

# TEST REPORT

<b>Report Reference No.</b> .....:	<b>TZ0035241024FEM01</b>	
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Date of issue .....	2024-11-7	
Testing Laboratory Name .....	Shenzhen Tongzhou Testing Co.,Ltd..	
Address.....:	1st Floor, Building 1, Haomai High-tech Park, Huating Road 387, Dalang Street, Longhua, Shenzhen, China	
<b>Applicant's name</b> .....	<b>SHANTOU RAPIDPOWER TECHNOLOGY CO., LTD</b>	
Address.....:	Linghai Industrial Area, Fengxiang Street, Chenghai District, Shantou City, Guangdong Province, China	
<b>Manufacturer's name</b> .....	<b>SHANTOU RAPIDPOWER TECHNOLOGY CO., LTD</b>	
Address.....:	Linghai Industrial Area, Fengxiang Street, Chenghai District, Shantou City, Guangdong Province, China	
<b>Test specification</b> .....	:	
Standard .....	<b>FCC CFR Title 47 Part 15B</b>	
TRF Originator .....	SZTZ	
Master TRF .....	Dated 2024-09	
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<b>Test item description</b> .....	<b>B/O TOYS</b>	
Trade Mark .....	N/A	
Model/Type reference .....	Refer to section 2.2 of this report	
Ratings.....:	DC 3.7V by battery, Input: DC 5V	
Result.....:	<b>PASS</b>	



Report No.: TZ0035241024FEM01

**\*\* Report Revise Record \*\***

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	2024-11-7	Valid	Initial release



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## 1. TEST STANDARDS

The tests were performed according to following standards:

[FCC CFR Title 47 Part 15B](#)

Unintentional Radiators

[ANSI C63.4-2014](#)

American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz



## 2. SUMMARY

### 2.1. General Remarks

Date of receipt of test sample : 2024-10-31  
Testing commenced on : 2024-10-31  
Testing concluded on : 2024-11-6

### 2.2. Product Description

The Model: 8008 or the “EUT” as referred to in this report; more general information as follows, for more details, refer to the user’s manual of the EUT.

Name of EUT	:	B/O TOYS
Model/Type reference	:	8008, 8002, 8003, 8004, 8006, 8009, 8010, 8011, 8012, 8013, 8014, 8015, 8016, 8018, 8019, 8020, 8021, 8022, 8023, 8024, 8025, 8026, 8028, 8029, 8030, 8031, 8032, 8033, 8034, 8035, 8036, 8038, 8039, 8040, A001, A002, A003, A005, A005S, A006, A008, A009, A010, A011, A012, A013, A015, A016, A018, A019, A020, A021, A022, A023, A025, A026, A028, A029, A030, A031, A032, A033, A035, A036, A038, A039, A050, A051, A052, A053, A055, A056, A058, A059, A060, A061, A062, A063, A065, A066, A068, A069, A080, A081, A082, A083, A085, A086, A088, A089, A090, A091, A092, A093, A095, A096, A098, A099, A100, A101, A102, A103, A105, A106, A108, A109, A111, A112, A113, A115, A116, A118, A119, A121, A122, A123, A125, A126, A128, A129, A130, A131, A132, A133, A135, A136, A138, A139, A150, A151, A152, A153, A155, A156, A001-B
Test Model	:	8008
Difference description	:	All the same except for the model name
Highest internal frequency	:	<input type="checkbox"/> ≤108MHz <input checked="" type="checkbox"/> >108MHz
Classification	:	<input type="checkbox"/> Class A <input checked="" type="checkbox"/> Class B

### 2.3. EUT operation mode

The EUT has been tested under typical operating condition.

Test Item	
<b>EMI</b>	
Mode 1	Charging
Mode 2	Normal Working

### 2.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - Supplied by the lab

○	Adapter	Model :	MDY-10-EH
		Input :	100-240V~ 50/60Hz 0.7A
		Output :	DC 5V, 3A



## 2.5. Related Submittal(s) / Grant (s)

This test report is intended for B/O TOYS filing to comply with the FCC Part 15, Subpart B Rules.

## 2.6. Internal Identification of EUT used during the test

EUT ID : TZ0035241024-1#

## 2.7. Modifications

No modifications were implemented to meet testing criteria.

## 2.8. Test Result Summary

Test Item	Test Requirement	Standard Paragraph	Result
Radiated Emission	FCC PART 15	Section 15.109	PASS
Conducted Emission	FCC PART 15	Section 15.107	PASS

Remark: The measurement uncertainty is not included in the test result.



### 3. TEST ENVIRONMENT

#### 3.1. Address of the test laboratory

Shenzhen Tongzhou Testing Co.,Ltd.

1st Floor, Building 1, Haomai High-tech Park, Huating Road 387, Dalang Street, Longhua, Shenzhen, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2014) and CISPR Publication 22.

#### 3.2. Environmental conditions

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

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

#### 3.3. 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 Tongzhou Testing 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 Shenzhen Tongzhou Testing Co.,Ltd. is reported:

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty		30MHz~1000MHz	±3.92dB	(1)
		1GHz~40GHz	±4.28dB	(1)
Conduction Uncertainty	:	150kHz~30MHz	±2.71dB	(1)

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



### 3.4. Equipments Used during the Test

Conducted emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI-7	100849/003	2024/1/4	2025/1/3
2	Artificial Mains	ROHDE & SCHWARZ	ENV 216	101333-IP	2024/1/4	2025/1/3
3	EMI Test Software	ROHDE & SCHWARZ	ESK1	V1.71	N/A	N/A
4	ISN T8	TESEQ	ISN T800	42789	2024/1/4	2025/1/3
5	ISN T8-CAT6	TESEQ	ISN T8-CAT6	39898	2024/1/4	2025/1/3

Radiated emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due
1	Test Receiver	R&S	ESCI-7	100849/003	2024/1/4	2025/1/3
2	wideband Antenna	Schwarzbeck	VULB 9163	958	2022/11/1 3	2025/11/1 2
3	Horn Antenna	Schwarzbeck	BBHA 9120D	01989	2022/11/1 3	2025/11/1 2
4	Amplifier	Schwarzbeck	BBV 9743	209	2024/1/4	2025/1/3
5	Amplifier	Tonscend	TSAMP-0518SE	--	2024/1/4	2025/1/3
6	Postional Controller	MF	MF7802	--	--	--
7	RE test software	Tonscend	JS32-RE	V5.0.0.0	--	--



