

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

EMC TEST REPORT

Applicant: Shenzhen Xiaoqiang Technology Co., Ltd

Address: Floor 2-3, Building 3, Fifth Industrial Zone, Tianliao Community,
Yutang Street, Guangming District, Shenzhen City

Manufacturer: Shenzhen Xiaoqiang Technology Co., Ltd

Address: Floor 2-3, Building 3, Fifth Industrial Zone, Tianliao Community,
Yutang Street, Guangming District, Shenzhen City

Product name: Straight hair egg comb

Model: GT2218

Serial model: N/A

Brand Name : N/A

Sample Received Date: Mar 27,2023

Testing Period: Mar 27,2022~Mar 31,2023

TEST FACTORY: Huaxun testing (Shenzhen) Group Co., Ltd
Goldman Sachs building, No. 18, Shaqi Community Center Road,
Xinqiao street, Bao'an District, Shenzhen, Guangdong, China

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

TEST RESULT CERTIFICATION

Applicant..... : Shenzhen Xiaoqiang Technology Co., Ltd

Address..... : Floor 2-3, Building 3, Fifth Industrial Zone, Tianliao Community,
Yutang Street, Guangming District, Shenzhen City

Manufacturer..... : Shenzhen Xiaoqiang Technology Co., Ltd

Address..... : Floor 2-3, Building 3, Fifth Industrial Zone, Tianliao Community,
Yutang Street, Guangming District, Shenzhen City

Product description

Product Name..... : Straight hair egg comb

Brand Name : N/A

Model Name : GT2218

Test Methods..... : EN IEC 55014-1:2021
EN IEC 55014-2:2021

This device described above has been tested by Huaxun testing (Shenzhen) Group Co., Ltd, and the test results show that the equipment under test (EUT) is in compliance with the EMC Directive 2014/30/EU requirements. And it is applicable only to the tested sample identified in the report.

This report shall not be reproduced except in full, without the written approval of HX, this document may be altered or revised by Huaxun testing (Shenzhen) Group Co., Ltd, personnel only, and shall be noted in the revision of the document.

Prepared by:

Reviewer:

Approved & Authorized Signer:



Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

Table of Contents

Page

1 TEST SUMMARY.....	4
1.1 TEST RESULTS.....	4
1.2 TEST LOCATION.....	5
1.3 MEASUREMENT UNCERTAINTY	5
2 GENERAL INFORMATION.....	6
2.1 GENERAL DESCRIPTION OF EUT	6
2.2 DESCRIPTION OF THE TEST MODES	7
2.3 DESCRIPTION OF TEST SETUP	7
2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL.....	7
2.5 MEASUREMENT INSTRUMENTS LIST.....	8
3 RADIATED EMISSIONS MEASUREMENT	9
3.1 RADIATED EMISSION LIMIT.....	9
3.2 TEST SETUP	9
3.4 TEST PROCEDURE	9
3.5 TEST RESULT	9
4 EMC IMMUNITY TEST.....	12
4.1 STANDARD COMPLIANCE/SERVIRITY LEVEL/CRITERIA.....	12
4.2 GENERAL PERFORMANCE CRITERIA	12
5 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD).....	13
5.1 TEST SPECIFICATION.....	13
5.2 TEST SETUP	13
5.3 TEST PROCEDURE	14
5.4 TEST RESULT	15
6 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS)..	16
6.1 TEST SPECIFICATION.....	16
6.2 TEST SETUP	16
6.3 TEST PROCEDURE	17
6.4 TEST RESULT	17
7 PHOTO OF EUT.....	18

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

1 TEST SUMMARY

1.1 TEST RESULTS

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
EN IEC 55014-1:2021	Conducted Emission	Class B	N/A	
	Disturbance Power(30-300MHz)	—	N/A	
	Radiated Emission 30MHz to 1000MHz	Class B	PASS	
EN IEC 61000-3-2:2019 +A1:2021	Harmonic Current Emission	Class A	N/A	
EN 61000-3-3:2013+ A2:2021+AC:2022-01	Voltage Fluctuations & Flicker	—	N/A	
EMC Immunity				
Section EN IEC 55014-2:2021	Test Item	Performance Criteria	Judgment	Remark
EN 61000-4-2:2009	Electrostatic Discharge	B	PASS	
EN IEC 61000-4-3:2020	RF Electromagnetic Field	A	PASS	
EN 61000-4-4:2012	Fast Transients	B	N/A	
EN 61000-4-5:2014 +AC:2015	Surges	B	N/A	
EN 61000-4-6:2014 /AC:2015	Injected Current	A	N/A	
EN IEC 61000-4-11:2020 +AC:2020-06	Volt. Dips	C / C / C	N/A	NOTE (1)

Note:

(1) Voltage Dip: 100% reduction – Performance Criteria C

Voltage Dip: 30% reduction – Performance Criteria C

Voltage Dip: 60% reduction – Performance Criteria C

(2) For client's request and manual description, the test will not be executed.

(3) "N/A" denotes test is not applicable in this Test Report

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

1.2 TEST LOCATION

Test Laboratory : Huaxun testing (Shenzhen) Group Co., Ltd
Address : Goldman Sachs building, No. 18, Shaqi Community Center Road,
Xinqiao street, Bao'an District, Shenzhen, Guangdong, China

1.3 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k = 2$, providing a level of confidence of approximately 95%.

