FCC TEST REPORT

Client Name	:	Sariana LLC
Address	:	7365 Mission Gorge Road Suite G, San Diego, CA 92120 U.S.A.
Product Name	:	USB-C 2-in-1 Wireless Charging Dock
Date	:	Mar. 03, 2020

Shenzhen Anbotek Compliance Laboratory Limited

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TEST REPORT

Applicant	:	Sariana LLC
Manufacturer	:	Sariana LLC
Product Name	:	USB-C 2-in-1 Wireless Charging Dock
Model No.	:	ST-UC2WCDM, ST-UC2WCDS
Trade Mark	:	SATECHI
Rating(s)	:	Input: DC 5V, 1.5A Apple Watch Magnetic Charger Output: 2.5W AirPods Charger Output: 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	Jan. 07, 2020
Date of Test	Jan. 07~Feb. 21, 2020
Prepared By	(Engineer / Dolly Mo)
Reviewer	(Supervisor / Bibo Zhang)
Approved & Authorized Signer	(Manager / Tom Chen)

Anbotek (SZ) Compliance Laboratory Limited * Approved *

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1. General Information

1.1. Client Information

Applicant	:	Sariana LLC
Address	:	7365 Mission Gorge Road Suite G, San Diego, CA 92120 U.S.A.
Manufacturer	:	Sariana LLC
Address	:	7365 Mission Gorge Road Suite G, San Diego, CA 92120 U.S.A.
Factory	:	Sariana LLC
Address	:	7365 Mission Gorge Road Suite G, San Diego, CA 92120 U.S.A.

1.2. Description of Device (EUT)

Product Name	:	USB-C 2-in-1 Wireless Charging Dock	
Model No.	:	ST-UC2WCDM, ST-UC2WCDS (Note: All samples are the same except the model number & appearance, so we prepare "ST-UC2WCDM" for test only.)	
Trade Mark	:	SATECHI	
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:	Apple Watch Magnetic Charger: 110.1-205KHz AirPods Charger: 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.			

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1.3. Auxiliary Equipment Used During Test

Notebook	:	Product: AppleMacBook
		M/N: A1708 CMIIT ID:2016AJ5746 Input Rating: 20.3V/3A
		Adapter:
		Input: 100-240V, 50-60HZ, 1.5A Output: 20.3V/3A (USB PD) or 9V/3A(USB PD) or 5.2V/2.4A
Apple Watch		Manufacturer: Apple
Airpods	:	Manufacturer: Apple

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. 23, 2019	1 Year
2	E-Field Probe	Narda	EF0391	Q15221	Nov.17, 2017	3 Year
3	H-Field Probe	Narda	HF3061	Q15835	Nov.17, 2017	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 27, 2019.

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, March 07, 2019.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.
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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 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.

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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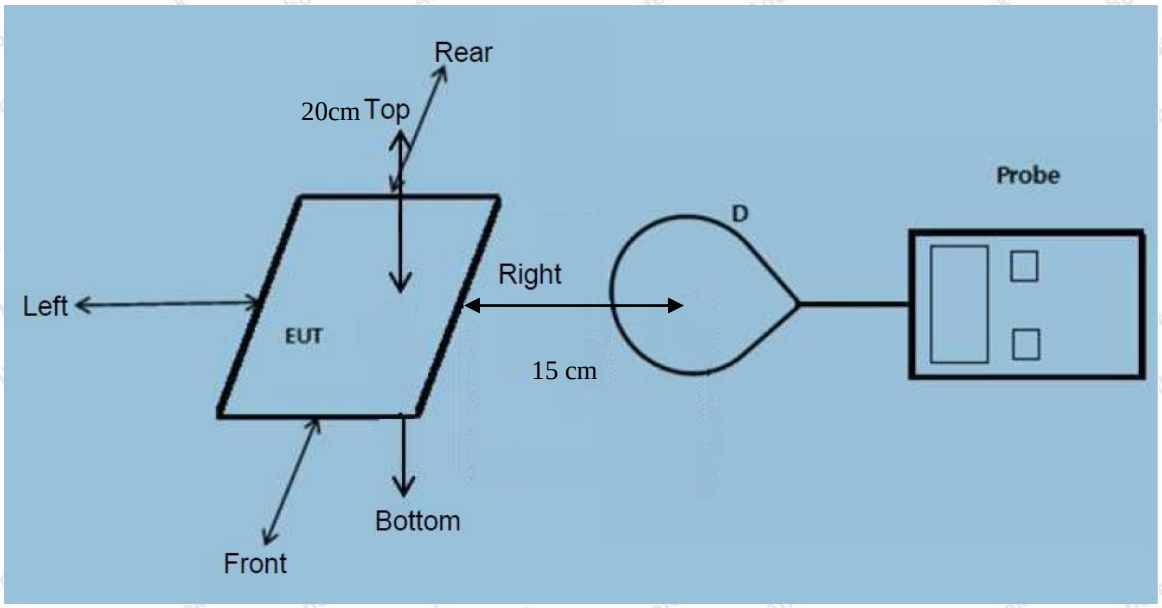
2.2. Test Setup



