

TEST REPORT NUMBER: (8525)097-0368(A)

TEST REPORT

Applicant:	MINGZHI TOYS FACTORY	Fax:	---
		E-mail:	---
Address :	LIANXIA INDUSTRIAL ZONE, LIANXIA TOWN, CHENGHAI DISTRICT, SHANTOU, GUANGDONG PROVINCE, CHINA		
Test Date :	2025-4-21 to 2025-6-17		

Manufacturer or Supplier :	MINGZHI TOYS FACTORY
Address :	LIANXIA INDUSTRIAL ZONE, LIANXIA TOWN, CHENGHAI DISTRICT, SHANTOU, GUANGDONG PROVINCE, CHINA
Sample Description:	Brookstone Speedster
Model number:	719466BRS
Additional Model :	MZ99-1A
Rated Voltage:	DC 3V (2*1.5V AA batteries)
FCC ID :	2BOZQ-MZ99-1A
The submitted sample of the above equipment has been tested according to following standard(s)	
47 CFR Part 15, Subpart C Section 15.227	
CONCLUSION: The submitted sample was found to COMPLY with the test requirement	

Assistant Manager



Name: Nick Lung

Date: JUN 17, 2025

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2 Test Summary

Test Item	Test Requirement	Test Method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203	ANSI C63.10 2013	Pass
Conducted Emission (150KHz to 30MHz)	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 2013 Section 6.2	N/A
Electric Field Strength of Fundamental and Outside the Allocated bands	47 CFR Part 15, Subpart C Section 15.227(a)	ANSI C63.10 2013 Section 6.10	Pass
Radiated Emission	47 CFR Part 15, Subpart C Section 15.227(b)/15.209	ANSI C63.10 2013 Section 6.4 & 6.5	Pass
Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215	ANSI C63.10 2013 Section 6.9	Pass

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3 General Information

3.1 Client Information

Applicant:	MINGZHI TOYS FACTORY
Address of Applicant:	LIANXIA INDUSTRIAL ZONE, LIANXIA TOWN, CHENGHAI DISTRICT, SHANTOU, GUANGDONG PROVINCE, CHINA
Manufacturer:	MINGZHI TOYS FACTORY
Address of Manufacturer:	LIANXIA INDUSTRIAL ZONE, LIANXIA TOWN, CHENGHAI DISTRICT, SHANTOU, GUANGDONG PROVINCE, CHINA

3.2 General Description of E.U.T.

Product Name:	Brookstone Speedster
Test Model No.:	719466BRS
Trade Mark:	N/A
Software Version:	V1.0
Hardware Version:	V1.0
Serial number:	/
Operation Frequency:	27MHz
Modulation Type:	ASK
Product Type:	☐ Mobile ☒ Portable
Antenna Type:	Spring soft antenna
Antenna Gain:	3dBi
Power Supply:	DC 3V (2*1.5V AA batteries)

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3.3 Test Environment

Temperature:	25.3 °C
Humidity:	55 % RH
Atmospheric Pressure:	100.9Kpa
Test mode:	Transmitting mode

3.4 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.	Remark	Supplied
/	/	/	/	/

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3.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CQA laboratory is reported:

No.	Item	Uncertainty	Notes
1	Radiated Emission (Below 1GHz)	±5.12dB	(1)
2	Radiated Emission (Above 1GHz)	±4.60dB	(1)
3	Conducted Disturbance (0.15~30MHz)	±3.34dB	(1)
4	Radio Frequency	3×10^{-8}	(1)
5	Duty cycle	0.6 %.	(1)
6	Occupied Bandwidth	1.1%	(1)
7	RF conducted power	0.86dB	(1)
8	RF power density	0.74	(1)
9	Conducted Spurious emissions	0.86dB	(1)
10	Temperature test	0.8°C	(1)
11	Humidity test	2.0%	(1)
12	Supply voltages	0.5 %.	(1)
13	time	0.6 %.	(1)
14	Frequency Error	5.5 Hz	(1)

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

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3.6 Test Location

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

3.7

The tester in this report is Timo Lei, *Timo Lei*

The auditor of this report is Lewis Zhou, *lewis zhou*

The test site is: Shenzhen Huaxia Testing Technology Co., Ltd.

3.8 Test Facility

- **A2LA (Certificate No. 4742.01)**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

- **FCC Registration No.: 522263**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen 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 No.:522263

TEST REPORT NUMBER: (8525)097-0368(A)**3.9 Equipment List**

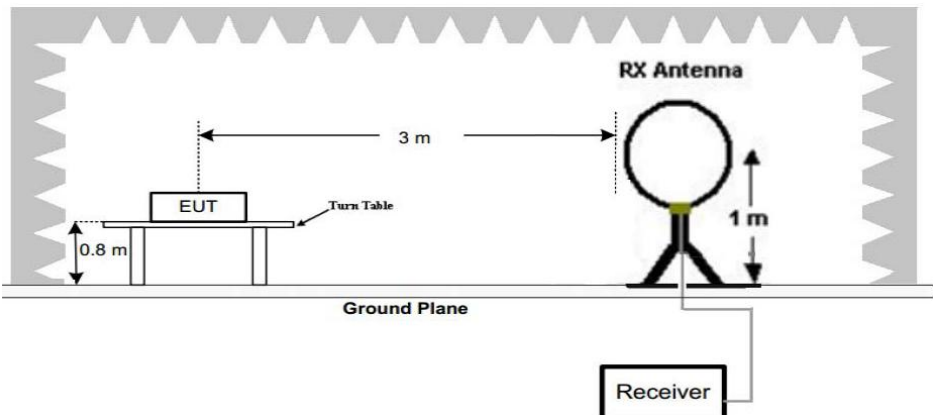
Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU26	CQA-038	2024/9/2	2025/9/1
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	CQA-035	2024/9/2	2025/9/1
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2024/9/2	2025/9/1
Loop antenna	Schwarzbeck	FMZB1516	CQA-087	2023/9/8	2026/9/7
Bilog Antenna	R&S	VULB 9163	CQA-101	2024/9/4	2025/9/3
Coaxial Cable (Below 1GHz)	CQA	N/A	C020	2024/9/2	2025/9/1
EMI Test Receiver	R&S	ESPI3	CQA-013	2024/9/2	2025/9/1
LISN	R&S	ENV216	CQA-003	2024/9/2	2025/9/1
Coaxial cable	CQA	N/A	CQA-C009	2024/9/2	2025/9/1
high-low temperature chamber	Auchno	OJN-9606	CQA-CB2	2024/9/2	2025/9/1
DC power	KEYSIGHT	E3631A	CQA-028	2024/9/2	2025/9/1

