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TESTING
CNAS L0446



Page 1 of 97

Test Report

Verified code: 335441

Report No.: E20220309137001-4

Customer: Lumi United Technology Co., Ltd.

Address: Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No.3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

Sample Name: Curtain Driver E1

Sample Model: CM-M01

Receive Sample Date: Mar.11,2022

Test Date: Mar.12,2022 ~ Apr.29,2022

Reference Document: EN 55014-1:2017+A11:2020 Electromagnetic compatibility - Requirements for house hold appliances, electric tools and similar apparatus - Part 1: Emission

EN 55014-2:2015 Electromagnetic compatibility - Requirements for house hold appliances, electric tools and similar apparatus - Part 2: Immunity - Product family standard

EN 61000-3-3:2013 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 ≤ 16 A per phase and not subject to conditional connection

Test Result: Pass

Prepared by: Yang Zhaoyun

Reviewed by:

Jiang Tao

Approved by: Xiao Liang

GUANGZHOU GRG METROLOGY & TEST CO., LTD

Issued Date: 2022-05-19

GUANGZHOU GRG METROLOGY & TEST CO., LTD.

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E20220309137001-4	Original Issue	2022/04/26

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1. TEST RESULT SUMMARY

Test Item	Test mode	Test Requirement	Test Method	Class / Severity	Test Result
Conduction Emission	Mode 1 Mode 2	EN 55014-1:2017+A11:2020	CISPR 14-1:2016	Meet standard limits	PASS
Radiated Emission	Mode 1 Mode 2 Mode 3	EN 55014-1:2017+A11:2020	CISPR 14-1:2016	Meet standard limits	PASS
Disturbance Power	Mode 1 Mode 2	EN 55014-1:2017+A11:2020	CISPR 14-1:2016	Meet standard limits	PASS
Harmonic Current	/	EN 61000-3-2:2019	EN 61000-3-2:2019	/	Note ¹⁾
Voltage Fluctuation and Flicks	Mode 1 Mode 2	EN 61000-3-3:2013	EN 61000-3-3:2013	Dt,dc,dmax(4%),Pst	PASS
Electrostatic discharge	Mode 1 Mode 2 Mode 3	EN 55014-2:2015	IEC 61000-4-2:2008	Enclosure port: Contact Discharge: ±2, ±4 kV ; (Direct/Indirect) Air Discharge: ±2, ±4 , ±8 kV (Direct); Performance Criterion B	PASS
Continuous RF electromagnetic field disturbances	Mode 1 Mode 2 Mode 3	EN 55014-2:2015	IEC 61000-4-3:2006+A 1:2007+A2:2010	80-1000MHz, 3V/m,80% AM(1kHz) performance criterion: A	PASS
Electrical fast transient/burst	Mode 1 Mode 2	EN 55014-2:2015	IEC 61000-4-4:2012	AC Input and output Power: ±1kV 5/50 Tr/Th ns 5kHz Performance Criterion B	PASS
Surge	Mode 1 Mode 2	EN 55014-2:2015	IEC 61000-4-5:2017	AC Input Port:1.2/50 (8/20) Tr/Th us line to line: ±1.0kV -270 °,+90 ° Performance Criterion B	PASS
Conducted radio frequency disturbances	Mode 1 Mode 2	EN 55014-2:2015	IEC 61000-4-6:2013	AC Input and output Power: 0.15MHz-80MHz 3V 80% AM(1kHz) Performance Criterion A	PASS
Voltage Dip & Voltage Interruptions	Mode 1 Mode 2	EN 55014-2:2015	IEC 61000-4-11:2004+ AMD1:2017	AC Input Port: 0%,0.5T Performance Criterion C 70%,25T for 50Hz Performance Criterion C 40%,10 T for 50Hz Performance Criterion C	PASS

Note ¹⁾:Not applicable, since The EUT with a rated power of less 75 W.

