FCC Test Report

For

Shenzhen Realink Technology Co., Ltd

EUT Name: GPS wireless fence

Model No: PF-09

Brand Name: N/A

FCC ID: 2A4TE-PF-09

Prepared By:

Dongguan Yaxu (AiT) Technology Limited

Date of Receipt: Dec.19,2022

Date of Test: Dec.19~29,2022

Date of Issue: Dec.30,2022

Dongguan Yaxu (AiT) Technology Limited
No.22, Jinqianling Third Street, Jitigang,
Huangjiang,Dongguan, Guangdong, China.

Client Information:

Applicant:	Shenzhen Realink Technology Co., Ltd
Applicant add.:	1026 maker building, 72-6 huanguan south road, xintian community, guanhu street, Longhua district, shenzhen, Guangdong, China

EUT Information:

EUT Name:	:	GPS wireless fence
Model No:	:	PF-09
Brand Name:	:	N/A
Test Sample	:	Engineering Sample No.: AIT22121914-1

Test standard used: FCC Part 15 Subpart B

This device described above has been tested by Dongguan Yaxu (AiT) Technology Limited and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Reviewed by: Simba huang **Approved by:** Seal Chen

Dongguan Yaxu (AiT) Technology Limited
No.22, Jinqianling Third Street, Jitigang,
Huangjiang,Dongguan, Guangdong, China.

1 Contents

2 Test Summary

Test	Test Requirement	Test Method	Criterion	Result
Mains Terminals Disturbance Voltage, 150kHz to 30MHz	FCC Part 15 Subpart B	ANSI C63.4: 2014	Limits	N/A
Radiated Emissions 30MHz to 1GHz	FCC Part 15 Subpart B	ANSI C63.4: 2014	Limits	PASS
Note: N/A, not applicable, this products powered by DC power.				

2.1 Measurement Uncertainty

The report 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	Frequency Range	U , Value
1	Power Line Conducted Emission	150KHz~30MHz	1.20 dB
2	Disturbance Power Emission	30MHz~300MHz	2.96 dB
3	Radiated Emission Test	30MHz~1GHz	3.75 dB
4	Radiated Emission Test	1GHz~18GHz	3.88 dB

3 Test Facility

The test facility is recognized, certified or accredited by the following organizations:

. CNAS- Registration No: L6177

Dongguan Yaxu (AiT) technology Limited is accredited to ISO/IEC 17025:2017 general Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the competence of testing and calibration laboratories) on April 18, 2022

FCC-Registration No.: 703111 Designation Number: CN1313

Dongguan Yaxu (AiT) technology Limited 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.

IC —Registration No.: 6819A CAB identifier: CN0122

The 3m Semi-anechoic chamber of Dongguan Yaxu (AiT) technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 6819A

A2LA-Lab Cert. No.: 6317.01

Dongguan Yaxu (AiT) technology Limited has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

3.1 Deviation from standard

None

3.2 Abnormalities from standard conditions

None

4 General Information

4.1 General Description of EUT

Manufacturer:	Shenzhen Realink Technology Co., Ltd
Manufacturer Address:	1026 maker building, 72-6 huanguan south road, xintian community, guanhu street, Longhua district, shenzhen, Guangdong, China
EUT Name:	GPS wireless fence
Model No:	PF-09
Serial No:	N/A
Brand Name:	N/A
Receiver Frequency	1575.42 MHz
Antenna Gain	0.76dBi
Antenna Type	ceramic antenna
Power Range:	DC3.7V from battery
Test Supply:	DC3.7V from battery

4.2 EUT Test Mode

Mode 1	The EUT in work mode.

4.3 Description of Test setup

EUT was tested in normal configuration (Please See following Block diagrams)

1. Block diagram of EUT configuration-EMI

Mode 1:

EUT

4.4 Peripheral List

4.5 Test Peripheral List

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	signal cable
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

4.6 EUT Peripheral List

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	signal cable
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

5 Equipments List for All Test Items

☒ Radiation Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	EMI Measuring Receiver	R&S	ESR	101160	2022.09.02	2023.09.01
2	Low Noise Pre Amplifier	HP	HP8447E	1205323	2022.09.02	2023.09.01
3	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9160	9160-3206	2022.08.29	2024.08.28
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2022.09.02	2023.09.01
5	Spectrum Analyzer	R&S	FSV40	101160	2022.09.02	2023.09.01
6	Low Noise Pre Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2022.09.02	2023.09.01
7	Broadband Horn Antenna	Schwarzbeck	BBHA 9120D	452	2021.08.29	2024.08.28

☐ Conduction Test equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	EMI Test Receiver	R&S	ESCI	100124	2022.09.02	2023.09.01
2	LISN	Kyoritsu	KNW-242	8-837-4	2022.09.02	2023.09.01
3	LISN	R&S	ESH3-Z5	892785/016	2022.09.02	2023.09.01
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2022.09.02	2023.09.01

Note:

1. ☐ is not applicable in this Test Report. ☒ is applicable in this Test Report.

6 Emission Test Results

6.1 Mains Terminals Disturbance Voltage Measurement

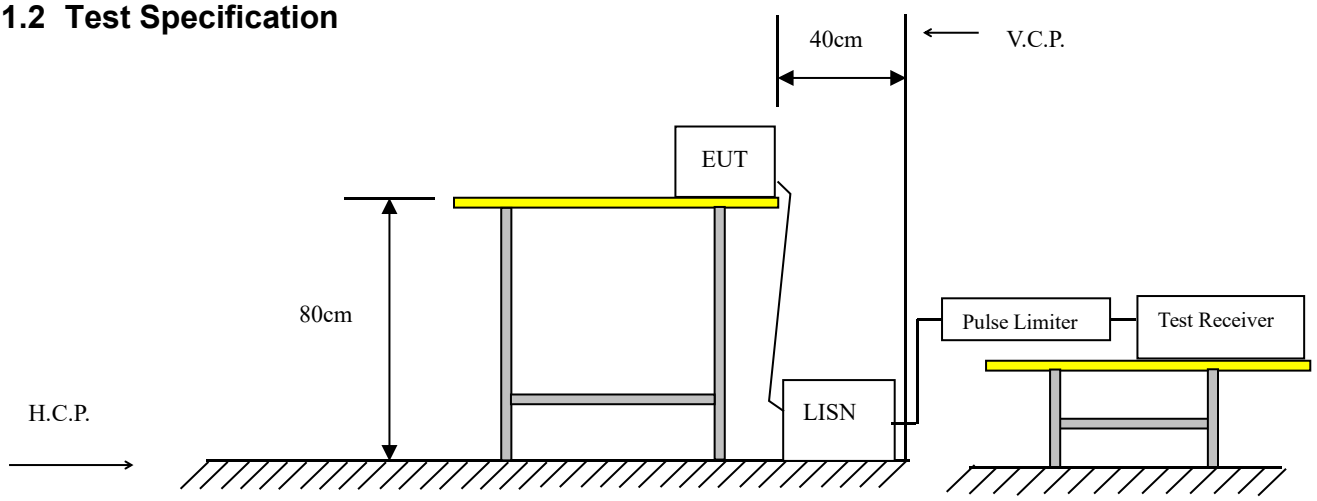
Frequency (MHz)	☐ Class A (dBμV)		☒ Class B (dBμV)	
	Q.P. (Quasi-Peak)	A.V. (Average)	Q.P. (Quasi-Peak)	A.V. (Average)
0.15 ~ 0.50	79	66	66 to 56	56 to 46
0.50 ~ 5.0	73	60	56	46
5.0 ~ 30	73	60	60	50

Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximized peak within 6dB of Average Limit

6.1.1 E.U.T. Operation

Temperature:	26	Humidity:	50	Atmospheric Pressure:	1006	Kpa
Test Mode:	N/A		The Worst Mode:		N/A	

6.1.2 Test Specification



EUT was placed upon a wooden test table 0.8m above the horizontal metal reference plane and 0.4m from the vertical ground plane, and it was connected to an AMN. The closest distance between the boundary of the EUT and the surface of the AMN is 0.8m. All peripherals were connected to another AMN, and placed at a distance of 10cm from each other. A spectrum and receiver was connected to the RF output port of the AMN. Both average and quasi-peak value were detected.

6.1.3 Measurement Data

An initial pre-scan was performed on the live and neutral lines.

Quasi-peak or average measurements were performed at the frequency which maximum peak emissions were detected.

Please refer to the attached quasi-peak & average measurement data for reference.

N/A, not applicable, this products powered by DC power.

6.2 Radiated Emission Measurement

Limits of Radiated Emission Measurement

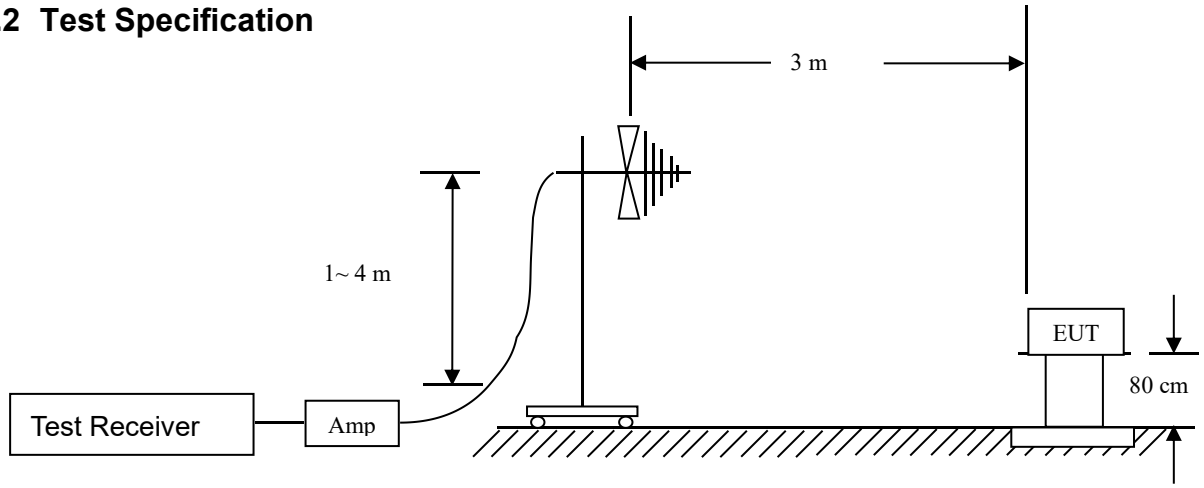
Frequency (MHz)	☐ Class A (10m)	☒ Class B (3m)
	Quasi-Peak dB(μV/m)	Quasi-Peak dB(μV/m)
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

Detector:	Peak for pre-scan (120kHz resolution bandwidth) Quasi-Peak if maximum peak within 6dB of limit

6.2.1 E.U.T. Operation

Temperature:	25°C	Humidity:	50% RH	Atmospheric Pressure:	1006	Kpa
Test Mode:	Mode 1		Worst case		Mode 1	

6.2.2 Test Specification



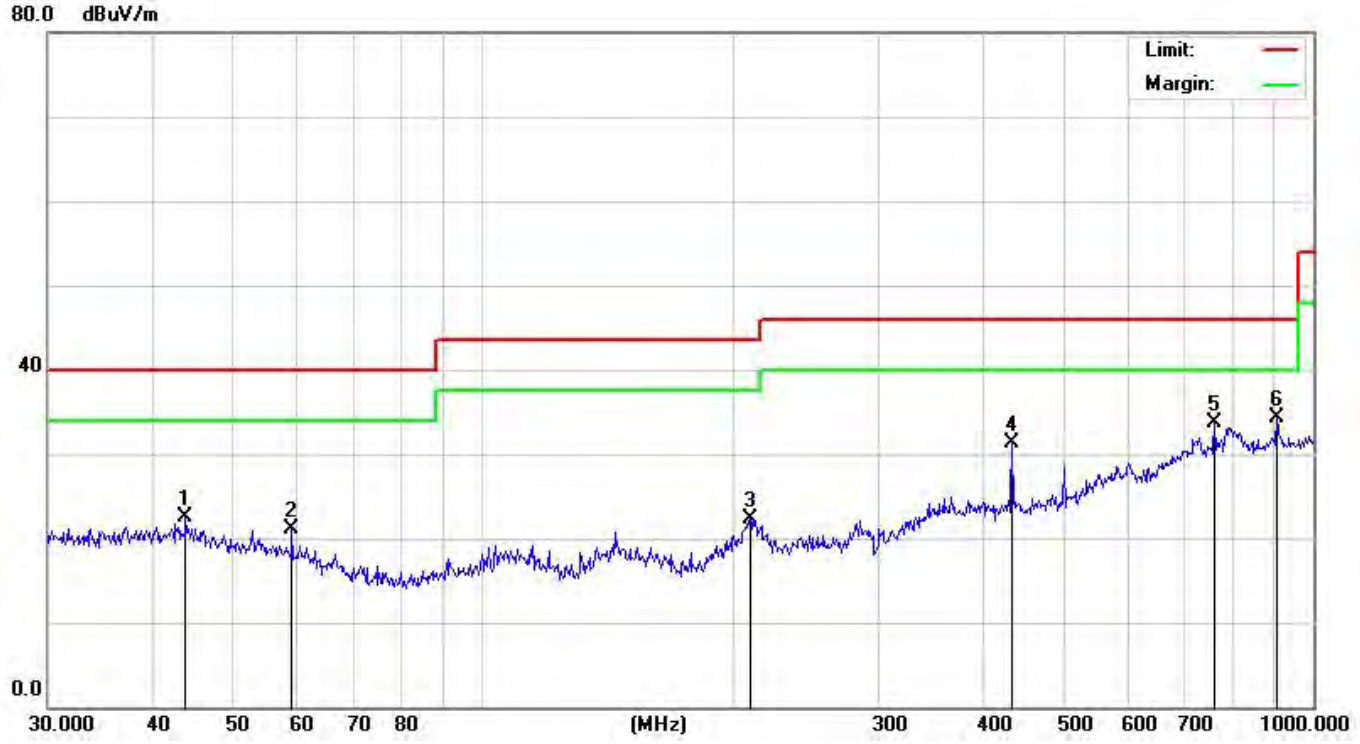
EUT was placed upon a wooden test table which was placed on the turn table 0.8m above the horizontal metal ground plane, and operating in the mode as mentioned above. A receiving antenna was placed 3m away from the EUT. During testing, turn around the turn table and move the antenna from 1m to 4m to find the maximum field-strength reading. All peripherals were placed at a distance of 10cm between each other. Both horizontal and vertical antenna polarities were tested.

