Shenzhen Huaxia Testing Technology Co., Ltd.

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

Telephone: +86-755-26648640
Fax: +86-755-26648637
Website: www.cqa-cert.com

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RF Exposure Evaluation Report

Report No.:	CQASZ20231001790E-02
Applicant:	Shenzhen Rihuida Electronics Co., Ltd.
Address of Applicant:	F 1-4, BUILDING 4, FUZHONG INDUSTRIAL PARK FUYONG STREET BAOAN DISTRICT,SHENZHEN, China
Equipment Under Test (EUT):	
Product:	Wireless Charger Power Bank
Model No.:	GX-PBWC-10, DS07
Test Model No.:	GX-PBWC-10
Brand Name:	N/A
FCC ID:	2AWXP-GX-PBWX-10
Standards:	47 CFR Part 1.1307
	47 CFR Part 1.1310
	KDB 680106 D01 RF Exposure Wireless Charging Base App v03r01
Date of Receipt:	2023-10-8
Date of Test:	2023-10-8 to 2023-10-13
Date of Issue:	2023-10-27
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
CQASZ20231001790E-02	Rev.01	Initial report	2023-10-27

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Rihuida Electronics Co., Ltd.
Address of Applicant:	F 1-4, BUILDING 4, FUZHONG INDUSTRIAL PARK FUYONG STREET BAOAN DISTRICT,SHENZHEN, China
Manufacturer:	Shenzhen Firstar Battery Co., Limited
Address of Manufacturer:	1st/2nd /3rd /4th Floor of Building 2, Fuzhong Industrial Park, Huaide Community, Fuyong Street, Bao' an District, Shenzhen City, Guangdong Province, China
Factory:	Shenzhen Firstar Battery Co., Limited
Address of Factory:	1st/2nd /3rd /4th Floor of Building 2, Fuzhong Industrial Park, Huaide Community, Fuyong Street, Bao' an District, Shenzhen City, Guangdong Province, China

3.2 General Description of EUT

Product Name:	Wireless Charger Power Bank
Model No.:	GX-PBWC-10, DS07
Test Model No.:	GX-PBWC-10
Brand Name:	N/A
Software Version:	IP6808
Hardware Version:	IP5356
EUT Power Supply:	DC 5V3A, 9V2A, 12V1.5A Battery: 10000mAh(38.5Wh/3.85V)

3.3 Product Specification subjective to this standard

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

Note:

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

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 5W
Mode b:	Keep the EUT Wireless Out Put 7.5W
Mode c:	Keep the EUT Wireless Out Put 10W
Mode d:	Keep the EUT Wireless Out Put 15W (Max)
Note: The above test modes all include full load,empty load,and half load, The worst-case state reflected in this report is the fully loaded state	

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
Adapter	/	LPL-C010050200Z	/	CQA
Wireless charge load	/	/	/	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	HIOKI	3470	SB9058/04	2023/9/8	2024/9/7
Magnetic field probe	HIOKI	3470	SB9058/04	2023/9/8	2024/9/7
E-field probe	HIOKI	3470	SB9058/04	2023/9/8	2024/9/7

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.

