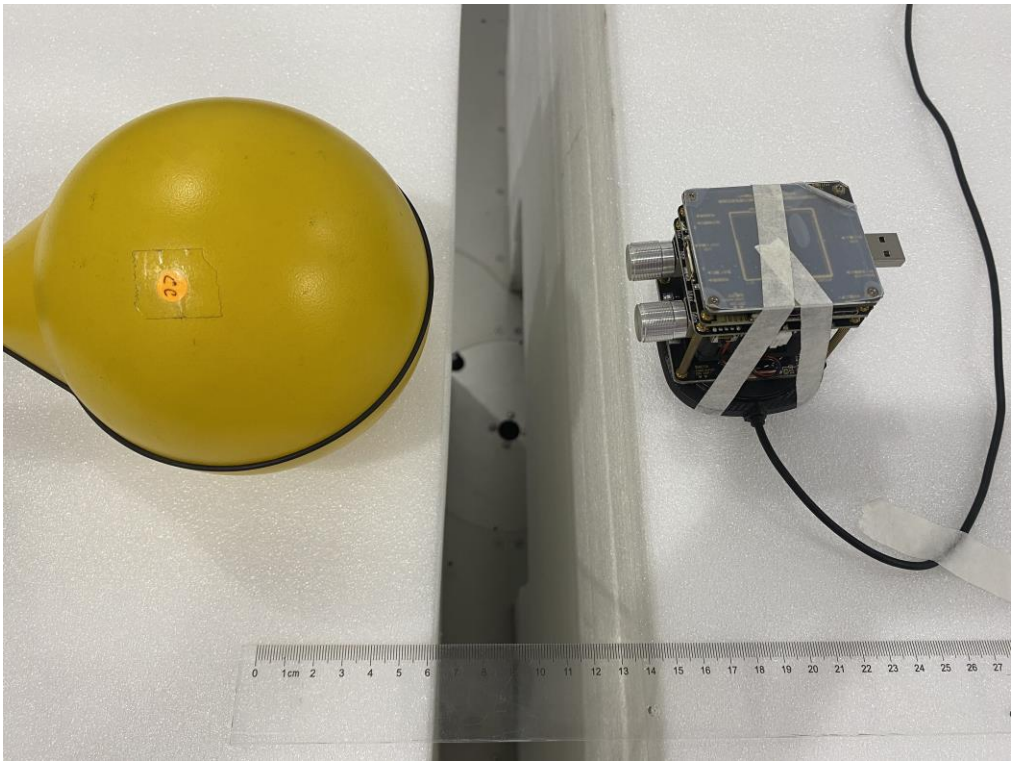
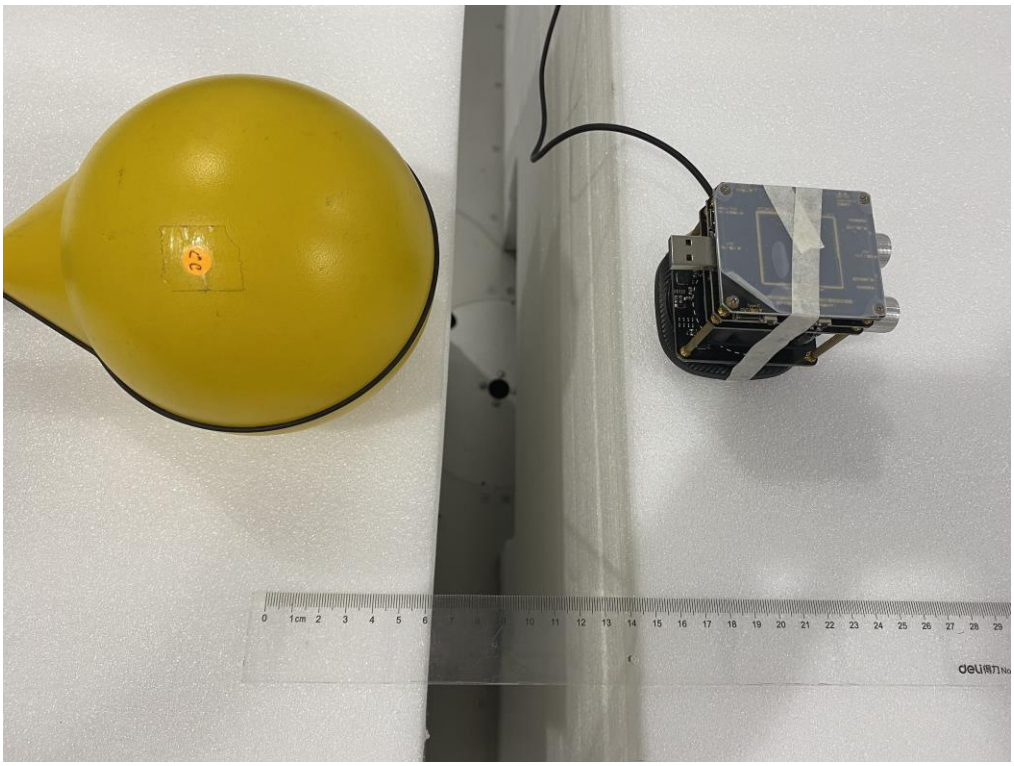
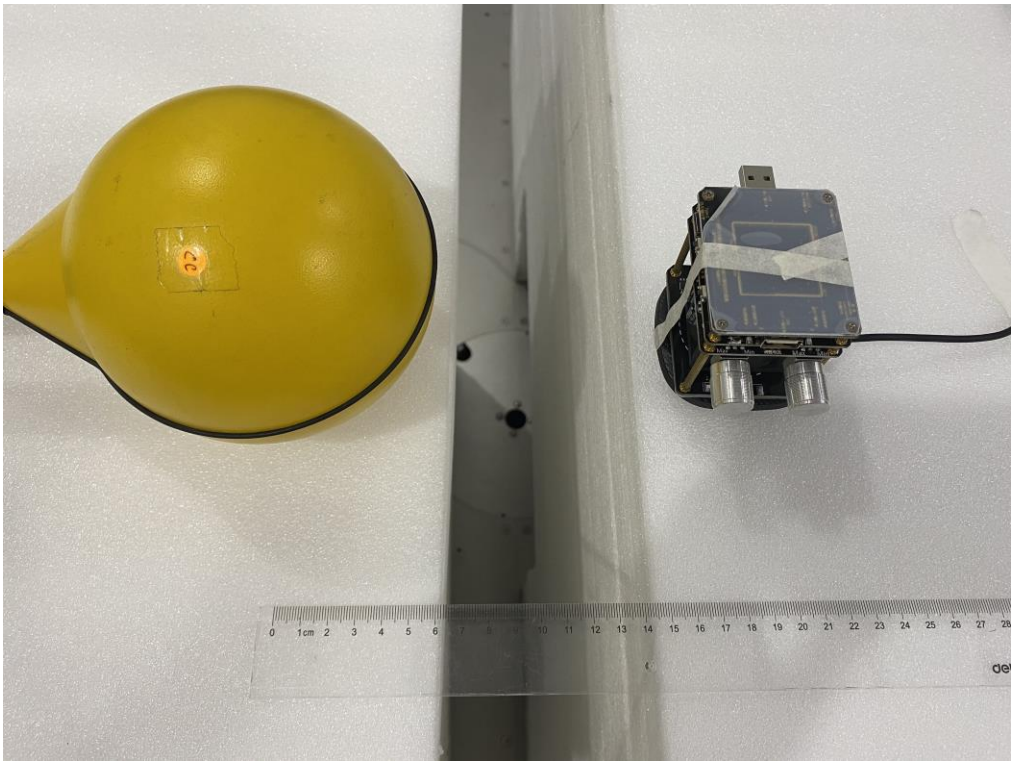