Note: Measurements should be made at 15 cm surrounding the EUT and 20cm above the top surface of the EUT.

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 of Apple Watch Magnetic Charger is 2.5W.

- The maximum output power of the primary coil of AirPods Charger is 5W.

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 Power Pack with Wireless Charger

6) 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.

- Conducted the measurement with the required distance and the test results please refer to the section 2.4.2

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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:	23.8°C	Relative Humidity:	54%
Pressure:	1012 hPa	Test Voltage:	AC 120V, 60Hz for adapter

Apple Watch Magnetic Charger:

E-Field Strength at 15 cm surrounding the EUT and 20cm above the top surface of the EUT

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1~205	0.34	0.37	0.25	0.43	0.94	307	614
50%	110.1~205	1.59	1.38	1.26	1.32	1.56	307	614
99%	110.1~205	2.25	2.12	2.11	2.27	2.03	307	614
Stand-by	110.1~205	0.48	0.30	0.74	0.45	0.55	307	614

H-Field Strength at 15 cm surrounding the EUT and 20cm above the top surface of 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	0.049	0.053	0.048	0.042	0.068	0.815	1.63
50%	110.1~205	0.24	0.57	0.30	0.45	0.46	0.815	1.63
99%	110.1~205	0.41	0.55	0.57	0.36	0.52	0.815	1.63
Stand-by	110.1~205	0.28	0.16	0.33	0.37	0.31	0.815	1.63

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AirPods Charger:

F-Field Strength at 15 cm surrounding the EUT and 20cm above the top surface of the EUT

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1~205	0.35	0.34	0.21	0.47	0.98	307	614
50%	110.1~205	1.50	1.32	1.22	1.36	1.59	307	614
99%	110.1~205	2.23	2.18	2.15	2.20	2.04	307	614
Stand-by	110.1~205	0.42	0.31	0.76	0.47	0.58	307	614

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H-Field Strength at 15 cm surrounding the EUT and 20cm above the top surface of 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	0.041	0.057	0.062	0.045	0.064	0.815	1.63
50%	110.1~205	0.25	0.54	0.33	0.49	0.48	0.815	1.63
99%	110.1~205	0.38	0.53	0.59	0.34	0.50	0.815	1.63
Stand-by	110.1~205	0.26	0.12	0.37	0.30	0.35	0.815	1.63