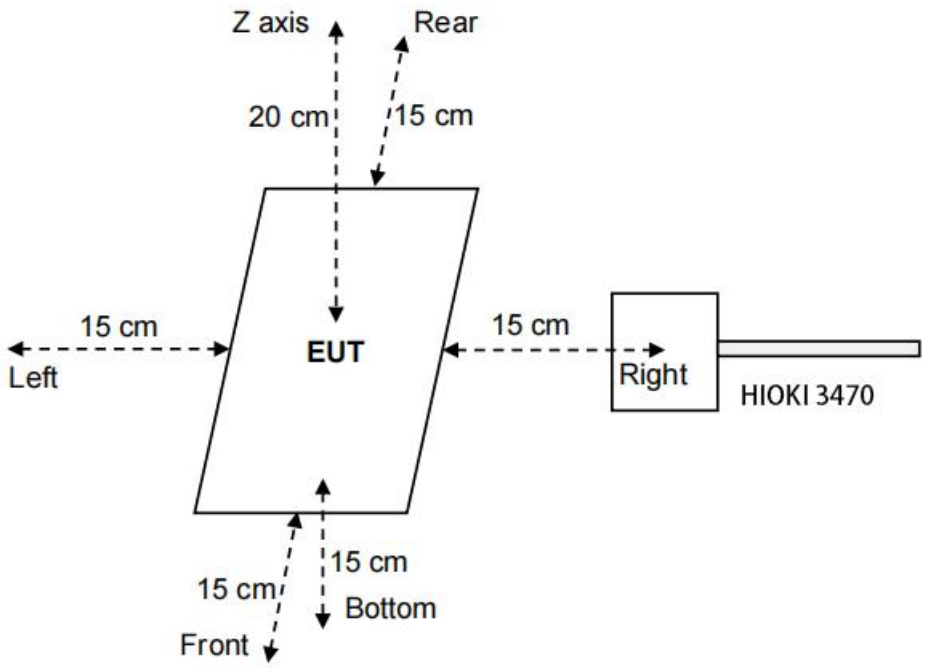
Note 4: The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit .

4.1.2 Test Procedure

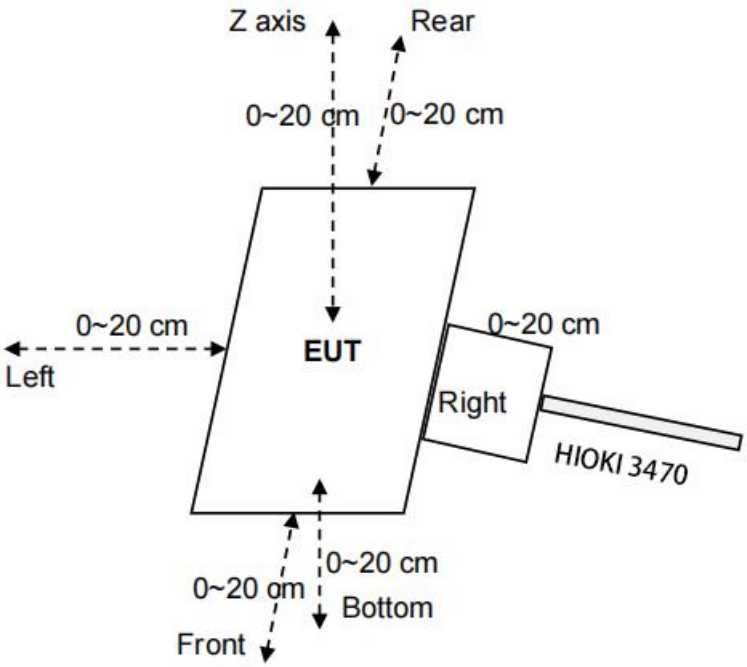
For devices designed for typical desktop applications, such a wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 20 cm(Top) and 15cm(Edge). E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements 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).

(No. The EUT has portable exposure condition)

(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 d

H-field strength test result:

test distance: 0cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.7724	1.63	76.2%
	Left	0.8354		
	Right	0.7443		
	Front	0.4839		
	Rear	1.2428		
	Bottom	0.8868		

test distance: 2cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.5813	1.63	73.6%
	Left	0.7298		
	Right	0.5380		
	Front	0.3151		
	Rear	1.2004		
	Bottom	0.7569		

test distance: 4cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.1244	1.63	59.8%
	Left	0.2246		
	Right	0.1547		
	Front	0.0906		
	Rear	0.9751		
	Bottom	0.5017		

test distance: 6cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.1002	1.63	45.7%
	Left	0.1950		
	Right	0.1328		
	Front	0.0708		
	Rear	0.7444		
	Bottom	0.2434		

