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TEST REPORT

Ordinance Article 2 paragraph 1 item (19)

Report Reference No.: CTL2507105011-MIC

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Product Name: Car Toys Remote Control

Model/Type reference: TK-3086RC

List Model(s): N/A

Trade Mark: N/A

Applicant's name: Shenzhen yongxin kejiyouxiangongsi

Address of applicant: Baolong Street, Longdong Community, No.78 Ainan Road Lihao Industrial Park, Building 9, Room 402 Shenzhen Longgang 518000 Guangdong CN

Test Firm: Shenzhen CTL Testing Technology Co., Ltd

Address of Test Firm: Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

Test specification:

Standard: Ordinance Article 2 paragraph 1 item (19)

TRF Originator: Shenzhen CTL Testing Technology Co., Ltd.

Master TRF: Dated 2011-01

Date of receipt of test item: Jul. 11, 2025

Date of Test Date: Jul. 11, 2025-Jul. 30, 2025

Date of Issue: Jul. 31, 2025

Result: Pass

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TEST REPORT

Test Report No. :	CTL2507105011-MIC	Jul. 31, 2025 Date of issue
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Equipment under Test : Car Toys Remote Control

Sample No : CTL2507105011

Model /Type : TK-3086RC

Listed Models : N/A

Applicant : **Shenzhen yongxin kejiyouxiangongsi**

Address : Baolong Street, Longdong Community, No.78 Ainan
Road Lihao Industrial Park, Building 9, Room 402
Shenzhen Longgang 518000 Guangdong CN

Manufacturer : **Shenzhen yongxin kejiyouxiangongsi**

Address : Baolong Street, Longdong Community, No.78 Ainan
Road Lihao Industrial Park, Building 9, Room 402
Shenzhen Longgang 518000 Guangdong CN

Test result	Pass *
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* In the configuration tested, the EUT complied with the standards specified page 5.

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory.

** Modified History **

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1. SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

[MIC Notice No.88 Appendix No.43](#)

1.2. Test Description

Test Item	Result
Frequency Error	Pass
Antenna Output Power and Output Power Tolerance	Pass
Occupied Bandwidth	Pass
Dwell time	N/A Note 1
Unwanted Emission Strength	Pass
Secondary Radiated Emission Strength	Pass
Construction protection method	Pass
Interference Prevention Function	Pass

Note1: Only applicable to FHSS system.

1.3. Test Facility

1.3.1 Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.10 and CISPR 22/EN 55022 requirements.

1.3.2 Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L7497

Shenzhen CTL Testing Technology Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No. 4343.01

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

IC Registration No.: 9618B

CAB identifier: CN0041

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements with Registration No.: 9618B on Jan.22, 2019.

FCC-Registration No.: 399832

Designation No.: CN1216

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 399832, December 08, 2017.

1.4. Measurement Uncertainty

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with TR100028-1 [2] and shall correspond to an expansion factor (coverage factor) K=1.96 or K=2 (which provide confidence levels of respectively 95% and 95.5% in the case where the distributions characterizing the actual measurement uncertainties are normal.

Parameter	Uncertainty
Frequency error / 99%&90% bandwidth	$\pm 1.62 \times 10^{-6}$
Total RF power, conducted	$\pm 0.8\text{dB}$
Spurious emissions, conducted	$\pm 0.8\text{dB}$
DC and low frequency voltages	$\pm 0.05\%$
Humidity	$\pm 5\%$
Temperature	$\pm 1^{\circ}\text{C}$

2. GENERAL INFORMATION

2.1. Environmental conditions

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

Voltage	DC Power	Normal Voltage	DC: 3.0V
		High Voltage	DC: 3.3V
		Low Voltage	DC: 2.7V
	DC RF Module	Normal Voltage	DC: 3.30V
		High Voltage	DC: 3.366V
		Low Voltage	DC: 3.201V
Other	Normal Temperature	25°C	
	Relative Humidity	55 %	
	Air Pressure	989 hPa	

Note 1: During the input supply voltage to the EUT from the external power source is varied by $\pm 10\%$, the fluctuation of input voltage to the circuit of RF unit of test equipment is exceed $\pm 1\%$. So, all measurement has been conducted by normal and limit voltage.

