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RF Exposure Evaluation Report

Report No.:	CQASZ20221202175E-02
Applicant:	Shenzhen Itian Technology Co.,LTD
Address of Applicant:	6F,Building D, Phase 2nd , Anfeng Industrial Park , Dalang Street , Longhua District,Shenzhen , China
Equipment Under Test (EUT):	
Product:	Fast Wireless Charger
Model No.:	U8A,U8S
Test Model No.:	U8A
Brand Name:	ITIAN
FCC ID:	2AUDO-U8AU8S
Standards:	47 CFR Part 1.1307
	47 CFR Part 1.1310
	KDB 680106 D01 RF Exposure Wireless Charging Base App v03r01
Date of Receipt:	2022-12-15
Date of Test:	2022-12-15 to 2022-12-22
Date of Issue:	2022-12-27
Test Result :	**PASS***

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

Tested By: _____
(Joe Wang)

Reviewed By: _____
(Timo Lei)

Approved By: _____
(Jack Ai)

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20221202175E-02	Rev.01	Initial report	2022-12-27

2 Contents

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Itian Technology Co.,LTD
Address of Applicant:	6F,Building D, Phase 2nd , Anfeng Industrial Park , Dalang Street , Longhua District,Shenzhen , China
Manufacturer:	Shenzhen Itian Technology Co.,LTD
Address of Manufacturer:	6F,Building D, Phase 2nd , Anfeng Industrial Park , Dalang Street , Longhua District,Shenzhen , China
Factory:	Shenzhen Itian Technology Co.,LTD
Address of Factory:	6F,Building D, Phase 2nd , Anfeng Industrial Park , Dalang Street , Longhua District,Shenzhen , China

3.2 General Description of EUT

Product Name:	Fast Wireless Charger
Model No.:	U8A,U8S
Test Model No.:	U8A
Brand Name:	ITIAN
Software Version:	U8A-V1
Hardware Version:	U8A-V1
EUT Power Supply:	DC 5V/1A

3.3 Product Specification subjective to this standard

Equipment Category:	Non-ISM frequency
Operation Frequency range:	110kHz~205kHz
Modulation Type:	Induction
Antenna Type:	Induction coil
Antenna Gain:	0dBi

Note:

1. In section 15.31(m), regards to the operating frequency range less 1 MHz.

2.Model No.: U8A,U8S

Only the model U8A was tested, since the circuit design, layout, components used and internal wiring are all the same, except for the color difference.

3.4 Test Environment

Operating Environment:	
Temperature:	25.5 °C
Humidity:	53 % RH
Atmospheric Pressure:	1009 mbar
Test Mode:	
Mode a:	Keep the EUT Wireless Out Put 3W

3.5 Description of Support Units

The EUT has been tested with associated equipment below.

1）Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Apple Watch	Apple	/	/	CQA
PC	APPLE	MacBook Pro	/	CQA

2) Cable

Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
/	/	/	/	/

3.6 Test Location

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

3.7 Test Facility

- **A2LA (Certificate No. 4742.01)**
Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.
- **FCC Registration No.: 522263**
Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered 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.:522263

3.8 Equipment List

Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
Broadband Field Meter	Narda Safety Test Solutions GmbH	NBM-520	SB9873	2022/9/9	2023/9/8
Magnetic field probe	HIOKI	3470	SB9058/04	2022/9/9	2023/9/8
E-field probe	Narda	EF0391	SB9059	2022/9/9	2023/9/8

4 RF Exposure Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—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

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.

