EMC TEST REPORT

For

Shenzhen XiaoHe Technology Co., Ltd.

Spring Sleeping Instrument

Model: HE-M001

Prepared for	:	Shenzhen XiaoHe Technology Co., Ltd.
Address	:	403, Building C and D, Yingkeli Industrial Park, No. 6, Inner Ring NorthRoad, Longxin Community,Baolong Street, Longgang District, Shenzhen
Prepared by	:	Shenzhen TST Technology Co., Ltd.
Address	:	3F, B Block, Huachuangda Centre Business Building, Xinghua 1th Road, Baoan Distirct 42, Shenzhen City
Date of receipt of test sample	:	Oct. 13, 2023
Number of tested samples	:	1
Date of Test	:	Oct. 13, 2022 - Oct. 27, 2023
Date of Report	:	Oct. 27, 2023

EMC TEST REPORT

Report Reference No. .....:	**TST231009061UK**
Date of Issue .....:	Oct. 27, 2023
Testing Laboratory Name .....:	**Shenzhen TST Technology Co., Ltd.**
Address .....:	3F, B Block, Huachuangda Centre Business Building, Xinghua 1th Road, Baoan Distirct 42, Shenzhen City
Testing Location/ Procedure ..... :	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's Name..... :	**Shenzhen XiaoHe Technology Co., Ltd.**
Address .....:	403, Building C and D, Yingkeli Industrial Park, No. 6, Inner Ring NorthRoad, Longxin Community,Baolong Street, Longgang District, Shenzhen
Test Specification	
Standard ..... :	BS EN IEC 55014-1:2021; BS EN IEC 55014-2:2021; BS EN IEC 61000-3-2:2019+A1:2021; BS EN 61000-3-3:2013+A1:2019+A2:2021;
Test Report Form No. .....:	TSTRFEMC-1.7UK
TRF Originator .....:	Shenzhen TST Technology Co., Ltd.
Test Item Description .....:	Spring Sleeping Instrument
Trade Mark.....:	N/A
Manufacturer.....:	Same as Applicant
Model Name.....:	HE-M001
Ratings.....:	5Vdc.,1A
Result.....:	Positive

Tested By:	**Reviewed By:**	**Approved By:**
Leo Huang / Test Engineer	Jia Xiong / Project Engineer	Jackson Huang / Manager

SHENZHEN TST TECHNOLOGY CO., LTD. TST REPORT SEAL

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1. SUMMARY OF TEST RESULTS

EMISSION		
Test Item	Standard	Results
Conducted Emission Test	BS EN IEC 55014-1:2021	N/A
Radiated Emission	BS EN IEC 55014-12021	PASS
Harmonic Current Emission	BS EN IEC 61000-3-2:2019+A2:2021	N/A
Voltage Changes, Voltage Fluctuations And Flicker	BS EN 61000-3-3:2019+A2:2021	N/A
IMMUNITY (BS EN IEC 55014-2:2021)		
Test Item	Basic Standard	Results
Electrostatic Discharge (ESD)	BS EN 61000-4-2:2009	PASS
Radio-Frequency Electromagnetic Fields (80MHz to 1GHz)	BS EN IEC 61000-4-3:2020	PASS
Electric Fast Transient/burst(EFT/B)	BS EN 61000-4-4:2012	N/A
Surge	BS EN 61000-4-5:2014+A1:2017	N/A
Continuous induced RF disturbances	BS EN 61000-4-6:2019	N/A
Power Frequency Magnetic Field Immunity(50/60Hz)	BS EN 61000-4-8:2010	N/A
Voltage Dips And Interruptions Immunity	BS EN IEC 61000-4-11:2020	N/A

Remark:

Pass Test item meets the requirement

Fail Test item does not meet the requirement

N/A Test case does not apply to the test object

A.M Amplitude Modulation

2. GENERAL INFORMATION

2.1. General Description Of EUT

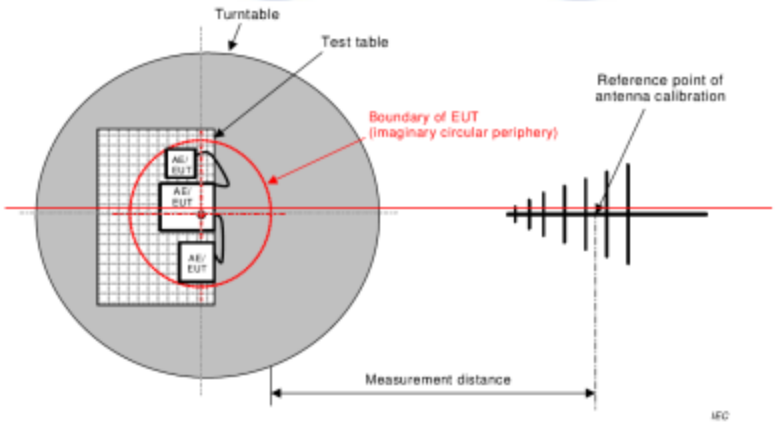
EUT	Spring Sleeping Instrument
Trademark	N/A
Model Name	HE-M001
Model Difference	/
Operating Voltage	5Vdc.,1A
Hardware Version	N/A
Software Version	N/A
Conditions	20~25℃, 45~60%RH
Operating condition of EUT	Mode 1:Normal working Mode 2:Charging

