

TEST REPORT

Report No.: 8327EU122504E

Applicant: SHANTOU CHENGHAI FENGXIANG XIAOSHUANGHE
PLASTIC TOY FACTORY

Address: GATE 2, NO.7, NINGFENGXIN 2ND ROAD,
FENGXIANG XIN, CHENGHAI DISTRICT, SHANTOU
CITY, GUANGDONG PROVINCE, CHINA

Product Name: Educational toy

Model No.: 608 (refer to clause 2.4)

Trademark: N/A

Test Standard(s): EN IEC 55014-1:2021
EN IEC 55014-2:2021
EN IEC 61000-3-2:2019+A1:2021+A2:2024
EN 61000-3-3:2013+A1:2019+A2:2021

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ISSUED BY:

SHENZHEN EU TESTING LABORATORY LIMITED



Prepared by:



Landon Qiu/ Engineer

Reviewed and Approved by:



Sally Zhang/ Manager

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2 General Information

2.1 Applicant Information

Applicant	SHANTOU CHENGHAI FENGXIANG XIAOSHUANGHE PLASTIC TOY FACTORY
Address	GATE 2, NO.7, NINGFENGXIN 2ND ROAD, FENGXIANG XIN, CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG PROVINCE, CHINA

2.2 Manufacturer Information

Manufacturer	SHANTOU CHENGHAI FENGXIANG XIAOSHUANGHE PLASTIC TOY FACTORY
Address	GATE 2, NO.7, NINGFENGXIN 2ND ROAD, FENGXIANG XIN, CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG PROVINCE, CHINA

2.3 Factory Information

Factory	SHANTOU CHENGHAI FENGXIANG XIAOSHUANGHE PLASTIC TOY FACTORY
Address	GATE 2, NO.7, NINGFENGXIN 2ND ROAD, FENGXIANG XIN, CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG PROVINCE, CHINA

2.4 General Description of E.U.T.

Product Name	Educational toy
Model No. Under Test	608
List Model No.	756A, 757A, 758A, 759A, 760A, 761A, 762A, 763A, 764A, 765A, 766A, 767A, 768A, 769A, 770A, 771A, 772A, 773A, 774A, 775A, 776A, 777A, 778A, 779A, 780A, 781A, 782A, 783A, 784A, 785A, 786A, 787A, 788A, 789A, 790A, 791A, 792A, 793A, 794A, 795A, 796A, 797A, 798A, 799A, 800A, 801A, 802A, 803A, 804A, 805A, 806A, 807A, 808A, 809A, 810A, 811A, 812A, 813A, 814A, 815A, 816A, 817A, 818A, 819A, 820A, 821A, 822A, 823A, 824A, 825A, 826A, 827A, 828A, 829A, 830A, 831A, 832A, 833A, 834A, 835A, 836A, 837A, 838A, 839A, 840A, 841A, 842A, 843A, 844A, 845A, 846A, 847A, 848A, 849A, 850A, 851A, 852A, 853A, 854A, 855A, 856A, 857A, 858A, 859A, 860A, 861A, 862A, 863A, 864A, 865A, 866A, 867A, 868A, 869A, 870A, 871A, 872A, 873A, 874A, 331, 332, 333, 334, 335, 336, 337A, 338A, 339, 595, 596-1, 598, 598-1, 609, 789, 881, 662A, 670A, 671A, 672A, 673A, 674A, 675A, 676A, 677A, 678A, 679A, 680A, 681A, 682A, 683A, 684A, 685A, 686A, 687A, 688A, CA668A, 689A, 690A, 691A, 692A, 693A, 694A, 695A, 696A, 697A, 698A, 699A, 700A, 701A, 702A, 703A, 704A, 705A, 706A, 707A, 708A, 709A, 710A, 711A, 712A, 713A, 714A, 715A, 716A, 717A, 718A, 719A, 720A, 721A, 722A, 723A, 724A, 725A, 726A, 727A, 728A, 729A, 730A, 668A
Description of Model differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in appearance colors and model name. (this information provided by the customer)
Rating(s)	3.0VDC battery inside
Test Sample No.	8327EU122504E-1/1

Hardware Version	N/A
Software Version	N/A
Remark	For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.5 Technical Information of E.U.T.

