

TEST REPORT

Application No.: SZEM2406004902ET
Applicant: GUANGDONG BANATOYS CO., LIMITED
Address of Applicant: HONGLOU BUILDING, THE MIDDLE OF LE'AN ROAD, SHANGDAI INDUSTRIAL DISTRICT, CHENGHAI, SHANTOU, GUANGDONG P.R.C.515800

Equipment Under Test (EUT):

EUT Name: Toy series
Model No.: 661-127, 807210032 ♣
 ♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

Standard(s) : EN IEC 55014-1: 2021
 EN IEC 55014-2: 2021

Date of Receipt: 2024-06-04

Date of Test: 2024-06-11

Date of Issue: 2024-06-18

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu

Keny Xu
EMC Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch Testing Center EMC Laboratory

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SZEMC-TRF-01 Rev. A/1

Report No.: SZEM240600490201

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2024-06-18		Original

Authorized for issue by:				
		Martin Tang		
		Martin Tang/Project Engineer		
		Eric Fu		
		Eric Fu/Reviewer		



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2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Radiated Emissions (30MHz-1GHz)	EN IEC 55014-1: 2021	CISPR 16-2- 3:2016+A1:2019	Table 9	Pass

Immunity Part				
Item	Standard	Method	Requirement	Result
Electrostatic Discharge	EN IEC 55014-2: 2021	EN 61000-4-2:2009	4kV Contact Discharge, 8kV Air Discharge	Pass

Declaration of EUT Family Grouping:

Model No.: 661-127, 807210032

Only the model 661-127 was tested, since according to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, only different on colour, appearance, packaging and model No..



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4 General Information

4.1 Details of E.U.T.

Power supply:	1.5V DC(1.5V x 1 "AA" Size Battery) 4.5V DC(1.5V x 3 "AA" Size Batteries)
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Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Radiated Emissions (30MHz-1GHz)	$\pm 5.8\text{dB}$
Electrostatic Discharge	$\pm 6\%$

Remark:

The U_{lab} (lab Uncertainty) is less than $U_{\text{CISPR/ETSI}}$ (CISPR/ETSI Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

4.4 Test Location

All tests were performed at:

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Room 105, Building A, Xinlong Technology Industrial Park, No. 50 Fengtang Road, Xintian Community, Fuyong Street, Bao'an District, Shenzhen, China

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No tests were sub-contracted.

4.5 Deviation from Standards

None

4.6 Abnormalities from Standard Conditions

None

4.7 EMS Monitor

Visual: Monitored the light, flash and working status of the EUT

Audio: Monitored the sound of the EUT



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5 Equipment List

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
966 Anechoic Chamber	CRT	N/A	SEM001-13	2022-10-15	2025-10-14
EMI Test Receiver	Agilent	N9038A	SEM004-05	2023-09-14	2024-09-13
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-26	2023-09-23	2025-09-22
Pre-Amplifier	HP	8447D	SEM005-02	2023-09-13	2024-09-12
Pre-Amplifier	HP	8347A	SEM005-07	2023-10-20	2024-10-19
Coaxial Cable	SGS	N/A	SEM035-01	2024-05-14	2025-05-13
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A

Electrostatic Discharge					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
ESD Generator	Schaffner	NSG 438	SEM019-01	2024-04-02	2025-04-01

General used equipment					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	deli	8838	SEM002-51	2023-07-28	2024-07-27
Humidity/ Temperature Indicator	deli	8838	SEM002-53	2023-07-28	2024-07-27
Barometer	DUMAI	DYM3	SEM002-24	2023-09-12	2024-09-11



6 Emission Test Results

6.1 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN IEC 55014-1: 2021

Test Method: CISPR 16-2-3:2016+A1:2019

Measurement Distance: 3m

Limit:

FREQUENCY (MHz)	dBuV/m (At 10m)	dBuV/m (At 3m)
	Class B	Class B
30 ~ 230	30	40
230 ~ 1000	37	47
Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz		