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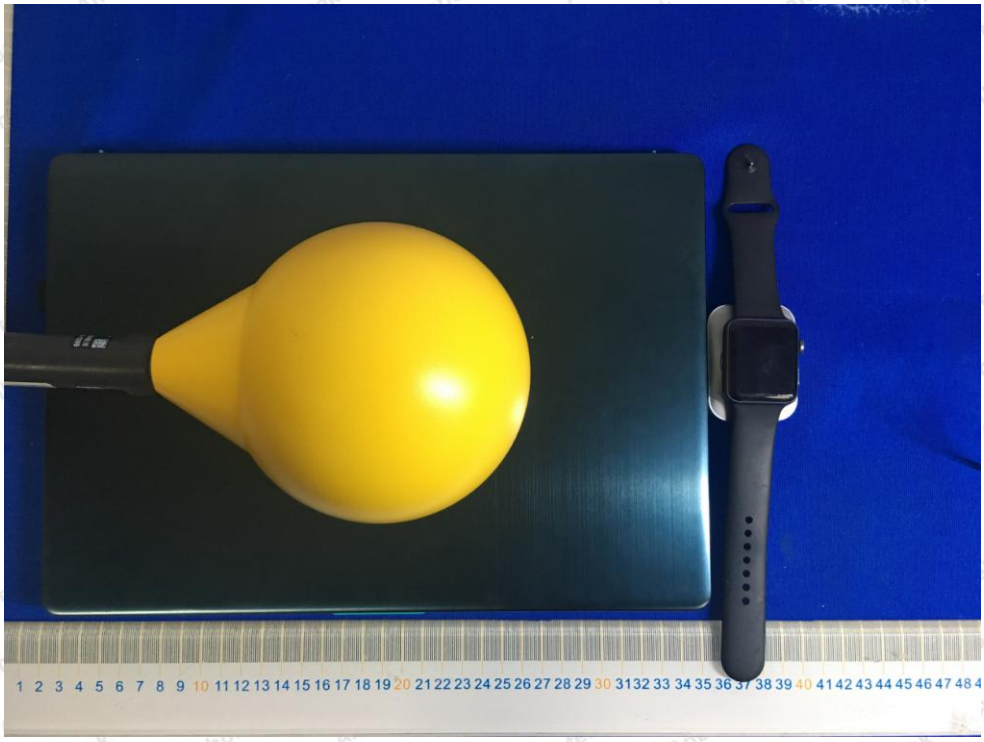
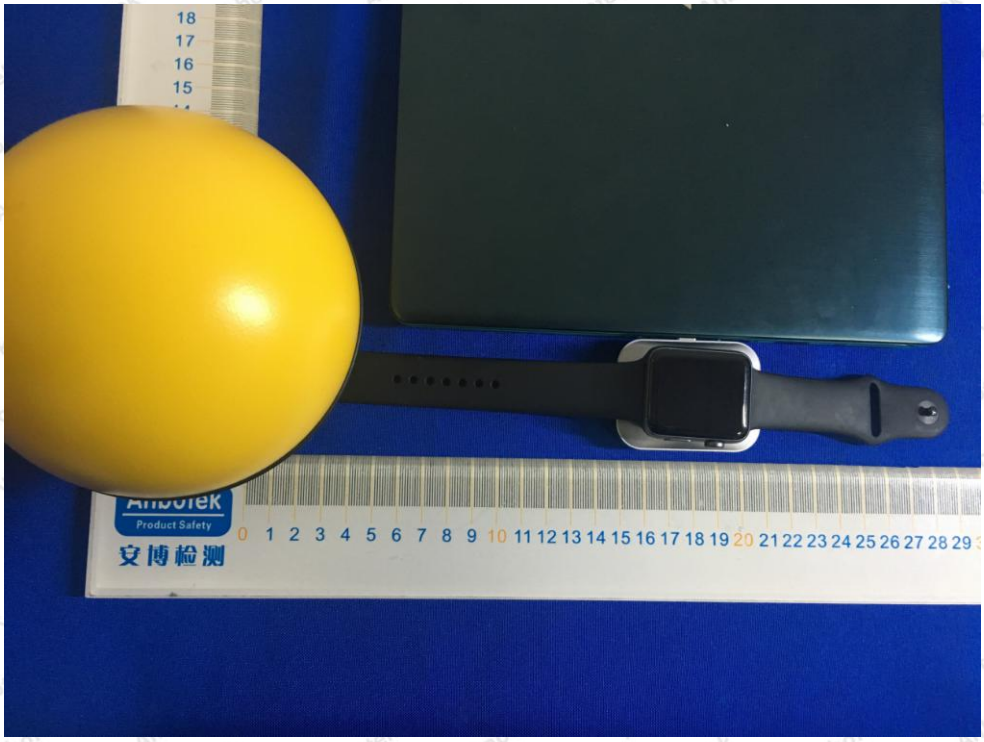