4 Test Result and Measurement Data

4.1 Antenna Requirement

Standard requirement:	47 CFR Part15 C Section 15.203
15.203 requirement:	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
EUT Antenna:	
The antenna is Spring soft antenna. The best case gain of the antenna is 3 dBi.	

4.2 Electric Field Strength of Fundamental and Outside the Allocated bands

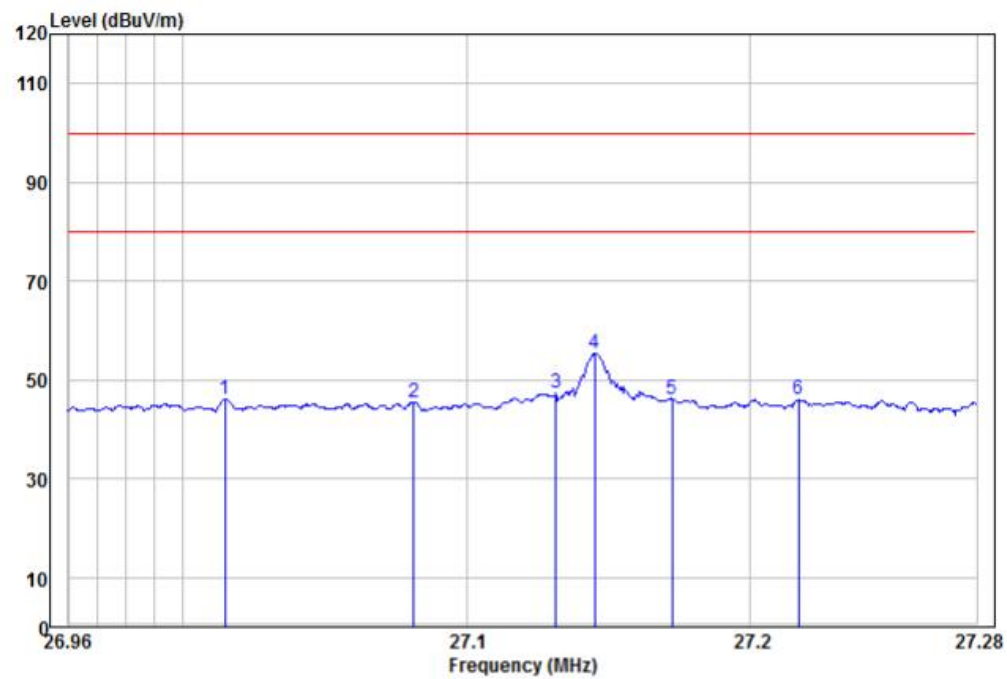
Test Requirement:	47 CFR Part 15, Subpart C Section 15.227(a)				
Test Method:	ANSI C63.10: 2013				
Test Site:	3m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
Limit:	Frequency Range(MHz)	E-field Strength AV Limit @ 3 m (μV/m)		E-field Strength AV Limit @ 3 m (dBμV/m)	
	26.96-27.28	10000		80	
	Frequency Range(MHz)	E-field Strength Peak Limit @ 3 m (μV/m)		E-field Strength Peak Limit @ 3 m (dBμV/m)	
	26.96-27.28	/		100	
	Note: Where the limits have been defined at one distance, and a signal level measured at another, the limits have been extrapolated using the following formula:				
	Extrapolation(dB)=40log ₁₀ (Measurement Distance/Specification Distance)				
Test Setup:	 Figure 1. Below 30MHz				
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter)				

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	and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.
Test Mode:	Transmitting mode
Test Result:	Pass

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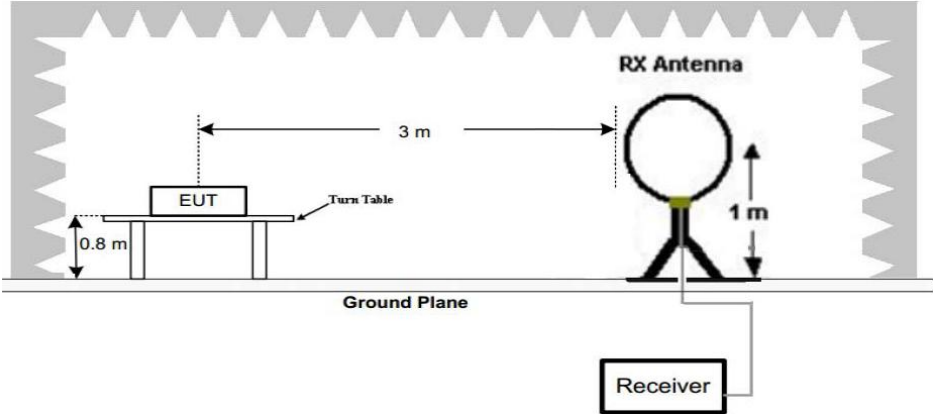
Measurement Data



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	27.02	25.61	20.44	46.05	100.00	-53.95	Peak	HORIZONTAL
2	27.08	25.11	20.44	45.55	100.00	-54.45	Peak	HORIZONTAL
3	27.13	26.96	20.44	47.40	100.00	-52.60	Peak	HORIZONTAL
4 pp	27.15	34.89	20.45	55.34	100.00	-44.66	Peak	HORIZONTAL
5	27.17	25.74	20.45	46.19	100.00	-53.81	Peak	HORIZONTAL
6	27.22	25.47	20.45	45.92	100.00	-54.08	Peak	HORIZONTAL