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 21.3 °C

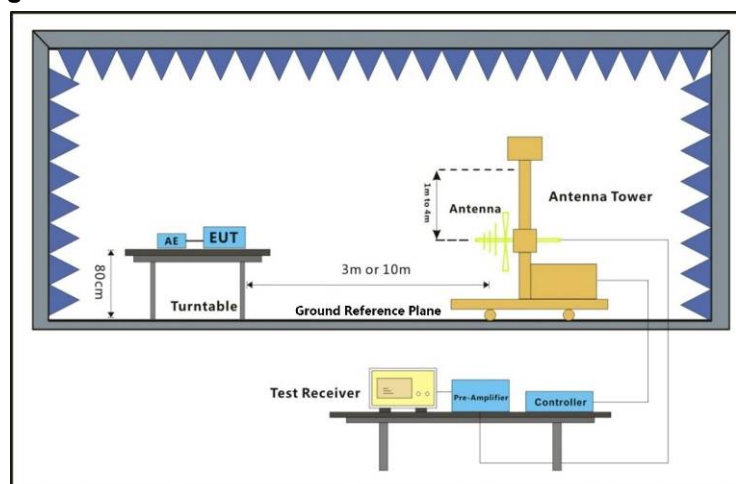
Humidity: 52.6 % RH

Atmospheric Pressure: 1020 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	On mode,keep EUT working normally.

6.1.3 Test Setup Diagram



6.1.4 Measurement Procedure and Data

Frequency Range: 30MHz to 1GHz

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.

The red line show in graphic is the limit in standard used in this section.

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor



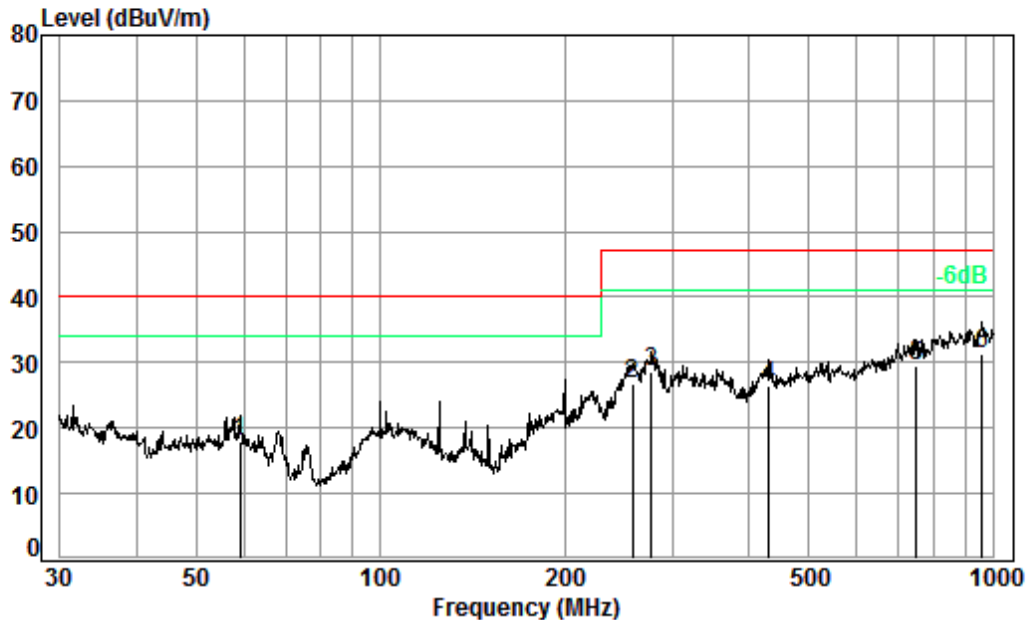
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Test Mode: 00; Polarity: Horizontal