A. Conducted Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)	NOTE
HX	CISPR 16-4-2	9kHz ~ 150kHz	2.96	
		150kHz ~ 30MHz	2.44	

B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)	NOTE
HX	CISPR 16-4-2	9kHz ~ 30MHz	2.50	
		30MHz ~ 1000MHz	4.80	
		1000MHz ~ 6000MHz	4.13	

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

The following information of EUT submitted and identified by applicant:

Product Name:	Straight hair egg comb
Brand Name :	N/A
Main Model:	GT2218
Additional Model:	N/A
Model Difference:	N/A
Power Source:	Input:DC 5V,2A, 10W
Product Description:	<p>The EUT is an Straight hair egg comb.</p> <p>Based on the application, features, or specification exhibited in User's Manual, more details of EUT technical specification, please refer to the User's Manual.</p>

I/O Port Information (☒Applicable ☐Not Applicable)

I/O Port Type	Number
DC	1

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

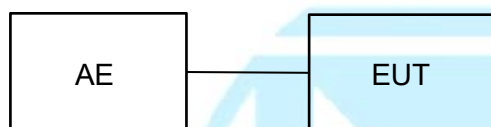
2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

MODE NO.	TEST MODE DESCRIPTION
1	Running
2	Standby

Note: The test modes were carried out for all operation modes (include link and idle).

2.3 DESCRIPTION OF TEST SETUP



Note: The EUT tested system was configured as upper figure, unless otherwise a special operating condition is specified in the following during the testing.

2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Note
E-1	Straight hair egg comb	N/A	GT2218	EUT

Item	Shielded Type	Ferrite Core	Length	Note

Note:

1. The support equipment was authorized by Declaration of Confirmation.
2. For detachable type I/O cable should be specified the length in cm in 『Length』 column.
3. “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

2.5 MEASUREMENT INSTRUMENTS LIST

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
Radiated Emissions Measurement					
1	Radiated Emission Test Software	EZ-EMC	Ver.CCS-03A1	N/A	N/A
2	Horn Antenna	Sunol	DRH-118	A101415	2023.10.18
3	Broadband Hybrid Antenna	Sunol	JB1	A090215	2024.03.01
4	PREAMP	HP	8449B	3008A00160	2023.10.21
5	PREAMP	HP	8447D	2944A07999	2023.05.20
6	EMI Test Receiver	Rohde&Schwarz	ESR3	101891	2023.10.15
7	MXA Signal Analyzer	Keysight	N9020A	MY51110104	2023.10.15
8	Active Loop Antenna	Com-Power	AL-310R	10160009	2023.05.20
9	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1680	2023.05.20
10	Horn Antenna	A-INFOMW	LB-180400-KF	J211060660	2023.10.23
11	Loop Antenna	Beijing daze Technology	ZN30401	13015	2023.10.15
12	EM Clamp	Schwarzbeck	MDS21	03350	2023.10.20
Electrostatic Discharge Test					
1	ESD Generator	EVERFINE	EMS61000-2A	P185811CA837112 1	2023.10.17
RS Test					
1	Power Meter	Agilent	E4419B	QB4331226	2023.10.10
2	Power Sensor	Agilent	8481A	MY41092622	2023.10.10
3	Power Sensor	Agilent	8481A	US37296783	2023.10.10
4	Signal Generator	Agilent	N5182A	MY46240556	2023.10.10
5	Power Amplifier	MICOTOP	MPA-80-1000-250	1711489	2023.10.10
6	Power Amplifier	MICOTOP	MPA-1000-3000-7 5	1711488	2023.10.10
7	Power Amplifier	MICOTOP	MPA-3000-6000-5 0	MPA1706275	2023.10.10
8	Bilog Antenna	TESEQ	CBL6111D	34678	2023.10.10
9	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1680	2023.05.20

3 RADIATED EMISSIONS MEASUREMENT

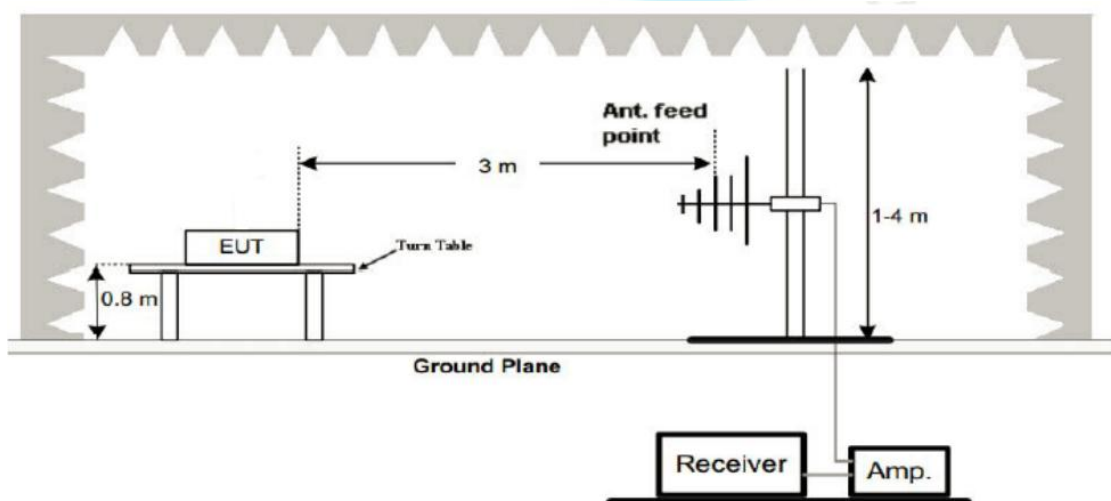
3.1 RADIATED EMISSION LIMIT

Frequency(MHz)	10m	3m
	dBuV/m	dBuV/m
30~230	30	40
230~1000	37	47

Note:

1. The limit for radiated test was performed according to as following: CISPR 14.
2. The tighter limit applies at the band edges.
3. Emission level (dBuV/m)=20log Emission level (uV/m).