Note2: For more details, please refer to the user's manual of the EUT.

Note3: Antenna gain provided by the applicant.

2.2. General Description of EUT

Product Name:	Car Toys Remote Control
Model/Type reference:	TK-3086RC
Power supply:	DC 3.0V from battery
Hardware Version:	V1.0
Software Version:	V1.0
2.4G	
Modulation:	GFSK
Operation frequency:	2410MHz~2473MHz
Channel number:	32
Antenna type:	Internal Antenna
Antenna gain:	0.00dBi

Note 1: For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

Note 2: Antenna gain provided by the applicant.

2.3. Description of Test Modes

The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing.

Operation Frequency List :

Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2410	17	2441
02	2414	18	2442
03	2415	19	2444
04	2416	20	2446
05	2417	21	2450
06	2418	22	2452
07	2419	23	2454
08	2421	24	2456
09	2426	25	2458
10	2428	26	2462
11	2429	27	2464
12	2430	28	2465
13	2431	29	2466
14	2433	30	2467
15	2434	31	2469
16	2439	32	2473

Note: Test performed at the lowest/middle/highest frequencies selected in the list above for EUT supported while working on specified mode.

2.4. Measurement Instruments List

RF conducted							
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Institution	Calibration Date	Calibration Due Date
1	Spectrum Analyzer	Keysight	N9020 A	MY53420 874	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/04/29	2026/04/28
2	WIDEBAND RADIO COMMUNICATION TESTER	RS	CMW500	1201.000 2K50-107 930-CD	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/04/29	2026/04/28
3	Power Measurement Module	TSTPASS	TSPS2023R	TSCB220 016	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/04/30	2026/04/29
4	DC Source	Agilent	E3632 A	MY40015 577	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/04/29	2026/04/28
5	Temperature Humidity Chamber	JingBang	TLHW-64B	/	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/04/29	2026/04/28
6	Temperature/Humidity Meter	Ji Yu	MC501	/	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/05/06	2026/05/05
7	Oscilloscope	Tektronix Inc. Beaverton, OR, U.S.A.	TDS 3012C	C011550	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/05/01	2026/04/30
Test Software							
Name of Software				Version			
TST-PASS				V2.0			

Note: Calibration by the calibration agencies listed in the table correspond to paragraph 4 (ii) (c) of Article 24-2 in the Radio Law".

3. Test conditions and Results

3.1. Frequency Error

LIMIT

±50ppm

TEST CONFIGURATION



TEST PROCEDURE

The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram as TEST CONFIGURATION shows.

EUT Condition: non-modulation

Spectrum Condition:

- Frequency: test frequency
- Span: 1MHz
- RBW: 10 KHz
- VBW: 10 KHz
- Sweep time: Auto
- Detector mode: Positive peak
- Indication mode: max hold

TEST RESULTS

Raw data reference to section 1 from CTL2507105011-MIC_2.4G_Appendix.

3.2. Antenna Output Power and Output Power Tolerance

LIMIT

- $\leq 3 \text{ mW /MHz}$ (FHSS from 2402-2480 MHz)
- $\leq 10 \text{ mW/MHz}$ (OFDM, DSSS from 2400-2483.5 MHz)
- $\leq 10 \text{ mW}$ (other from 2400-2483.5 MHz)

The Output Power Tolerance must be within +20%.

E.i.r.p:

- $\leq 12.14 \text{ dBm/MHz}$ (OFDM, DS form 2400-2483.5 MHz)

Note: E.I.R.P will not be applied to the transmission antenna which has a gain of 2.14dBi or less.