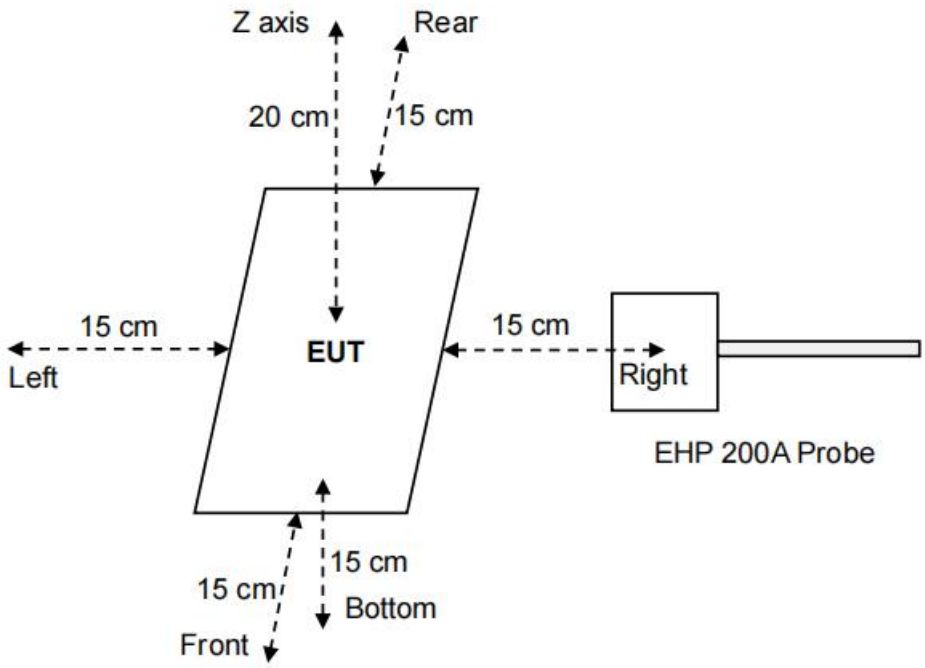
Note 4: The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit .

4.1.2 Test Procedure

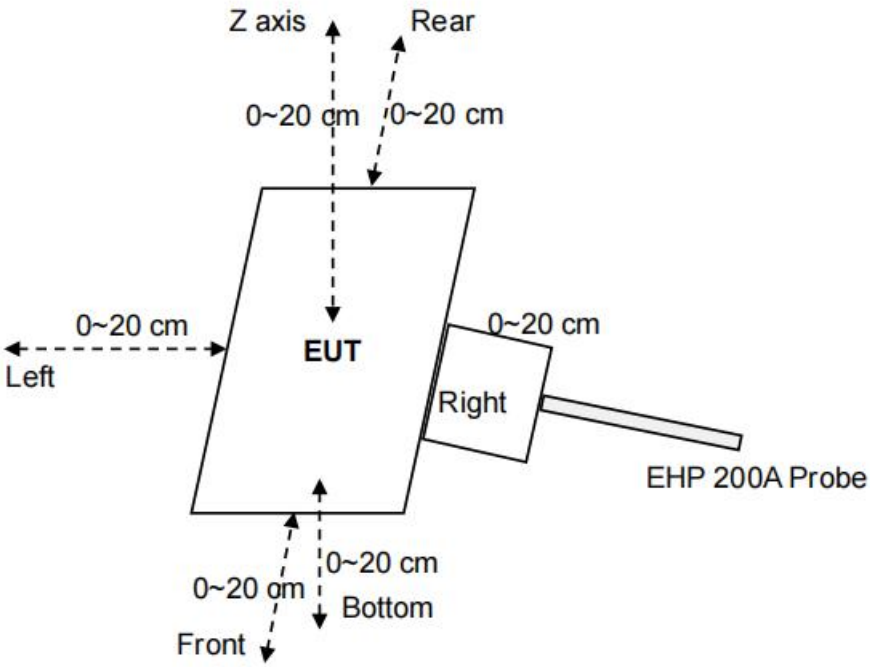
For devices designed for typical desktop applications, such a wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 20 cm(Top) and 15cm(Edge). E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 20 cm(Top) and 15cm(Edge) measured from the center of the probe(s) to the edge of the device.

4.1.3 Test Setup

For mobile exposure conditions:



For portable exposure conditions:



Note: Perform H-field measurements for each edge/top surface of the host/client pair at every 2 cm, starting

from as close as possible out to 20 cm

4.1.4 Test Results

The EUT does comply with item 5 KDB680106 D01 v03r01.

(1) Power transfer frequency is less than 1 MHz.
(Conform)

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

(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.
(Conform)

(4) Client device is placed directly in contact with the transmitter.
(Conform)

(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.
(Conform)

(7) the H-field measurements for each edge/top surface of the host/client pair at every 2 cm, starting from as close as possible out to 20 cm were also evaluated for portable use condition.