6.2.3 Measurement Data

An initial pre-scan was performed in the 3m chamber using the spectrum analyzers in peak detection mode. The EUT was measured by Biology antenna with 2 orthogonal polarities and peak emissions from the EUT were detected within 6dB of the class B limit line.

The following quasi-peak measurements were performed on the EUT.

Test Mode:	Mode 1	Polarization:	Vertical
Model:	PF-09	Date:	2022-12-28



Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		43.9658	26.95	-4.49	22.46	40.00	-17.54	peak
2		59.0251	28.34	-7.33	21.01	40.00	-18.99	peak
3		210.0482	26.32	-3.93	22.39	43.50	-21.11	peak
4		434.0651	32.50	-1.12	31.38	46.00	-14.62	peak
5		760.7036	28.93	4.86	33.79	46.00	-12.21	peak
6	*	903.3094	28.93	5.32	34.25	46.00	-11.75	peak

Test Mode:	Mode 1	Polarization:	Horizontal
Model:	PF-09	Date:	2022-12-28

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		434.0650	32.24	1.46	33.70	46.00	-12.30	peak
2	*	875.2469	28.05	6.45	34.50	46.00	-11.50	peak
3		183.2005	26.00	-5.39	20.61	43.50	-22.89	peak
4		34.8823	27.24	-3.59	23.65	40.00	-16.35	peak
5		43.3534	26.29	-2.08	24.21	40.00	-15.79	peak
6		501.1789	28.79	2.54	31.33	46.00	-14.67	peak

Above 1G

Test Mode:	Mode 1	Polarization:	Vertical
Model:	PF-09	Date:	2022-12-28

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

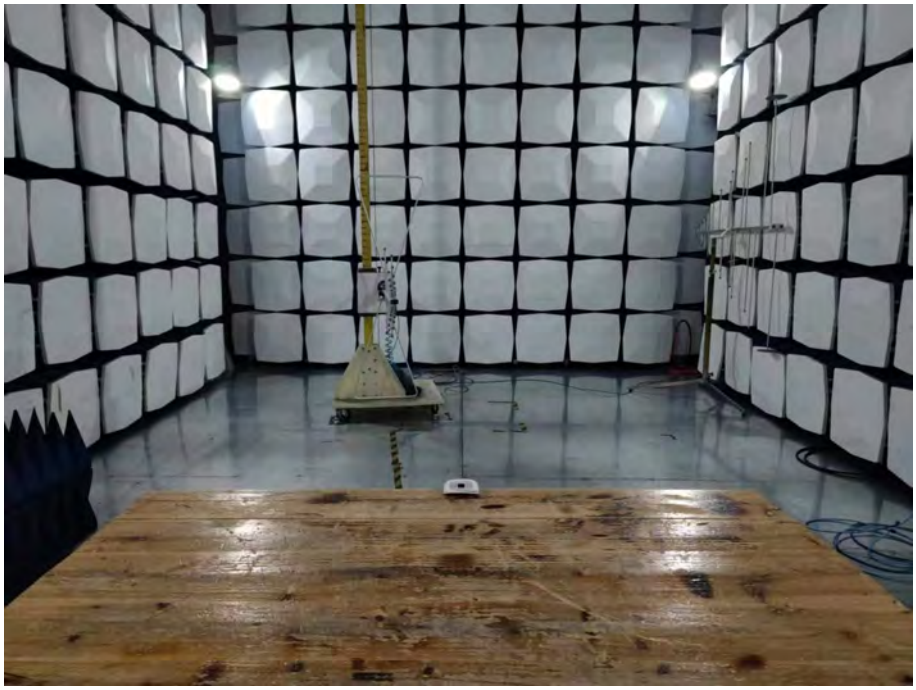
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		1262.292	54.72	-10.42	44.30	74.00	-29.70	peak
2		1642.661	46.79	-9.79	37.00	74.00	-37.00	peak
3		2418.959	43.74	-5.54	38.20	74.00	-35.80	peak
4		3199.044	42.80	-1.20	41.60	74.00	-32.40	peak
5		4238.283	43.29	4.21	47.50	74.00	-26.50	peak
6	*	4997.811	42.74	5.26	48.00	74.00	-26.00	peak