TEST CONFIGURATION



TEST PROCEDURE

Step 1:

Connect the UUT to the spectrum analyzer as TEST CONFIGURATION and use the following settings:

- Centre Frequency: The centre frequency of the channel under test.
- RBW: 1 MHz
- VBW: 1 MHz
- Span: Wide enough to cover the complete power envelope of the signal of the UUT.
- Detector: Peak
- Trace Mode: Max Hold

Step 2:

When the trace is complete, find the peak value of the power envelope and record the frequency.

Step 3:

Make the following changes to the settings of the spectrum analyzer:

- Centre Frequency: Equal to the frequency recorded in step 2.
- Span: 3 MHz
- RBW: 1 MHz
- VBW: 1 MHz
- Detector: RMS
- Trace Mode: Clear Write

TEST RESULTS

Raw data reference to section 3 from CTL2507105011-MIC_2.4G_Appendix.

3.3. OCCUPIED BANDWIDTH

LIMIT

- Occupied bandwidth: FH $\leq$ 83.5 MHz; OFDM $\leq$ 40 MHz, DS $\leq$ 26 MHz; Others $\leq$ 26 MHz
- Spread factor $>$ 5.

TEST CONFIGURATION



TEST PROCEDURE

1. Setting of SA is following as follow:
 - RBW: under 3% of OBW
 - VBW: = RBW
 - Sweep time: Auto
 - Sweep Mode: Continuous sweep
 - Detect mode: Positive peak
 - Trace mode: Max hold
2. EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 99% of occupied bandwidth to measure occupied bandwidth.
3. EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 90% of occupied bandwidth to measure spread bandwidth.
4. Spread Factor=Spread Bandwidth/modulation rate. The modulation rate: MR=2Mbps (declare by client)

TEST RESULTS

Raw data reference to section 2 from CTL2507105011-MIC_2.4G_Appendix.

3.4. Unwanted Emission Strength

LIMIT

Below 2387 MHz: 2.5 μ W/MHz or less

2387 to 2400 MHz: 25 μ W/MHz or less

2483.5 Through 2496.5 MHz: 25 μ W/MHz or less

Over 2496.5 MHz: 2.5 μ W/MHz or less

TEST CONFIGURATION



TEST PROCEDURE

The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram as TEST CONFIGURATION shows.

EUT Condition: modulation

Spectrum Condition:

- Frequency: 30MHz-13GHz
- RBW: 100 KHz (30MHz-1GHz), 1MHz (1GHz-12.5GHz)
- VBW:100 KHz (30MHz-1GHz), 1MHz (1GHz-12.5GHz)
- Sweep time: Auto
- Detector mode: Positive peak
- Indication mode: max hold

TEST RESULTS

Raw data reference to section 4 from CTL2507105011-MIC_2.4G_Appendix.

3.5. Secondary Radiated Emission Strength

LIMIT

Below 1GHz: 4.0nW or less

Above 1GHz: 20nW or less

TEST CONFIGURATION



TEST PROCEDURE

The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram as TEST CONFIGURATION shows.

EUT Condition: modulation

Spectrum Condition:

- Frequency: 30MHz-13GHz
- RBW: 100 KHz (30MHz-1GHz), 1MHz (1GHz-12.5GHz)
- VBW:100 KHz (30MHz-1GHz), 1MHz (1GHz-12.5GHz)
- Sweep time: Auto
- Detector mode: Positive peak
- Indication mode: max hold

TEST RESULTS

Raw data reference to section 5 from CTL2507105011-MIC_2.4G_Appendix.