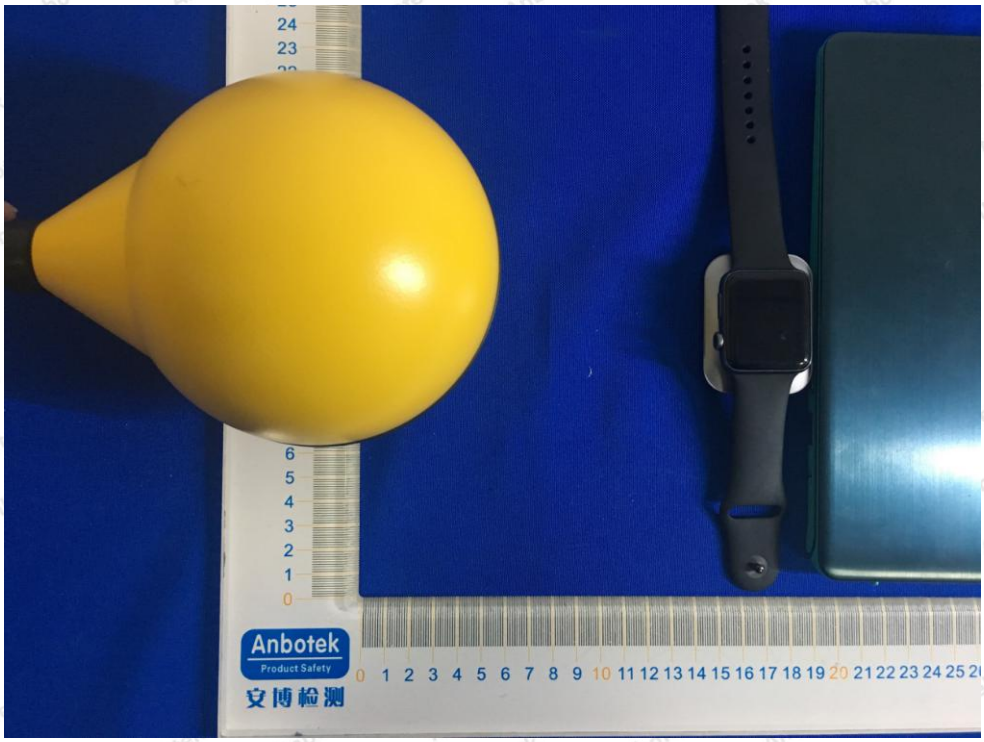
APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of MPE Measurement
Apple Watch Magnetic Charger