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4.3 Radiated Emissions

Test Requirement:	47 CFR Part 15, Subpart C Section 15.227(b)/15.209				
Test Method:	ANSI C63.10: 2013				
Test Site:	3m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	30MHz-1GHz	Peak	100 kHz	300kHz	Peak
Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m) @ 3 m	Remark	
	0.009MHz-0.490MHz	2400/F(kHz) @300m	129-94	Quasi-peak	
	0.490MHz-1.705MHz	24000/F(kHz) @30m	74-63	Quasi-peak	
	1.705MHz-30MHz	30 @30m	70	Quasi-peak	
	30MHz-88MHz	100 @3m	40.0	Quasi-peak	
	88MHz-216MHz	150 @3m	43.5	Quasi-peak	
	216MHz-960MHz	200 @3m	46.0	Quasi-peak	
	960MHz-1GHz	500 @3m	54.0	Quasi-peak	
Note: Where the limits have been defined at one distance, and a signal level measured at another, the limits have been extrapolated using the following formula: Extrapolation(dB)=40log ₁₀ (Measurement Distance/Specification Distance)					
Test Setup:					
Figure 1. Below 30MHz					

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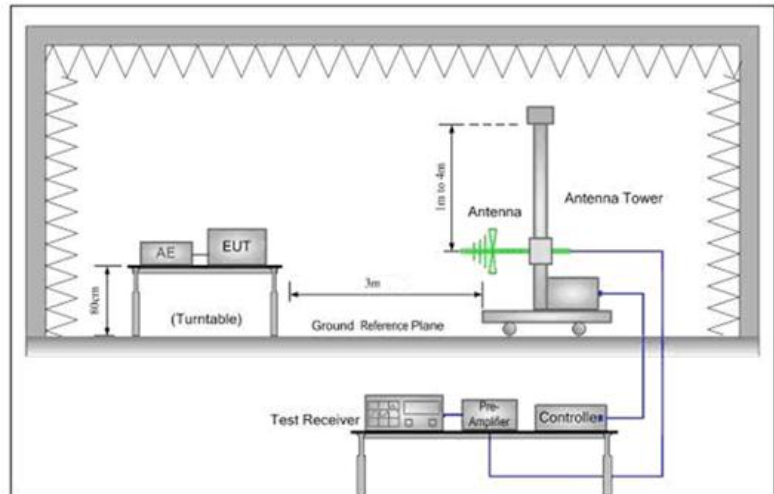


Figure 2. 30MHz to 1GHz

Test Procedure:

- 4. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- 5. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 6. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 7. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.

Test Mode:

Transmitting mode

Test Voltage

battery 3V (AA*3)

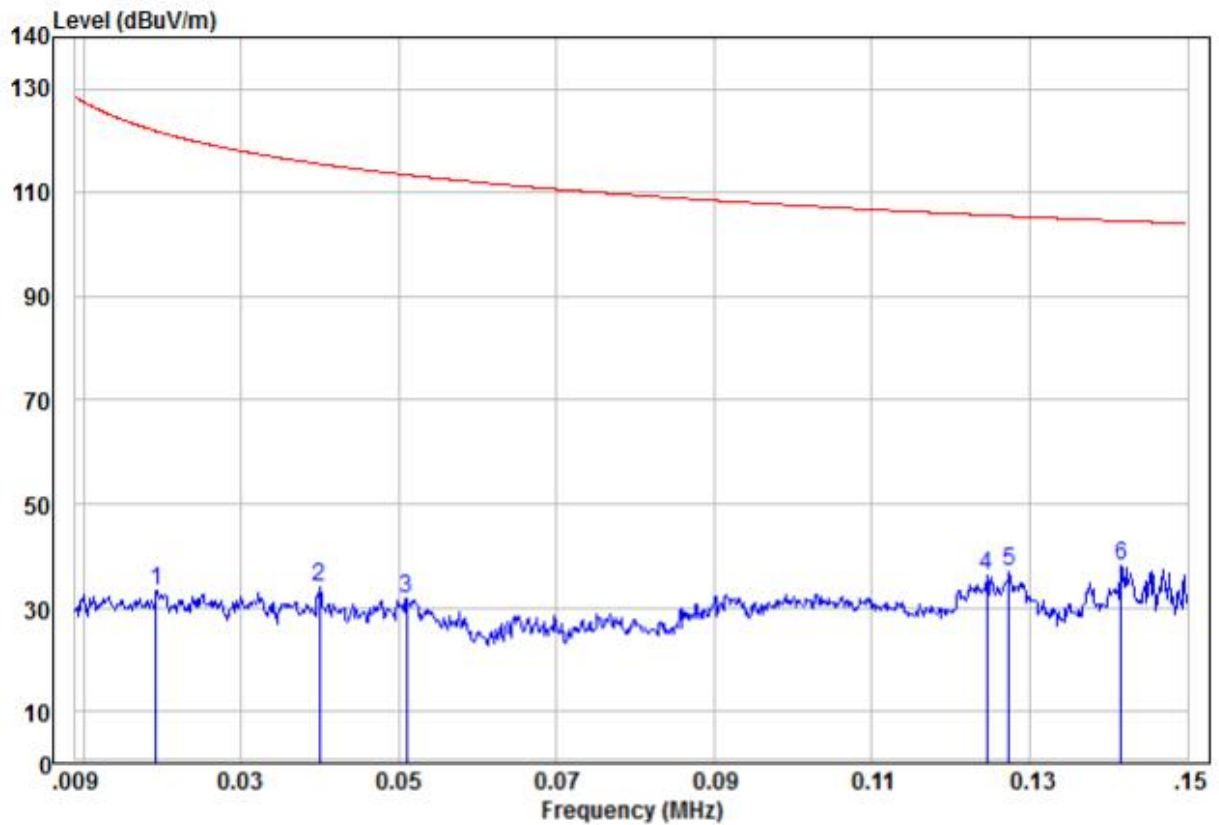
Test Result:

Pass

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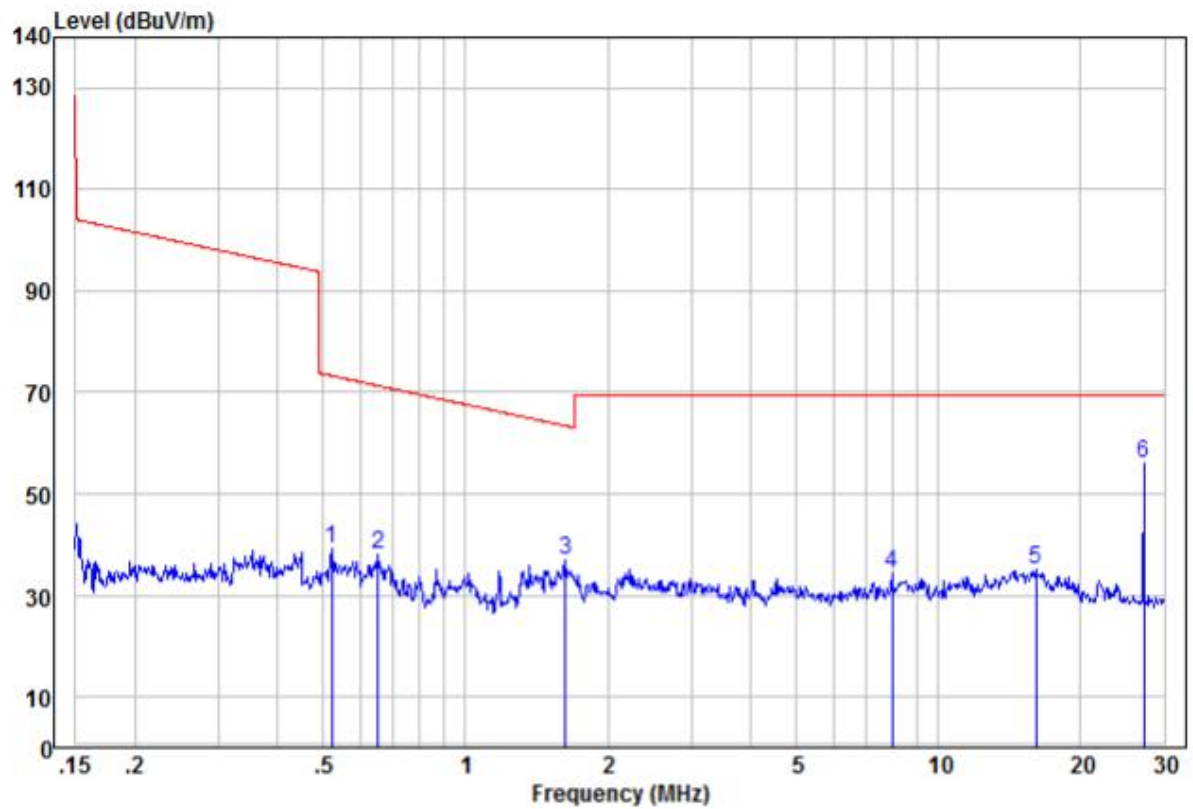
Measurement Data

9kHz - 30MHz:



	Freq	Read		Limit	Over		
		Level	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Pol/Phase
1	0.02	12.87	20.31	33.18	121.88	-88.70	Peak
2	0.04	13.90	20.14	34.04	115.55	-81.51	Peak
3	0.05	11.65	20.10	31.75	113.44	-81.69	Peak
4	0.12	16.30	19.85	36.15	105.69	-69.54	Peak
5	0.13	17.09	19.84	36.93	105.49	-68.56	Peak
6 pp	0.14	18.11	19.81	37.92	104.58	-66.66	Peak