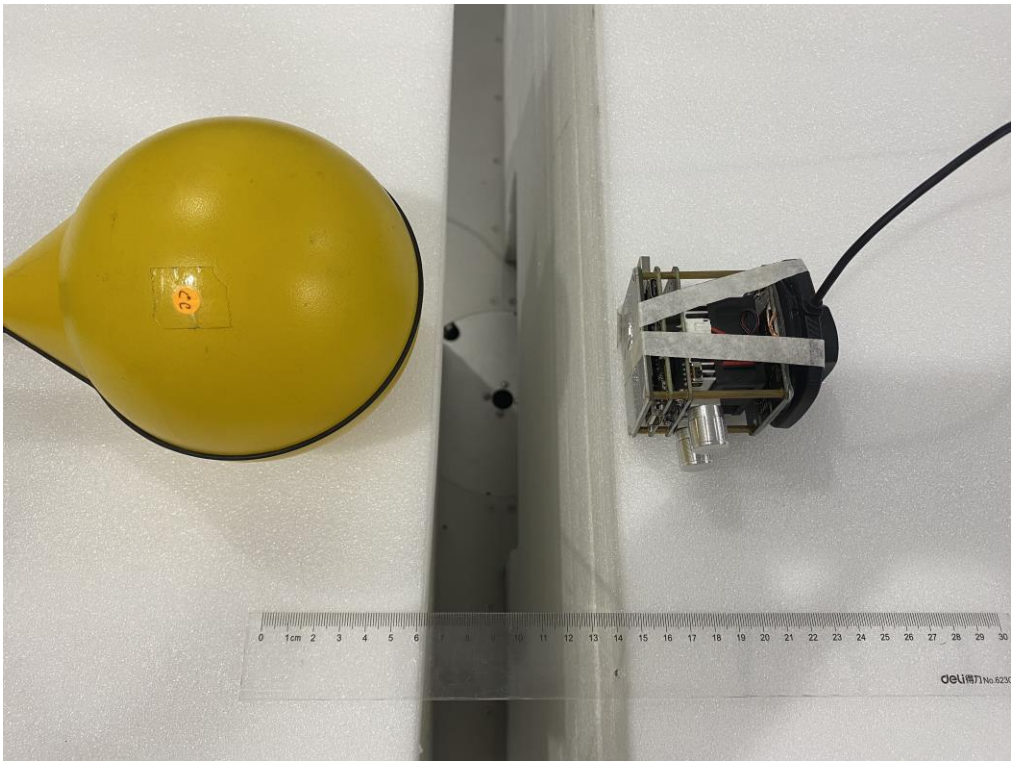
Position C



Position D



Position E



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