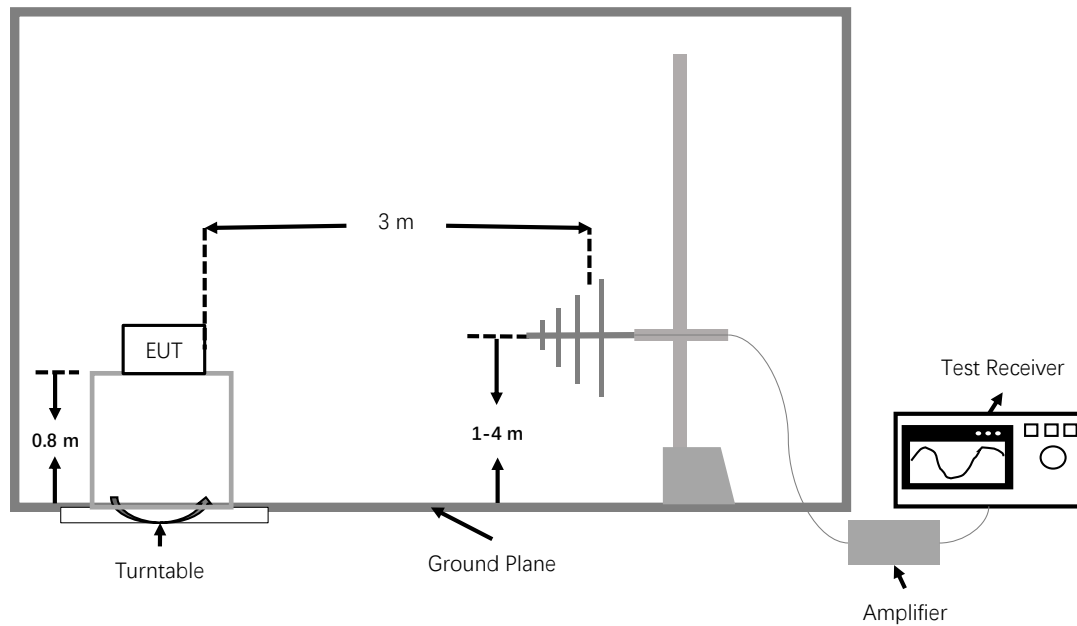


## 4. TEST CONDITIONS AND RESULTS

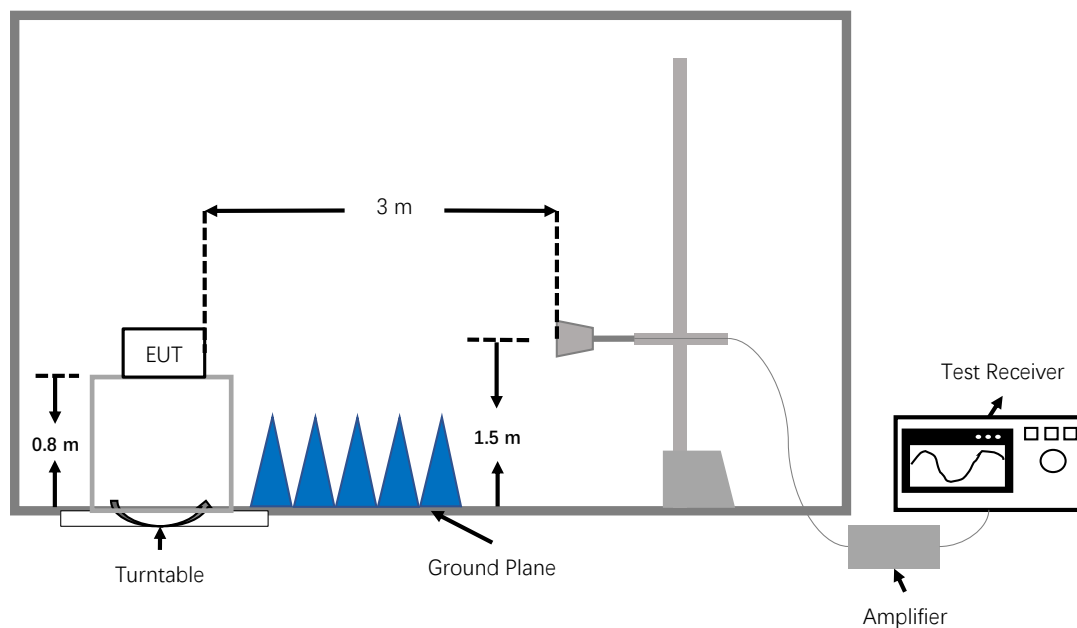
### 4.1. Radiated Emission Test

#### TEST CONFIGURATION

(a) Radiated Emission Test Set-Up, Frequency below 1000MHz



(b) Radiated Emission Test Set-Up, Frequency above 1000MHz



**Field Strength Calculation**

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

**RADIATION LIMIT**

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

**Test Procedure**

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

**Test Results****Pass**

Pre-scan all modes and recorded the worst case results in this report.