3.2 TEST SETUP



3.4 TEST PROCEDURE

1. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
2. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
3. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.
5. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP(AV) Limits and then no additional QP Mode measurement performed.
6. For the actual test configuration, please refer to the related Item EUT Test Photos.

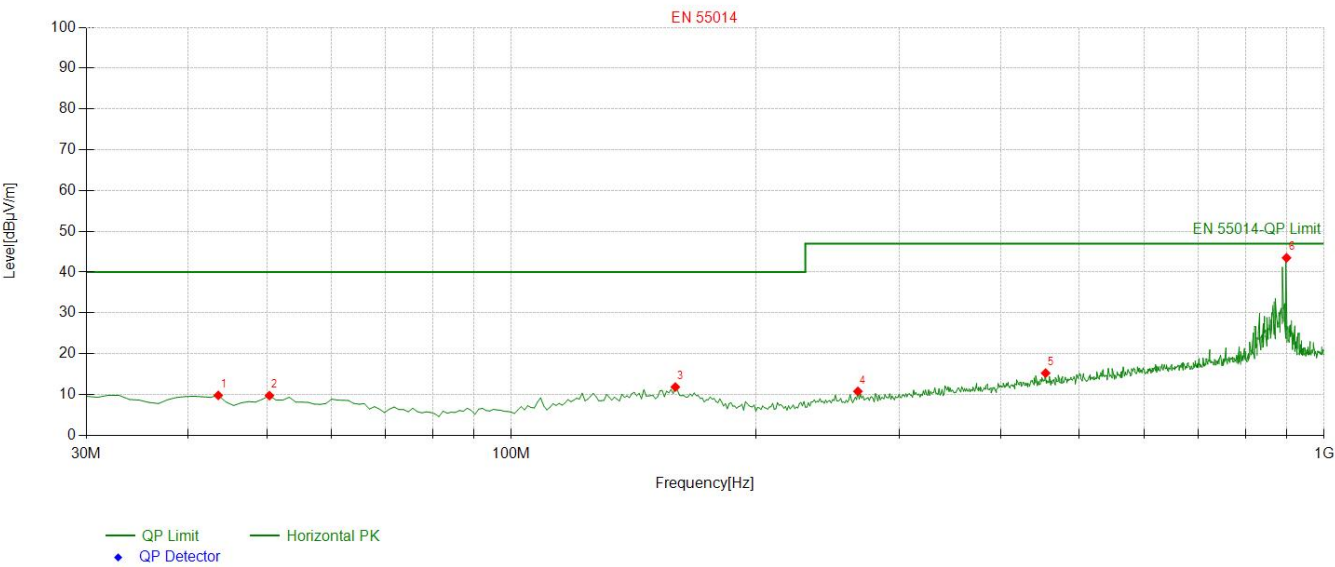
3.5 TEST RESULT

PASS

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

Temperature:	24℃	Relative Humidity:	48%
Test Voltage:	DC 5V	Pressure:	1010hPa
Test Mode:	Mode 1	Polarization:	Horizontal



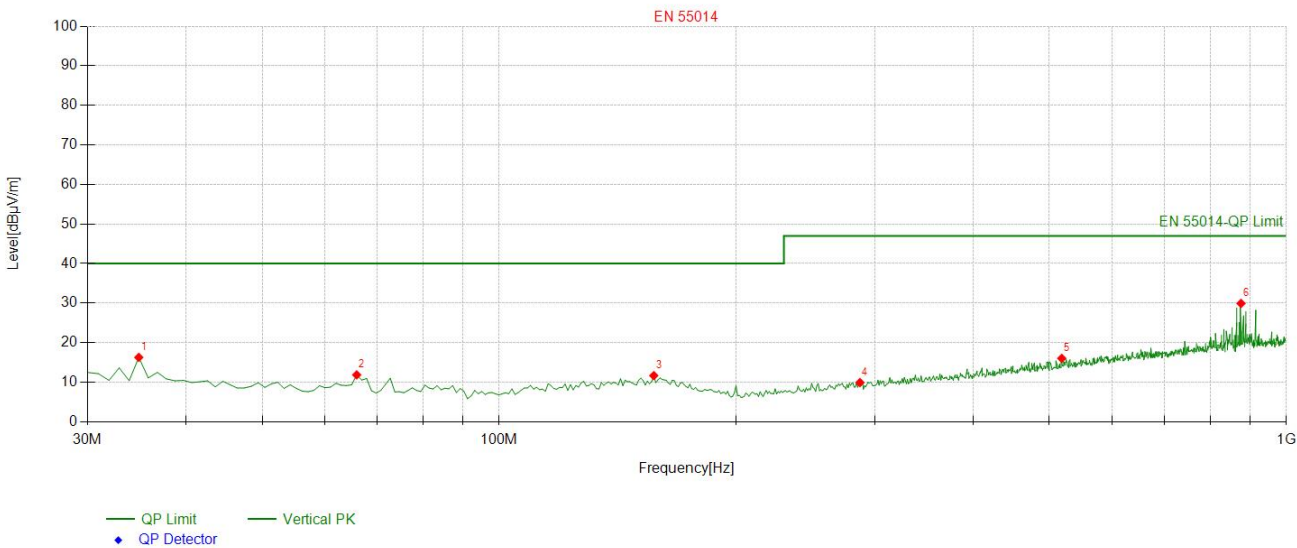
Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.5936	-16.66	26.44	9.78	40.00	30.22	100	244	Horizontal
2	50.3904	-16.84	26.56	9.72	40.00	30.28	100	128	Horizontal
3	159.1391	-15.95	27.77	11.82	40.00	28.18	100	356	Horizontal
4	266.9169	-18.04	28.80	10.76	47.00	36.24	100	283	Horizontal
5	454.3143	-14.39	29.62	15.23	47.00	31.77	100	11	Horizontal
6	899.019	-8.36	51.87	43.51	47.00	3.49	100	360	Horizontal