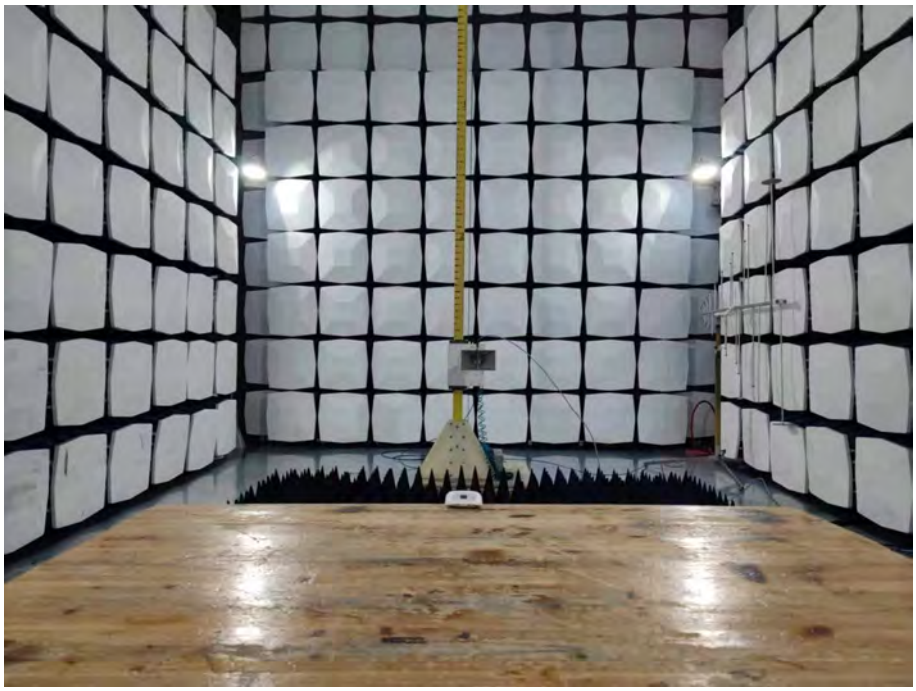
Test Mode:	Mode 1	Polarization:	Horizontal
Model:	PF-09	Date:	2022-12-28

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

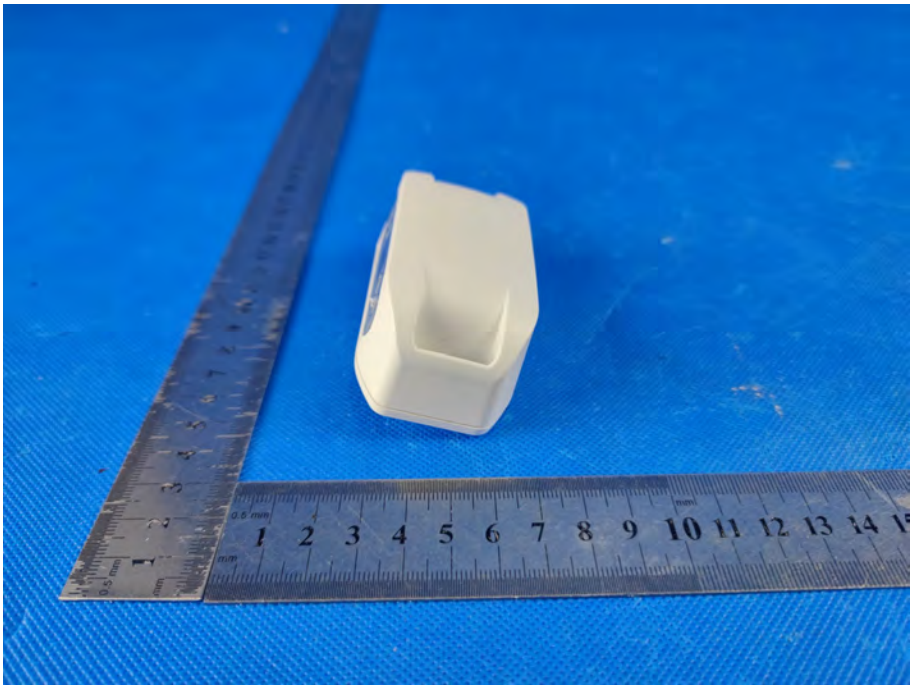
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		1125.532	47.97	-10.77	37.20	74.00	-36.80	peak
2		1534.540	45.86	-9.86	36.00	74.00	-38.00	peak
3		2584.760	42.39	-4.29	38.10	74.00	-35.90	peak
4		3130.995	43.37	-1.37	42.00	74.00	-32.00	peak
5		3833.659	44.89	2.61	47.50	74.00	-26.50	peak
6	*	5170.883	43.49	4.71	48.20	74.00	-25.80	peak