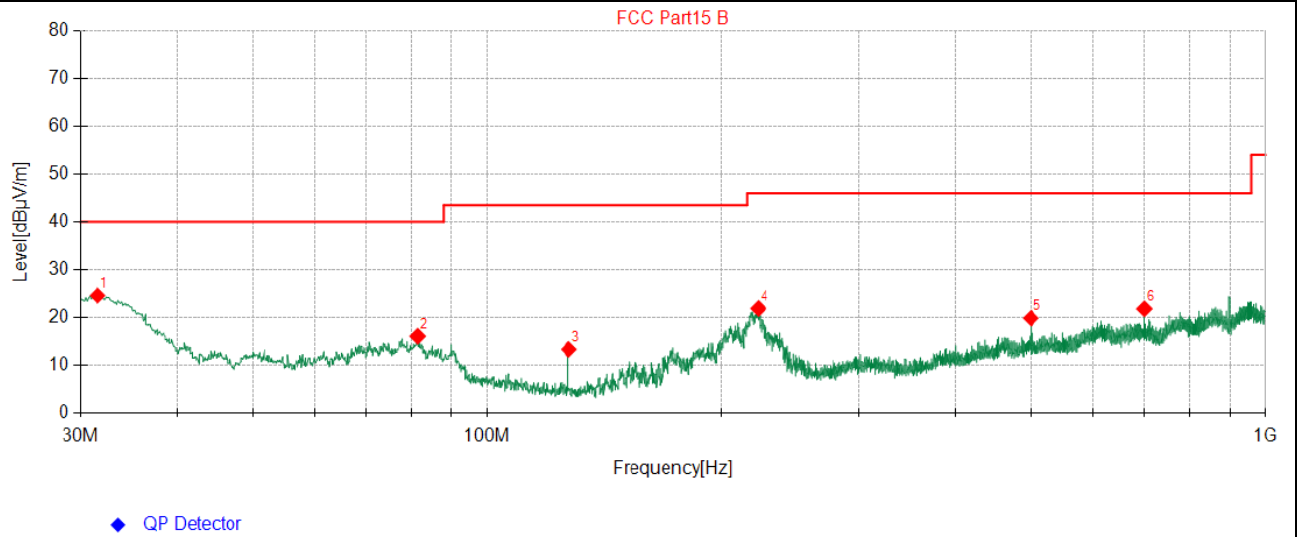
Below 1000MHz

Report No.: TZ0035241024FEM01

Results of Radiated Emissions (30MHz ~1GHz)

Temperature	22.5℃	Humidity	56%
Test Engineer	Tony Luo	Configurations	Mode 1

Vertical



Suspected Data List

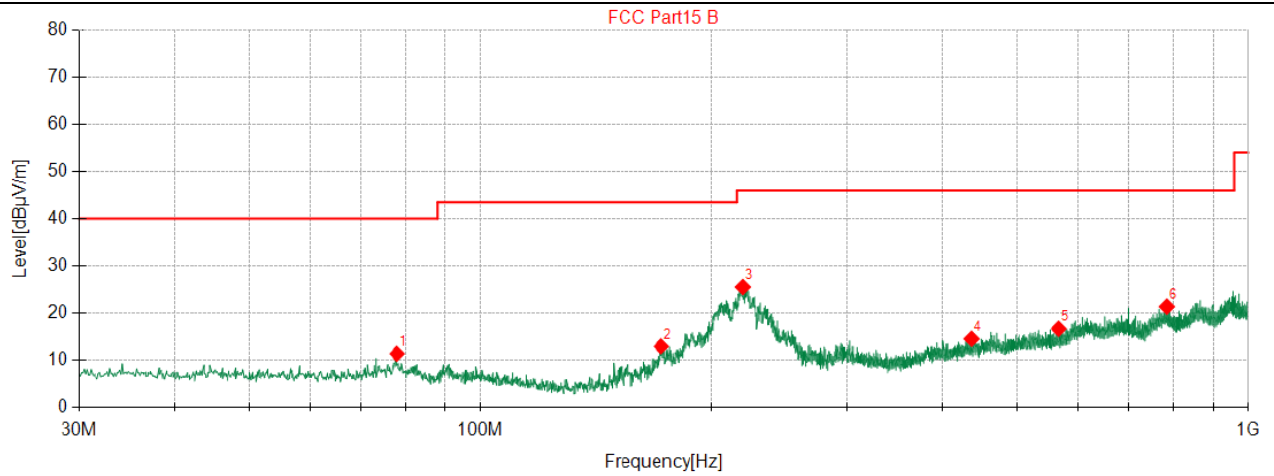
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	31.57	40.80	-16.18	24.62	40.00	15.38	100	344	Vertical
2	81.41	35.88	-19.75	16.13	40.00	23.87	100	212	Vertical
3	127.3	32.08	-18.69	13.39	43.50	30.11	100	212	Vertical
4	223.1	36.65	-14.71	21.94	46.00	24.06	100	199	Vertical
5	499.9	27.97	-8.06	19.91	46.00	26.09	100	218	Vertical
6	700.0	26.22	-4.35	21.87	46.00	24.13	100	312	Vertical

\*\*\*Note:

1. Level [dBμV/m] = Reading [dBμV] + Factor [dB/m]
2. Margin [dB] = Limit [dBμV/m] - Level [dBμV/m]



## Horizontal



◆ QP Detector

### Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	77.89	31.11	-19.69	11.42	40.00	28.58	100	48	Horizontal
2	172.1	30.95	-17.94	13.01	43.50	30.49	100	278	Horizontal
3	219.7	40.37	-14.82	25.55	46.00	20.45	100	278	Horizontal
4	436.5	23.93	-9.32	14.61	46.00	31.39	100	70	Horizontal
5	567.3	23.11	-6.39	16.72	46.00	29.28	100	320	Horizontal
6	784.4	24.53	-3.13	21.40	46.00	24.60	100	124	Horizontal

\*\*\*Note:

1. Level [dBμV/m] = Reading [dBμV] + Factor [dB/m]

2. Margin [dB] = Limit [dBμV/m] - Level [dBμV/m]

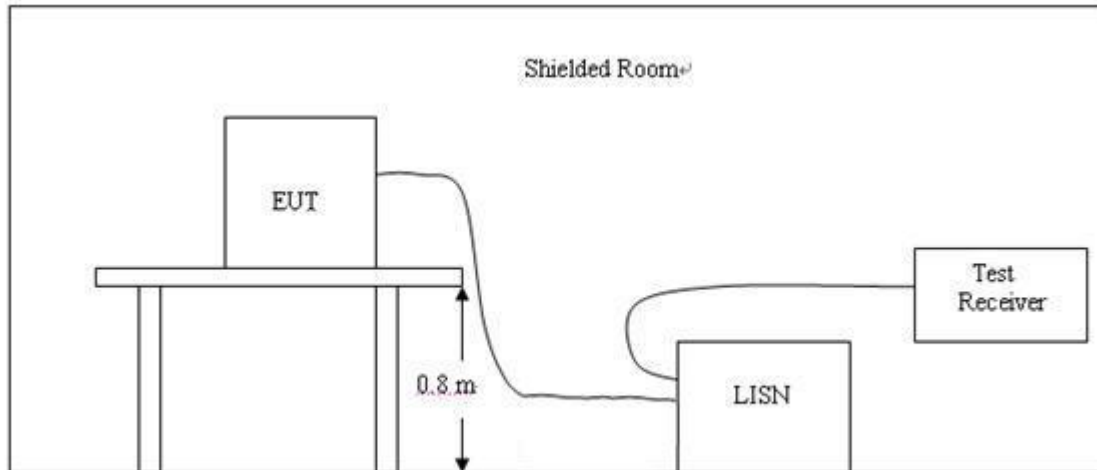
### Results of Radiated Emissions (Above 1GHz)