3.6. Construction protection method

Requirement

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily

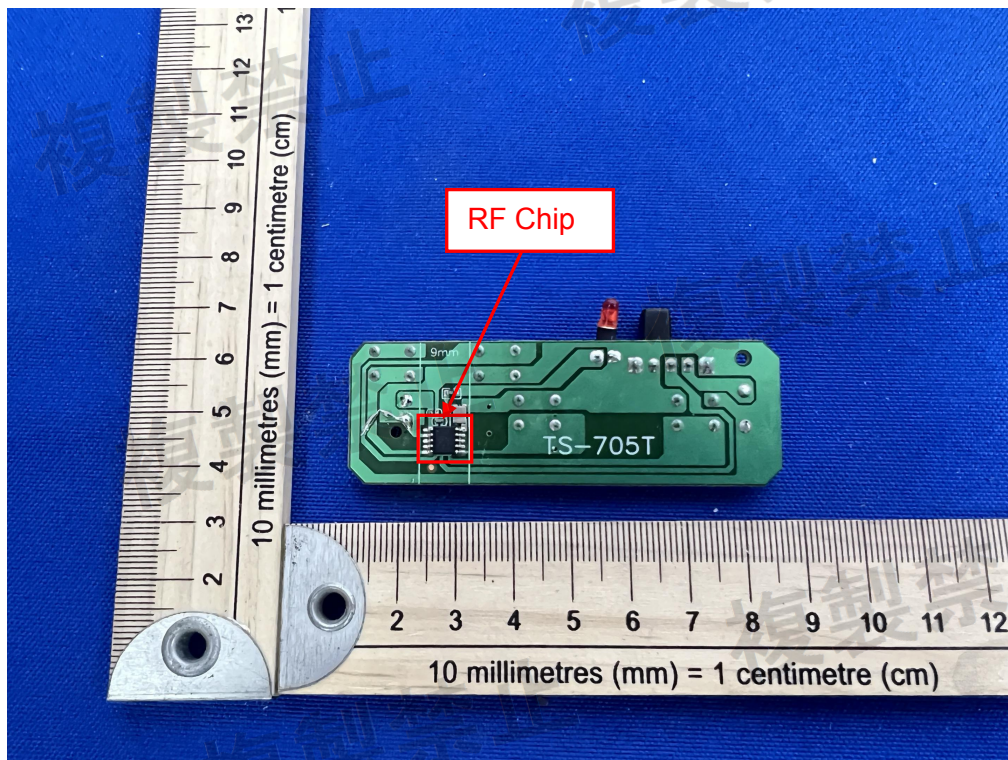
Confirmation method

All high-frequency section and modulation section packet in one IC, End user can not modify easily.

The RF2517A package dimensions is shown below, as we can see:

- Number of terminals: 10
- Terminal pitch: 0.5mm

It can meet the requirements of MIC structure protection.



3.7. Interference Prevention Function

Requirement

Clarify, the one automatically to transmit and to receive identification code with the wireless equipment of the wireless station used in the same premises.

Interference Prevention FunctionConfirm

A communication link was made where the ID code is correct (Identical).

