

Test Report

Applicant: Yongkang stwadd houseware co.,Ltd

Product Name: Smart water bottle

Brand Name: N/A

Model No.: STW-001,STW-002,STW-003,STW-004,STW-005,
STW-006,STW-007,STW-008

Remark: Difference in Appearance and model names

Date of Receipt: Mar.18,2024

Date of Test: Mar.19,2024

Date of Report: Mar.20,2024

Prepared by: Shenzhen Most Technology Service Co., Ltd.

The EMC testing has been performed on the submitted samples and found in compliance with the council EMC directive 2014/30/EU.

Shenzhen Most Technology Service Co., Ltd.
East A, 1/F., New Aolin Factory Buiding, Langshan Erlu, North Area, Hi-Tech
Industrial Park, Nanshan District, Shenzhen, Guangdong, China
Phone: 86-755-86026850
Fax: 86-755-26013350
[http:// www.szmost.com](http://www.szmost.com)

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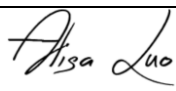
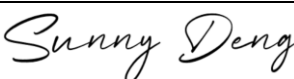
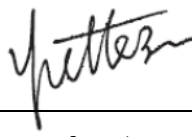
TEST REPORT DECLARATION

Report Number	MTEB24030184	
Applicant	Yongkang stwadd houseware co.,Ltd	
	No.8, Qianjin industrial zone, Gushan town, Yongkang City	
Manufacturer	Yongkang stwadd houseware co.,Ltd	
	No.8, Qianjin industrial zone, Gushan town, Yongkang City	
Product	Product Name	Smart water bottle
	Model No.	STW-001
	Power Supply	DC 3V by Battery
Test Result	The EUT was found compliant with the requirement(s) of the standards.	
Standard	EN IEC 61000-6-3:2021, EN IEC 61000-6-1:2019	

*Note

The above device has been tested by Shenzhen Most Technology Service Co., Ltd. To determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test record, data evaluation & Equipment Under Test (EUT) configurations represented are contained in this test report and Shenzhen Most Technology Service Co., Ltd. Is assumed full responsibility for the accuracy and completeness of test. Also, this report shows that the EUT is technically compliant with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced except in full, without written approval of Shenzhen Most Technology Service Co., Ltd., this document may be altered or revised by Shenzhen Most Technology Service Co., Ltd., personal only, and shall be noted in the revision of the document.

Prepared by	
	Alisa Luo(Engineer)
Reviewed by	
	Sunny deng(Engineer)
Approved by	
	Yvette Zhou(Manager)



1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Smart water bottle
Model Number	:	STW-001,STW-002,STW-003, STW-004,STW-005, STW-006,STW-007,STW-008
Remark	:	Used STW-001 does all tests

1.2. Operational Mode(s) of EUT

Order Number	:	Test Mode(s)
1	:	Running

1.3. Test Voltage(s) of EUT

Order Number	:	Test Voltage(s)
1	:	DC 3V by Battery

2. DESCRIPTION OF TEST STANDARD

The intention of this publication is to establish uniform requirements for the radio disturbance level of the equipment contained in the scope, to fix limits of disturbance, to describe methods of measurement and to standardize operating conditions and interpretation of results.

The following referenced standard are indispensable for the application of this report.

Referenced Description below:

EN IEC 61000-6-3:2021

Electromagnetic compatibility (EMC) -- Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments.

EN IEC 61000-6-1:2019

Electromagnetic compatibility (EMC) -- Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments.

3. LABORATORY INFORMATION

3.1. Laboratory Name

Shenzhen Most Technology Service Co., Ltd.

3.2. Location

East A, 1/F., New Aolin Factory Buiding, Langshan Erlu, North Area, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, China

3.3. Test facility

3m Anechoic Chamber	: Nov. 28, 2012 File on Federal Communication Commission Registration Number:490827
Shielding Room	: Nov. 28, 2012 File on Federal Communication Commission Registration Number:490827
EMC Lab.	: Accredited by TUV Rheinland Shenzhen Audit Report: UA 50149851 Mar. 12, 2009
	Accredited by Industry Canada Registration Number: 7103A-1 Oct. 22, 2012
	Accredited by TIMCO Registration Number: Q1460 March 28, 2010

3.4. Measurement Uncertainty

No.	Item	Uncertainty
1.	Uncertainty for Conducted Disturbance Test	1.25dB
2.	Uncertainty for Radiated Disturbance Test	3.15dB