test distance: 8cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0764	1.63	28.4%
	Left	0.0875		
	Right	0.0741		
	Front	0.0742		
	Rear	0.4631		
	Bottom	0.0788		

test distance: 10cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0832	1.63	26.0%
	Left	0.0831		
	Right	0.0502		
	Front	0.0401		
	Rear	0.4238		
	Bottom	0.0827		

test distance: 12cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0494	1.63	4.58%
	Left	0.0376		
	Right	0.0540		
	Front	0.0601		
	Rear	0.0747		
	Bottom	0.0508		

test distance: 14cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0488	1.63	2.75%
	Left	0.0394		
	Right	0.0440		
	Front	0.0378		
	Rear	0.0448		
	Bottom	0.0533		

test distance: 16cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0511	1.63	2.73%
	Left	0.0402		
	Right	0.0400		
	Front	0.0434		
	Rear	0.0444		
	Bottom	0.0410		

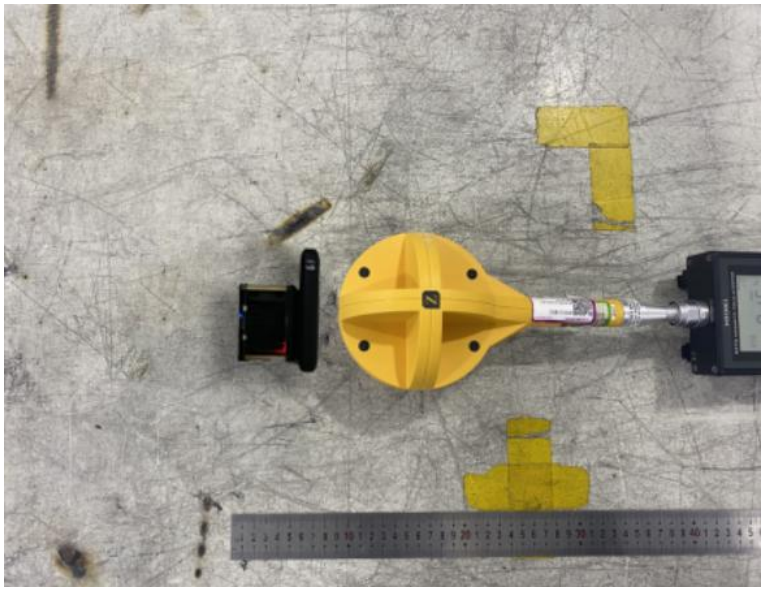
test distance: 18cm

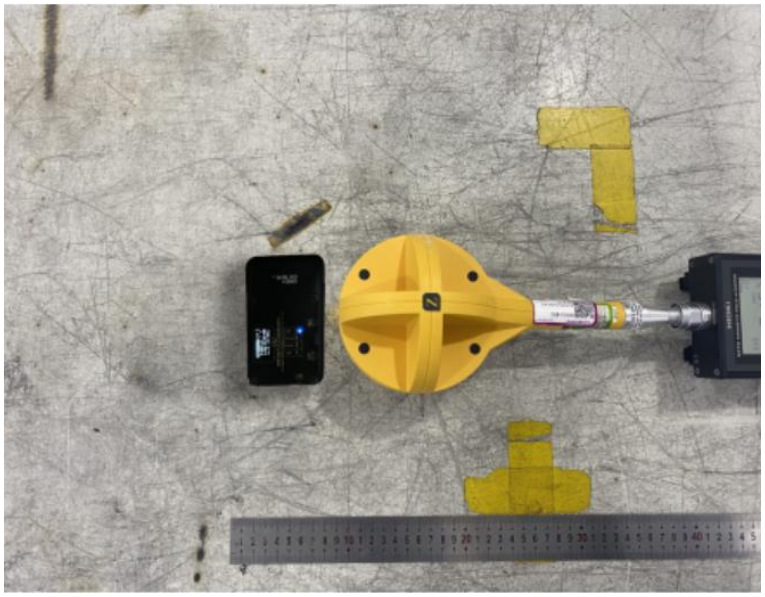
Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0511	1.63	4.35%
	Left	0.0486		
	Right	0.0502		
	Front	0.0598		
	Rear	0.0709		
	Bottom	0.0491		