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (KHz)	Height (cm)	Pol	Azimuth (deg)
1196.10	42.08	---	74	31.92	100	1000	100	V	272
1198.56	43.06	---	74	30.94	100	1000	100	V	1
2519.60	45.15	---	74	28.85	100	1000	100	H	163
2617.95	45.26	---	74	28.74	100	1000	100	H	201
6720.60	48.92	---	74	25.08	100	1000	100	V	207
8950.76	49.98	---	74	24.02	100	1000	100	H	164



## 4.2. Conducted Emissions Test

### TEST CONFIGURATION



### TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4.
2. Support equipment, if needed, was placed as per ANSI C63.4.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4. The EUT received power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

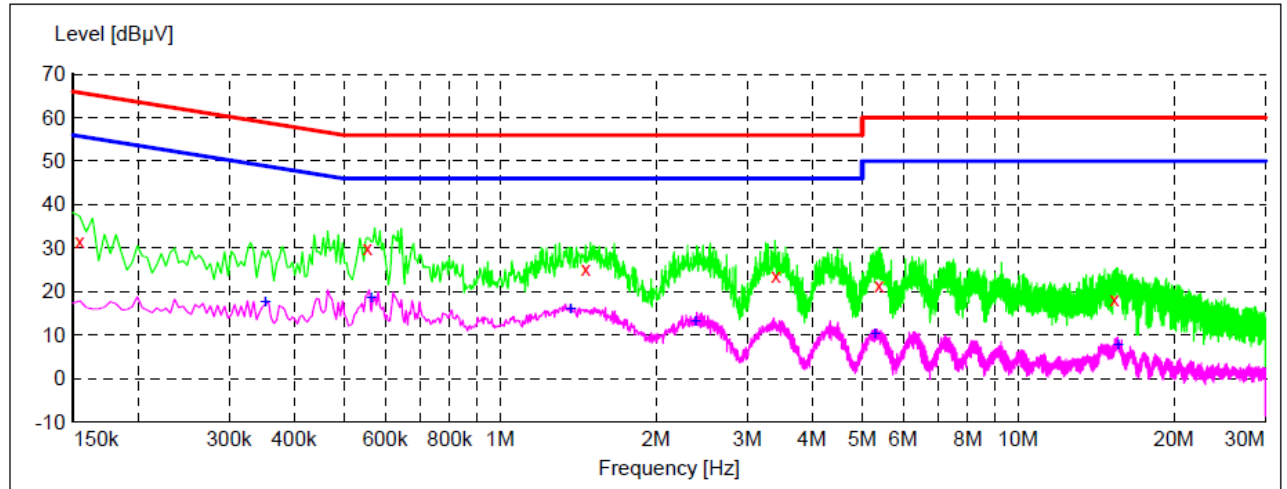
### Conducted Power Line Emission Limit

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following:

Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

\* Decreasing linearly with the logarithm of the frequency

For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

**TEST RESULTS****Neutral Line**

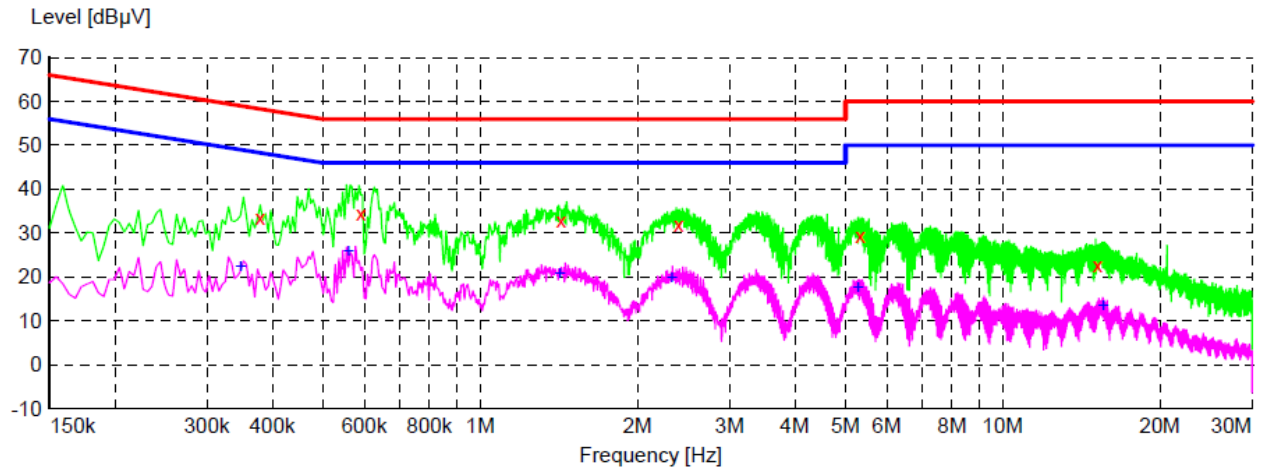
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.154500	31.60	9.9	66	34.2	QP	N	GND
0.555000	30.00	9.9	56	26.0	QP	N	GND
1.464000	25.10	9.7	56	30.9	QP	N	GND
3.412500	23.50	9.7	56	32.5	QP	N	GND
5.397000	21.40	9.8	60	38.6	QP	N	GND
15.346500	18.30	9.9	60	41.7	QP	N	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.352500	17.40	10.1	49	31.5	AV	N	GND
0.564000	18.60	9.9	46	27.4	AV	N	GND
1.369500	15.80	9.7	46	30.2	AV	N	GND
2.382000	13.20	9.7	46	32.8	AV	N	GND
5.293500	10.20	9.8	50	39.8	AV	N	GND
15.589500	7.80	9.9	50	42.2	AV	N	GND

**Note:**

1.  $\text{Margin(dB)} = \text{Limit(dB}\mu\text{V)} - \text{Level(dB}\mu\text{V)}$
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: 9 kHz (150 kHz—30 MHz), Step size: 4 kHz, Scan time: auto.