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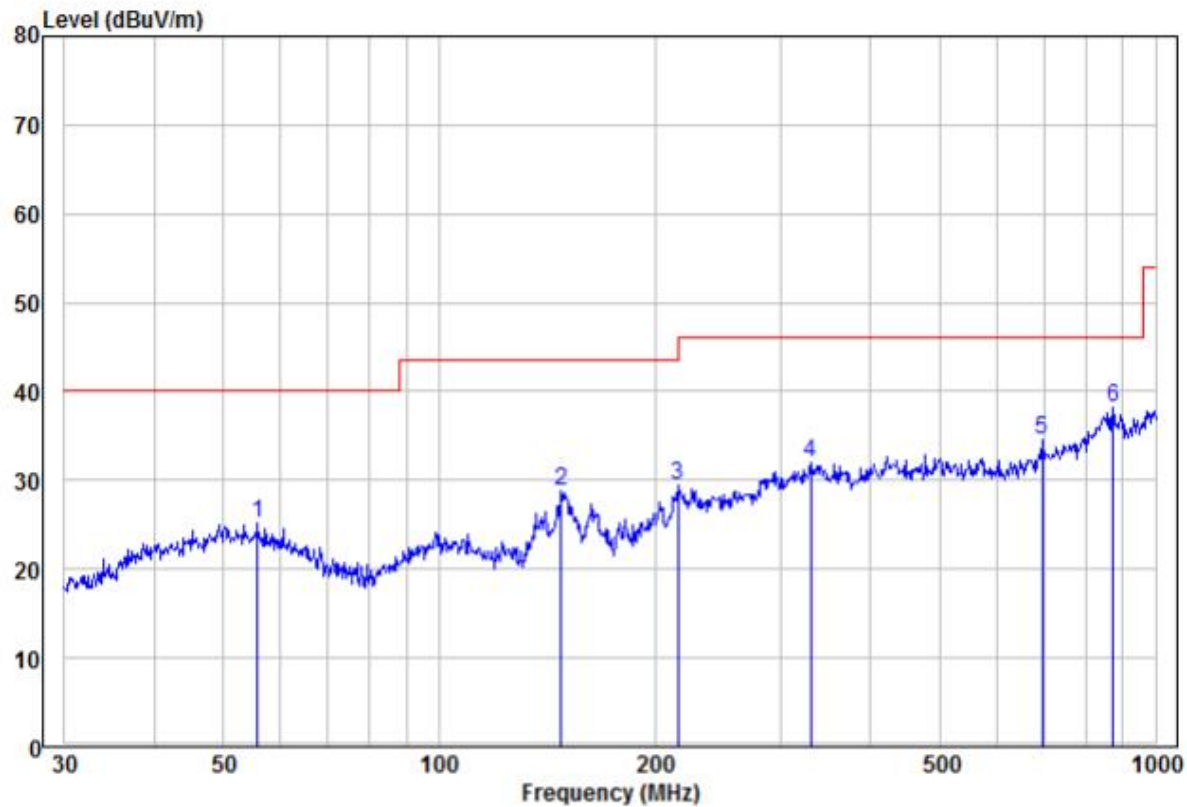
		Read			Limit	Over	Remark	Pol/Phase
	Freq	Level	Factor	Level	Line	Limit		
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	0.52	19.25	19.77	39.02	73.27	-34.25	Peak	HORIZONTAL
2	0.65	18.32	19.60	37.92	71.30	-33.38	Peak	HORIZONTAL
3	1.63	17.31	19.53	36.84	63.40	-26.56	Peak	HORIZONTAL
4	7.98	14.42	19.83	34.25	69.50	-35.25	Peak	HORIZONTAL
5	16.05	15.06	19.97	35.03	69.50	-34.47	Peak	HORIZONTAL
6 pp	27.13	35.40	20.44	55.84	69.50	-13.66	Peak	HORIZONTAL

Emission detect are more than 20dB below the limit line.

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30MHz-1GHz

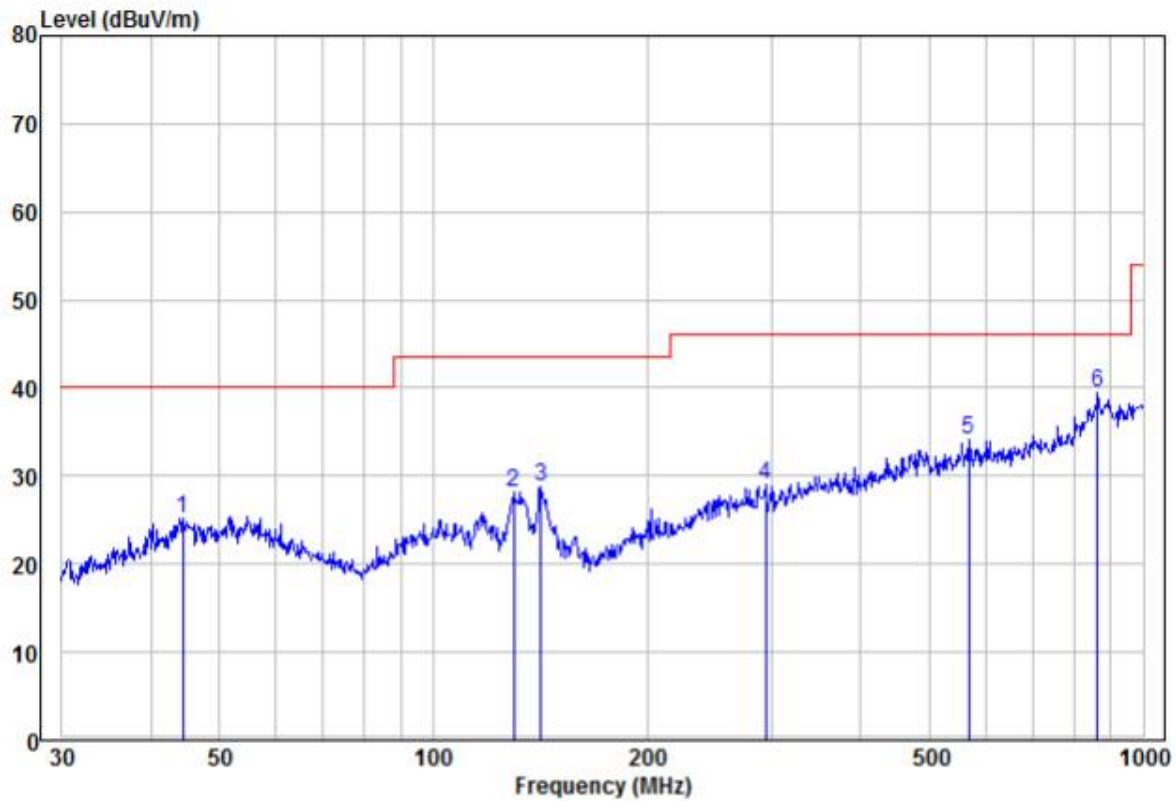
Horizontal



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase	APos	TPos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB			cm	deg
1	55.80	11.61	13.67	25.28	40.00	-14.72	Peak	HORIZONTAL	100	54
2	147.92	19.03	9.77	28.80	43.50	-14.70	Peak	HORIZONTAL	100	165
3	215.27	16.06	13.43	29.49	43.50	-14.01	Peak	HORIZONTAL	100	222
4	330.19	13.46	18.50	31.96	46.00	-14.04	Peak	HORIZONTAL	100	241
5	694.42	10.34	24.30	34.64	46.00	-11.36	Peak	HORIZONTAL	100	299
6 pp	872.18	8.77	29.39	38.16	46.00	-7.84	Peak	HORIZONTAL	100	188