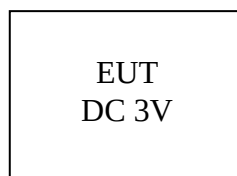
4. SUMMARY OF TEST RESULTS

EMISSION			
Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	EN IEC 61000-6-3:2021	---	N/A
Radiated disturbance	EN IEC 61000-6-3:2021	---	PASS
Harmonic current emissions	EN IEC 61000-3-2:2019+A1:2021	---	N/A
Voltage fluctuations & flicker	EN 61000-3-3:2013+A1:2019 +A2:2021	---	N/A
IMMUNITY (EN IEC 61000-6-1:2019)			
Test Item	Basic Standard	Performance Criteria	Results
Electrostatic discharge (ESD)	EN 61000-4-2:2009	B	PASS
Radio-frequency, Continuous radiated disturbance	EN IEC 61000-4-3:2020	A	PASS
Electrical fast transient (EFT)	EN 61000-4-4:2012	---	N/A
Surge (Input a.c. power ports)	EN 61000-4-5:2014+A1:2017	---	N/A
Surge (Telecommunication ports)		---	N/A
Radio-frequency, Continuous conducted disturbance	EN 61000-4-6:2014	---	N/A
Power frequency magnetic field	EN 61000-4-8:2010	A	--
Voltage dips, 0% reduction	EN IEC 61000-4-11:2020	---	N/A
Voltage dips, 30% reduction		---	N/A
Voltage interruptions		---	N/A
N/A is an abbreviation for Not Applicable.			

5. BLOCK DIAGRAM OF TEST SETUP

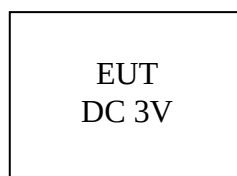
The equipments are installed test to meet EN IEC 61000-6-3 requirement and operating in a manner which tends to maximize its emission characteristics in a normal application. EUT was tested in normal configuration (Please See following Block diagrams)

5.1. Block Diagram of connection between EUT and simulation-EMI



(EUT: Smart water bottle)

5.2. Block Diagram of connection between EUT and simulation-EMS



(EUT: Smart water bottle)

6. TEST INSTRUMENT USED

6.1. For Radiation Test (In Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	100492	Mar. 15, 24	1 Year
2.	Bilog Antenna	Sunol	JB3	A121206	Aug. 15, 23	1 Year
3.	Cable	Times	N/A	NO.1	Mar. 15, 24	1 Year
4.	Cable	Times	N/A	NO.2	Mar. 15, 24	1 Year
5.	Cable	Times	N/A	NO.3	Mar. 15, 24	1 Year
6.	DC Power Filter	DuoJi	DL2&30B	N/A	N/A	N/A
7.	Single Phase Power Line Filter	DuoJi	FNF 202B30	N/A	N/A	N/A
8.	3 Phase Power Line Filter	DuoJi	FNF 402B30	N/A	N/A	N/A
9.	Testing software	Fala	EZ-EMC(RE)	Ver.FA-03A1	/	/

6.2. For Electrostatic Discharge Immunity Test

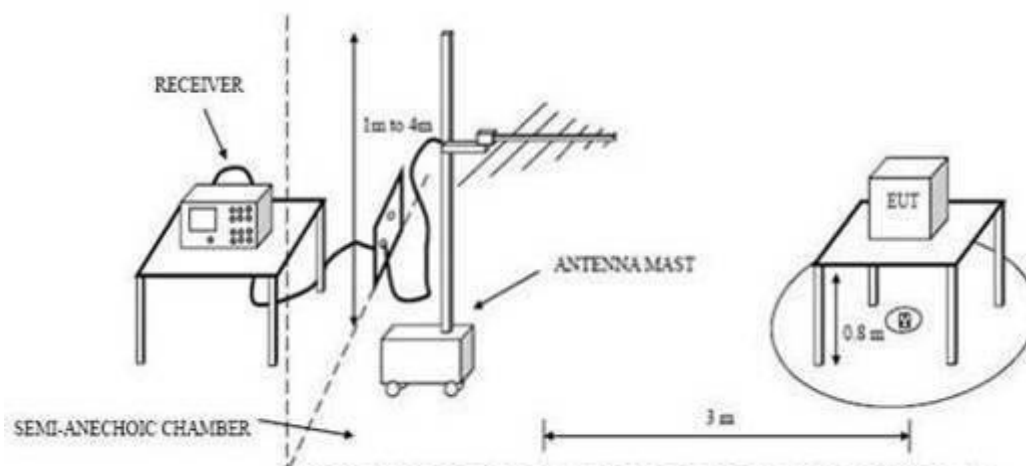
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	Zhongsheng	ESD-203AX	023K14538	Mar. 15, 24	1 Year

6.3. For RF Strength Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	IFR	2032	203002/100	Mar. 15, 24	1 Year
	Amplifier	A&R	150W1000	301584	NCR	NCR
	Dual Directional Coupler	A&R	DC6080	301508	Mar. 15, 24	1 Year
	Power Sensor	Anritsu	MA2491A	32263	Mar. 15, 24	1 Year
	Power Meter	R&S	NRVS	100444	Mar. 15, 24	1 Year
	Field Monitor	A&R	FM5004	300329	Mar. 15, 24	1 Year
	Field Probe	A&R	FP5000	300221	Mar. 15, 24	1 Year
	Log-periodic Antenna	A&R	AT1080	16512	Mar. 15, 24	1 Year
	RF Cable	MIYAZAKI	N/A	No.1/No.2	Mar. 15, 24	1 Year

7. RADIATED DISTURBANCE TEST

7.1. Configuration of Test System



7.2. Test Standard

EN IEC 61000-6-3:2021

7.3. Radiated Disturbance Limit

All emanations from devices 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 LIMITS (dB μ V/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: 1. The lower limit shall apply at the transition frequencies.