# Live Line



Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.379500	33.50	10.0	58	24.8	QP	L1	GND
0.591000	34.60	9.9	56	21.4	QP	L1	GND
1.428000	32.90	9.7	56	23.1	QP	L1	GND
2.400000	31.90	9.7	56	24.1	QP	L1	GND
5.338500	29.20	9.8	60	30.8	QP	L1	GND
15.193500	22.80	9.9	60	37.2	QP	L1	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.348000	22.40	10.1	49	26.6	AV	L1	GND
0.559500	25.90	9.9	46	20.1	AV	L1	GND
1.419000	20.70	9.7	46	25.3	AV	L1	GND
2.323500	19.70	9.7	46	26.3	AV	L1	GND
5.275500	17.50	9.8	50	32.5	AV	L1	GND
15.558000	13.30	9.9	50	36.7	AV	L1	GND

## Note:

1.  $\text{Margin(dB)} = \text{Limit(dB}\mu\text{V)} - \text{Level(dB}\mu\text{V)}$
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: 9 kHz (150 kHz—30 MHz), Step size: 4 kHz, Scan time: auto.



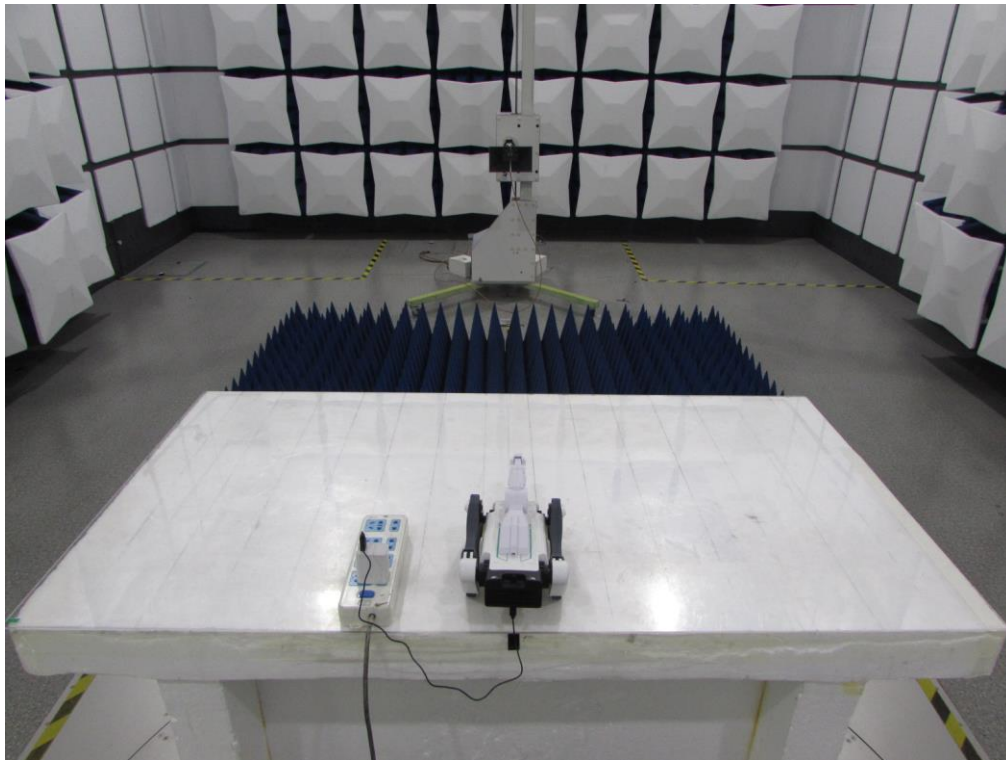


## 5. Test Setup Photos of the EUT

Radiated Emission (30MHz-1GHz)



Radiated Emission (1GHz-6GHz)







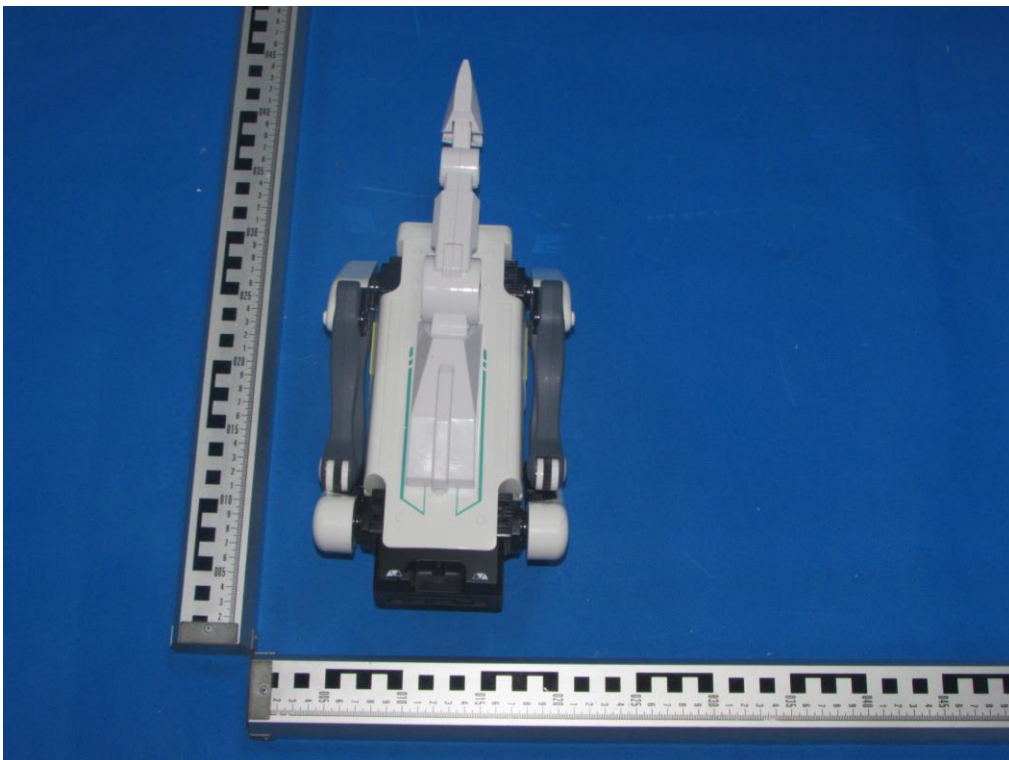
Conducted Emission (AC Mains)