Classification of Apparatus:	Category III
F _x (Highest internal frequency)	F≤108MHz



3 Test Summary

3.1 Test Standard

The tests were performed according to following standards:

EN IEC 55014-1:2021: Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission

EN IEC 55014-2:2021: Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity - Product family standard

EN IEC 61000-3-2:2019+A1:2021+A2:2024: Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16A per phase)

EN 61000-3-3:2013+A1:2019+A2:2021: Electromagnetic compatibility (EMC) -- Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current $\leq 16A$ per phase and not subject to conditional connection

Remark:

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission/immunity should be checked to ensure compliance has been maintained.

3.2 Test Verdict

Test Items	Standard	Results
Radiated disturbance (30MHz-1GHz)	EN IEC 55014-1:2021	Pass
Electrostatic discharge	EN IEC 55014-2:2021	Pass
Radio frequency electromagnetic fields ☆	EN IEC 55014-2:2021	Pass
Note: (1) "N/A" denotes test is not applicable in this Test Report. (2) The test item marked with "☆" is subcontracted to Shenzhen PSI Testing Co., Ltd., which has gained the customer's approval.		

3.3 Test Laboratory

Test Laboratory	Shenzhen EU Testing Laboratory Limited
Address	101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China

4 Test Configuration

4.1 Test Environment

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	30% to 60%	
Atmospheric Pressure	86 kPa to 106 kPa	
Temperature	NT (Normal Temperature)	+15°C to +35°C
Working Voltage of the EUT	NV (Normal Voltage)	3.0VDC

4.2 Test Equipment

Radiated disturbance (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Serial No	Cal Date	Cal Due Date
EMI Test Receiver	ROHDE & SCHWARZ	ESPI	EE-006	2025-01-08	2026-01-07
Bilog Broadband Antenna	SCHWARZBECK	VULB 9163	EE-007	2023-01-14	2026-01-13
Pre-amplifier	Agilent	8447D	EE-009	2025-01-08	2026-01-07
MXA Signal Analyzer	Agilent	N9020A	EE-011	2025-01-08	2026-01-07
Test Software	Farad	EZ-EMC	EE-015	/	/

Electrostatic discharge					
Equipment	Manufacturer	Model No	Serial No	Cal Date	Cal Due Date
ESD Simulators	NoiseKen	ESS-B3011	EE-013	2025-01-08	2026-01-07

Radio frequency electromagnetic fields					
Equipment	Manufacturer	Model No	Serial No	Cal Date	Cal Due Date

4.3 Description of Support Unit

No.	Title	Manufacturer	Model No.	Serial No.
1	N/A			

4.4 Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning 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 bellow was evaluated respectively.

No.	Test Modes	Description
TM1	Working Mode	Keep the EUT in working mode.

4.5 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Test Item	Measurement Uncertainty
Radiated Emission (30MHz- 1GHz)	2.70 dB