Remark: Factor = Cable loss + Antenna factor – Preamplifier; Level = Reading + Factor; Margin = Limit – Level;

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

Temperature:	24℃	Relative Humidity:	48%
Test Voltage:	DC 5V	Pressure:	1010hPa
Test Mode:	Mode 1	Polarization:	Vertical



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	34.8549	-17.14	33.41	16.27	40.00	23.73	100	349	Vertical
2	65.9259	-18.92	30.77	11.85	40.00	28.15	100	338	Vertical
3	157.1972	-16.04	27.70	11.66	40.00	28.34	100	0	Vertical
4	287.3073	-17.63	27.53	9.90	47.00	37.10	100	146	Vertical
5	518.3984	-13.57	29.59	16.02	47.00	30.98	100	148	Vertical
6	875.7157	-8.82	38.73	29.91	47.00	17.09	100	349	Vertical

Remark: Factor = Cable loss + Antenna factor – Preamplifier; Level = Reading + Factor; Margin = Limit – Level;

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

4 EMC IMMUNITY TEST

4.1 STANDARD COMPLIANCE/SERVIRITY LEVEL/CRITERIA

Tests Standard No.	TEST SPECIFICATION	Test Mode Test Ports	Perform Criteria
ESD EN 61000-4-2	8kV air discharge 4kV contact discharge	Direct Mode	B
	4kV HCP discharge 4kV VCP discharge	Indirect Mode	B
RS EN 61000-4-3	80 MHz to 1000 MHz, 1000Hz, 80%, AM modulated	Enclosure	A

4.2 GENERAL PERFORMANCE CRITERIA

According to EN IEC 55014-2 standard, the general performance criteria as following:

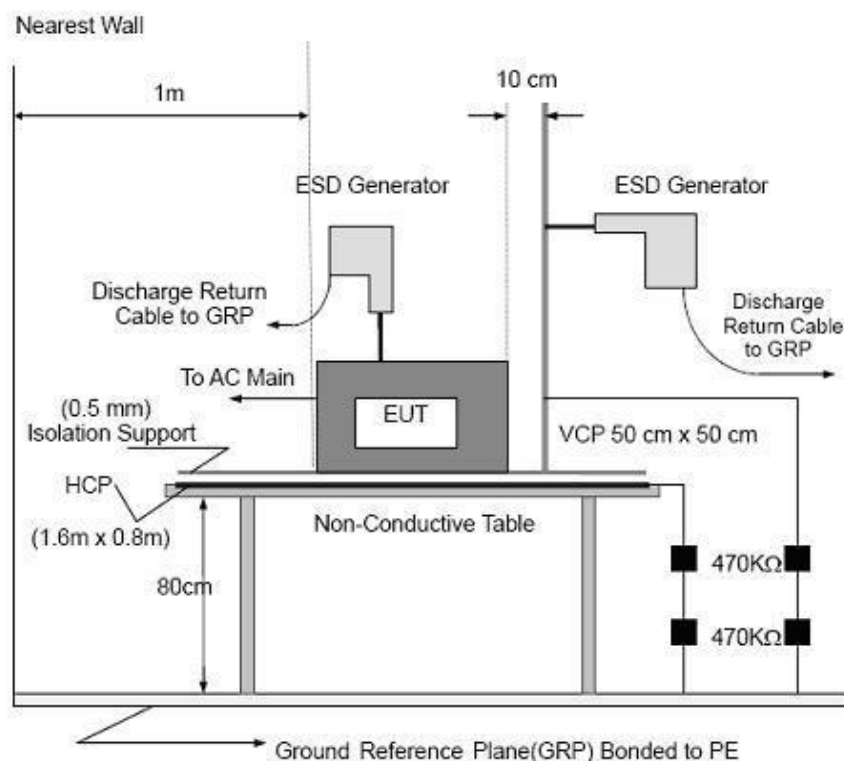
Criterion A	The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. 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 by what the user may reasonably expect from the equipment if used as intended.
Criterion B	During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test. After the test, the equipment shall continue to operate as intended without operator intervention; no degradation of performance or loss of function is allowed, below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level (or the permissible performance loss), or recovery time, is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion C	Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A reboot or re-start operation is allowed. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