2. Distance refers to the distance in meters between the test antenna and the closed point of any part of the EUT.

7.4. Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to EN IEC 61000-6-3 on Radiated Disturbance test.

The bandwidth setting on the test receiver is 120 kHz.

The frequency range from 30MHz to 1000MHz is checked. The test result are reported on Section 7.5.

7.5. Radiated Disturbance Test Results

7.5.1. Test Results: **PASS**

7.5.2. Emission Level = Correct Factor + Reading Level.

7.5.3. All readings are Quasi-Peak values.

7.5.4. The test data and the scanning waveform are attached within Appendix I.

8. IMMUNITY PERFORMANCE CRITERIA

The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance level by its manufacturer or the requestor of the test, or the agreed between the manufacturer and the purchaser of the product.

Criterion A:

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

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 specified by the manufacture, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level of the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

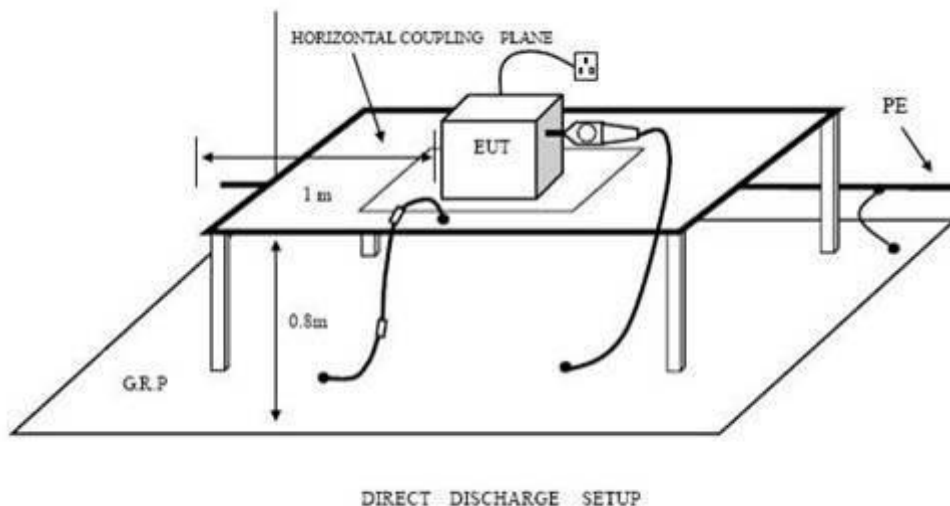
Criterion C:

Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

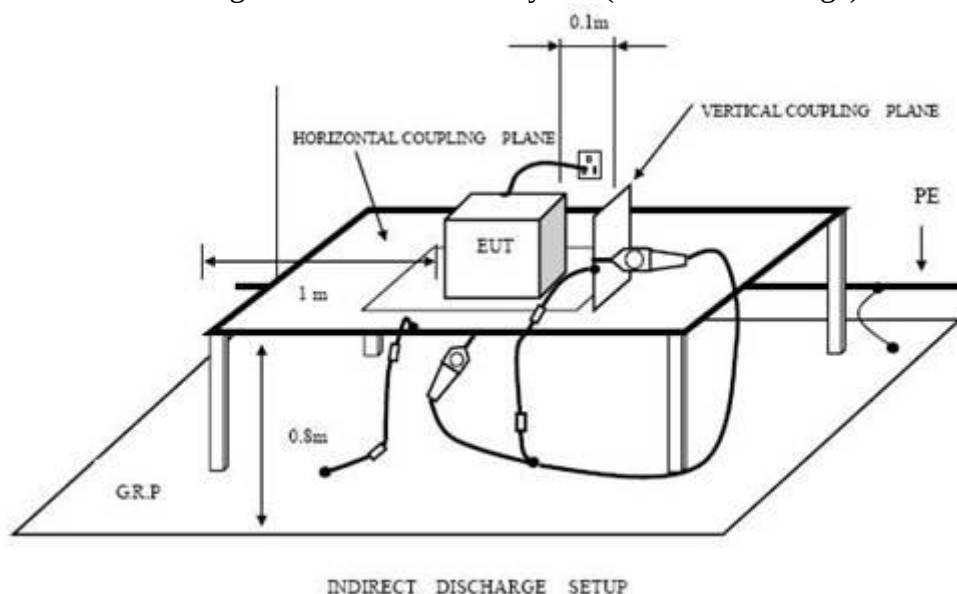
9. ELECTROSTATIC DISCHARGE IMMUNITY TEST

9.1. Configuration of Test System

9.1.1. Configuration of ESD Test System(Direct Discharge)



9.1.2. Configuration of ESD Test System(Indirect Discharge)



9.2. Test Standard

EN IEC 61000-6-1:2019 (EN 61000-4-2)
 (Severity Level 3 for Air Discharge at 8KV,
 Severity Level 2 for Contact Discharge at 4KV)

9.3. Severity Levels and Performance Criterion

9.3.1. Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	2	2
2.	4	4
3.	6	8
4.	8	15
X	Special	Special

9.3.2. Performance criterion : **B**

9.4. Test Procedure

9.4.1. Air Discharge:

The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 20 times for each pre-selected test point. This procedure was repeated until all the air discharge completed

9.4.2. Contact Discharge:

All the procedure was same as Section 9.4.1. except that the generator was re-triggered for a new single discharge and repeated 20 times for each pre-selected test point. the tip of the discharge electrode was touch the EUT before the discharge switch was operated.