2.2. List Of Test Equipments

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100005	10/20/2024
2	LISN	AFJ	LS16	16010222119	10/25/2024
3	Spectrum Analyzer	R&S	FSU	100114	10/15/2024
4	Pre Amplifier	H.P.	HP8447E	2945A02715	10/24/2024
5	Bilog Antenna	SUNOL Sciences	JB3	A021907	10/08/2024
6	Cable	TIME MICROWAVE	LMR-400	N-TYPE04	10/08/2024
7	System-Controller	CCS	N/A	N/A	N.C.R
8	Turn Table	CCS	N/A	N/A	N.C.R
9	Antenna Tower	CCS	N/A	N/A	N.C.R
10	ESD 2000	EMC PARTNER	ESD2000	182	10/11/2024
11	Signal Generator	Maconi	2022D	119246/003	10/11/2024
12	Power Amplifier	M2S	A00181-1000	9801-112	10/11/2024
13	Power Amplifier	M2S	AC8113/ 800-250A	9801-179	10/11/2024
14	Power Antenna	SCHAFFNER	CBL6140A	1204	10/11/2024
15	EMC PARTNER TRANSIENT 2000	EMC PARTNER	TRA2000	881	10/11/2024
16	CDN	MEB	M3-8016	003683	04/26/2024
17	Control	Positioning Controller	Model MF-7802	MF780208362	04/26/2024
18	Coupling decoupling network	SCHAFFNER	M016	20812	10/15/2024
19	Isotropic Field Monitor	AR	FM2000	16829	12/08/2023
20	Isotropic Field Probe	AR	FP2000	16755	12/08/2023
21	PC	DELL	7501	N/A	N/A

3. RADIATED EMISSION MEASUREMENT

3.1 Block diagram of test setup



3.2 Measuring

Radiated Emission Limits

All emanations from a class B device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dBuV/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) The smaller limit shall apply at the combination point between two frequency bands.
(2)Distance refers to the distance in meters between the measuring instrument antenna and the closest point of any part of the EUT.

3.3 EUT Configuration on Test

The regulations test method must be used to find the maximum emission level during radiated emission measurement.

3.4 Test Procedure

1)The measurement was performed in a semi-anechoic chamber.

2)The distance from EUT to receiving antenna is 3 meters.

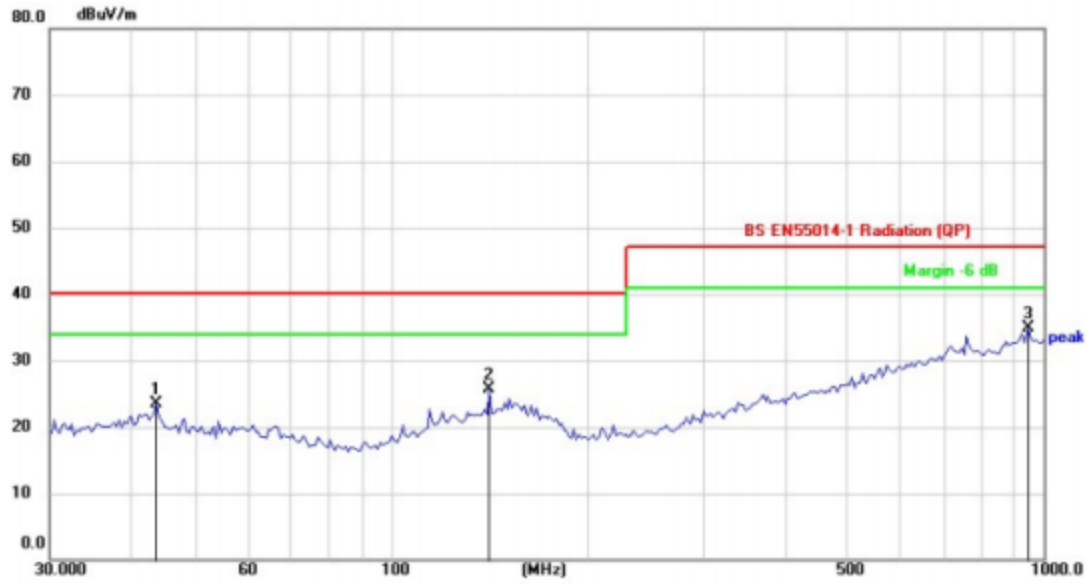
3)Measurement was performed according to clause 7.3 of CISPR 16-2-3.