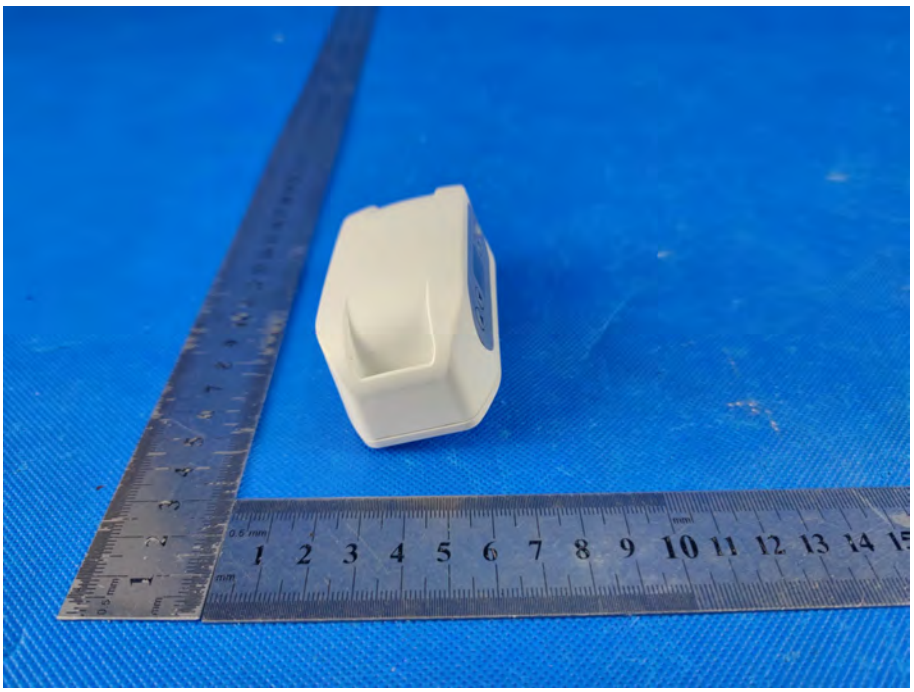
6.2.4 Test Setup photograph

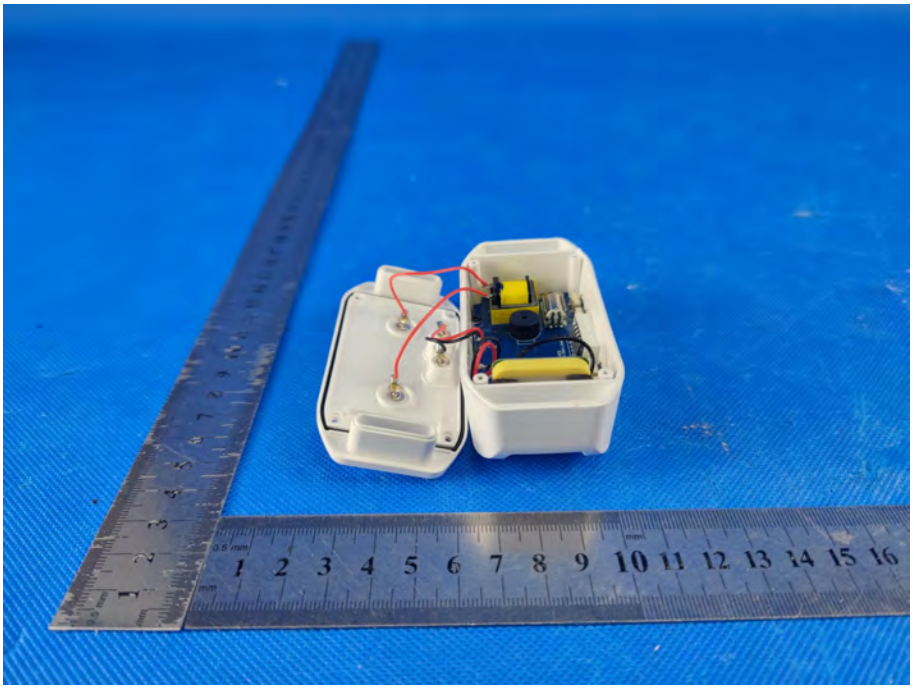


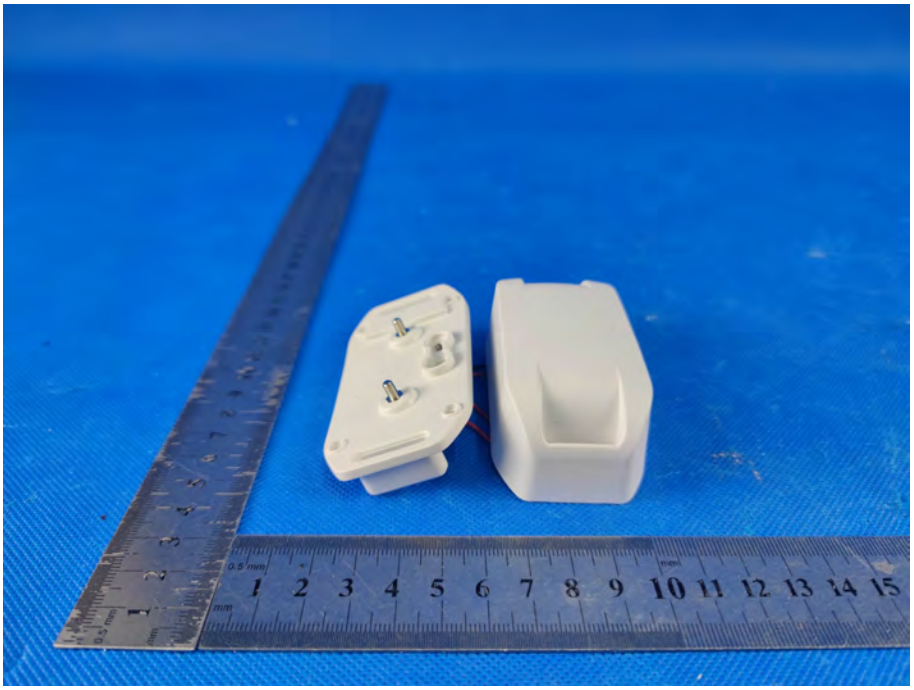


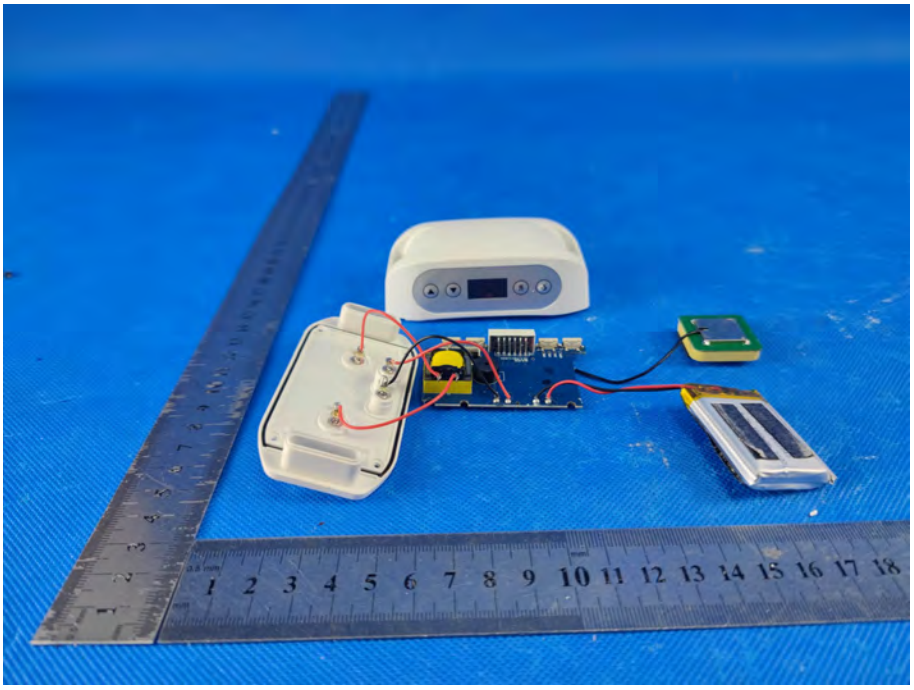
7 APPENDIX-Photographs of EUT Constructional Details