5 Emission Test Results (EMI)

5.1 Radiated disturbance (30MHz-1GHz)

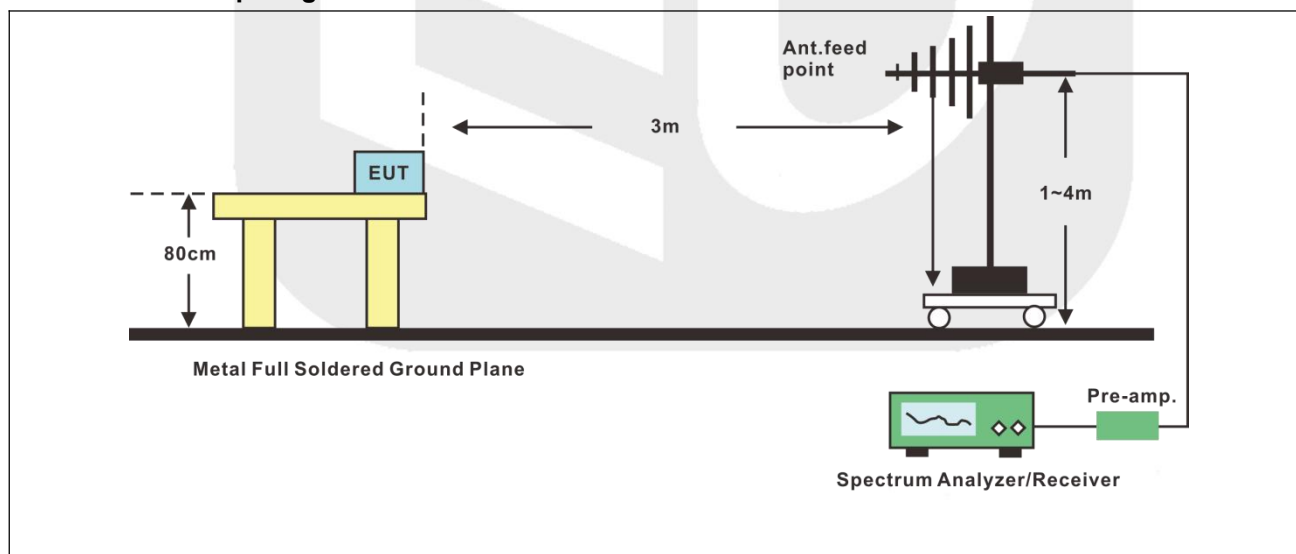
5.1.1 Test Specification

Test Requirement:	EN IEC 55014-1, Table 9		
Test Limit:	Frequency range (MHz)	Limits at 10m Quasi-peak (dBuV/m)	Limits at 3m Quasi-peak (dBuV/m)
	30 to 230	30	40
	230 to 1 000	37	47
	The lower limit is applies at the transition frequency.		
Test Method:	CISPR 16-2-3:2016/AMD1:2019		
Procedure:	An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities. Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor		

5.1.2 E.U.T. Operation

Operating Environment:	
Pre test mode:	TM1
Final test mode:	TM1

5.1.3 Test Setup Diagram



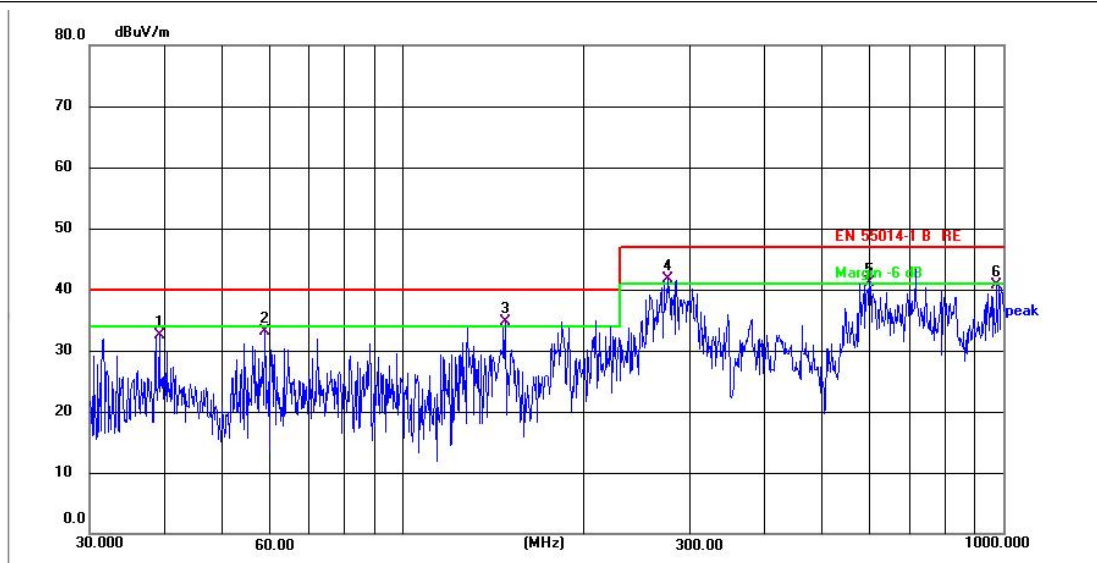
5.1.4 Test Data

PASS

Please refer to the following pages.