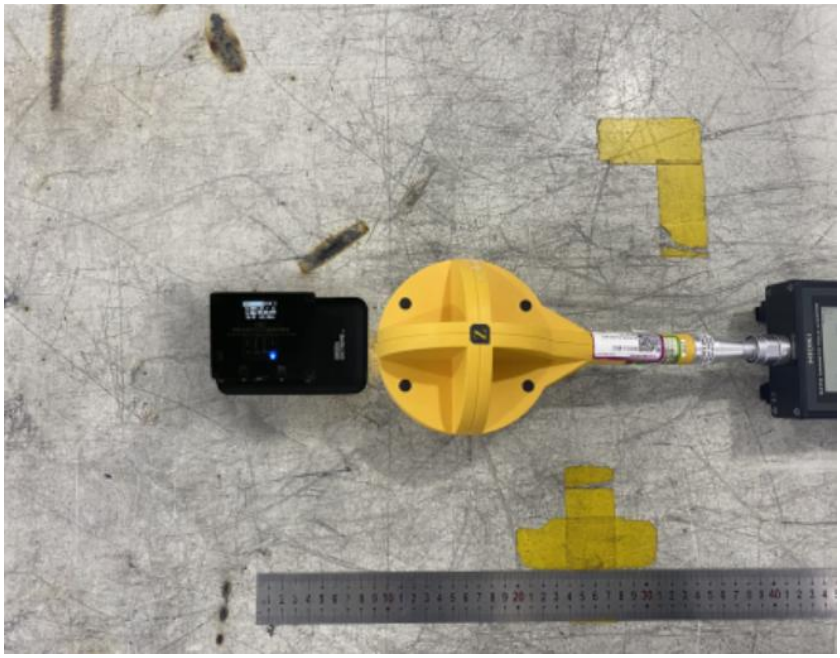
test distance: 20cm

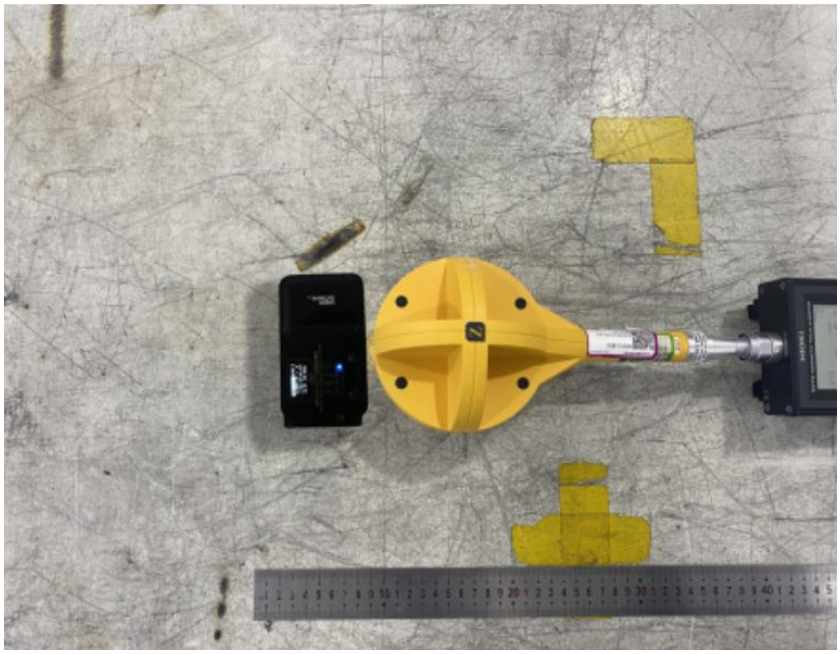
Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0406	1.63	2.49%
	Left	0.0394		
	Right	0.0465		
	Front	0.0281		
	Rear	0.0406		
	Bottom	0.0311		