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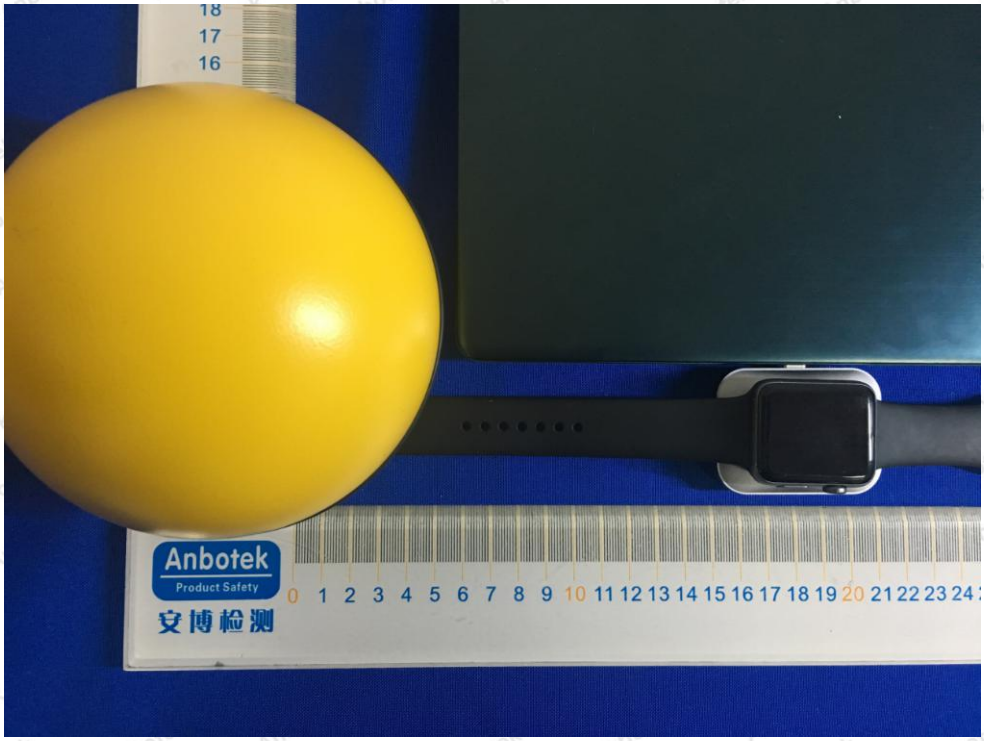
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