5 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

5.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Required Performance:	B
Discharge Voltage:	Air Discharge: 2kV/4kV/8kV (Direct) Contact Discharge: 2kV/4kV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	Air Discharge: min. 20 times at each test point Contact Discharge: min. 20 times at each test point
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum

5.2 TEST SETUP



Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

Note:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP by means of a cable with 940kΩ total impedance. The equipment under test, was installed in a representative system as described in section 7 of EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of 0.8-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of EN 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1 meter thickness. The GRP was consisted of a sheet of aluminum that is at least 0.25mm thick, and extended at least 0.5 meters from the EUT on all sides.

5.3 TEST PROCEDURE

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manners:

1. Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal operation. The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.

The time interval between two successive single discharges was at least 1 second.

The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the EUT.

Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.

Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until

all discharges were complete. Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge.

Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge.

2. Air discharges at insulation surfaces of the EUT.

It was at least ten single discharges with positive and negative at the same selected point.

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

5.4 TEST RESULT

Temperature:	24℃	Relative Humidity:	48%
Test Voltage:	DC 5V	Pressure:	1010hPa
Test Mode:	Mode 1		

Voltage	Coupling	Test Performance	Result
±4kV	Contact Discharge	No function loss	B
±4kV	Indirect Discharge HCP (Front)	No function loss	B
±4kV	Indirect Discharge HCP (Left)	No function loss	B
±4kV	Indirect Discharge HCP (Back)	No function loss	B
±4kV	Indirect Discharge HCP (Right)	No function loss	B
±4kV	Indirect Discharge VCP (Front)	No function loss	B
±4kV	Indirect Discharge VCP (Left)	No function loss	B
±4kV	Indirect Discharge VCP (Back)	No function loss	B
±4kV	Indirect Discharge VCP (Right)	No function loss	B
±8kV	Air Discharge	No function loss	B

Huaxun testing (Shenzhen) Group Co., Ltd

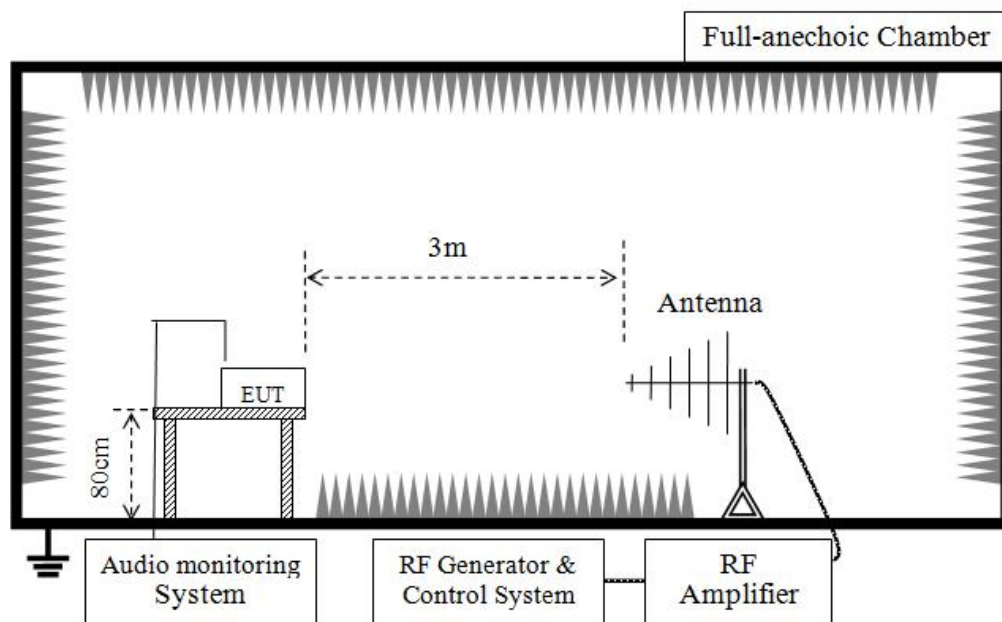
Report No: E03310012-XQ

6 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS)

6.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-3
Required Performance:	A
Frequency Range:	80~1000MHz
FieGT2218 Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5 m
Dwell Time:	at least 3 seconds

6.2 TEST SETUP



Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

Note:

TABLE-TOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

6.3 TEST PROCEDURE

The EUT and support equipment, which are placed on a table that is 0.8 meter above ground and the testing was performed in a fully-anechoic chamber.

The testing distance from antenna to the EUT was 3 meters.