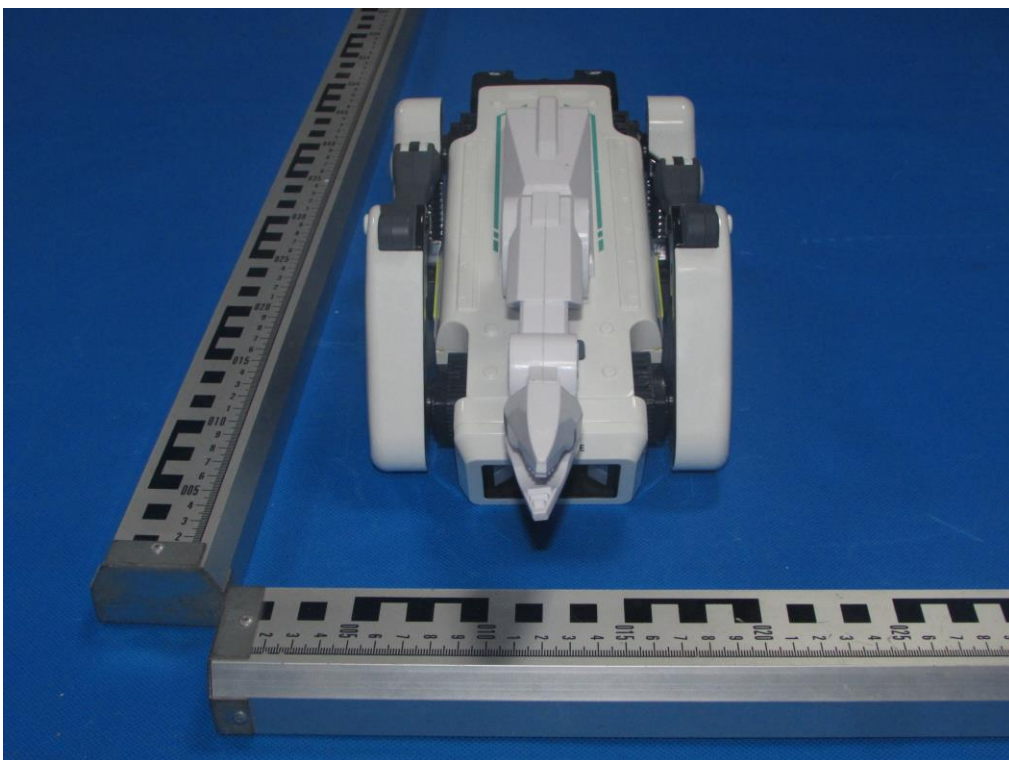




## 6. External and Internal Photos of the EUT

### External Photos





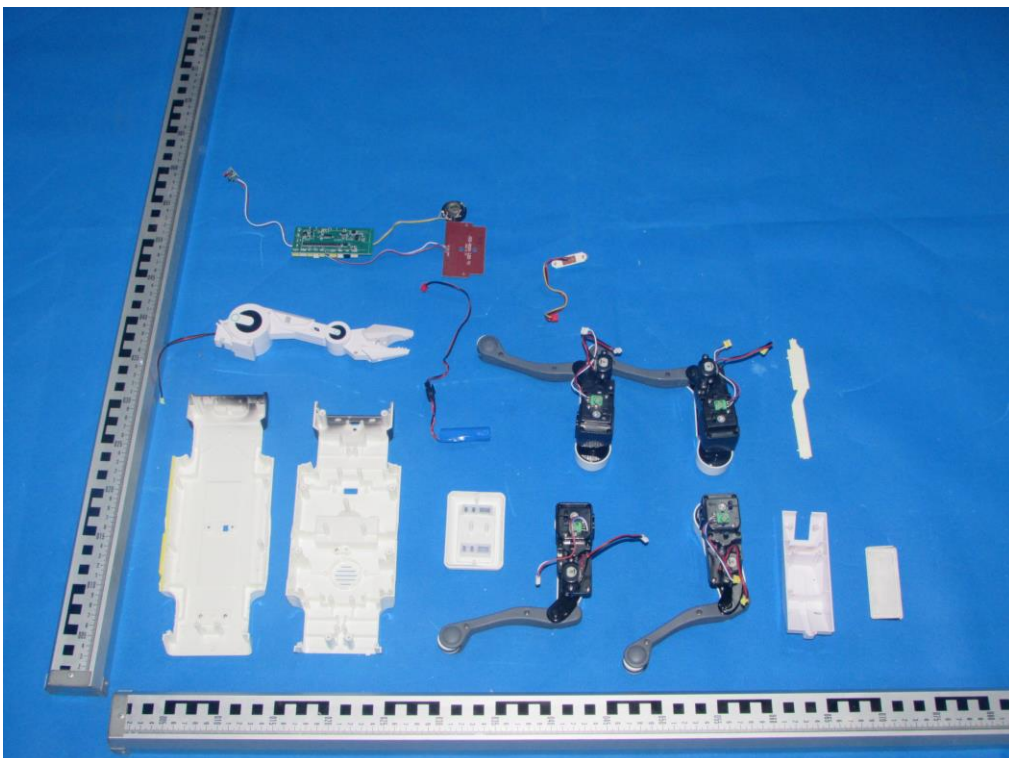
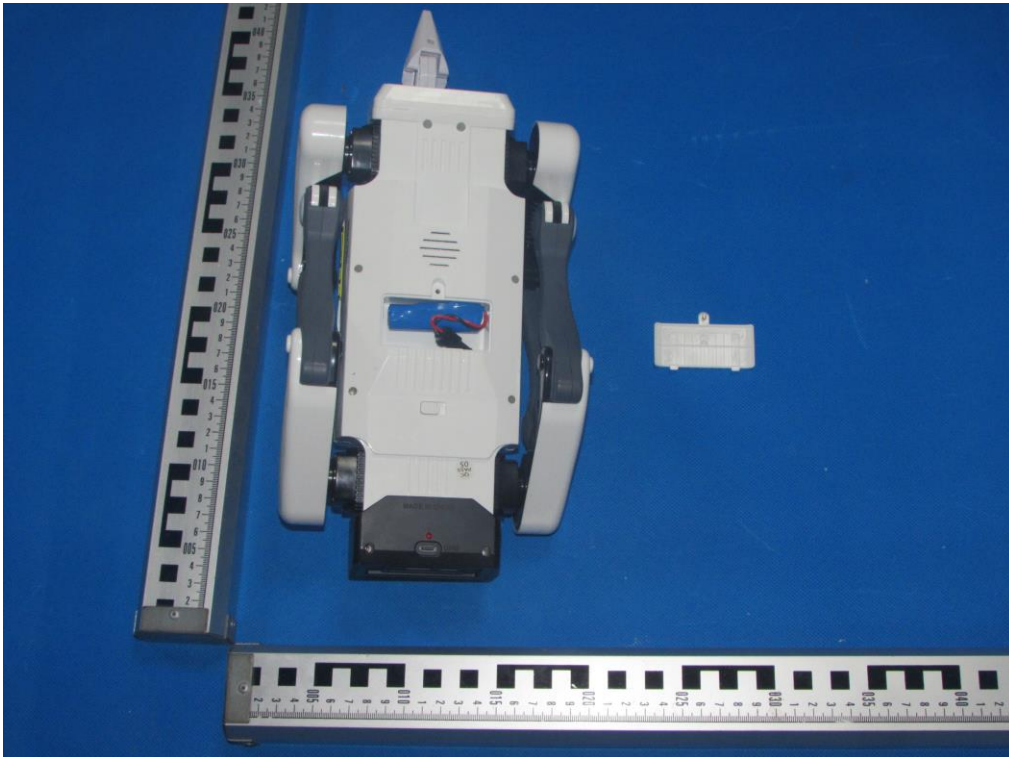