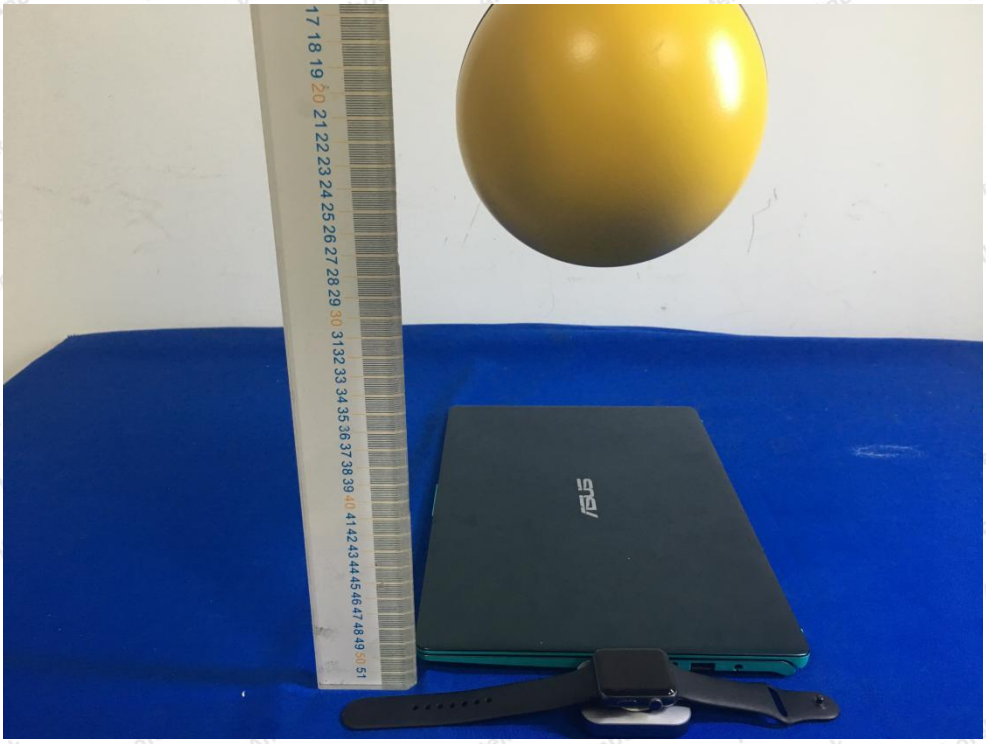
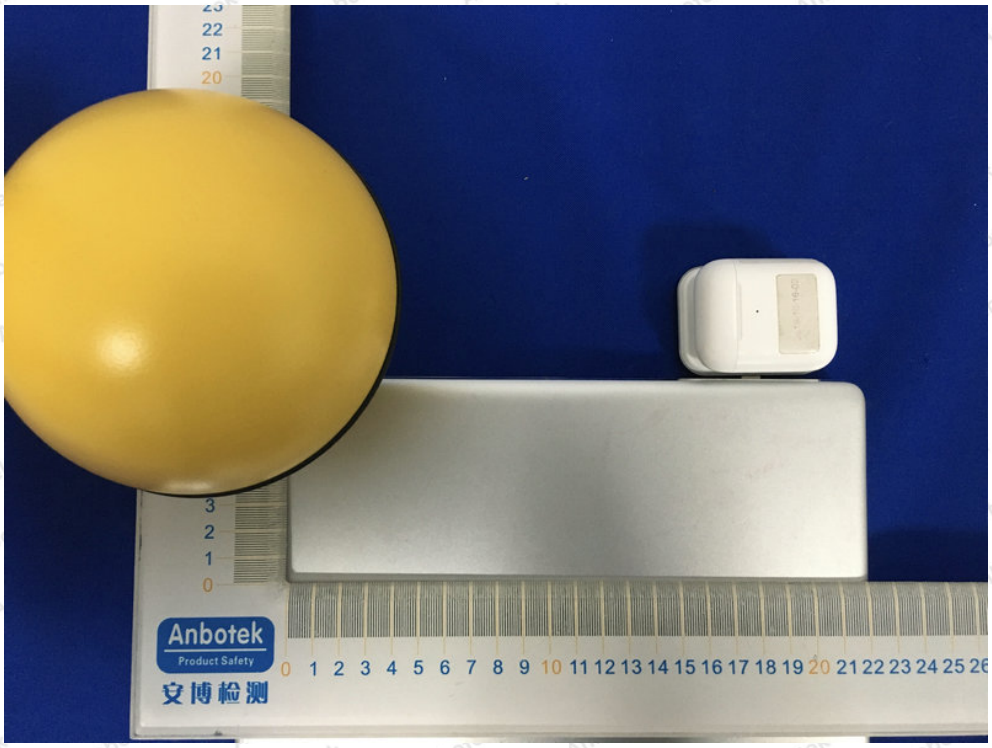
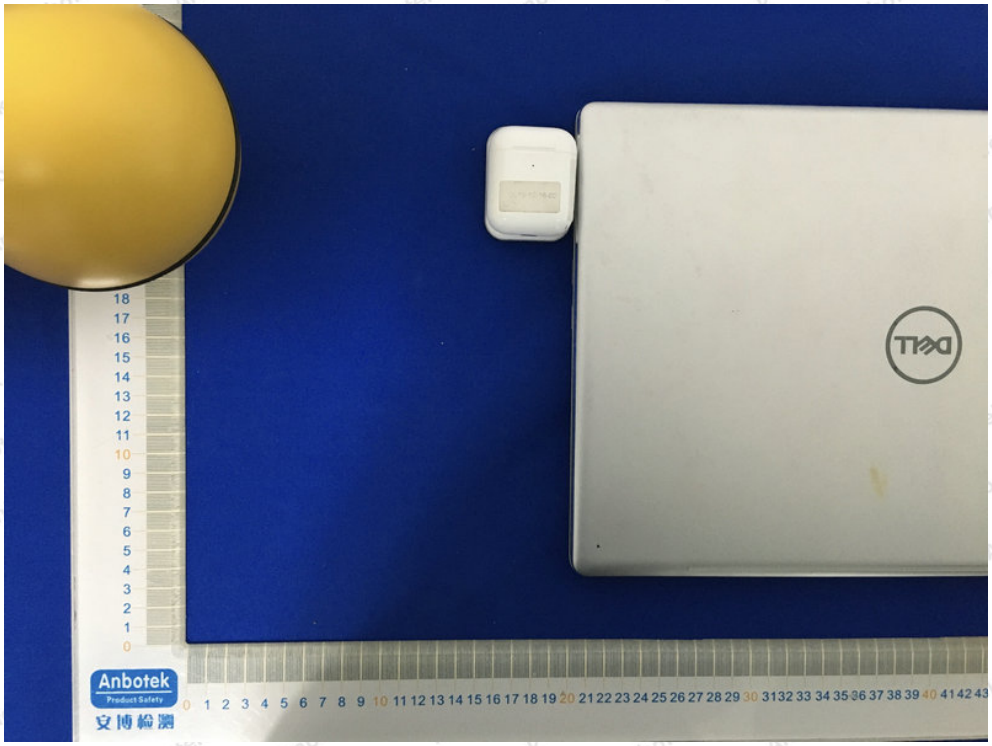