Radiated disturbance (30MHz-1GHz) Test Data

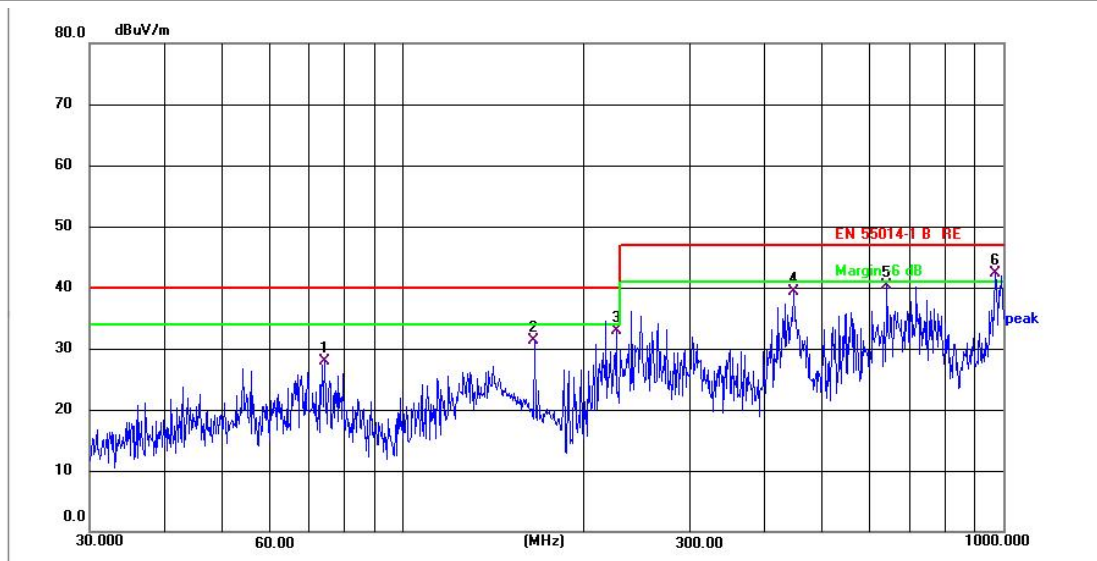
TM1 / Polarization: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	39.1615	48.05	-15.48	32.57	40.00	-7.43	QP	P	
2	58.6126	48.32	-15.19	33.13	40.00	-6.87	QP	P	
3 !	147.9214	53.23	-18.57	34.66	40.00	-5.34	QP	P	
4 *	275.1570	54.36	-12.66	41.70	47.00	-5.30	QP	P	
5 !	599.3212	47.42	-6.22	41.20	47.00	-5.80	QP	P	
6	975.7528	41.73	-0.96	40.77	47.00	-6.23	QP	P	

Radiated disturbance (30MHz-1GHz) Test Data

TM1 / Polarization: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	74.1350	46.88	-18.94	27.94	40.00	-12.06	QP	P	
2	165.4866	48.88	-17.57	31.31	40.00	-8.69	QP	P	
3	226.0994	47.17	-14.24	32.93	40.00	-7.07	QP	P	
4	446.4140	48.48	-9.18	39.30	47.00	-7.70	QP	P	
5	640.6110	46.04	-5.76	40.28	47.00	-6.72	QP	P	
6 *	968.9337	43.39	-1.17	42.22	47.00	-4.78	QP	P	

Note: Level = Reading + Factor

Margin = Level - Limit

6 Immunity Test Results (EMS)

Performance Criteria

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 to persist after the test. 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/C

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 to persist after the test. 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.

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

Performance criterion C may be applied to toys not using score or data entered by the user.

Performance criterion C

Temporary loss of function is allowed, provided the function is selfrecoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