Condition: 3m HORIZONTAL

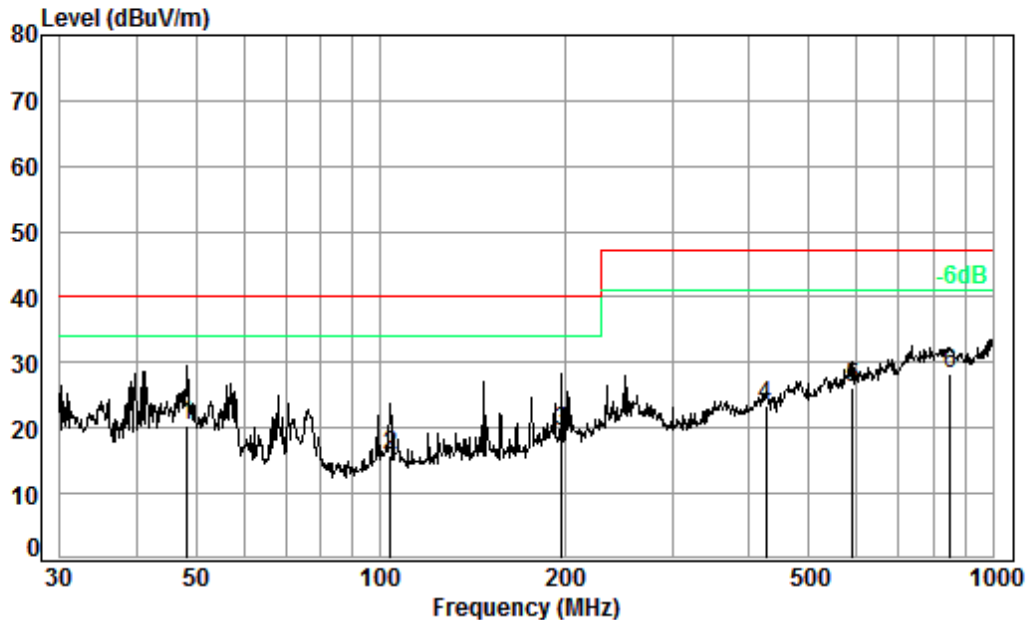
Job No. : 04902ET

Test Mode: 00

	Cable	Ant	Preamp	Read	Limit	Over		
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	59.03	0.80	13.29	27.56	31.46	17.99	40.00	-22.01 QP
2	258.33	1.71	19.08	27.54	33.48	26.73	47.00	-20.27 QP
3	277.09	1.80	18.84	27.54	35.62	28.72	47.00	-18.28 QP
4	431.03	2.33	23.14	27.78	28.64	26.33	47.00	-20.67 QP
5	750.11	3.06	28.21	27.48	25.65	29.44	47.00	-17.56 QP
6 pp	962.16	3.66	30.12	26.88	24.41	31.31	47.00	-15.69 QP



Test Mode: 00; Polarity: Vertical



Condition: 3m VERTICAL

Job No. : 04902ET

Test Mode: 00

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	48.33	0.77	14.70	27.60	32.56	20.43	40.00 -19.57 QP
2	103.81	1.21	13.82	27.51	28.25	15.77	40.00 -24.23 QP
3	197.89	1.40	16.44	27.53	29.05	19.36	40.00 -20.64 QP
4	426.52	2.31	23.03	27.77	25.93	23.50	47.00 -23.50 QP
5	590.97	2.69	26.43	27.72	24.65	26.05	47.00 -20.95 QP
6 pp	851.04	3.41	29.18	27.24	23.02	28.37	47.00 -18.63 QP



7 Immunity Test Results

Performance Criteria Description in EN IEC 55014-2:2021

- 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.
- 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.
- 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.



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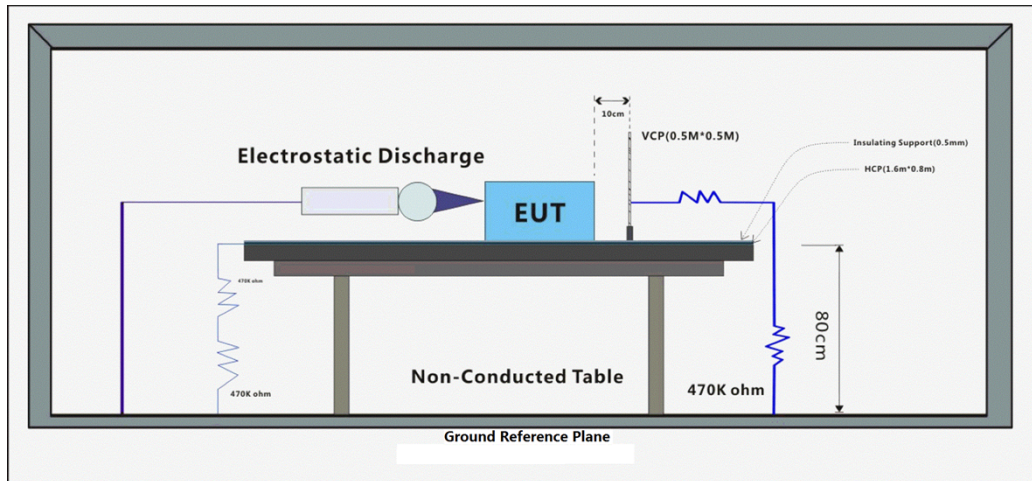
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7.1 Electrostatic Discharge

Test Requirement: EN IEC 55014-2: 2021

Test Method: EN 61000-4-2:2009

7.1.1 Test Setup Diagram



7.1.2 E.U.T. Operation

Operating Environment:

Temperature: 22.3 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 1020 mbar

7.1.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	On mode,keep EUT working normally.
Final test	01	Idle mode,keep EUT standby.