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Vertical



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase	APos	TPos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB			cm	deg
1	44.43	12.44	12.81	25.25	40.00	-14.75	Peak	VERTICAL	100	13
2	129.92	18.18	9.99	28.17	43.50	-15.33	Peak	VERTICAL	100	28
3	141.83	19.11	9.60	28.71	43.50	-14.79	Peak	VERTICAL	100	144
4	294.11	11.51	17.60	29.11	46.00	-16.89	Peak	VERTICAL	100	52
5	568.61	11.50	22.68	34.18	46.00	-11.82	Peak	VERTICAL	100	177
6 pp	863.06	10.29	29.25	39.54	46.00	-6.46	Peak	VERTICAL	100	311

Remark:

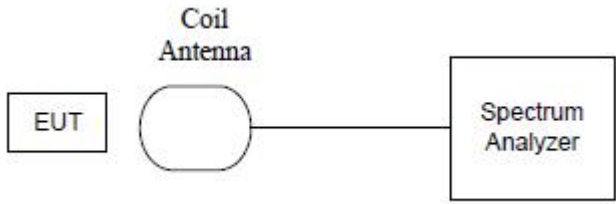
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

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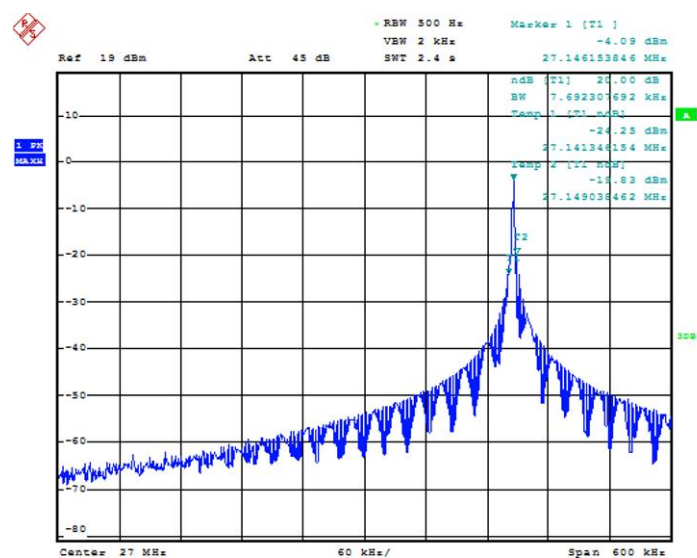
Test Requirement:	47 CFR Part 15 C Section 15.215 (C)
Test Method:	ANSI C63.10: 2013
Test Setup:	 <pre>graph LR; EUT[EUT] --- Antenna[Coil Antenna]; Antenna --- SA[Spectrum Analyzer]</pre>
Frequency Range:	Operation within the band 26.96-27.28 MHz
Requirements:	Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §15.217 through §15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the 20 dB bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.
Limit:	26.96MHz – 27.28MHz

Test Data:

20dB bandwidth (kHz)	FL (MHz)	FH (MHz)	Limit(MHz)	Result
7.69	27.14	27.14	26.96 – 27.28	Pass

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Test plot as follows:



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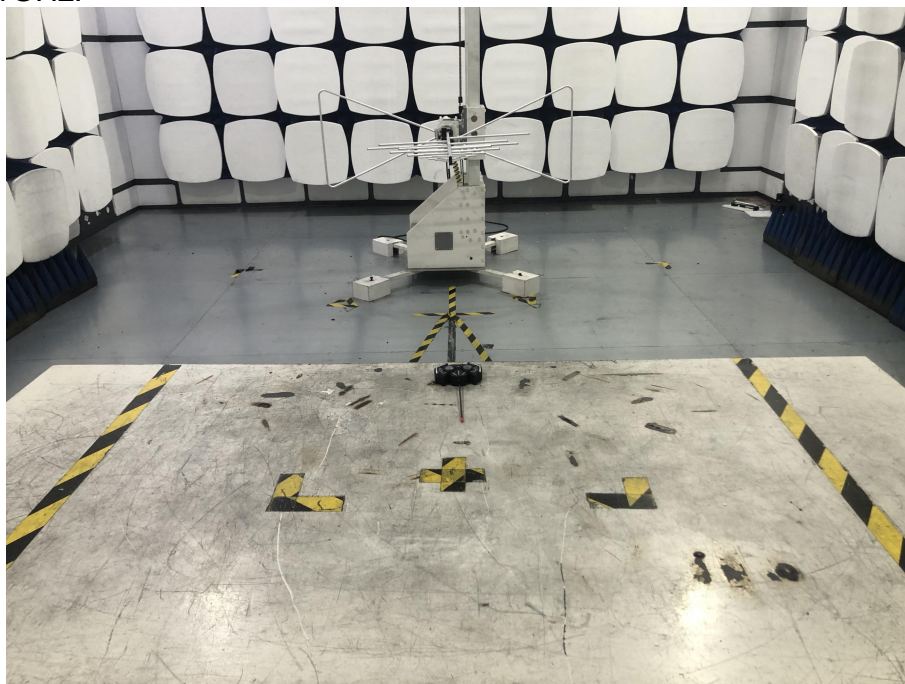
5 Photographs - EUT Test Setup

5.1 Radiated Emission

9KHz~30MHz:

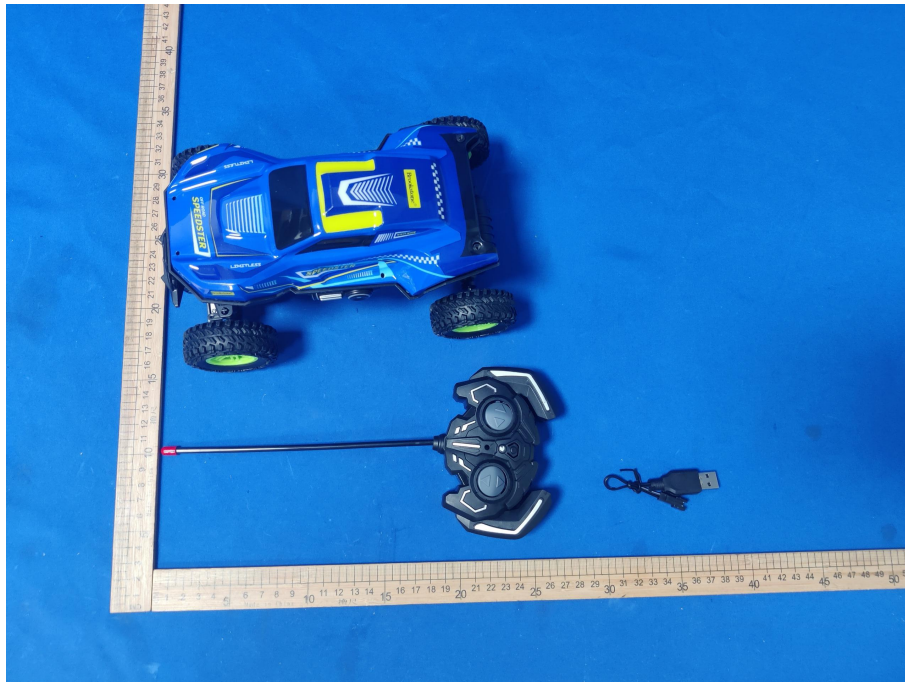


30MHz~1GHz:

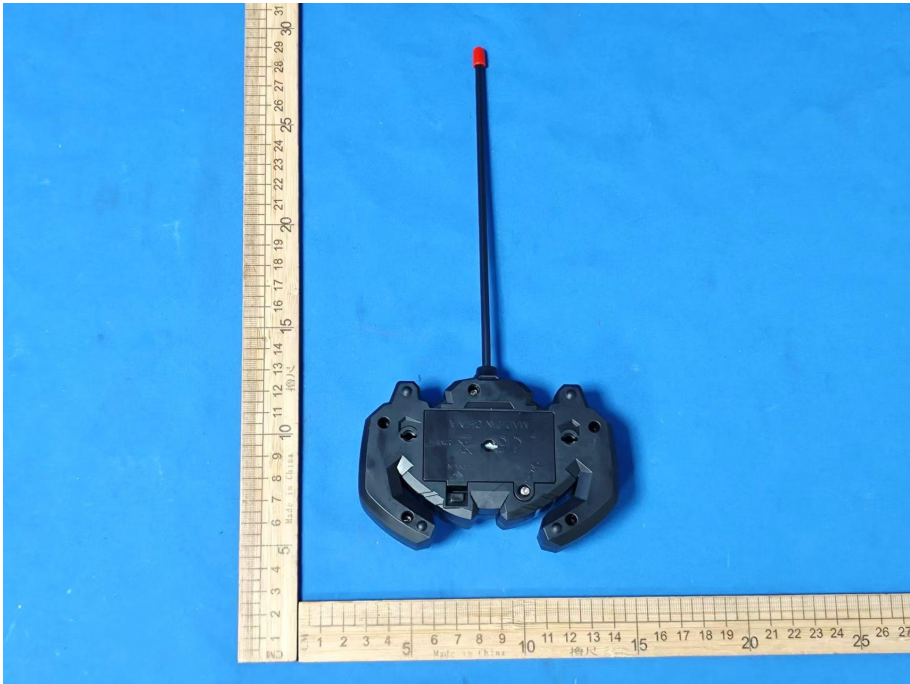


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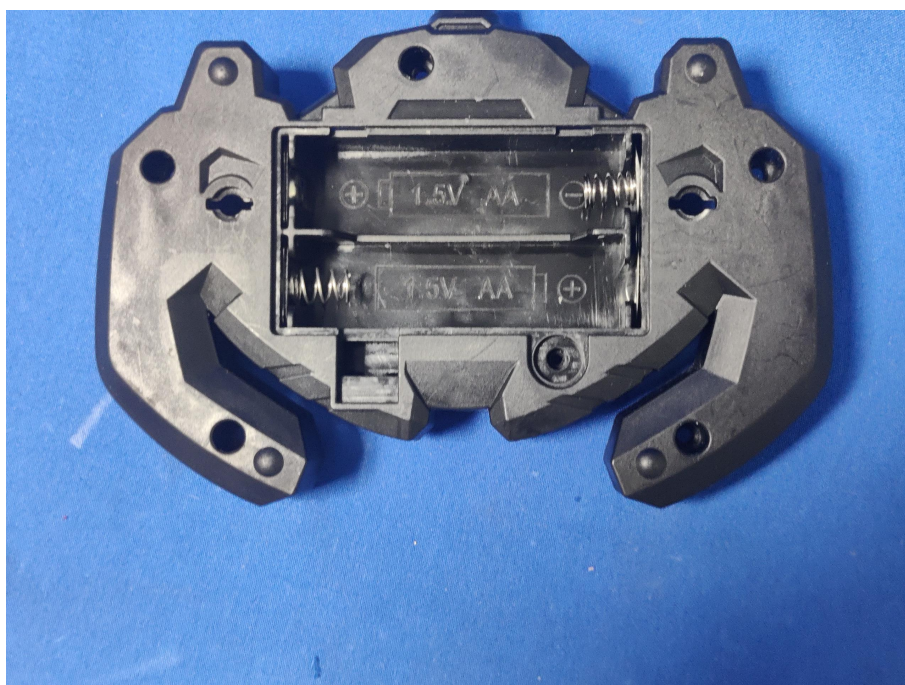
6 Photographs - EUT Constructional Details