6.1 Electrostatic discharge

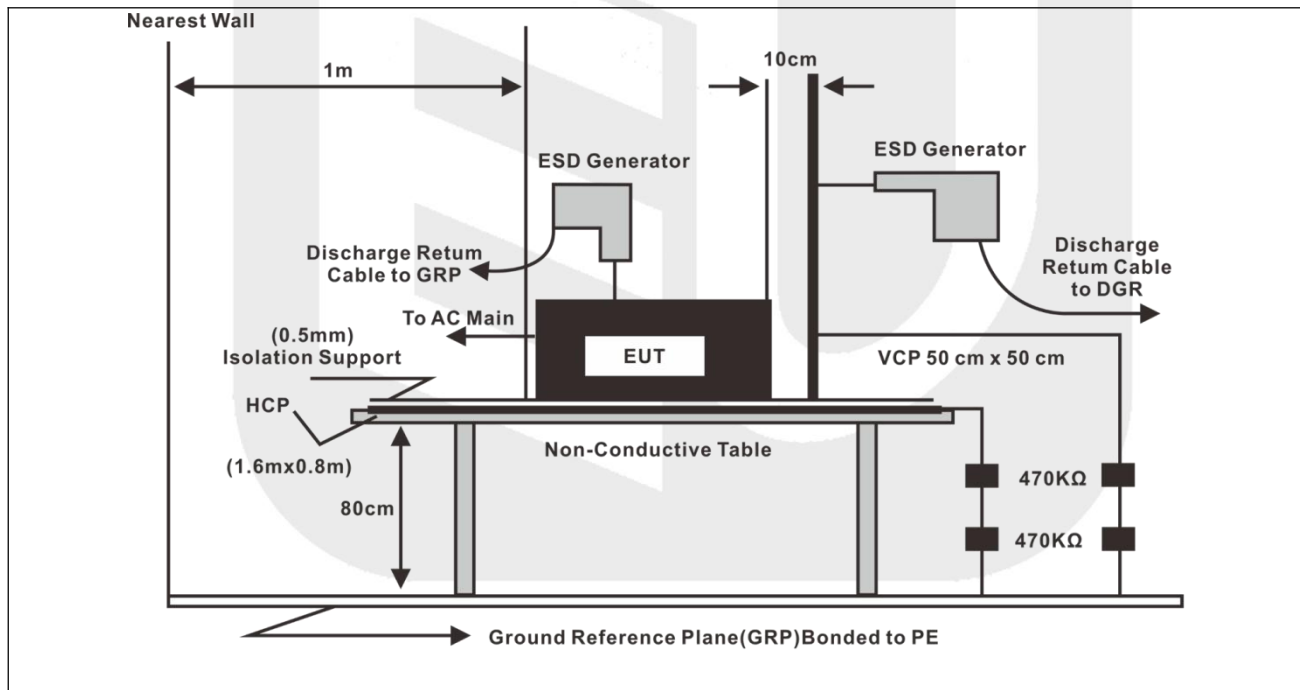
6.1.1 Test Specification

Test Requirement:	EN IEC 55014-2, Clause 7.2
Test Method:	EN 61000-4-2:2009
Procedure:	Discharge Impedance: 330 Ω / 150 pF Discharge Voltage: Air Discharge: 8 kV; Contact Discharge: 4 kV; VCP/HCP: 4 kV. Polarity: Positive & Negative Number of Discharge: Minimum 10 times at each test point Discharge Mode: Single Discharge Discharge Period: 1 second minimum
Performance Criteria:	B/C

6.1.2 E.U.T. Operation

Operating Environment:	
Pre test mode:	TM1
Final test mode:	TM1

6.1.3 Test Setup Diagram



6.1.4 Test Data

PASS

Please refer to the following pages.

Electrostatic discharge Test Results

Discharge type	Volt (kV)	Polarity	Test Point	Result/ Observations
Air discharge	8	+	1	B
Air discharge	8	-	1	B
Contact discharge	4	+	2	B
Contact discharge	4	-	2	B
Horizontal Coupling	4	+	3	B
Horizontal Coupling	4	-	3	B
Vertical Coupling	4	+	3	B
Vertical Coupling	4	-	3	B

Test Point: 1. All insulated enclosure and seams.

2. All accessible metal parts of the enclosure.

3. All side.

A: No degradation in the performance of the EUT was observed.