9.5. Test Results

9.5.1. Test Results: **PASS**

9.5.2. Test data on the following pages.

Electrostatic Discharge Test Results

Shenzhen Most Technology Service Co., Ltd.

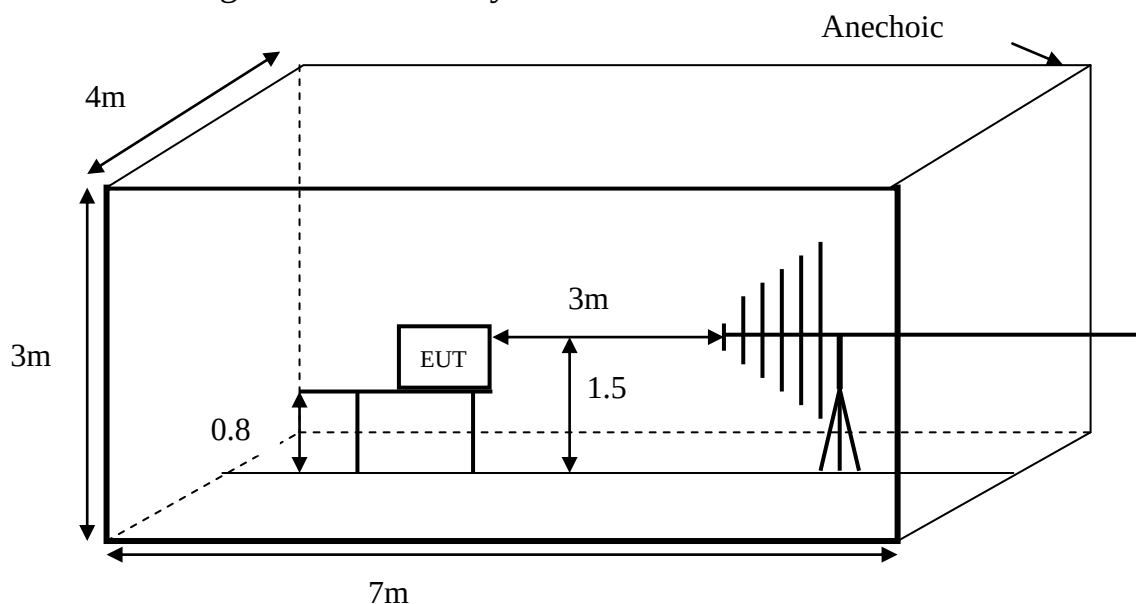
Test Voltage :	1	Test Date:	Mar.19,2024
Test Mode :	1	Criterion :	B
Temperature:	23.2 °C	Humidity:	63.0%
Air Discharge: $\pm 2,4$ and 8KV # For Air Discharge each Point Positive 10 times and negative 10 times discharge. Contact Discharge: ± 4 KV # For Contact Discharge each point positive 10 times and negative 10 times discharge			
Test Results Description			
Location		Kind A-Air Discharge C-Contact Discharge	Result
Monitor		A	PASS
Gaps		A	PASS
HCP		C	PASS
VCP of Front		C	PASS
VCP of Rear		C	PASS
VCP of Left		C	PASS
VCP of Right		C	PASS
Remark :			

Discharge was considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

Reviewer : Sunny

10.RF FIELD STRENGTH SUSCEPTIBILITY TEST

10.1.Configuration of Test System



10.2.Test Standard

EN IEC 61000-6-1:2019 (EN IEC 61000-4-3)
(Severity Level: 2 at 3V / m)

10.3.Severity Levels and Performance Criterion

10.3.1.Severity level

Level	Test Field Strength V/m
1.	1
2.	3
3.	10
X	Special

10.3.2.Performance criterion : **A**

10.4. Test Procedure

Testing was performed in a Fully anechoic chamber as recommended by EN IEC 61000-4-3. The EUT was placed on an 80 cm high non-conductive table located in the area of field uniformity. The radiating antenna was placed 3m in front of the EUT and Support system, and dwell time of the radiated interference was controlled by an automated, computer-controlled system. The signal source was stepped through the applicable frequency range at a rate no faster than 1% of the fundamental. The signal was amplitude modulated 80% over the frequency range 80 MHz to 1GHz and 1.4GHz to 6GHz at a level of 3 V/m. The dwell time was set at 1.5 s. Field presence was monitored during testing via a field probe placed in close proximity to the EUT. Throughout testing, the EUT was closely monitored for signs of susceptibility. The test was performed with the antennae oriented in both a horizontal and vertical polarization.