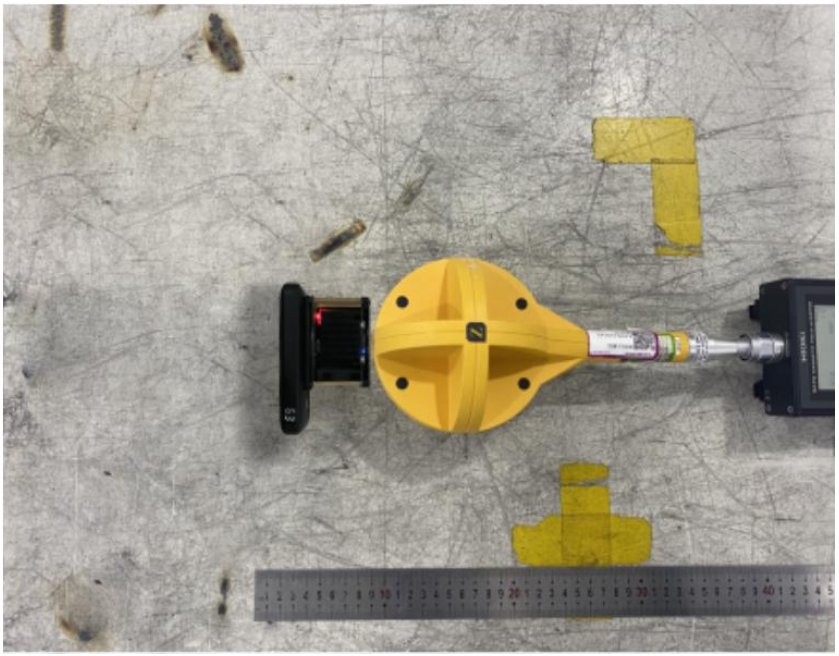
APPENDIX A: PHOTOGRAPHS OF TEST SETUP

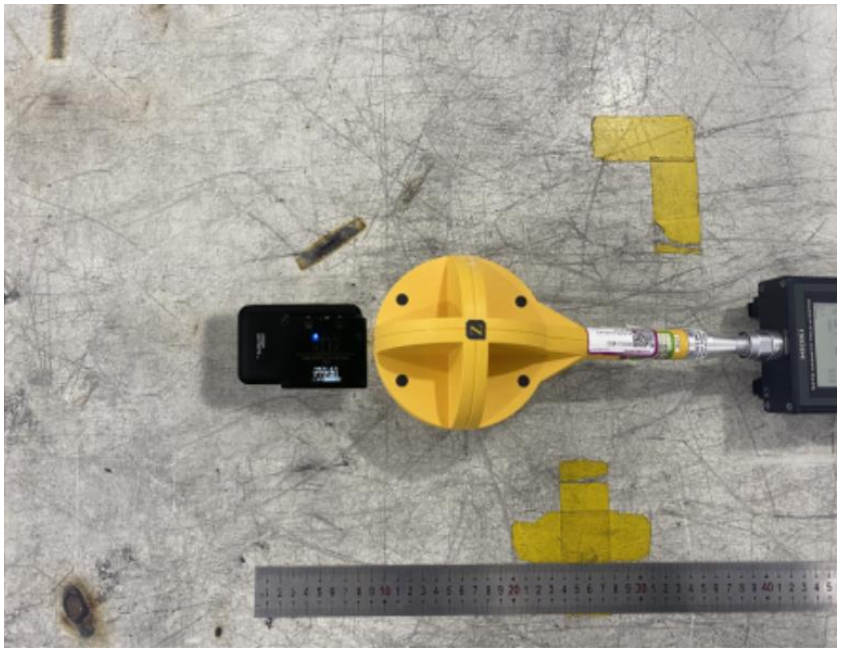