Test condition: Mode a

H-field strength test result:

test distance: 0cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.7854	1.63	74.5%
	Left	0.84587		
	Right	0.75415		
	Front	0.48535		
	Rear	1.2145		
	Bottom	0.8974		

test distance: 2cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.5851	1.63	67.6%
	Left	0.7412		
	Right	0.5487		
	Front	0.3125		
	Rear	1.1021		
	Bottom	0.6584		

test distance: 4cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.1252	1.63	60.5%
	Left	0.2158		
	Right	0.1557		
	Front	0.095		
	Rear	0.9854		
	Bottom	0.4123		

test distance: 6cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.1015	1.63	51.9%
	Left	0.1871		
	Right	0.1241		
	Front	0.074		
	Rear	0.8452		
	Bottom	0.2541		

test distance: 8cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0874	1.63	27.9%
	Left	0.0984		
	Right	0.0852		
	Front	0.0451		
	Rear	0.4541		
	Bottom	0.0897		

test distance: 10cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0741	1.63	25.4%
	Left	0.0841		
	Right	0.0412		
	Front	0.0410		
	Rear	0.4142		
	Bottom	0.0741		

test distance: 12cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0412	1.63	5.2%
	Left	0.0487		
	Right	0.0450		
	Front	0.0411		
	Rear	0.0854		
	Bottom	0.0415		

test distance: 14cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0398	1.63	2.77%
	Left	0.0412		
	Right	0.0452		
	Front	0.0384		
	Rear	0.0445		
	Bottom	0.0435		

test distance: 16cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0421	1.63	2.77%
	Left	0.0401		
	Right	0.0411		
	Front	0.0344		
	Rear	0.0451		
	Bottom	0.0418		