6.2 Radio frequency electromagnetic fields

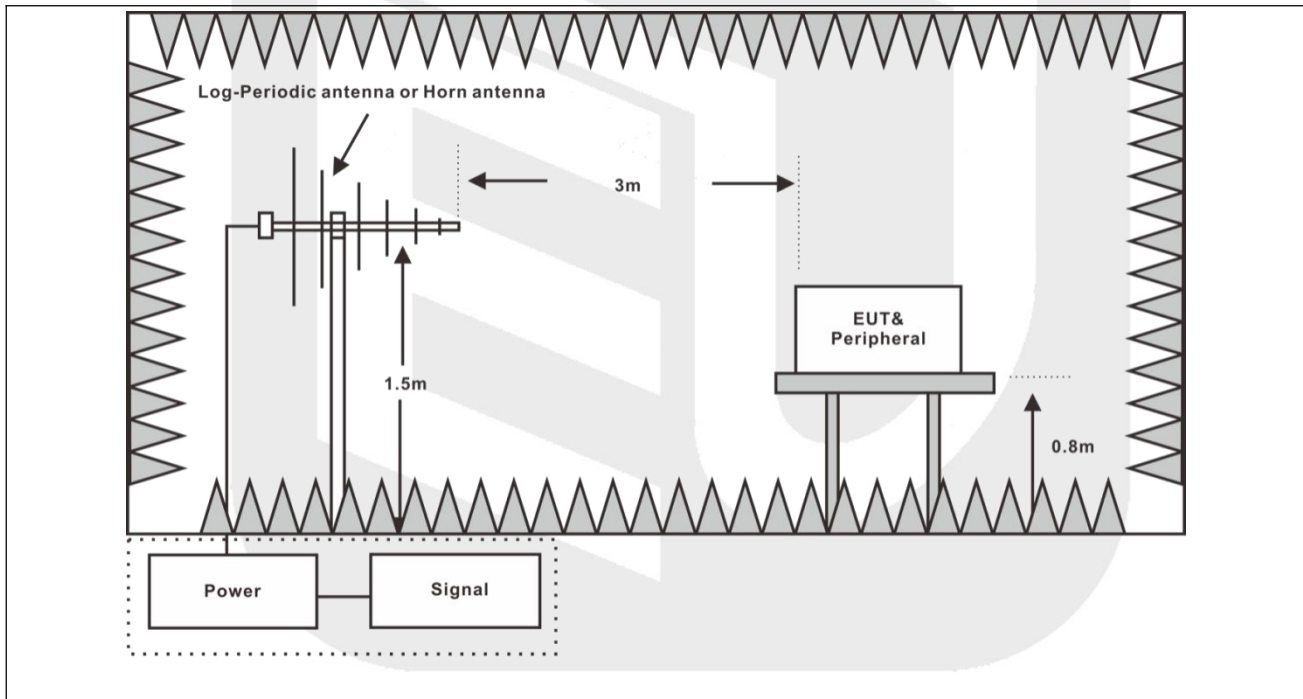
6.2.1 Test Specification

Test Requirement:	EN IEC 55014-2, Clause 7.2
Test Method:	EN IEC 61000-4-3:2020
Procedure:	Frequency Range: 80MHz to 6GHz Antenna Polarisation: Vertical and Horizontal Signal: Modulation 1kHz, 80% AM, 1% increment, 3V/m(RMS) unmodulated
Performance Criteria:	A

6.2.2 E.U.T. Operation

Operating Environment:	
Pre test mode:	TM1
Final test mode:	TM1

6.2.3 Test Setup Diagram



6.2.4 Test Data

PASS

Please refer to the following pages.

Radio frequency electromagnetic fields Test Results

Frequency	Field Strength (V/m)	EUT face	Dwell time	Result/ Observations
80MHz-6GHz	3	Front	2s	B
80MHz-6GHz	3	Back	2s	B
80MHz-6GHz	3	Left	2s	B
80MHz-6GHz	3	Right	2s	B
80MHz-6GHz	3	Top	2s	B
80MHz-6GHz	3	Bottom	2s	B

A: No degradation in the performance of the EUT was observed.

Remark: This test item is subcontracted to Shenzhen PSI Testing Co., Ltd.

ANNEX A TEST SETUP PHOTOS

PHOTO 1

Radiated disturbance
(30MHz-1GHz)