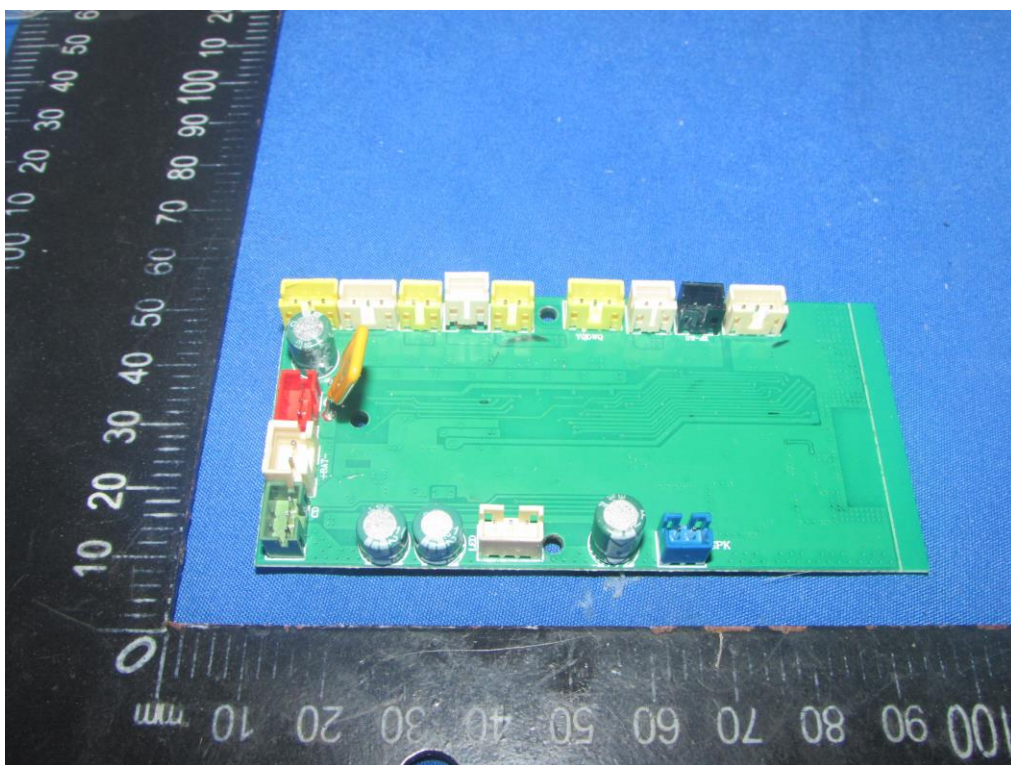
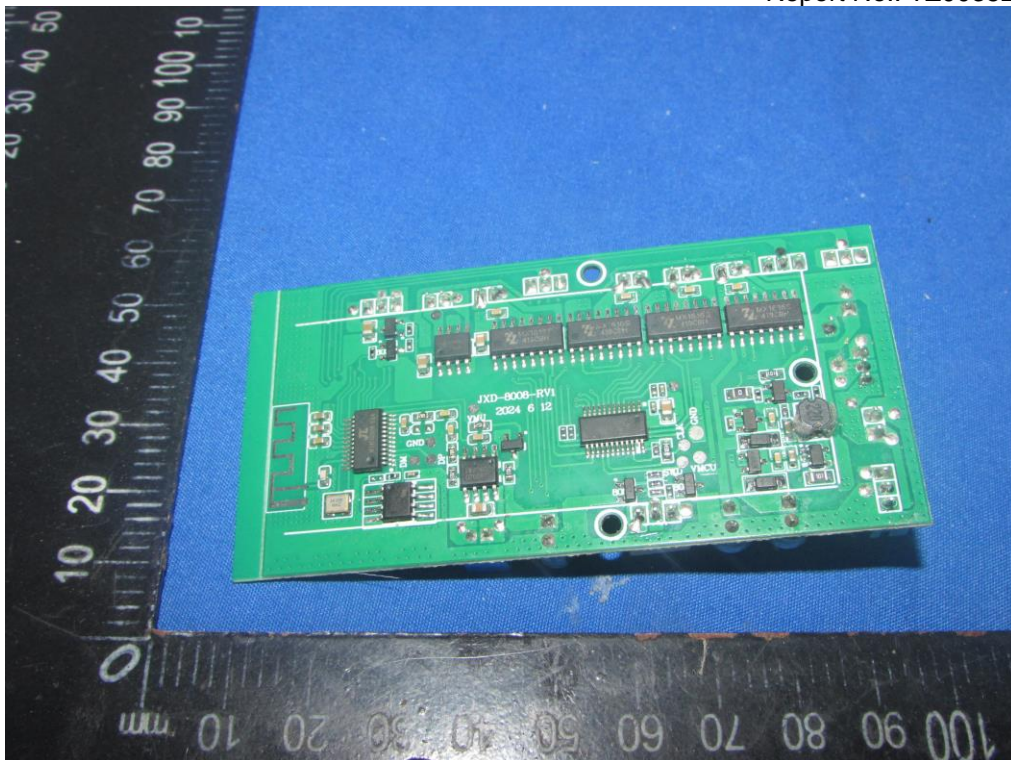