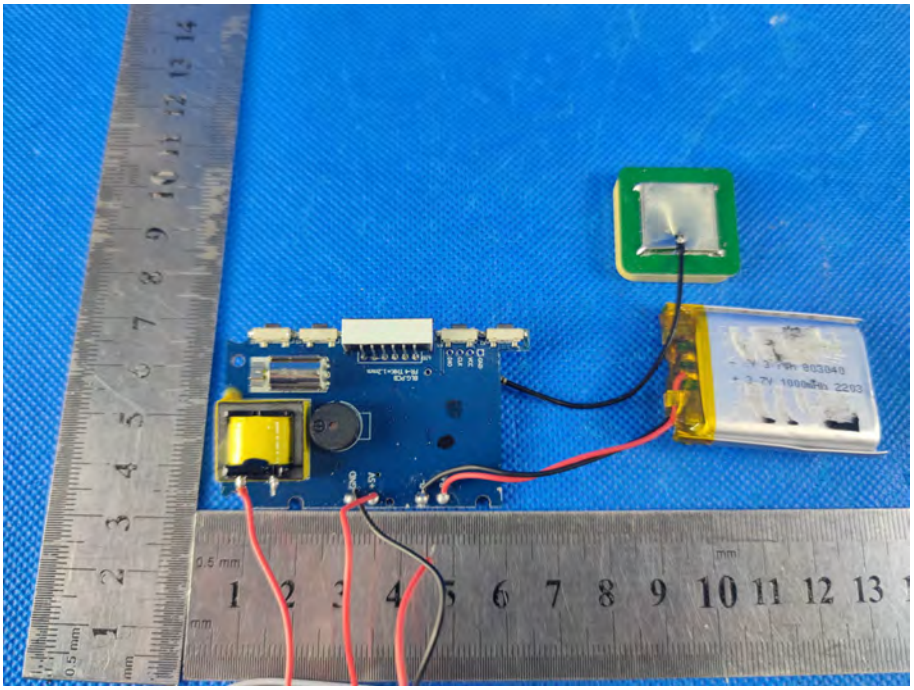


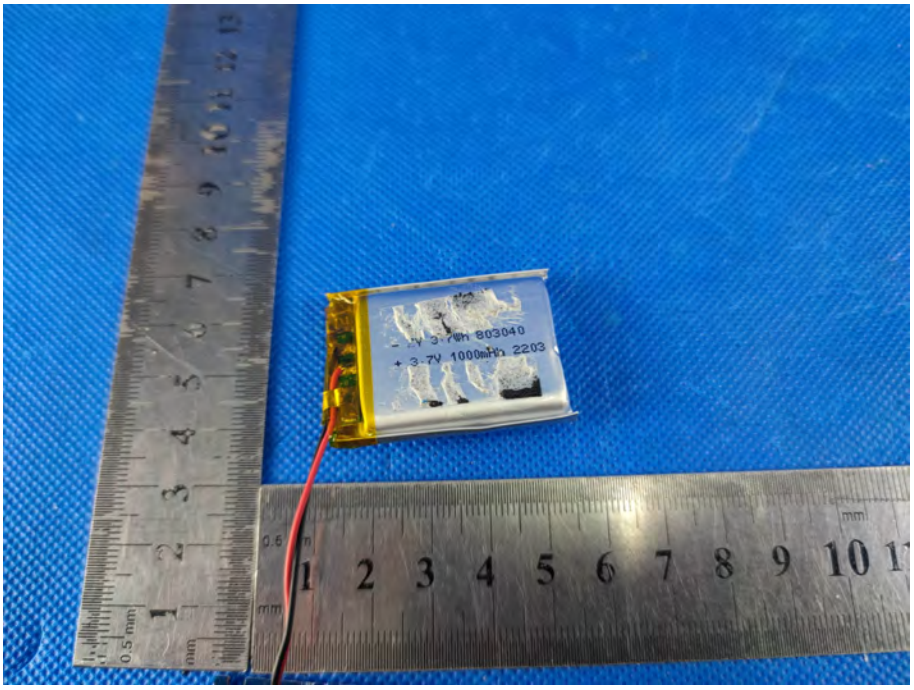








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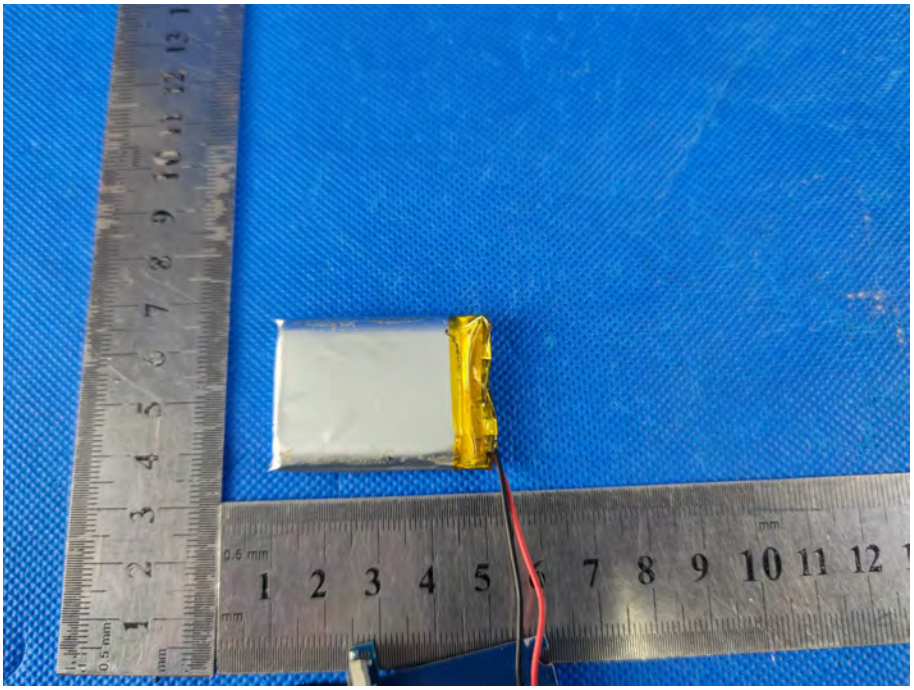