3.5 Test Results

its test data was showed as the follow:

Temperature.:	**23℃**	**Polarization :**	**Horizontal**
Relative Humidity:	**54%**	**Power source:**	**3.7V（Battery）**
Pressure:	**101kPa**	**Test mode:**	**Working**

Radiated Emission Measurement



Site LAB
Limit: BS EN55014-1 Radiation (QP)
EUT: 睡眠仪Spring Sleeping Instrument
M/N: HE-M001
Mode: Working
Note:

Polarization: *Horizontal*
Power: AC 230V/50Hz
Distance: 3m RBW: 120 KHz
VBW: 300 KHz

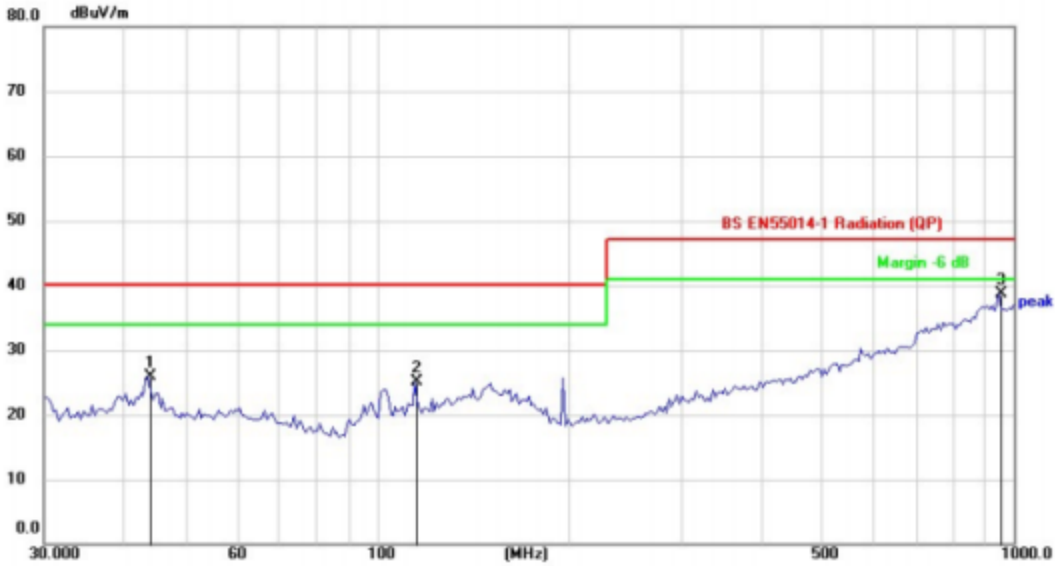
Temperature: 23(C)
Humidity: 54 %
Sweep Time: 165 ms

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		43.7351	28.96	-5.47	23.49	40.00	-16.51	peak			
2		141.5777	29.98	-4.20	25.78	40.00	-14.22	peak			
3	*	948.7609	27.53	7.36	34.89	47.00	-12.11	peak			

*:Maximum data x:Over limit !:over margin 〈Reference Only

Temperature.:	**23℃**	**Polarization :**	**Vertical**
Relative Humidity:	**54%**	**Power source:**	**3.7V（Battery）**
Pressure:	**101kPa**	**Test mode:**	**Working**

Radiated Emission Measurement



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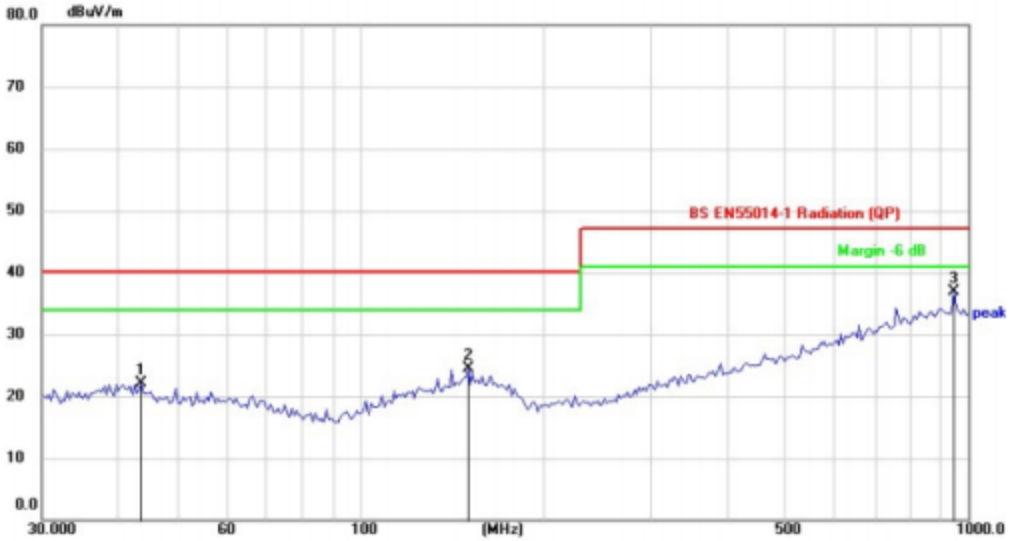
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		43.7352	31.38	-5.47	25.91	40.00	-14.09	peak			
2		114.7156	31.22	-6.20	25.02	40.00	-14.98	peak			
3	*	948.7610	31.31	7.36	38.67	47.00	-8.33	peak			