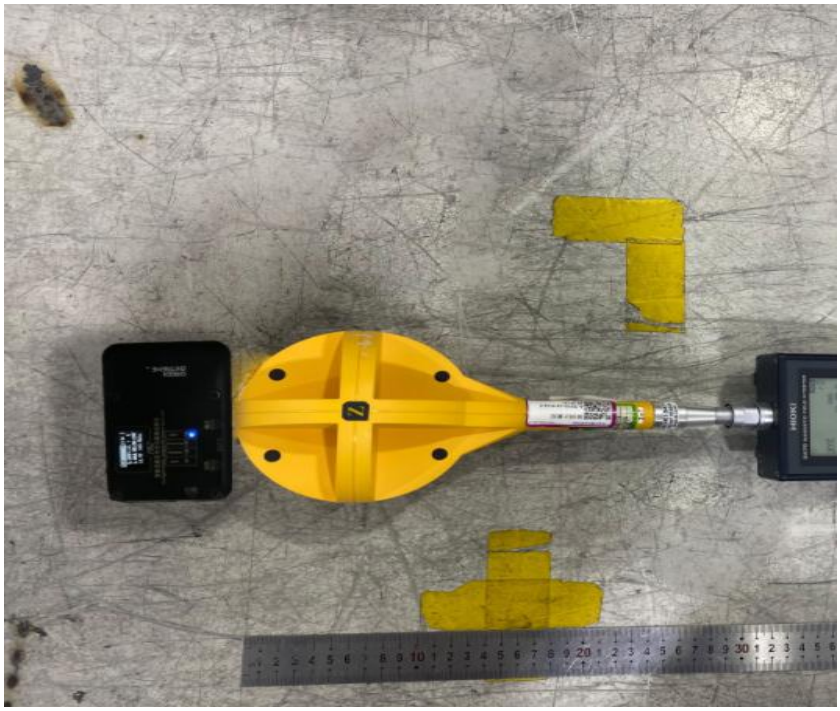








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