The other condition need as following manners:

1. The frequency range is swept from 80 MHz to 1000 MHz, with the signal 80% amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
2. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
3. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

6.4 TEST RESULT

Temperature:	24℃	Relative Humidity:	48%
Test Voltage:	DC 5V	Pressure:	1010hPa
Test Mode:	Mode 1		

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Perform Criteria	Result
80~1000	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	A	PASS
			Rear		
			Left		
			Right		

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

7 PHOTO OF EUT

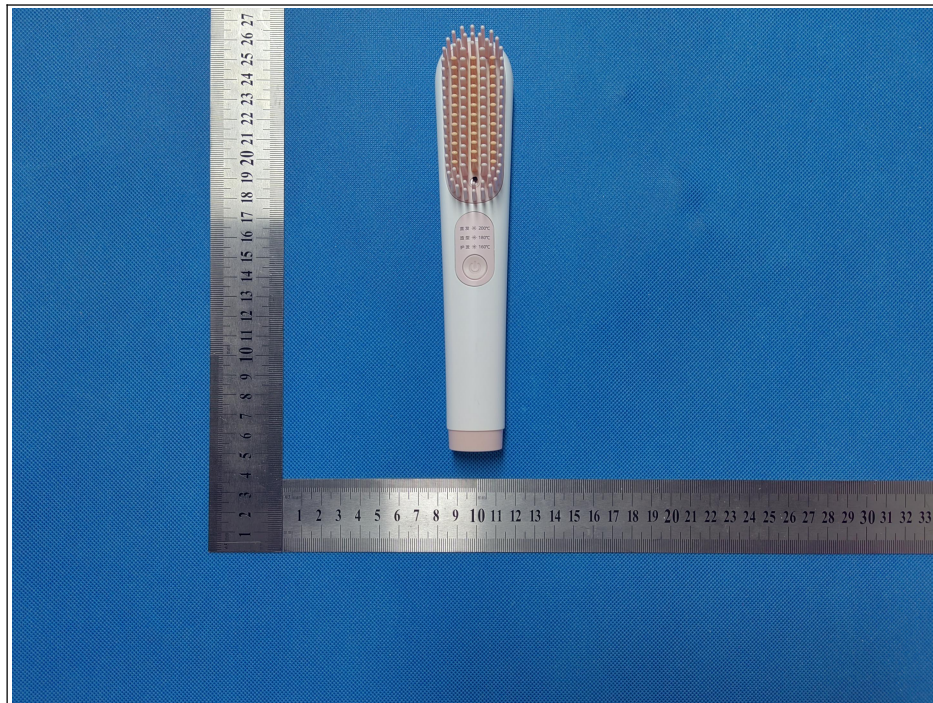


PHOTO 01

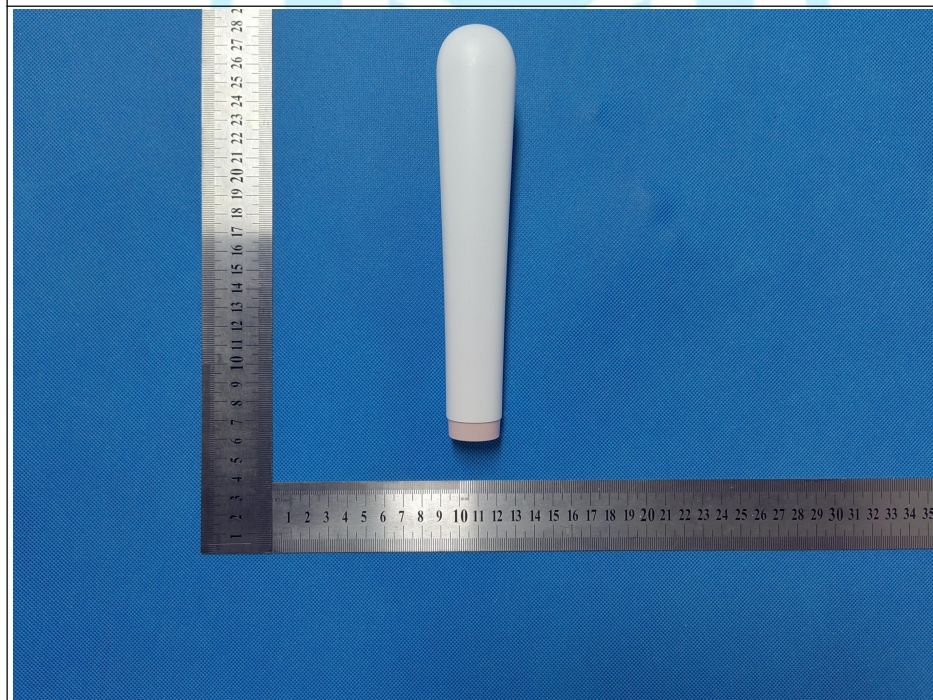


PHOTO 02

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

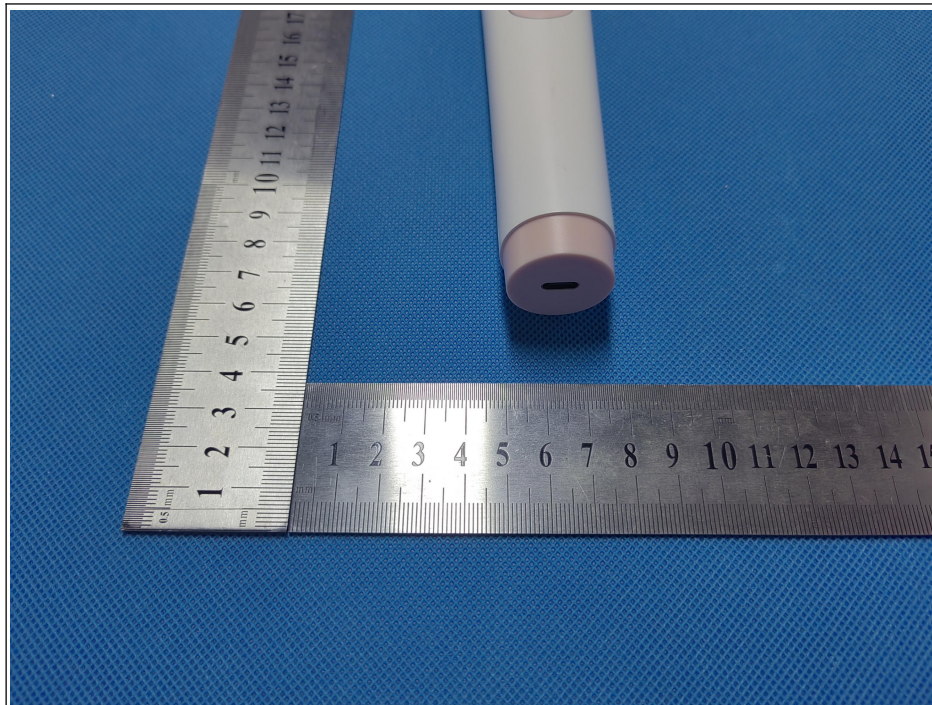


PHOTO 03

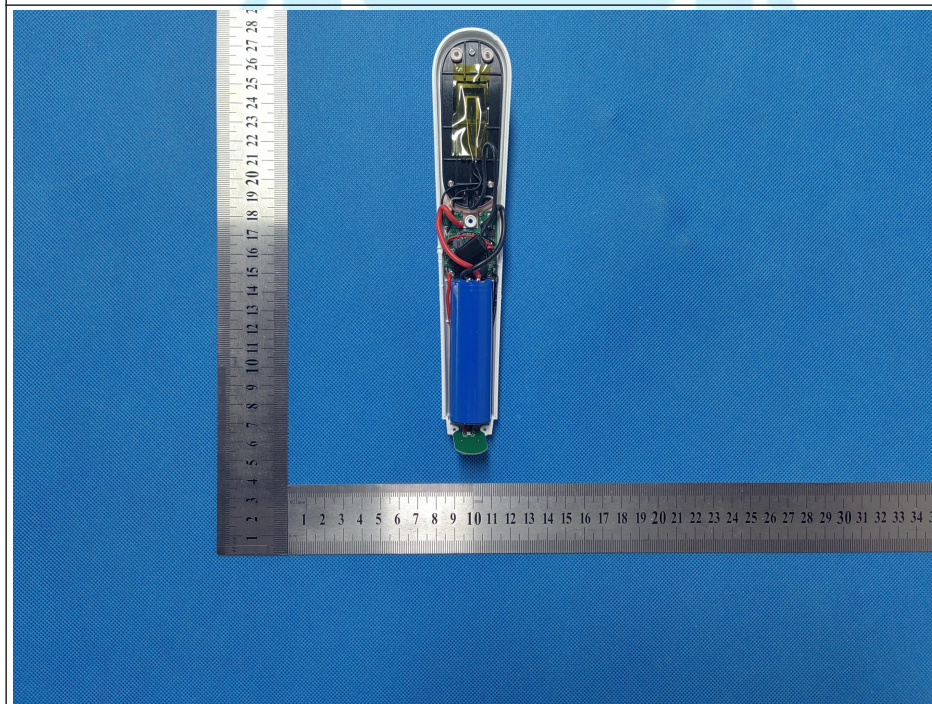


PHOTO 04

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