*:Maximum data x:Over limit !:over margin （Reference Only

Temperature.:	**23℃**	**Polarization :**	**Horizontal**
Relative Humidity:	**54%**	**Power source:**	**5V(USB)**
Pressure:	**101kPa**	**Test mode:**	**Charging**

Radiated Emission Measurement



Site LAB
Limit: BS EN55014-1 Radiation (QP)
EUT: 睡眠仪Spring Sleeping Instrument
M/N: HE-M001
Mode: Charging
Note:

Polarization: *Horizontal*
Power: AC 230V/50Hz
Distance: 3m RBW: 120 KHz
VBW: 300 KHz

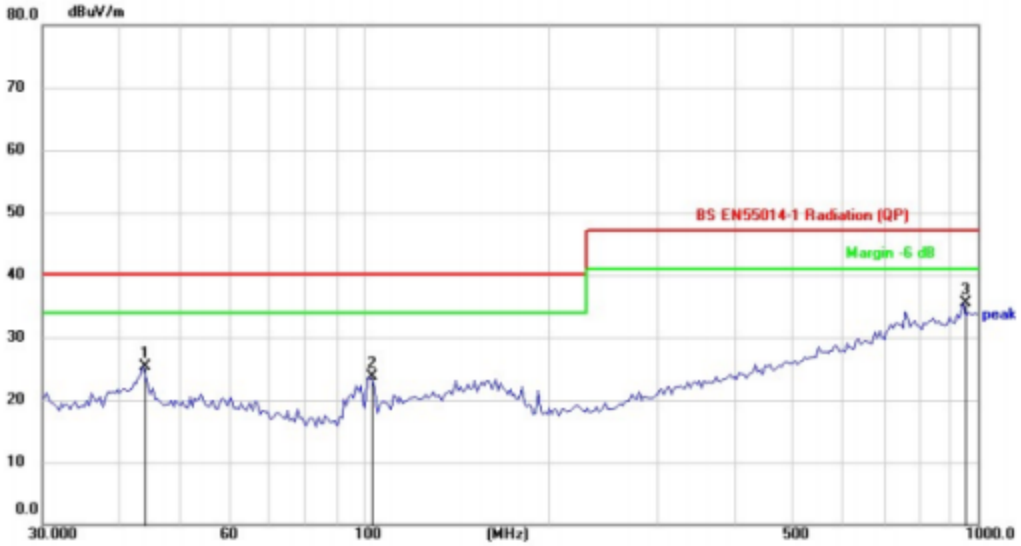
Temperature: 23(C)
Humidity: 54 %
Sweep Time: 165 ms

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		43.7351	27.66	-5.47	22.19	40.00	-17.81	peak			
2		150.5377	27.73	-3.19	24.54	40.00	-15.46	peak			
3	*	948.7609	29.64	7.36	37.00	47.00	-10.00	peak			

*:Maximum data x:Over limit !:over margin (Reference Only

Temperature.:	**23℃**	**Polarization :**	**Vertical**
Relative Humidity:	**54%**	**Power source:**	**5V(USB)**
Pressure:	**101kPa**	**Test mode:**	**Charging**

Radiated Emission Measurement



Site LAB
Limit: BS EN55014-1 Radiation (QP)
EUT: 睡眠仪Spring Sleeping Instrument
M/N: HE-M001
Mode: Charging
Note:

Polarization: *Vertical*
Power: AC 230V/50Hz
Distance: 3m RBW: 120 KHz
VBW: 300 KHz

Temperature: 23(C)
Humidity: 54 %
Sweep Time: 165 ms

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		43.7352	30.84	-5.47	25.37	40.00	-14.63	peak			
2		102.3597	32.10	-8.46	23.64	40.00	-16.36	peak			
3	*	948.7610	28.12	7.36	35.48	47.00	-11.52	peak			

*:Maximum data x:Over limit !:over margin (Reference Only

4. ELECTROSTATIC DISCHARGE IMMUNITY TEST

4.1. Performance Citeria

Performance criterion A: The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

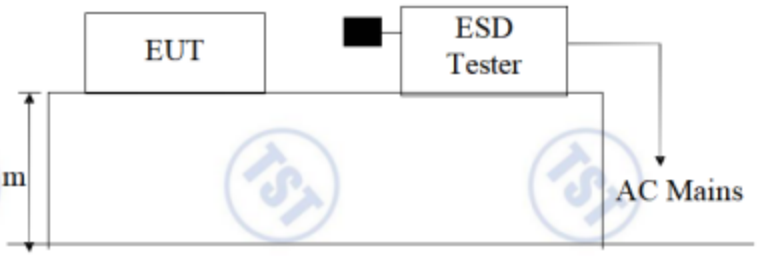
Performance criterion B: The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Performance criterion C: Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

For further details, please refer to BS EN IEC 55014-2.