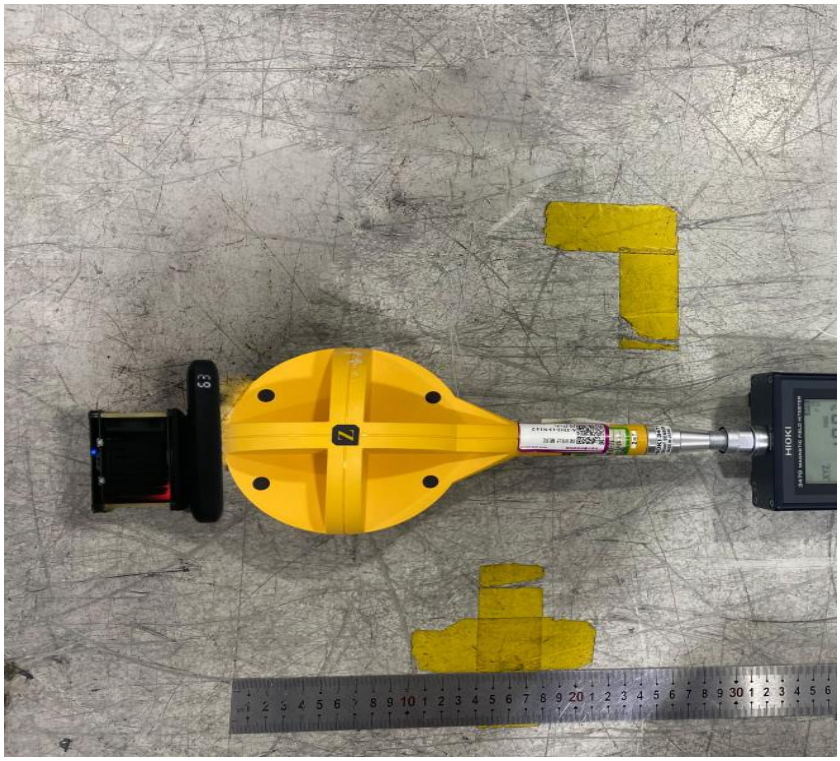
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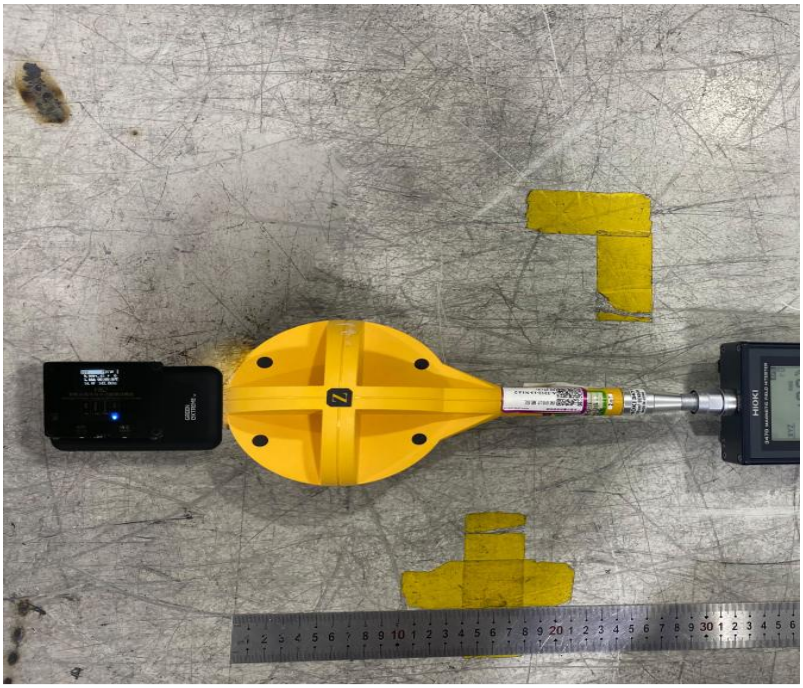