AirPods Charger

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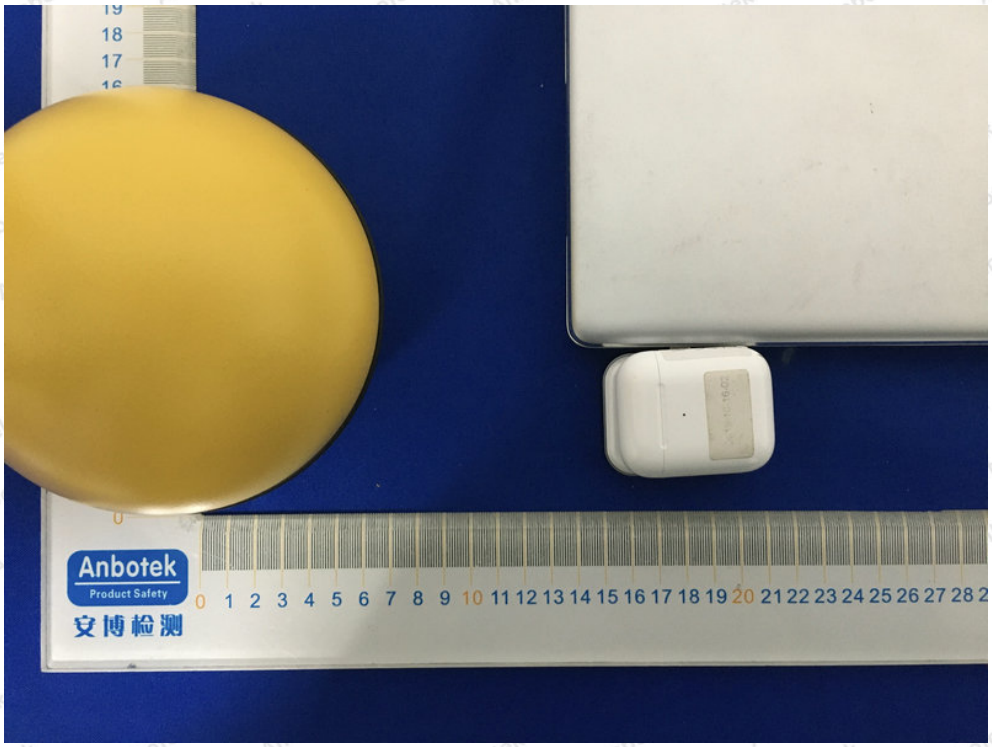
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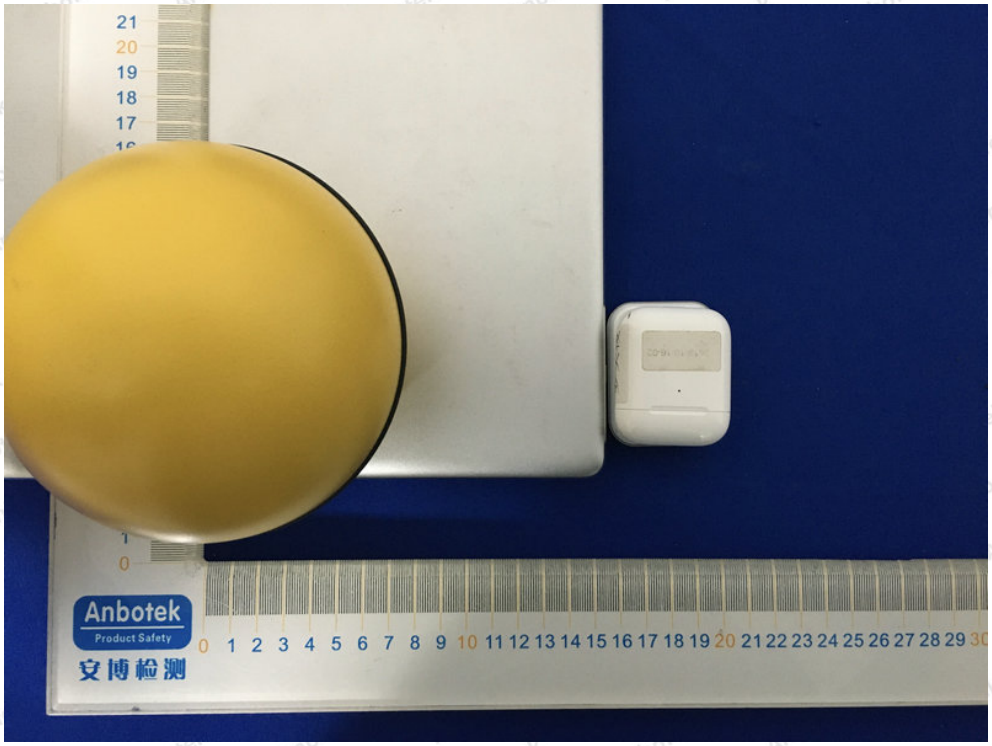