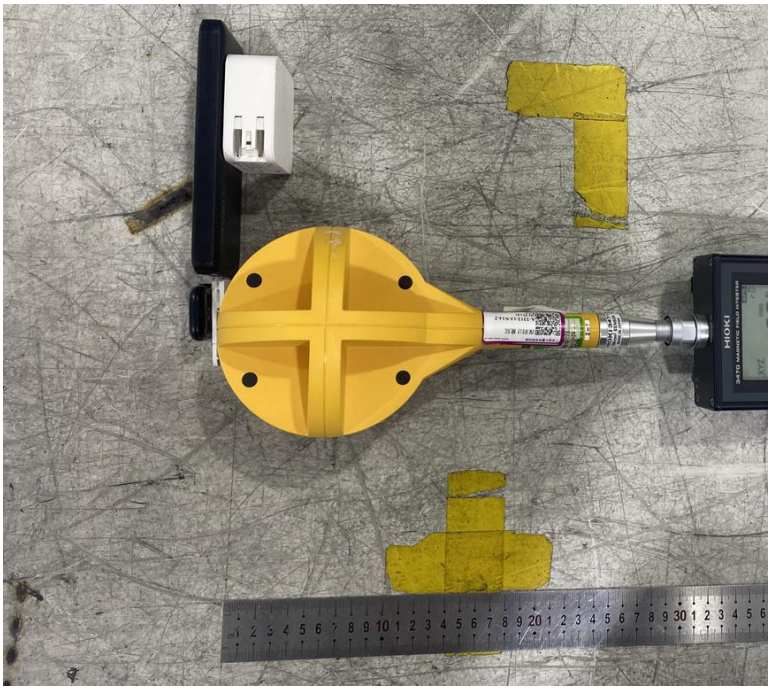
test distance: 18cm

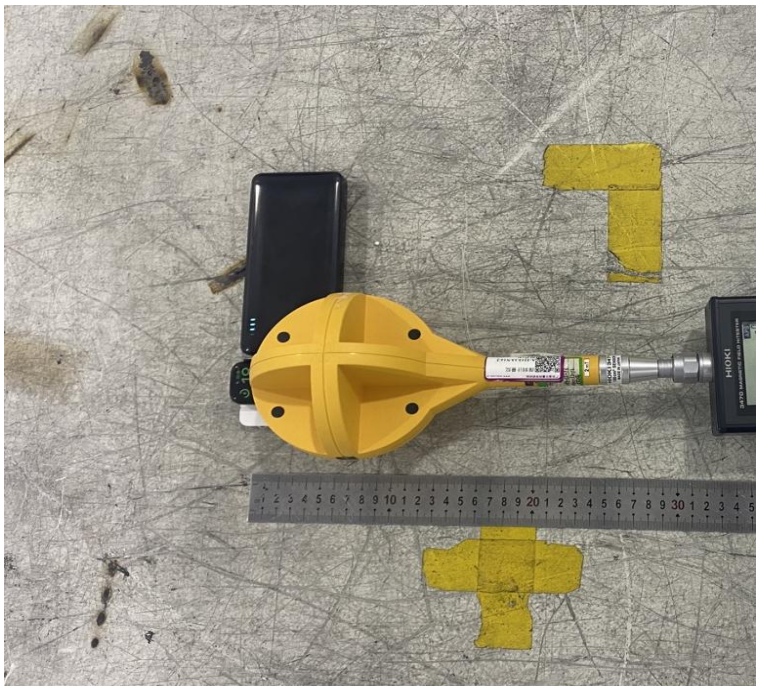
Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0415	1.63	2.56%
	Left	0.0401		
	Right	0.0412		
	Front	0.0409		
	Rear	0.0418		
	Bottom	0.0401		

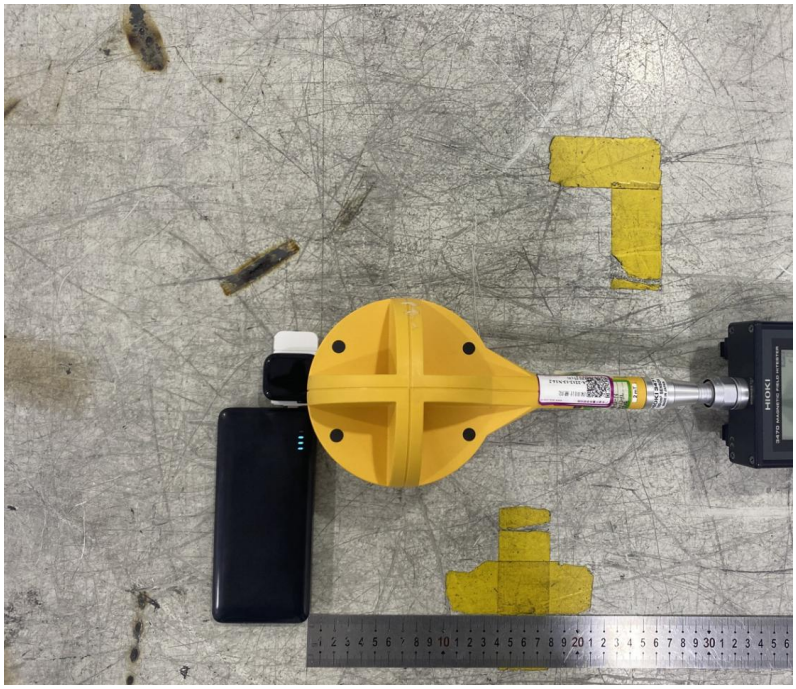
test distance: 20cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0421	1.63	2.58%
	Left	0.0384		
	Right	0.0374		
	Front	0.0389		
	Rear	0.0315		
	Bottom	0.0317		