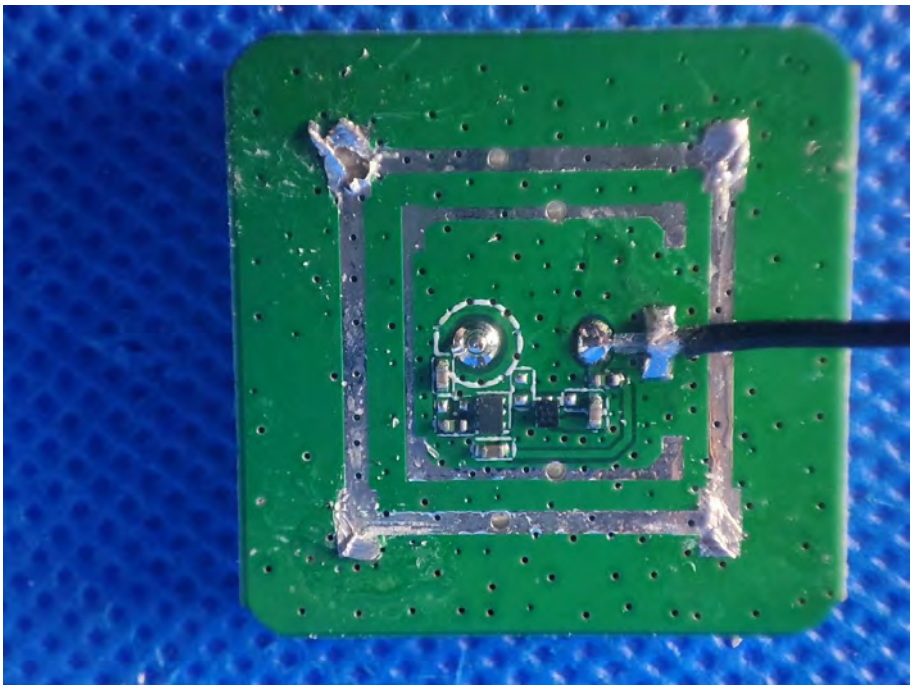
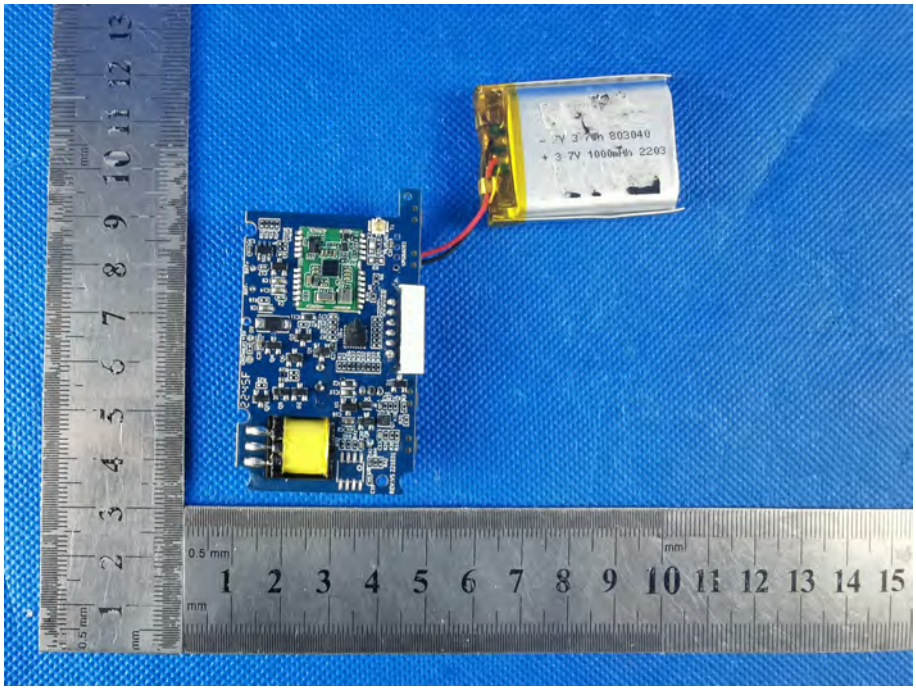
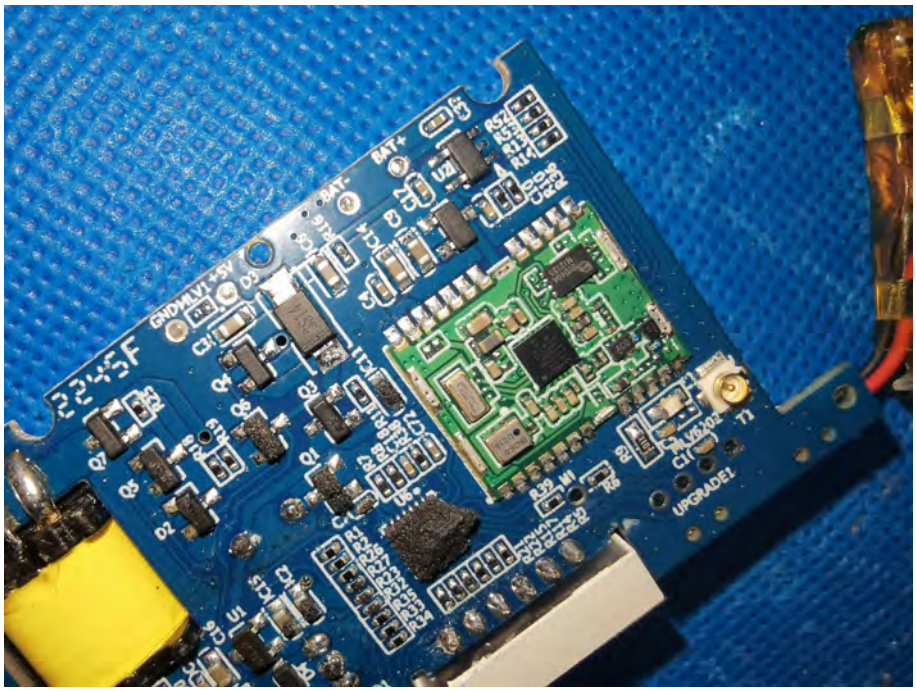
3.7V 1000mAh 2203