4.2 ELECTROSTATIC DISCHARGE IMMUNITY TEST

4.2.1 Block Diagram Of Test



4.2.2 Test Standard and Severity Levels

Environmental phenomenon	Test specifications	Basic standard
Electrostatic discharge	± 8 kV air discharge	IEC 61000-4-2
	± 4 kV contact discharge	

4.2.3 Test Procedure

Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

Contact Discharge:

All the procedure shall be same as **Air Discharge**, except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

Indirect discharge for horizontal coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

Indirect discharge for vertical coupling plane

At least 10 single discharge (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

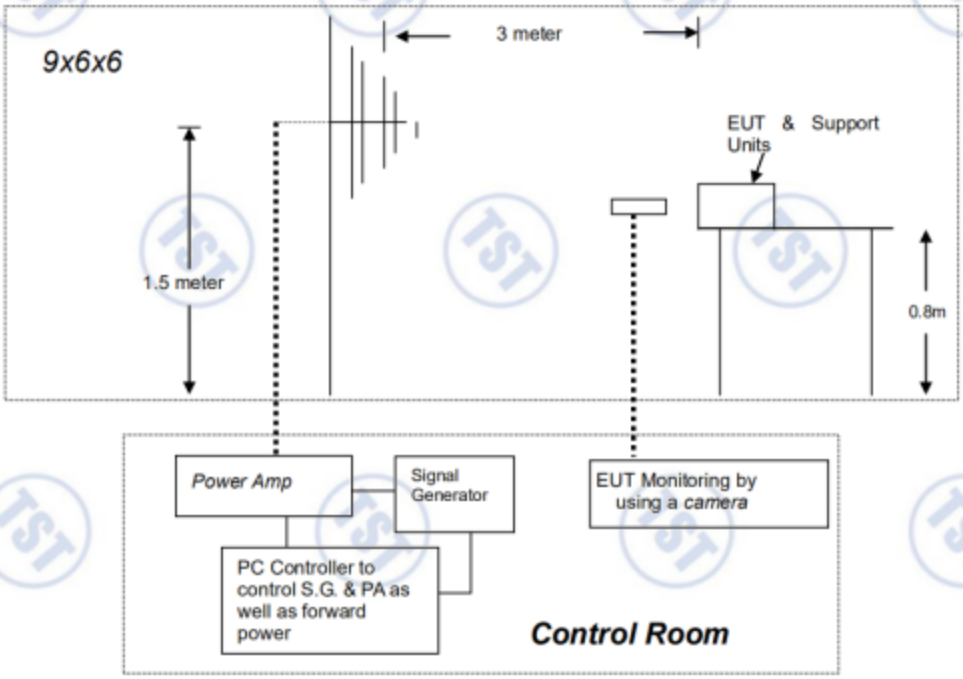
4.2.4 Test Results

Temperature.:	**23℃**	**Power source:**	**5V**
Relative Humidity:	**54%**	**Pressure:**	**101kPa**

Discharge Method	Discharge Position	Voltage (±kV)	Performance Criterion	Test Results
Contact Discharge	All metallic part	4	B	Pass
Air Discharge	All exposed surface & Seams	8	B	Pass
Horizontal Coupling	All exposed surface & Seams	4	B	Pass
Vertical Coupling	All sides	4	B	Pass
Note:During the test no deviation was detected to the selected operation mode(s)				

4.3 Radio-Frequency Electromagnetic Fields (80MHz to 1GHz)

4.3.1 Block Diagram Of Test



4.3.2 Test Standard and Severity Levels

Characteristics	Test levels	Test levels	Basic standard
Frequency range	80 MHz to 1000 MHz,	1800MHz, 2600MHz, 3500MHz, 5000MHz	IEC 61000-4-3
Test level	3 V/m (unmodulated)	3 V/m (unmodulated)	
Modulation	1 kHz, 80 % AM, sine wave	1 kHz, 80 % AM, sine wave	

4.3.3 Test Procedure

Measurement was performed in full-anechoic chamber.

Measurement procedure was applied according to BS EN 61000-4-3 clause 8.