7.1.4 Test Condition and Results:

Performance Criterion: C

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

Test Point 1: All insulated enclosure & seams.

Test Point 2: All accessible metal parts of the enclosure.

Test Point 3: All sides.

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Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	8	+	1	A
Air Discharge	8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A
A: No degradation in the performance of the EUT was observed				



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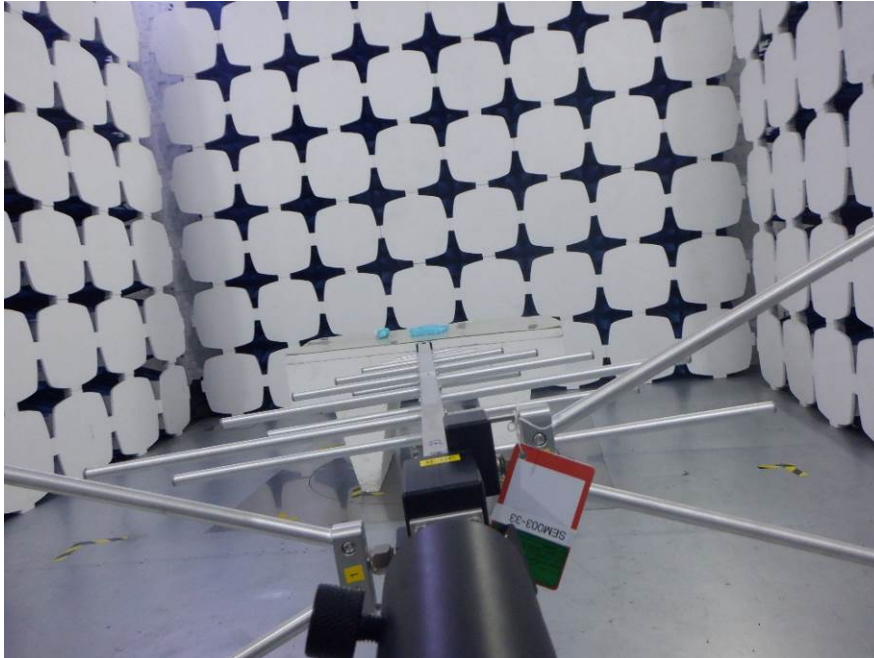
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8 Test Setup Photo

Radiated Emissions (30MHz-1GHz)