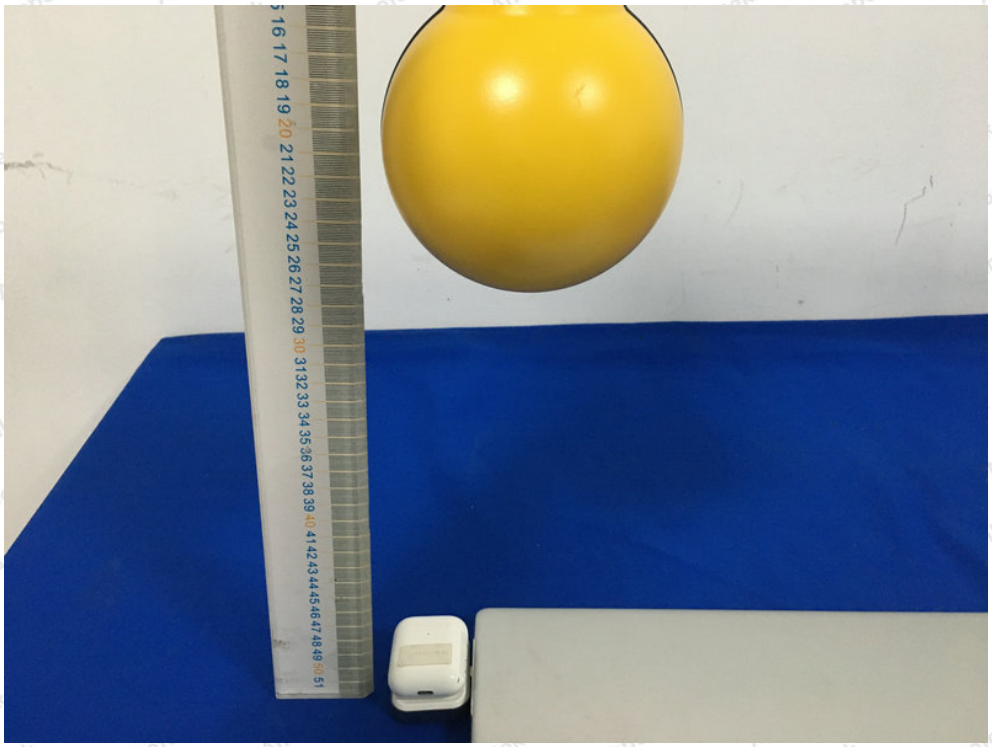

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