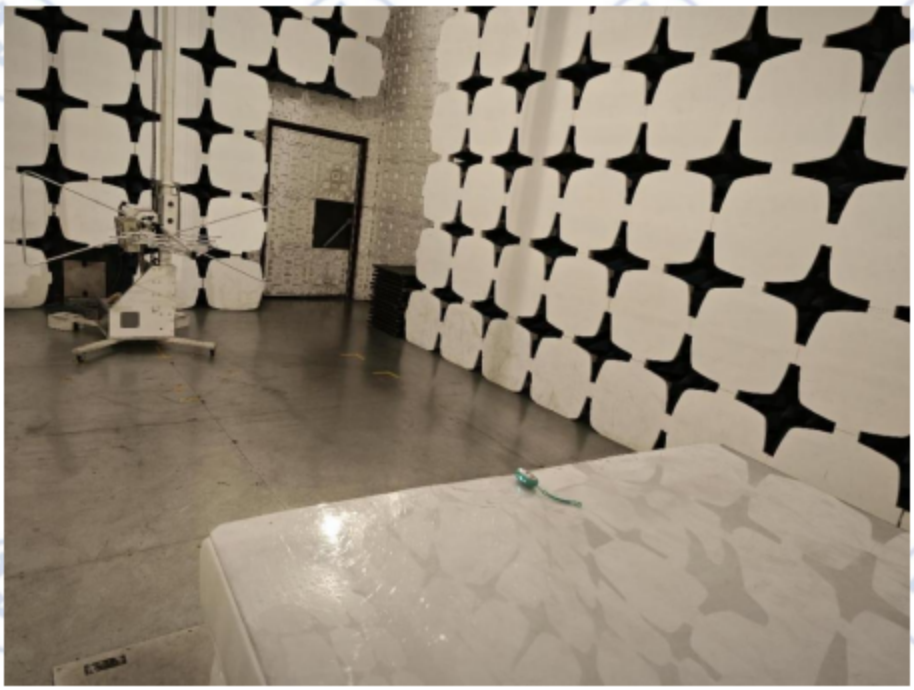
The test method and equipment was specified by BS EN 61000-4-3.

4.3.4 Test Results

Temperature.:	**23℃**	**Power source:**	**5V**
Relative Humidity:	**54%**	**Pressure:**	**101kPa**

Frequency range [MHz]	Test Level [V/m]	Polarization	EUT Face	Performance Criterion	Test Results
80 to 1000	3	Horizontal & Vertical	Front/ Rear	A	Pass
			Right/ Left	A	Pass
			Top/ Underside	A	Pass
Note:During the test no deviation was detected to the selected operation mode(s)					