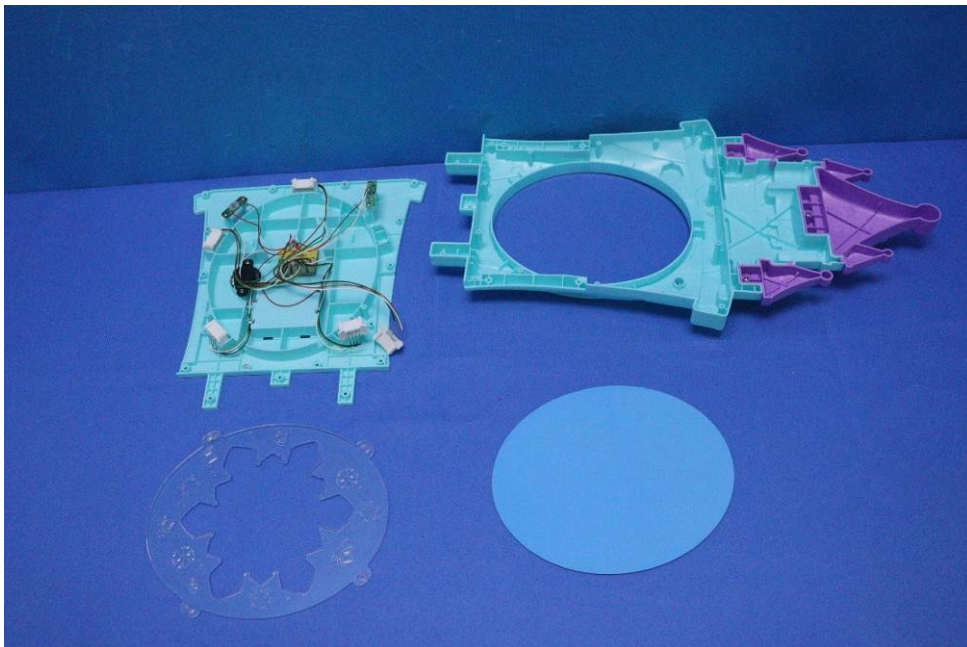
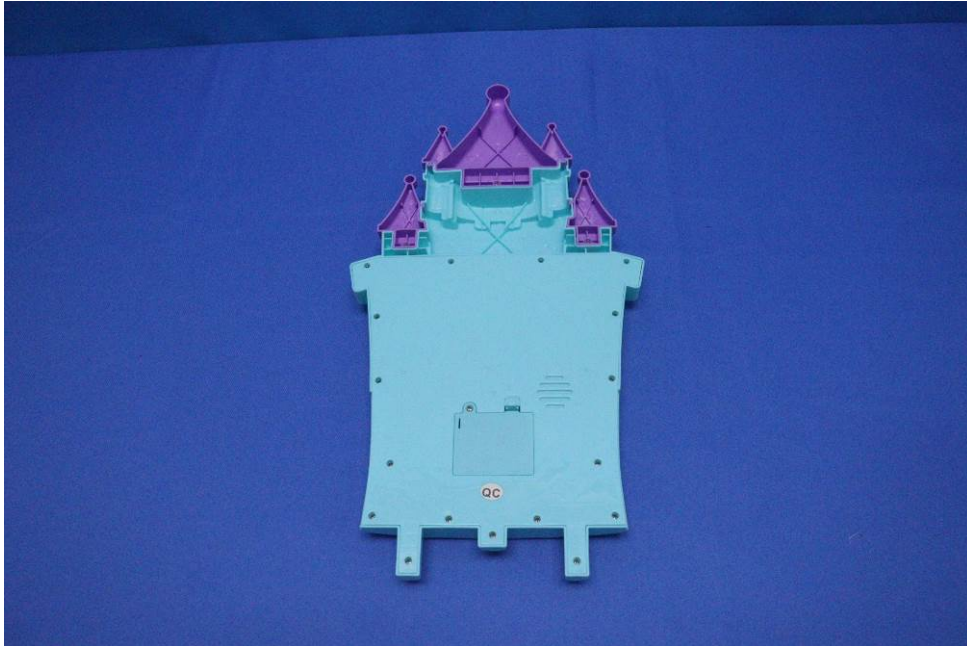