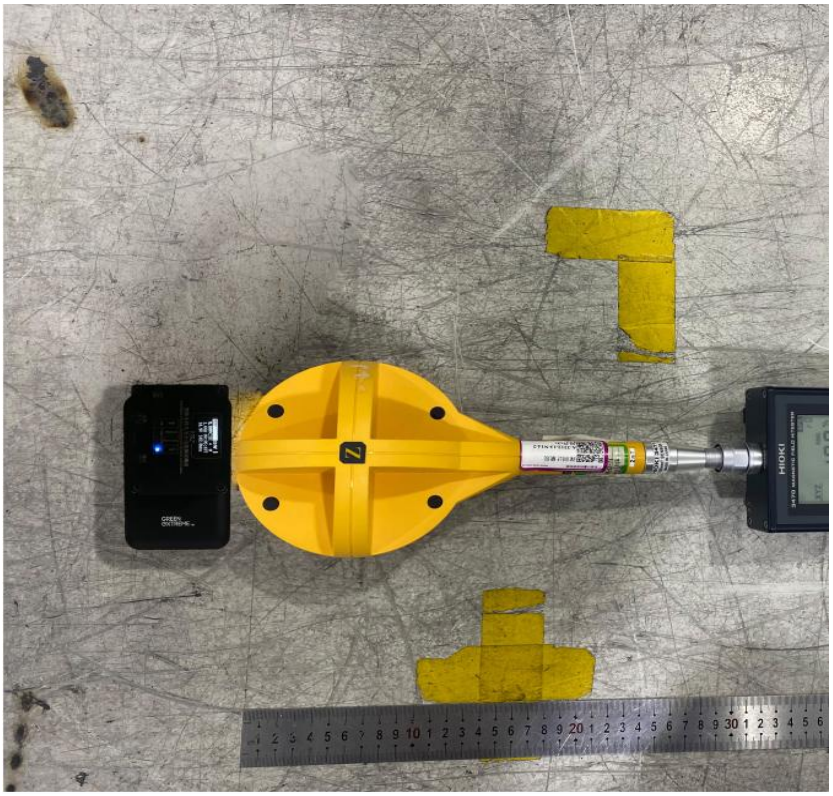

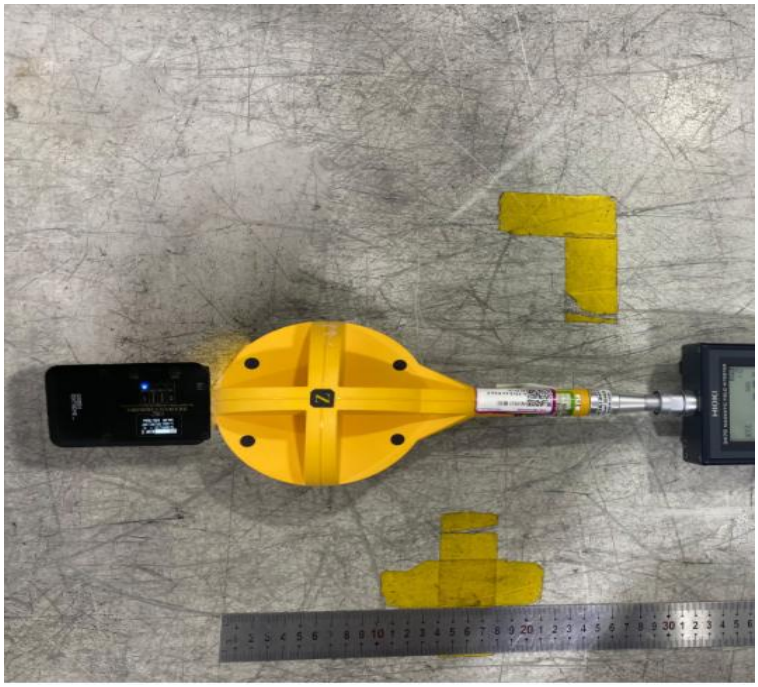

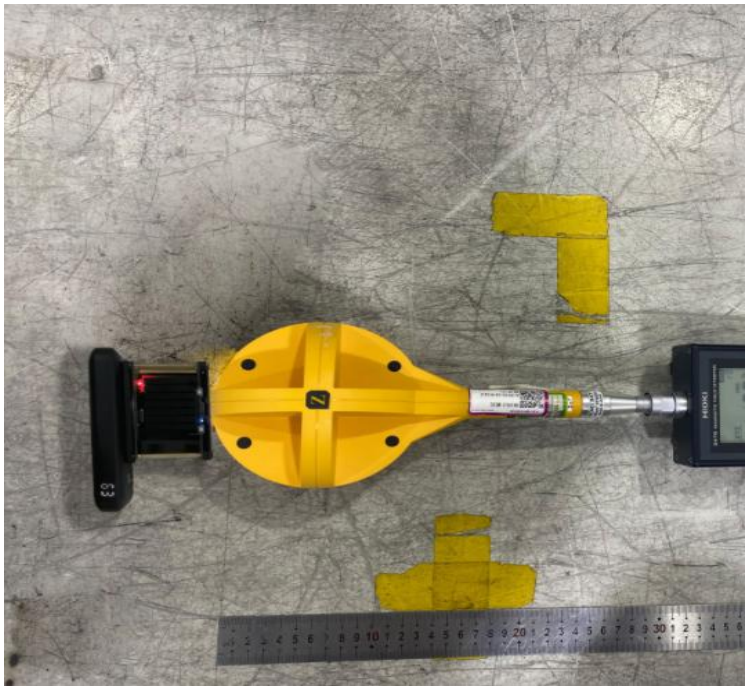

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