All the scanning conditions are as follows :

Condition of Test	Remarks
1. Test Fielded Strength	3 V/m (Severity Level 2)
2. Radiated Signal	80% amplitude modulated with a 1kHz sine wave
3. Scanning Frequency	80 - 1000 MHz, 1.4GHz-6GHz
4. Sweeping time of radiated	0.0015 decade/s
5. Dwell Time	1.5 Sec.

10.5. Test Results

10.5.1. Test Results: **PASS**

10.5.2. Test data on the following pages.

RF Field Strength Susceptibility Test Results

Shenzhen Most Technology Service Co., Ltd.

Test Voltage :	1	Test Date :	Mar.19,2024
Test Mode :	1	Criterion :	A
Field Strength :	3 V/m	Frequency Range:	80-1000MHz
Temperature:	23.2 °C	Humidity:	63.0%
Modulation: ☒ AM ☐ Pulse ☐ none 1 kHz 80%			
Test Results Description			
Frequency Rang 1: 80MHz - 1000 MHz			
Steps	1%	1%	
	Horizontal	Vertical	
Front	PASS	PASS	
Right	PASS	PASS	
Rear	PASS	PASS	
Left	PASS	PASS	
Note: No function loss			

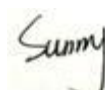
Reviewer :



RF Field Strength Susceptibility Test Results

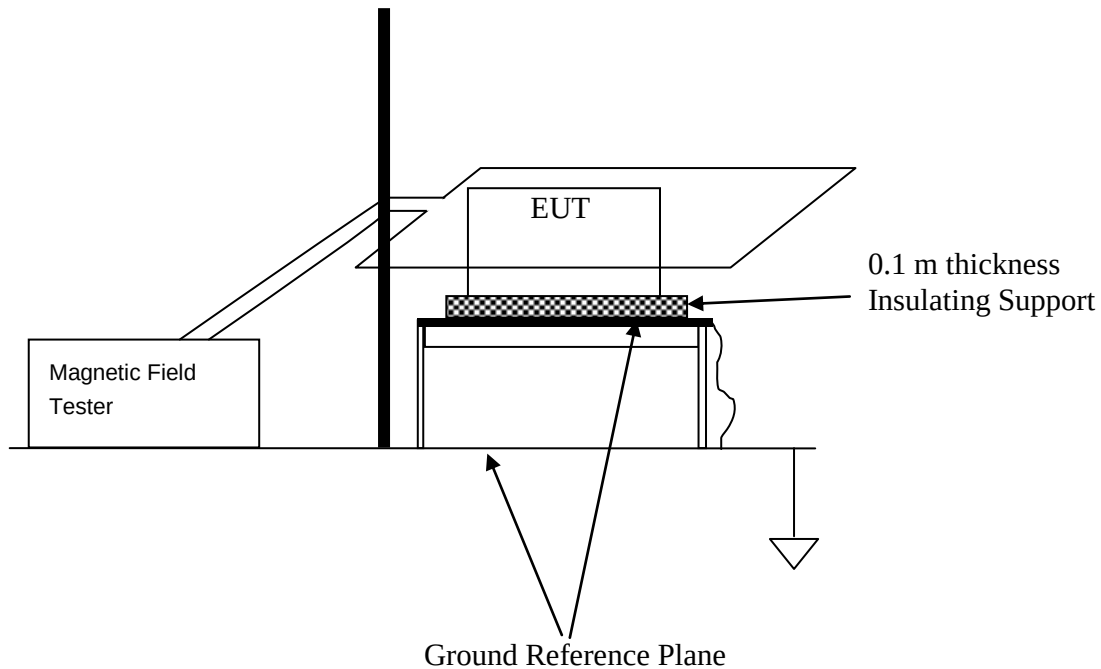
Shenzhen Most Technology Service Co., Ltd.

Test Voltage :	1	Test Date :	Mar.19,2024
Test Mode :	1	Criterion :	A
Field Strength :	3 V/m	Frequency Range:	1.4GHz-6GHz
Temperature:	23.2 °C	Humidity:	63.0%
Modulation: ☒ AM ☐ Pulse ☐ none 1 kHz 80%			
Test Results Description			
Frequency Rang 1: 1400MHz – 6000MHz			
Steps	1%	1%	
	Horizontal	Vertical	
Front	PASS	PASS	
Right	PASS	PASS	
Rear	PASS	PASS	
Left	PASS	PASS	
Note: No function loss			

Reviewer : 

11.MAGNETIC FIELD IMMUNITY TEST

11.1.Configuration of Test System



11.2.Test Standard

EN IEC 61000-6-1:2019 (EN 61000-4-8)
(Severity Level 2 at 3A/m)