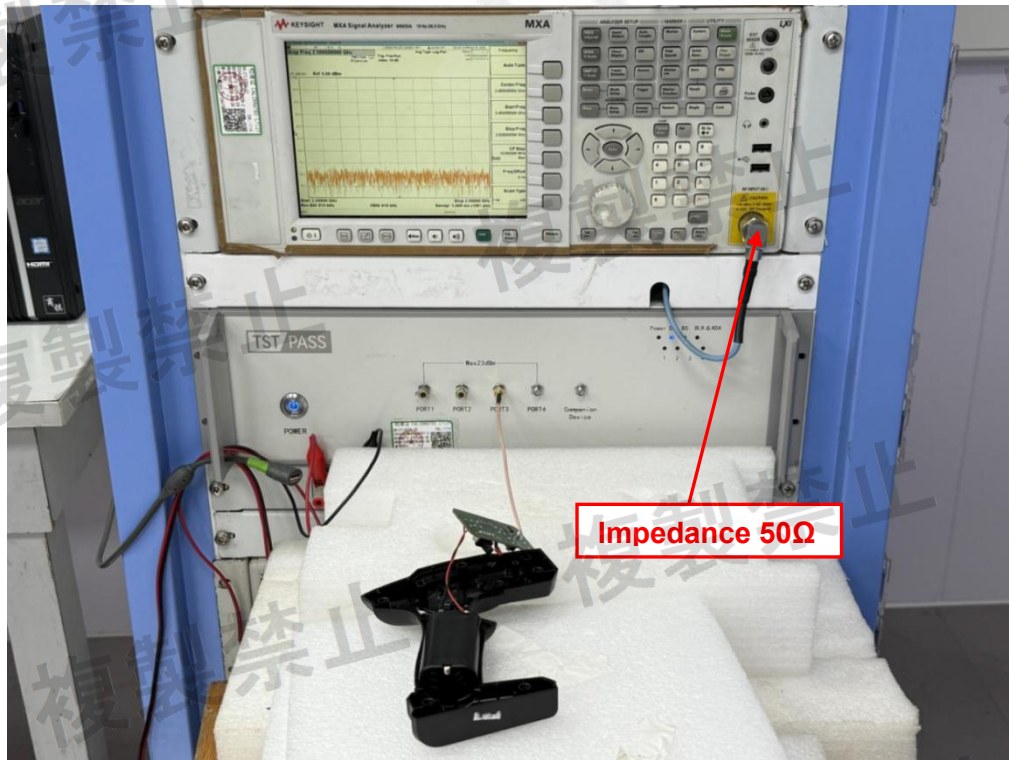
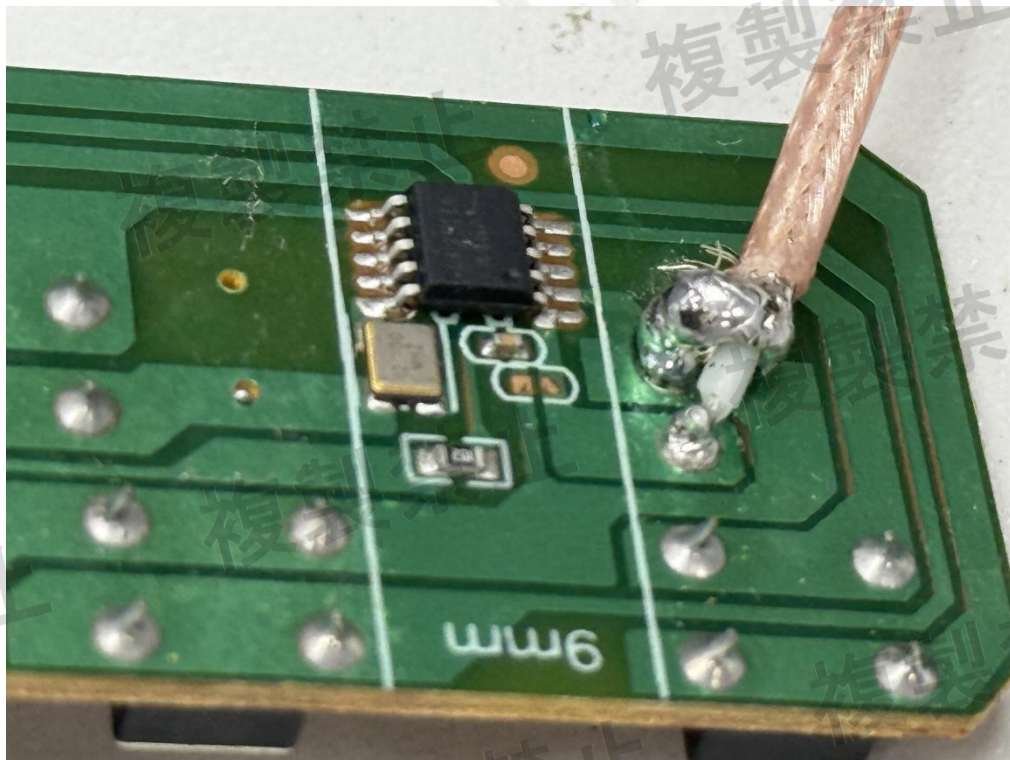
TEST PROCEDURE