PHOTO 2

Electrostatic discharge



ANNEX B EXTERNAL PHOTOS

PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4

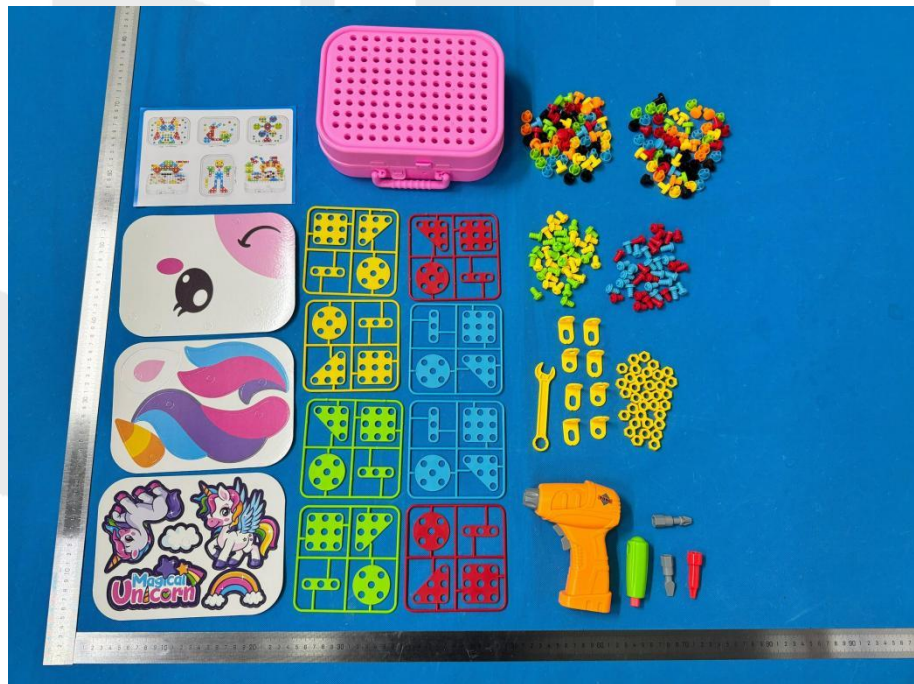


PHOTO 5



PHOTO 6



PHOTO 7



PHOTO 8



PHOTO 9



PHOTO 10



PHOTO 11



PHOTO 12



PHOTO 13



PHOTO 14



PHOTO 15

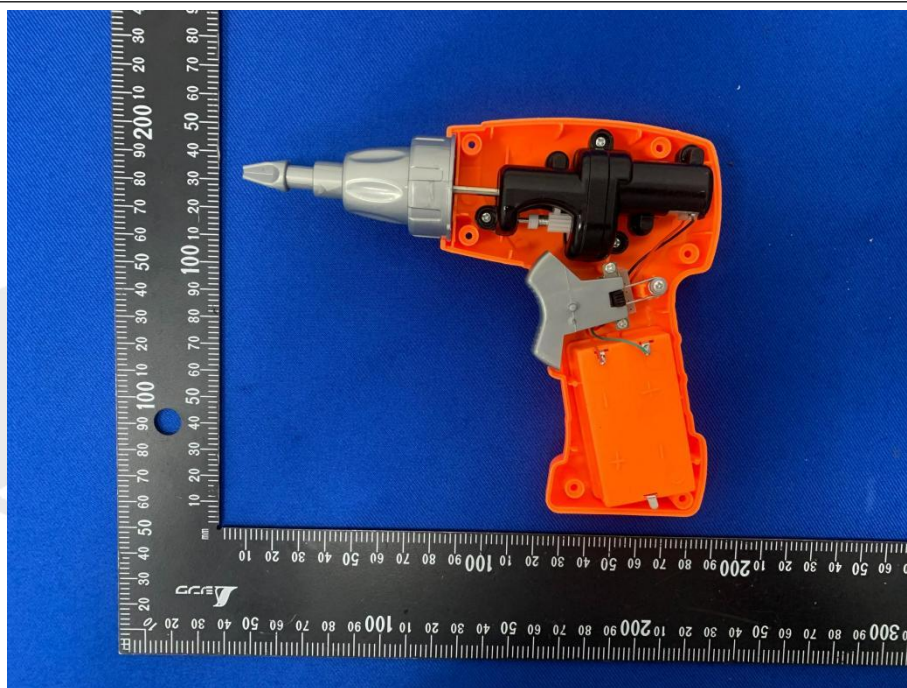


PHOTO 16



ANNEX C INTERNAL PHOTOS

PHOTO 1



STATEMENT

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2. The report without China inspection body and laboratory Mandatory Approval (CMA) mark has no effect of proving to the society.
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7. Any objection shall be raised to the laboratory within 30 days after receiving the report.

--- End of Report ---