5.Photographs of the Test Set-Up



6. EUT PHOTOS

Photo 1

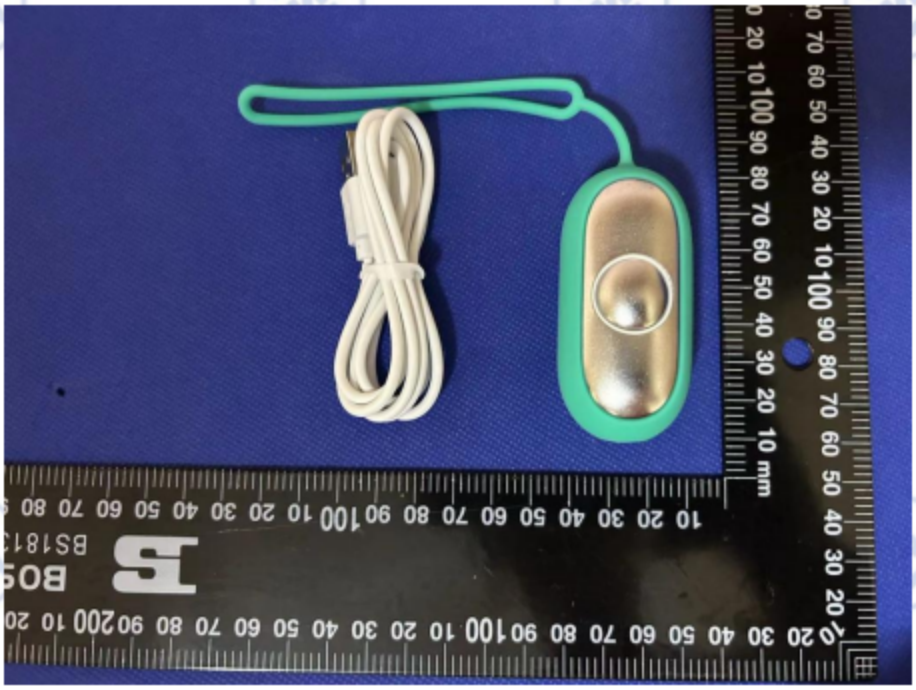


Photo 2

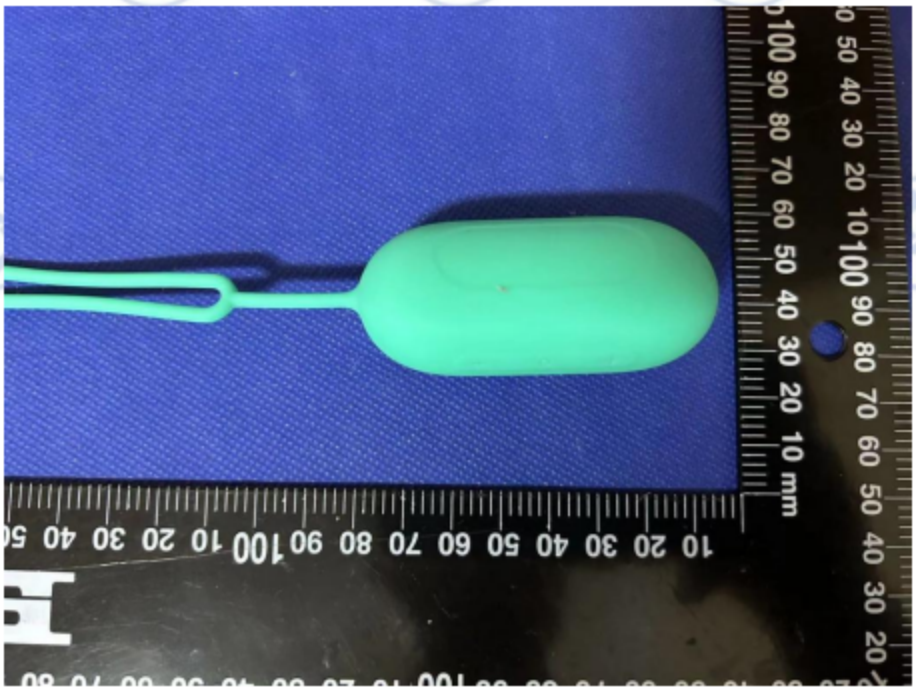
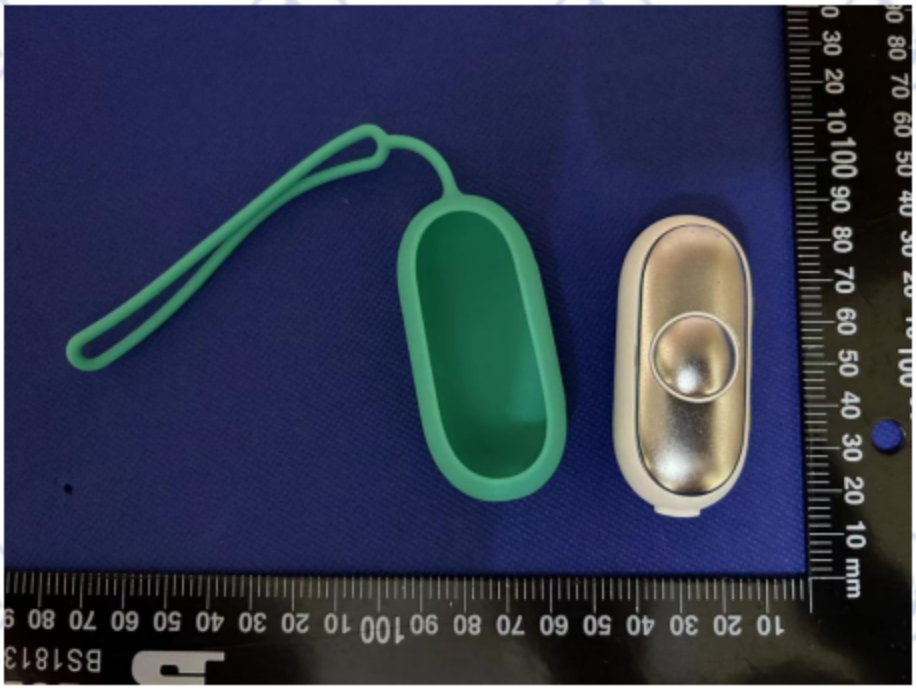


Photo 3



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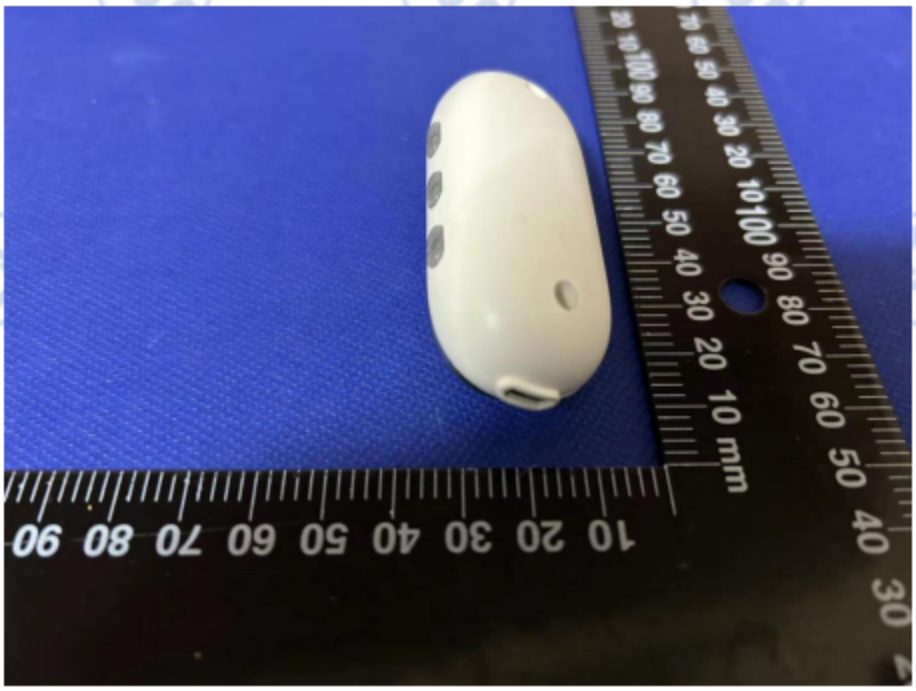