1. Connect the EUT in network
2. Open the software
3. We can get the information as follows:

TEST RESULTS

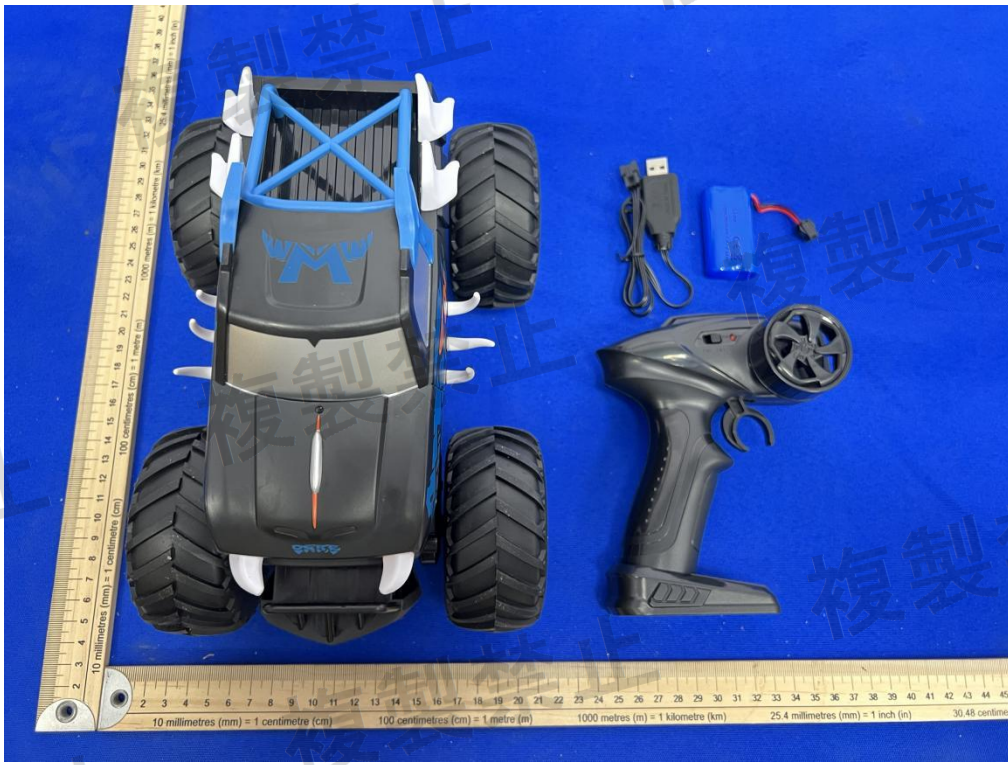
MAC: 2B:4C:F6:8B:83:2B

4. Test Setup Photos of the EUT