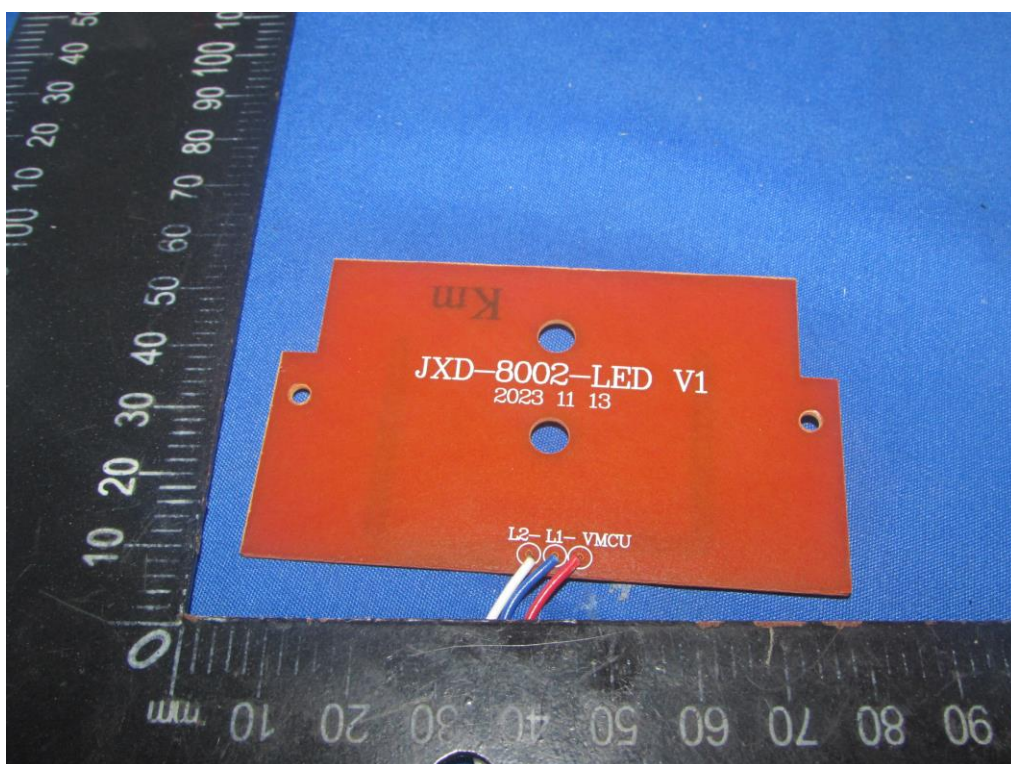
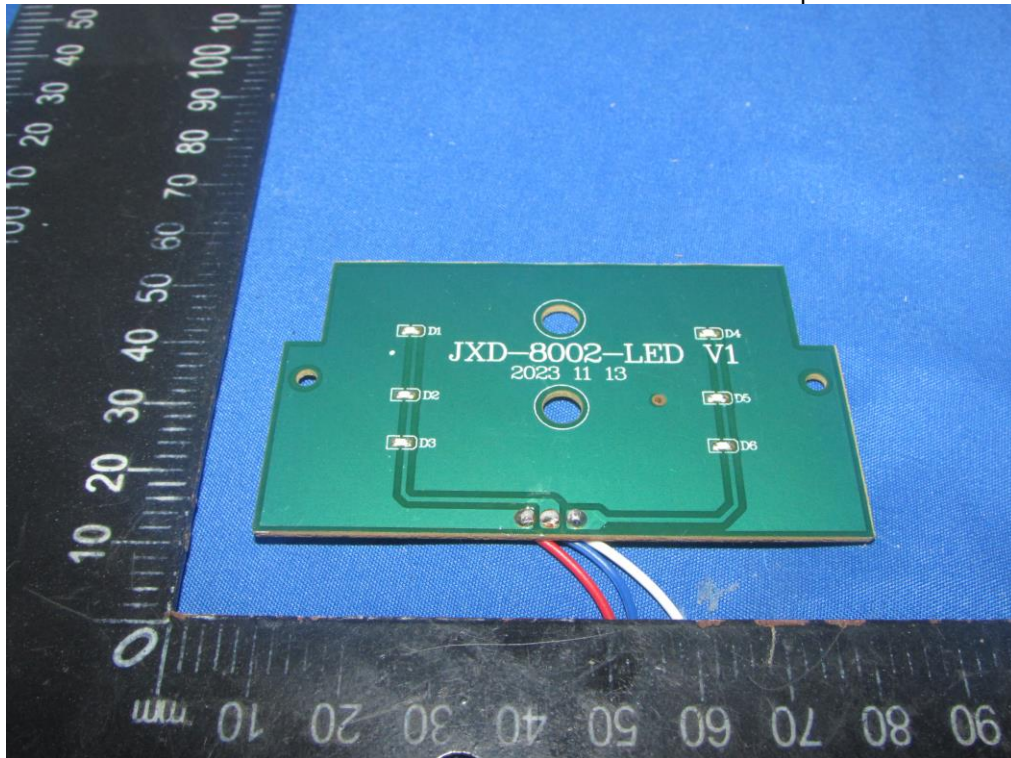
## Internal Photos















.....End of Report.....