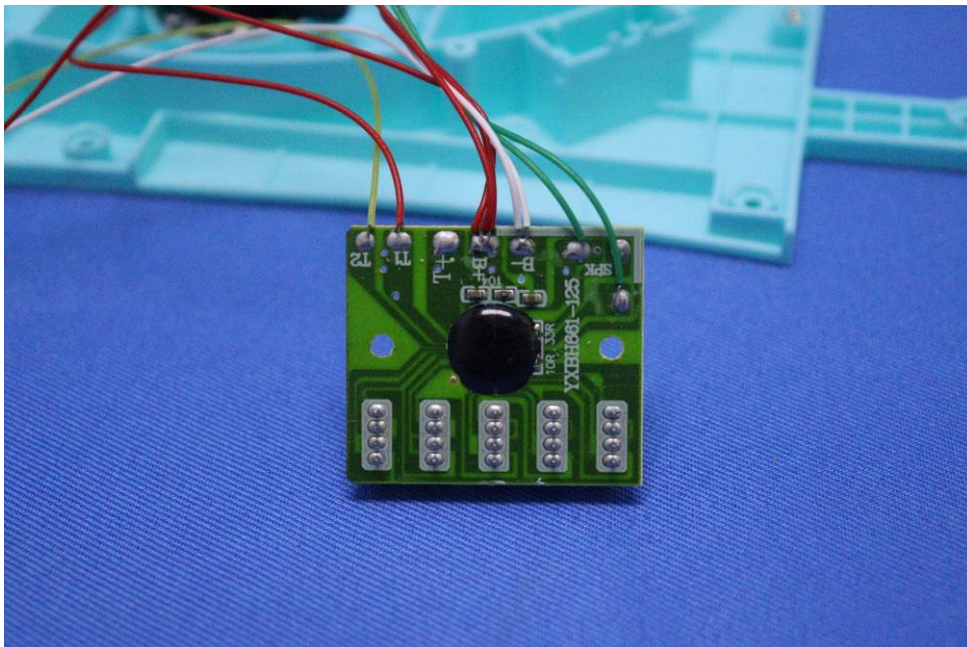
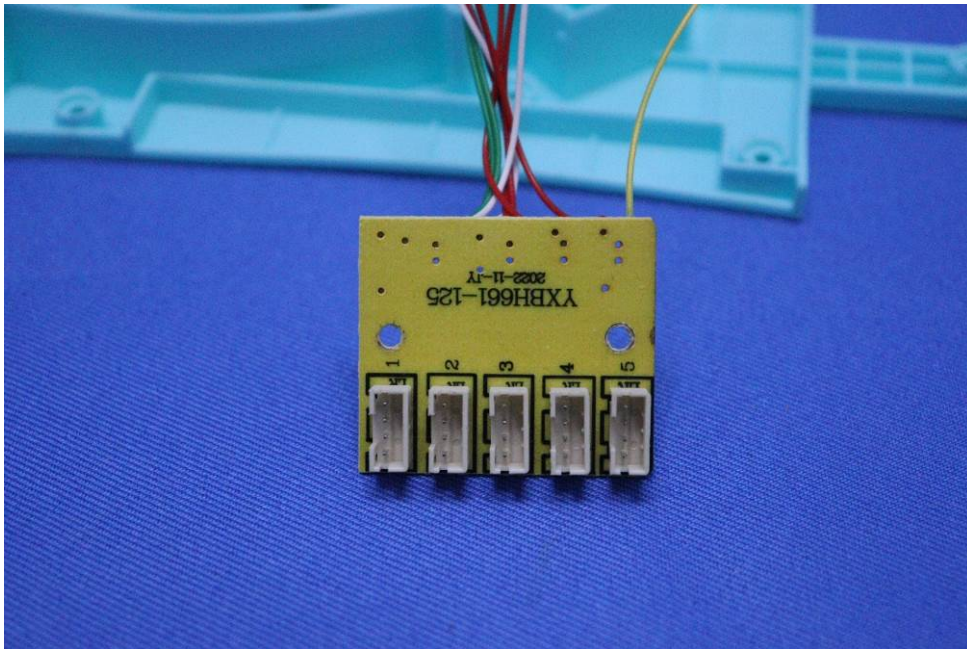
Electrostatic Discharge