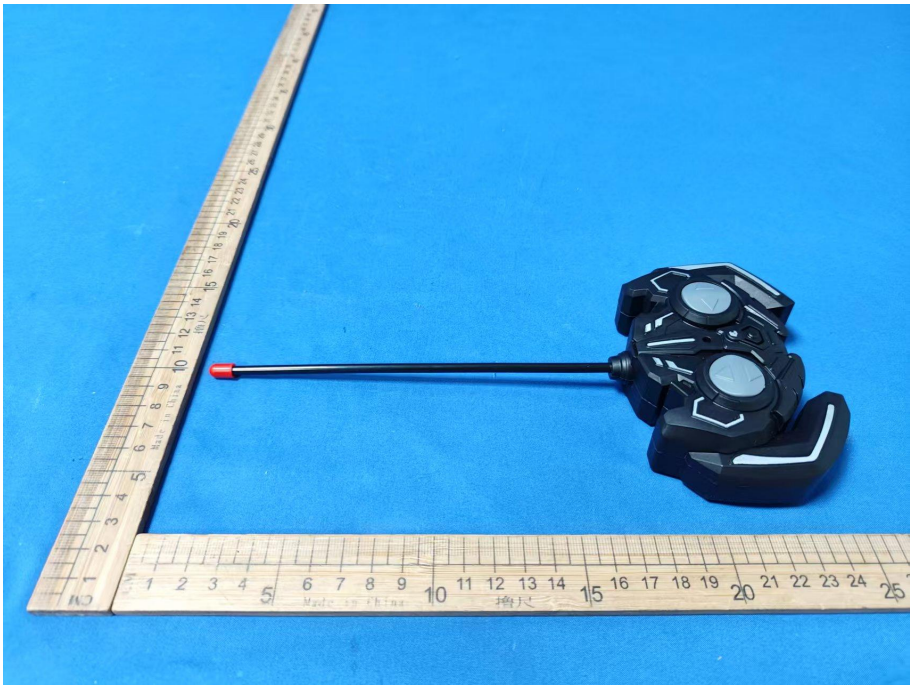
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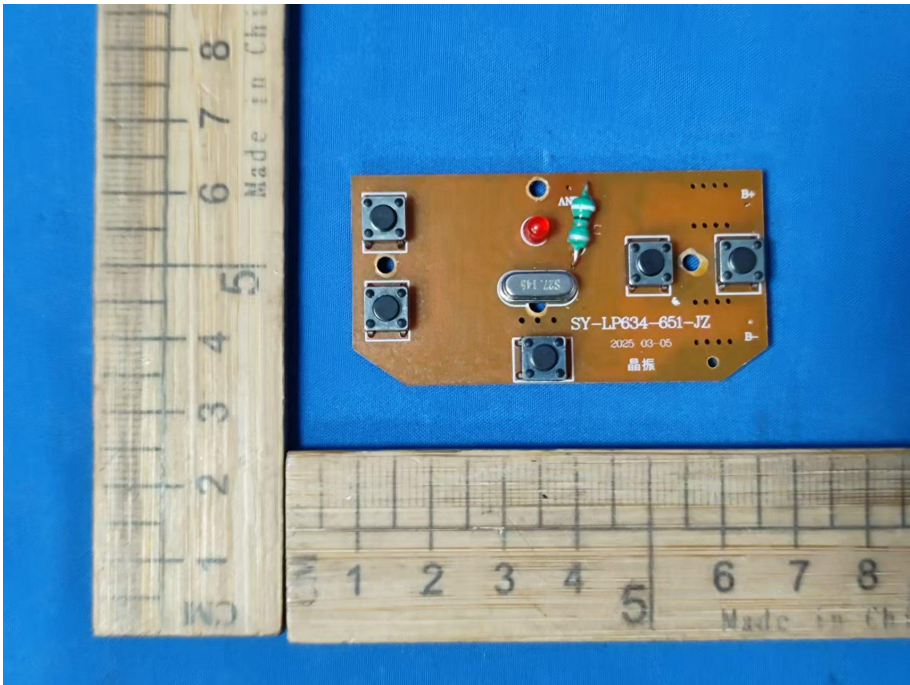
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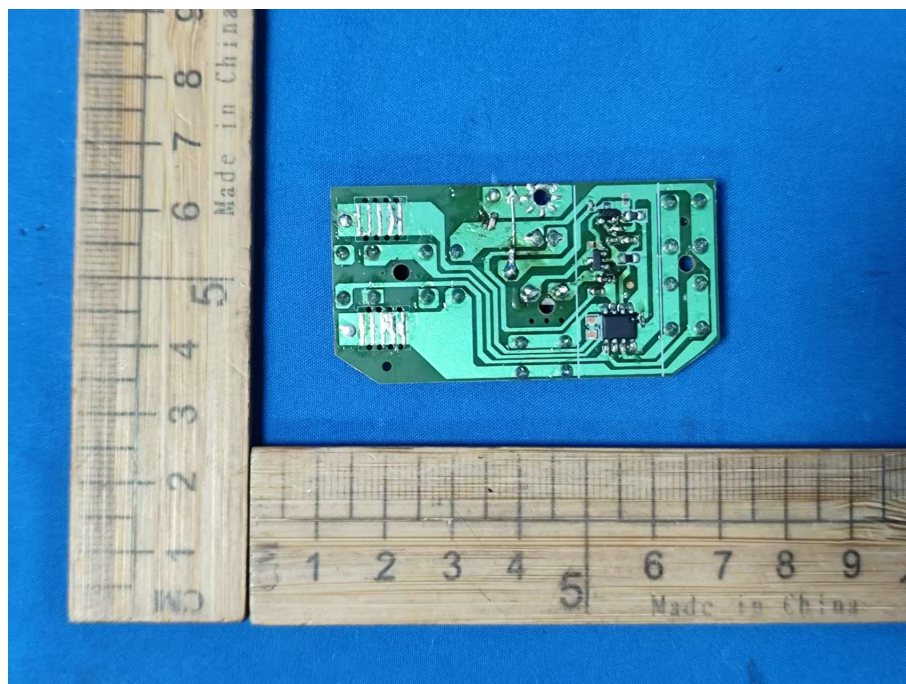
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The End