Photo 5

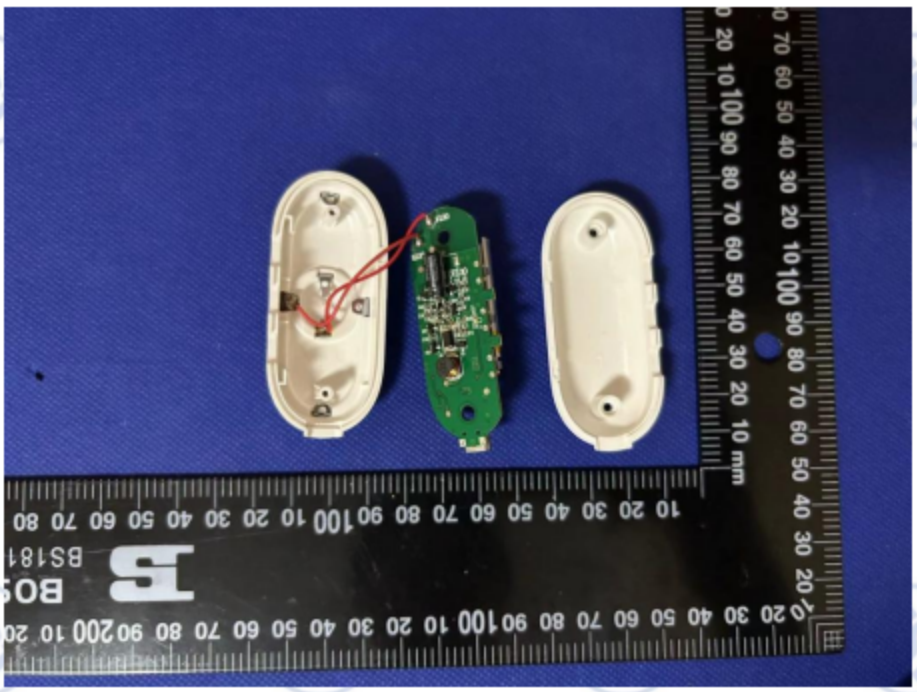
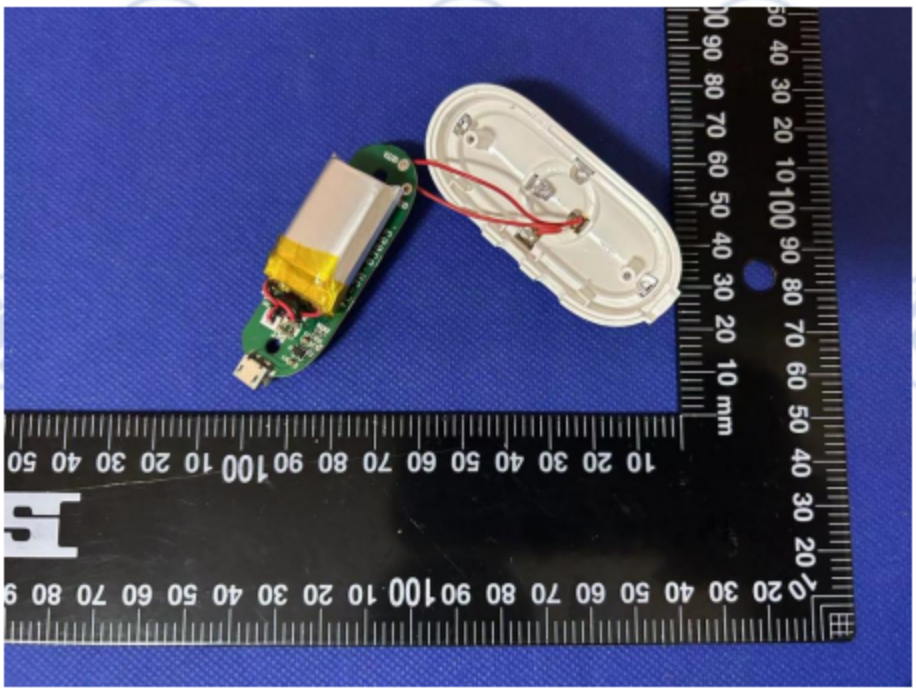


Photo 6



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