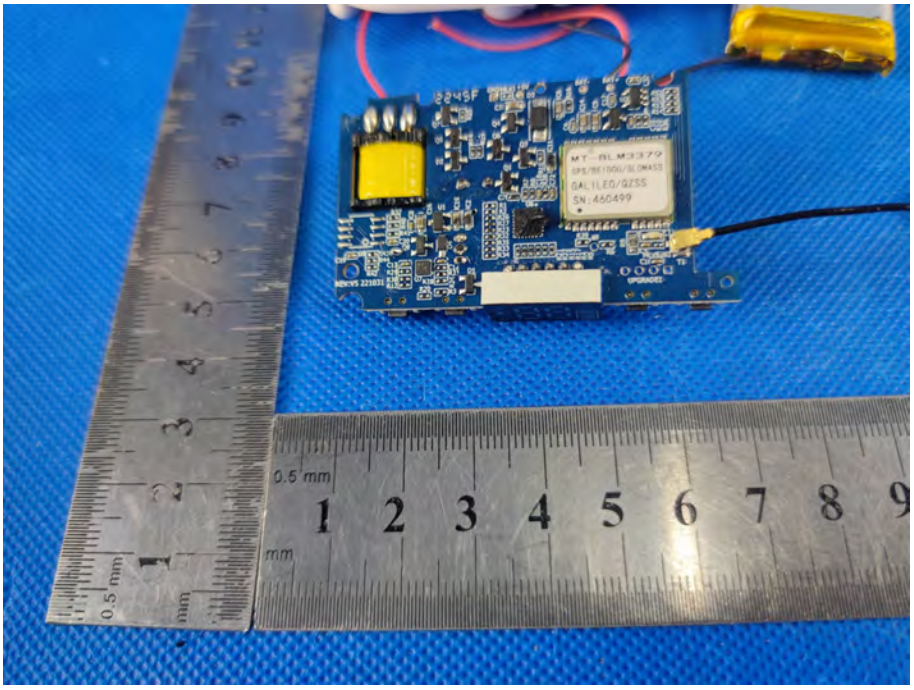



- 2V 3.7Wh 803040
+ 3.7V 1000mAh 2203





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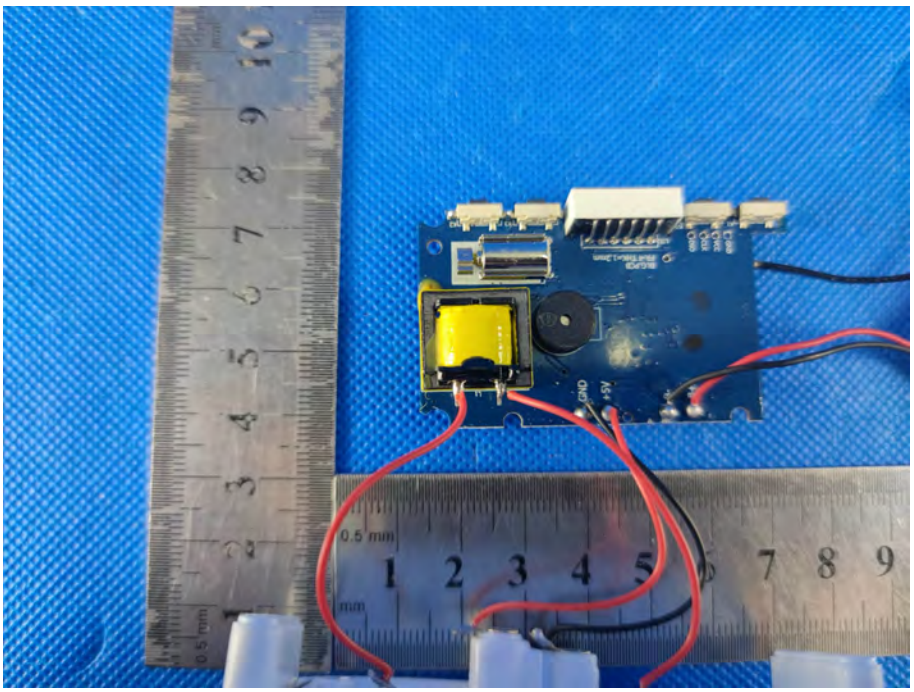
1 2 3 4 5 6 7 8 9
mm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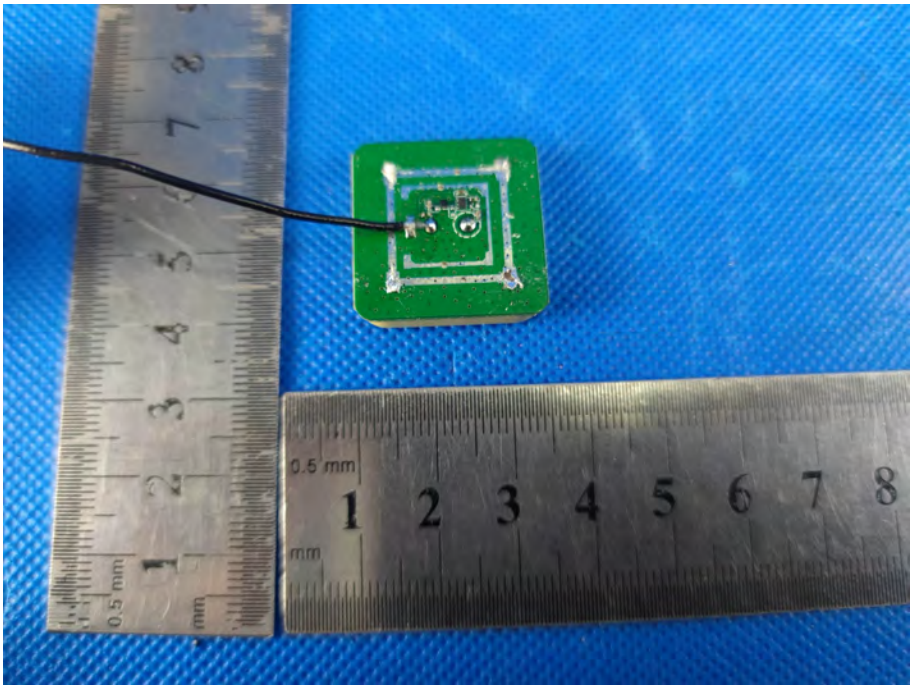

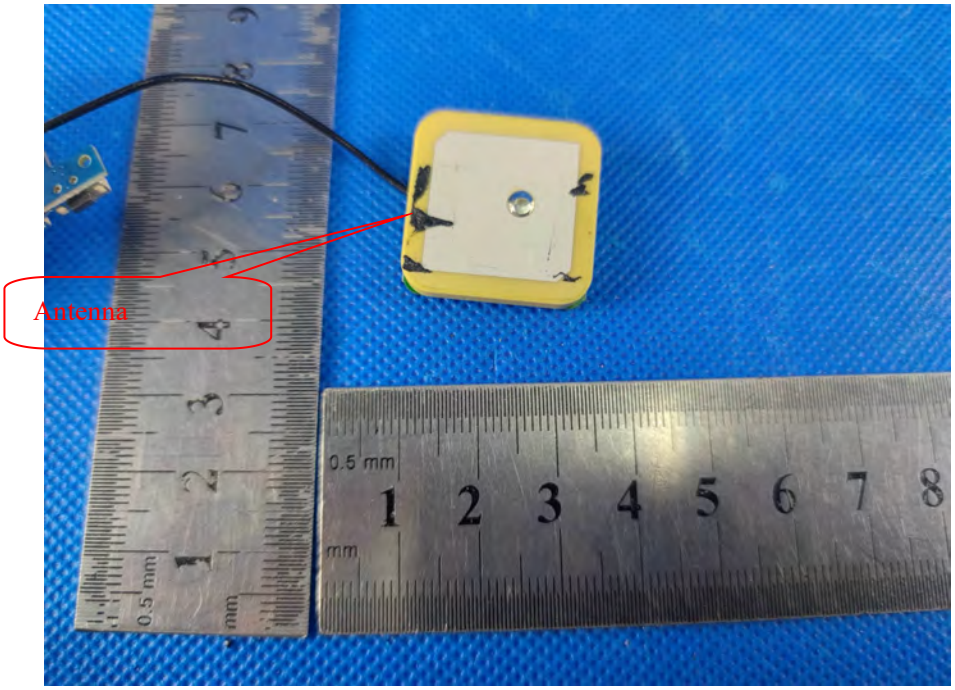

End of report