APPENDIX A: PHOTOGRAPHS OF TEST SETUP



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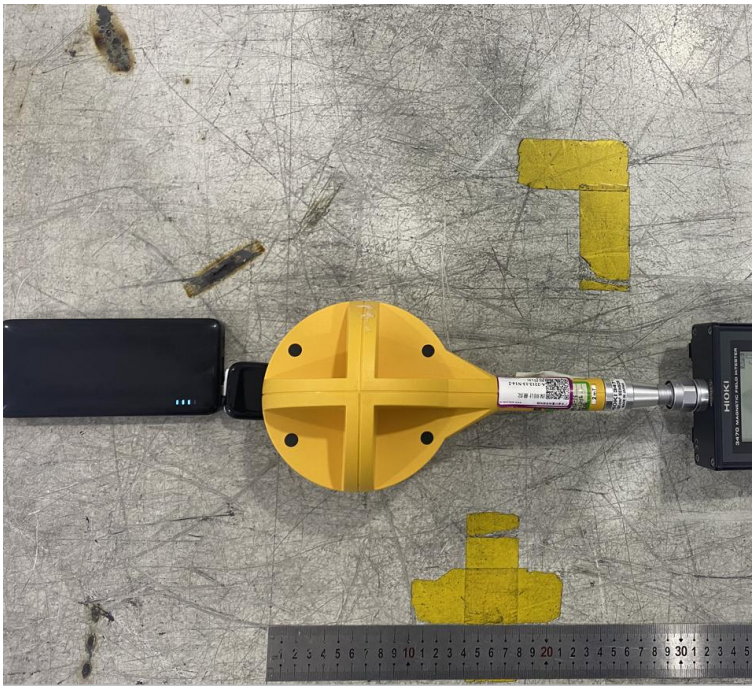
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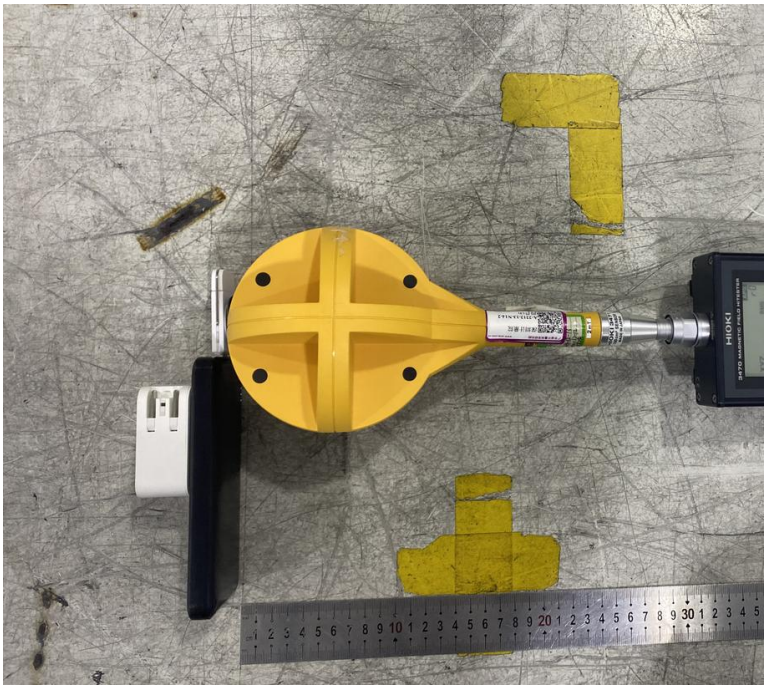

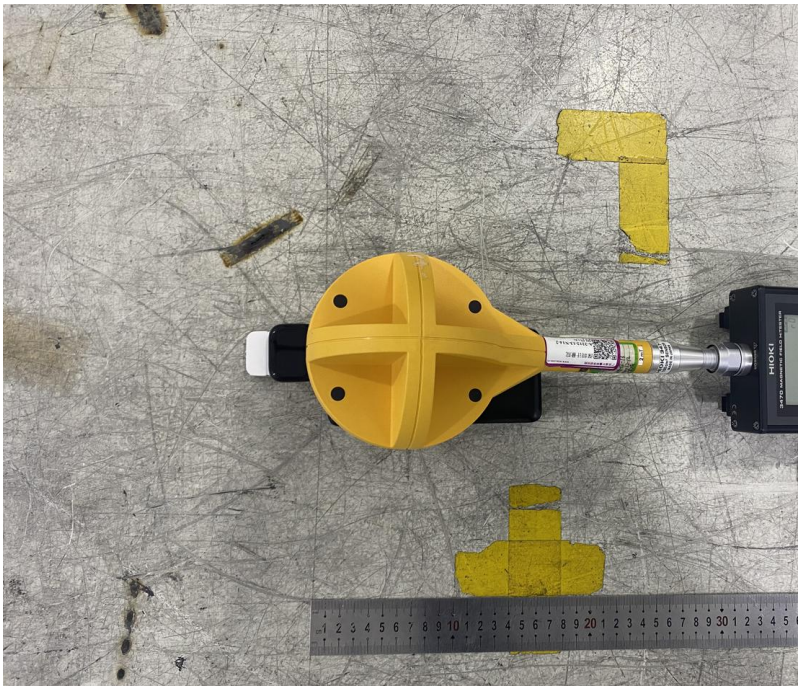

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