11.3.Severity Levels and Performance Criterion

11.3.1.Severity level

Level	Magnetic Field Strength A/m
1.	1
2.	3
3.	10
4.	30
5.	100
X.	Special

11.3.2.Performance criterion : **A**

11.4. Test Procedure

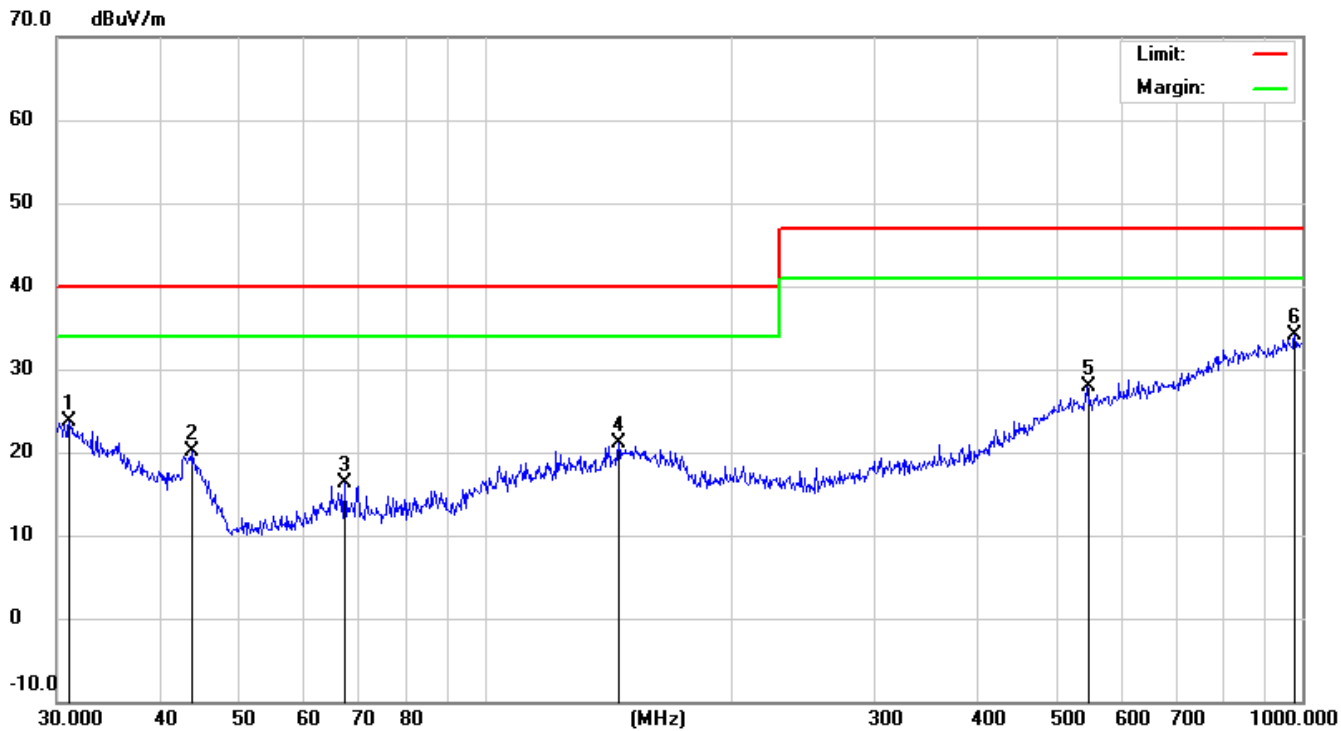
The EUT was subjected to the test magnetic field by using the induction coil of standard dimensions (1m*1m) and shown in Section 11.1. The induction coil was then rotated by 90° in order to expose the EUT to the test field with different orientations.