5. External and Internal Photos of the EUT

External Photos of EUT

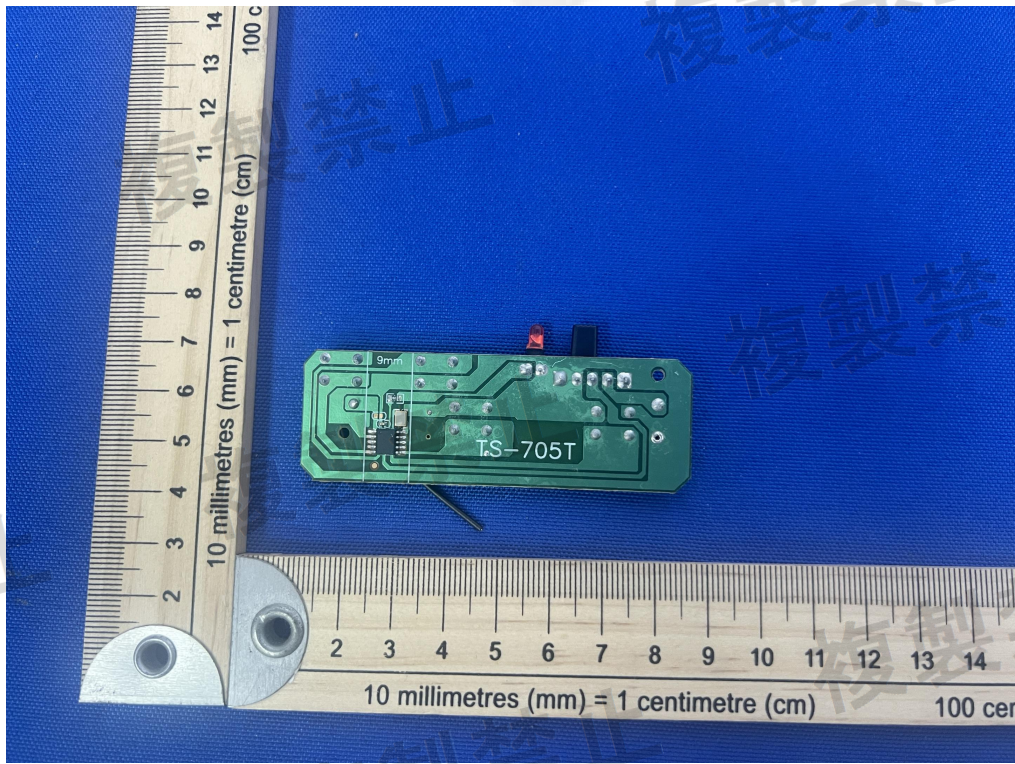


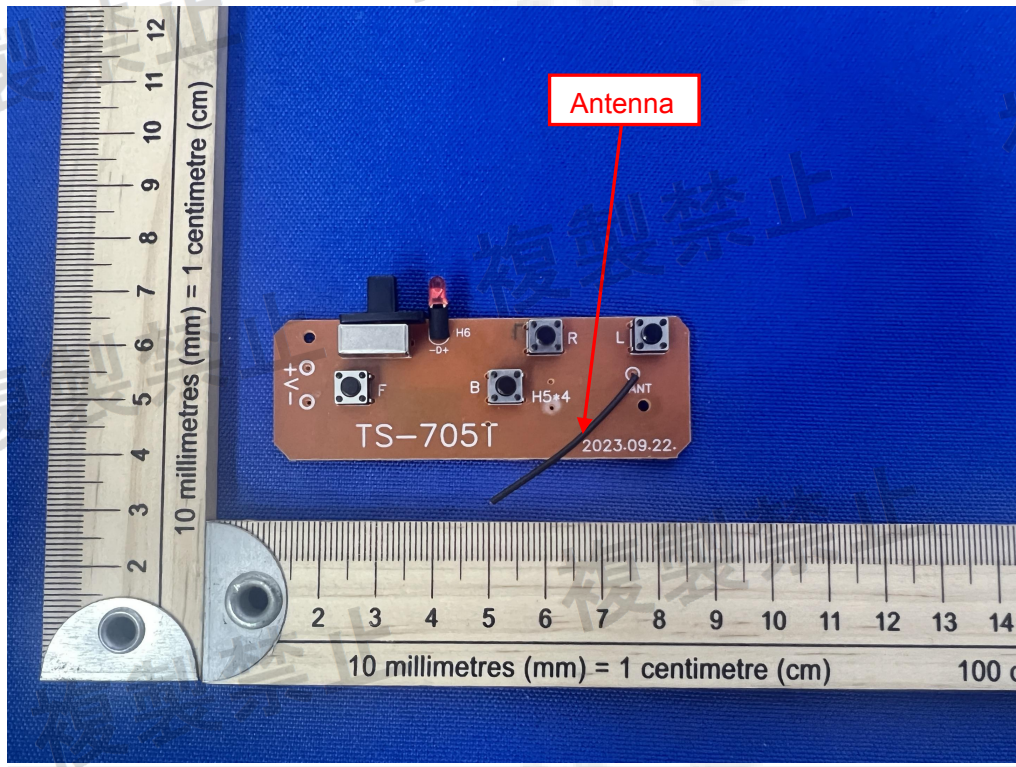






Internal Photos of EUT





***** End of Report *****