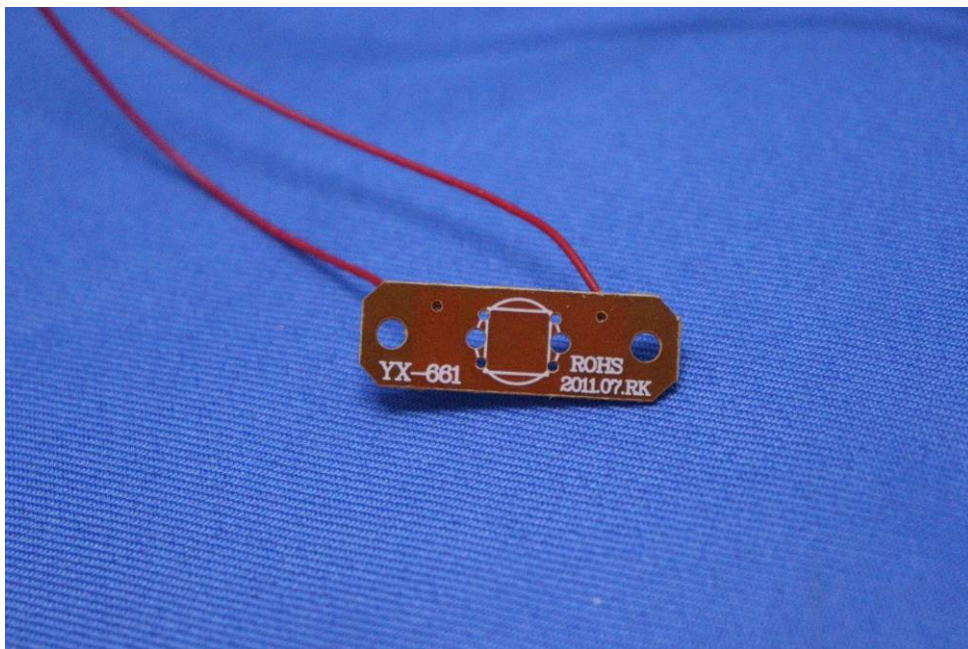
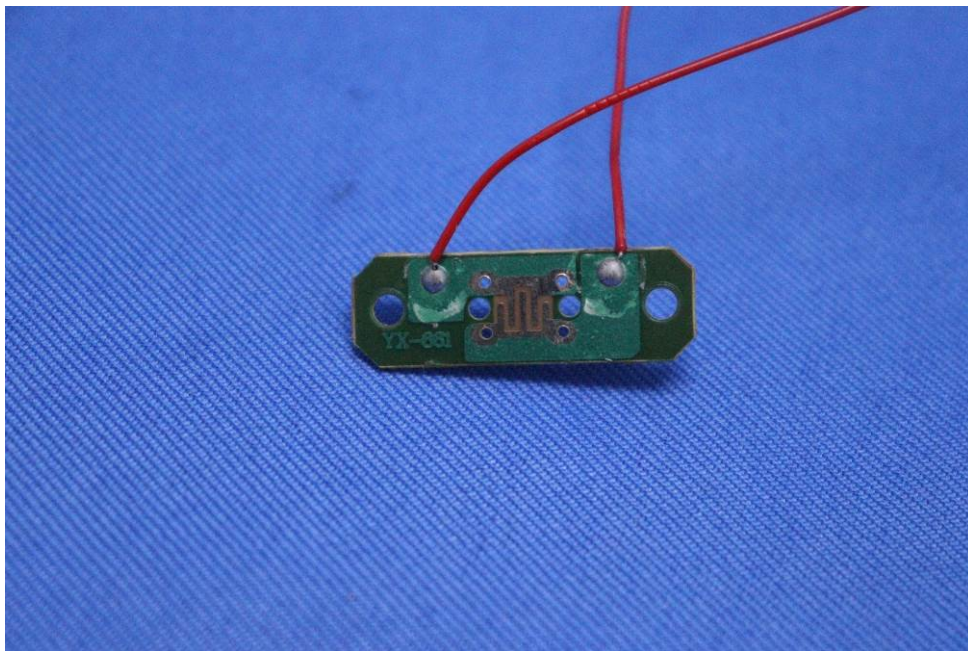


9 EUT Constructional Details (EUT Photos)





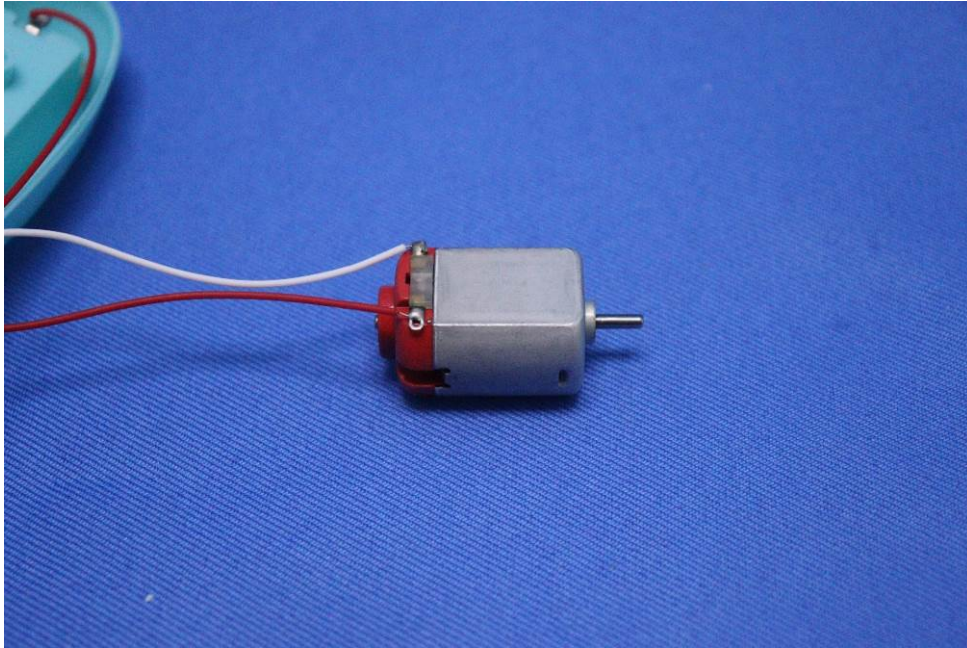












- End of the Report -