11.5. Test Results

11.5.1. Test Results: /

APPENDIX I

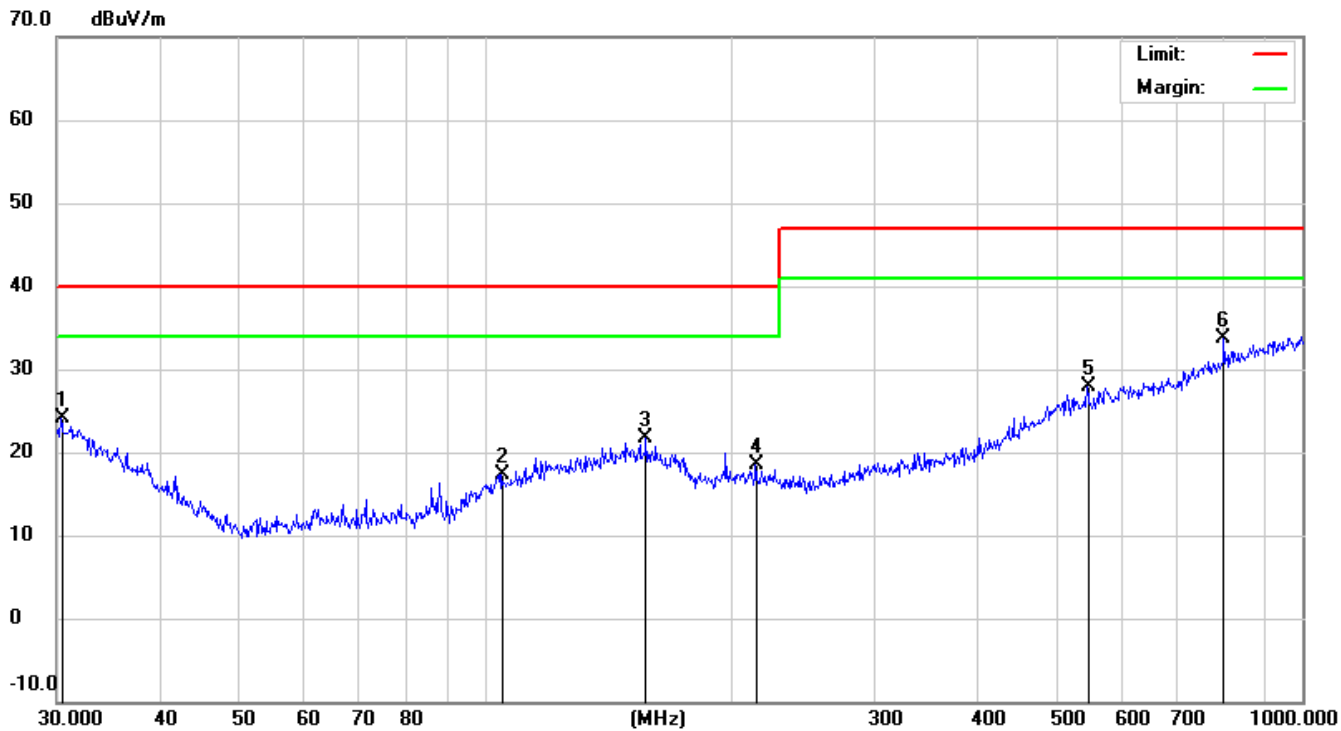
EUT:	Smart water bottle	M/N:	STW-001
Mode:	Running	Polarization:	Vertical
Tested by:	ROSA	Power:	DC 3V by Battery
Temperature: / Humidity	23.2°C / 63.0%	Test date:	2024-03-19



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		31.0706	3.55	20.17	23.72	40.00	-16.28	QP		
2		43.9658	8.88	11.18	20.06	40.00	-19.94	QP		
3		67.4382	7.23	9.12	16.35	40.00	-23.65	QP		
4		145.8611	3.86	17.16	21.02	40.00	-18.98	QP		
5		545.1826	4.75	23.20	27.95	47.00	-19.05	QP		
6	*	979.1804	4.32	29.79	34.11	47.00	-12.89	QP		

*:Maximum data x:Over limit !:over margin

EUT:	Smart water bottle	M/N:	STW-001
Mode:	Running	Polarization:	Horizontal
Tested by:	ROSA	Power:	DC 3V by Battery
Temperature: / Humidity	23.2℃/ 63.0%	Test date:	2024-03-19



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		30.3173	3.51	20.68	24.19	40.00	-15.81	QP		
2		104.9033	3.19	14.14	17.33	40.00	-22.67	QP		
3		157.5588	4.33	17.40	21.73	40.00	-18.27	QP		
4		214.5143	3.69	14.79	18.48	40.00	-21.52	QP		
5		545.1826	4.65	23.20	27.85	47.00	-19.15	QP		
6	*	801.7863	5.74	27.92	33.66	47.00	-13.34	QP		

*:Maximum data x:Over limit !:over margin

APPENDIX II

(Test Photos of the EUT)

Radiated Test Setup Photograph



APPENDIX III

(Photos of the EUT)