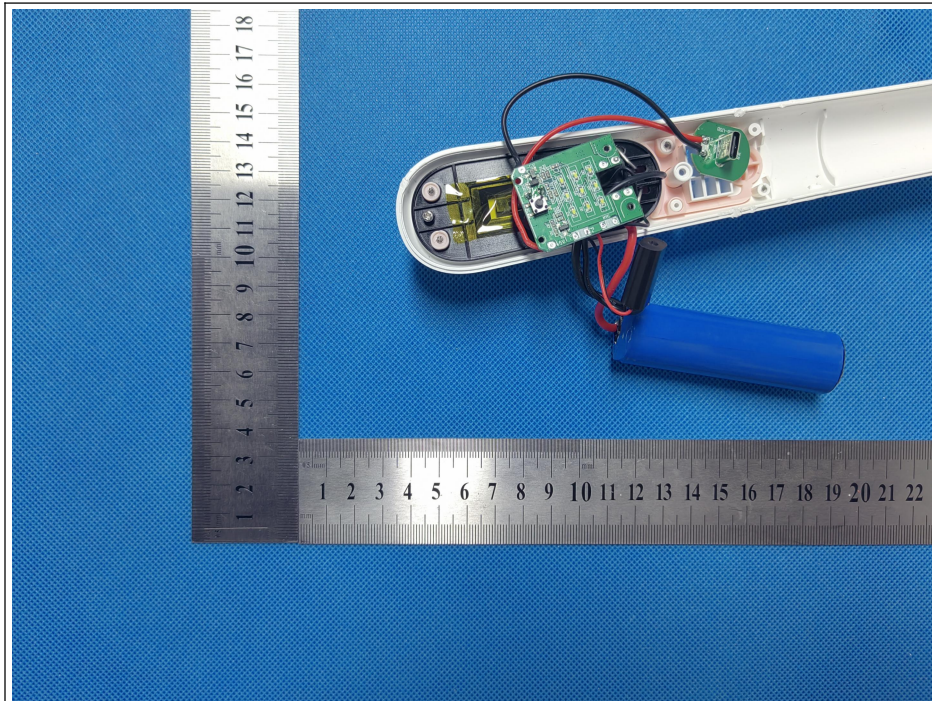


PHOTO 05

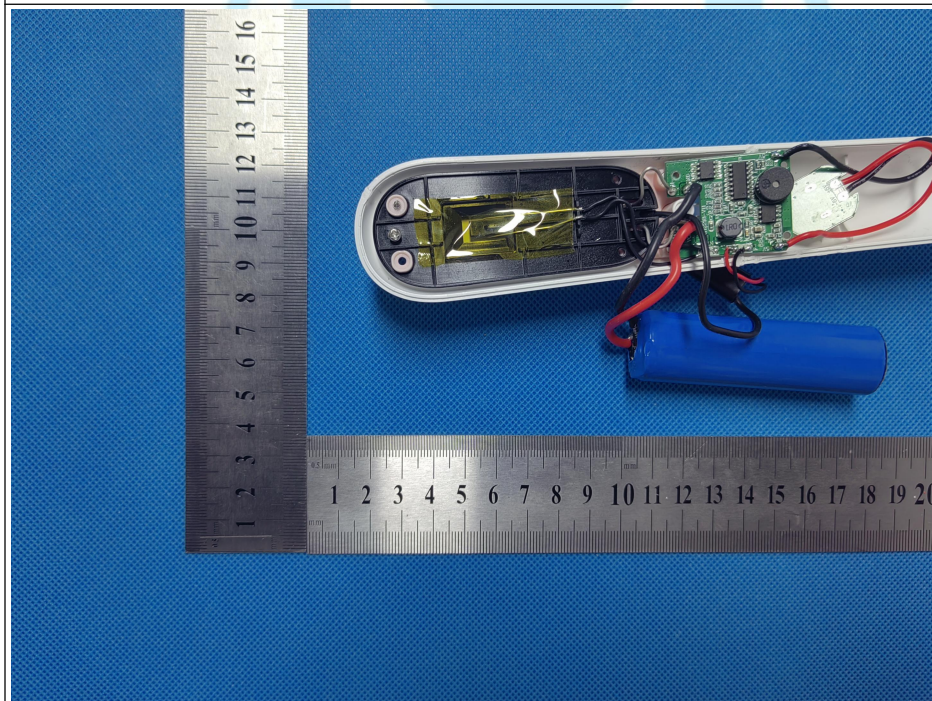


PHOTO 06

Address: Goldman Sachs building, No. 18, Shaqi Community Center Road, Xinqiao street, Bao'an District, Shenzhen, Guangdong, China

Web.Site: <http://www.hx-lbt.org>

Tel: 0755-27202251

E-mail: HX_jiance@163.com

Huaxun testing (Shenzhen) Group Co., Ltd

Report No: E03310012-XQ

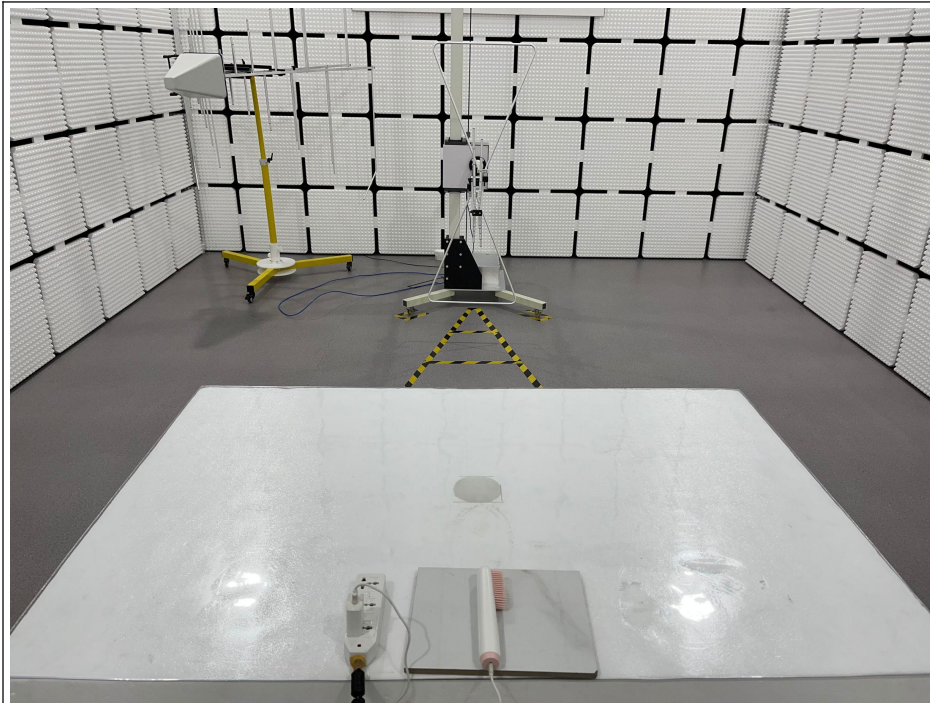


PHOTO 07

End of Report