Figure 1
General Appearance of the EUT



Figure 2
General Appearance of the EUT



Figure 3
General Appearance of the EUT



Figure 4
Internal of the EUT



Figure 5
Battery of the EUT



Figure 6
Internal of the EUT

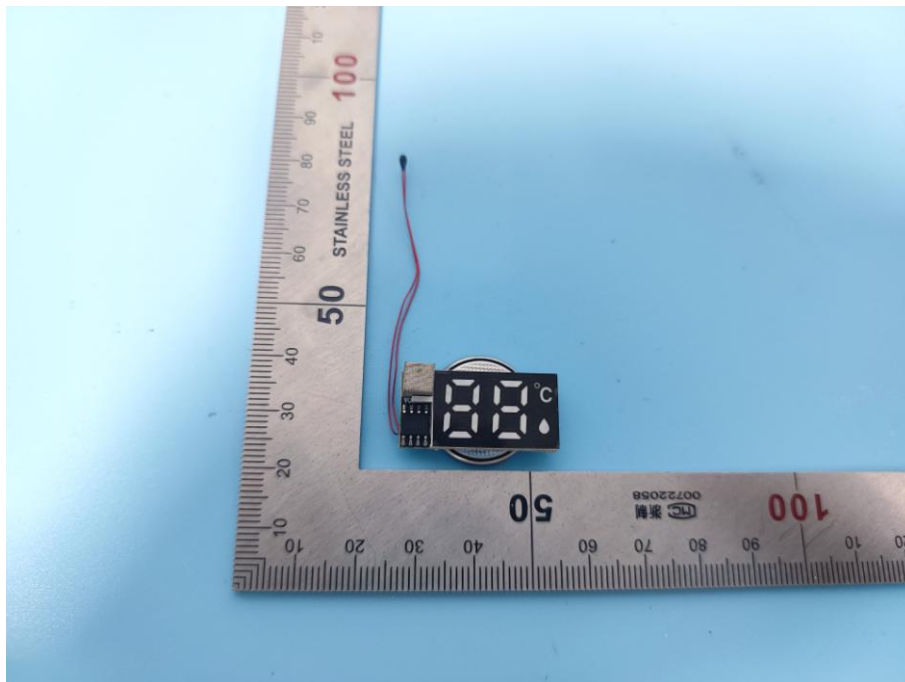


Figure 7
Internal of the EUT

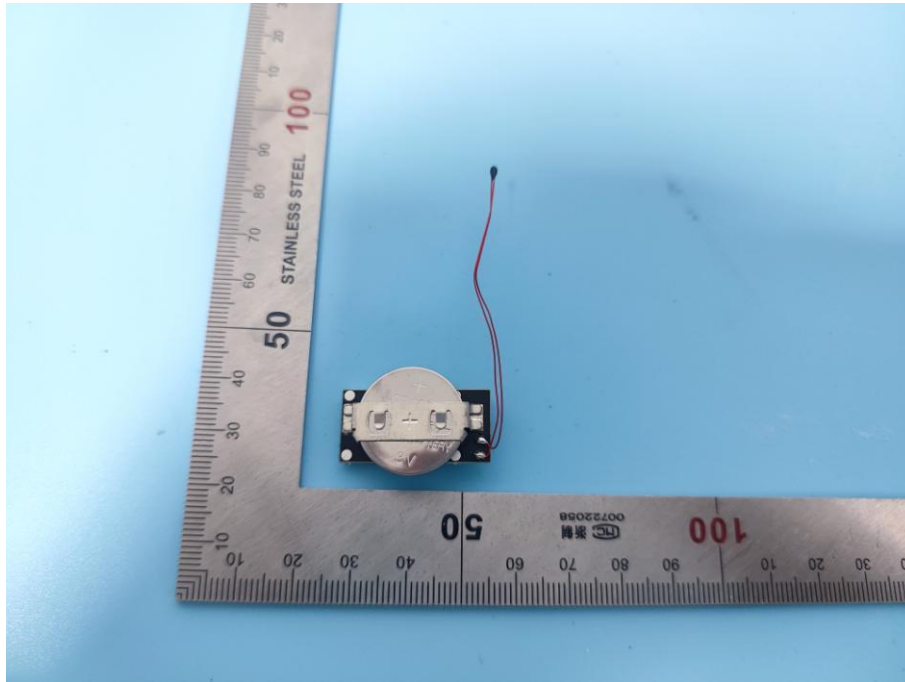


Figure 8
Internal of the EUT

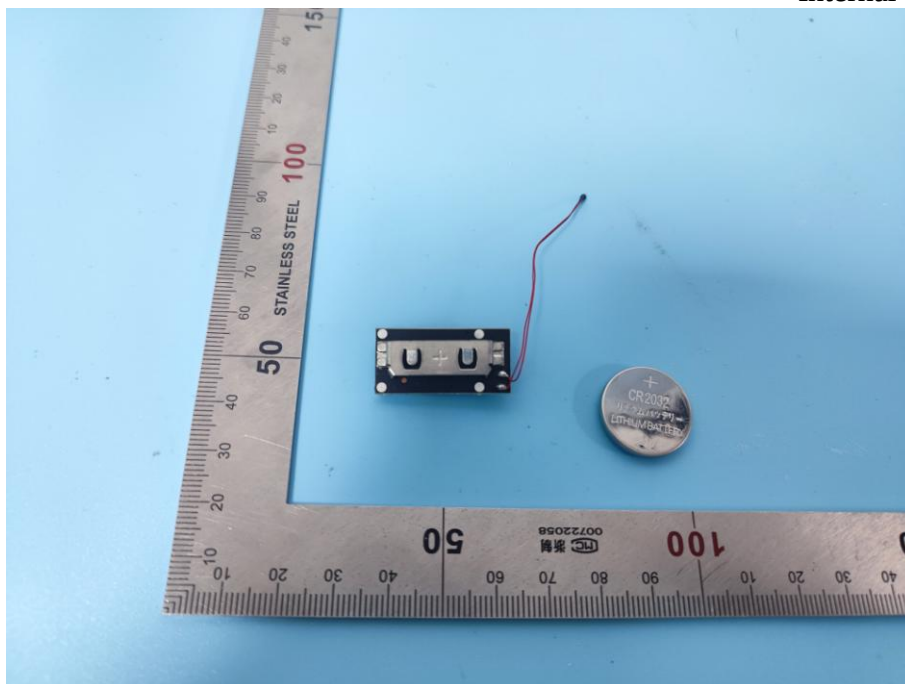


Figure 9
General Appearance of the EUT