2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT

Name: Lumi United Technology Co., Ltd.
Address: Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No.3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.2 MANUFACTURER

Name: Lumi United Technology Co., Ltd.
Address: Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No.3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.3 FACTORY

Name: SHENZHEN 3NORD DIGITAL TECHNOLOGY CO., LTD.
Address: 401, ZONE 101A, WORKSHOP 15, ZHONGFU ROAD, TANGXIAYONG COMMUNITY, YANLUO STREET, BAOAN DISTRICT, SHENZHEN CITY, GUANGDONG PROVINCE, P.R.C.

2.4 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: Curtain Driver E1
Model No.: CM-M01
Adding Models: /
Trade Name: Aqara
Power Supply: 5V $\overline{\text{---}}$ 1.5A power from USB cable or DC 3.70V power from battery
Battery specification: Rechargeable Lithium-ion Battery
Product Model: DH0406CLM
Nominal Voltage: 3.70Vdc, Rated Capacity:6000mAh, Rated Energy: 22.2Wh
Charging Voltage Limit: 4.20Vdc
Work Frequency: 2405MHz – 2475MHz
Modulation Type: O-QPSK
Antenna Type: FPC antenna
Hardware Version: T0
Software Version: V0.0.0_2424
Sample submitting way: Provided by customer Sampling
Sample No: E20220309137001-0005(Motor1), E20220309137001-0007(Motor2)

Note1: Motor1:
 Manufacturer: SHENZHEN WEIZHEN MOTOR DEVELOPMENT CO.,LTD.
 Model: WRK-500CA-17280B
 Technical data: DC9.0V,720mA Max.5500±10% rpm/min.

Note2: Motor2:
 Manufacturer: Peak Industrial Ltd.
 Model: PR-500EV-17280
 Technical data: DC9.0V,500mA Max.5500±10% rpm/min.

2.5 TEST MODE

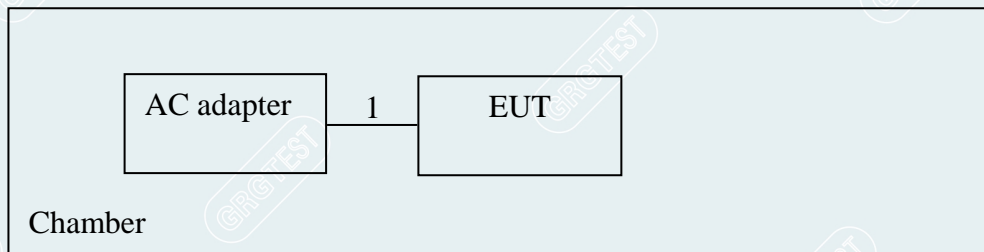
Mode No.	Description of the modes
1	Charging
2	Charging+Zigbee communication+motor rotation
3	Zigbee communication +motor rotation

2.6 LOCAL SUPPORTIVE INSTRUMENTS

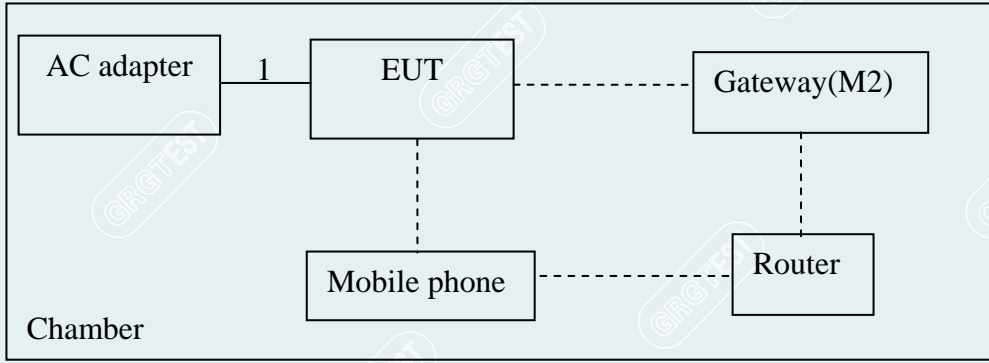
Name of Equipment	Manufacturer	Model	Serial Number	Note
Gateway(M2)	Lumi United Technology Co., Ltd.	ZHWG12LM	/	/
AC adapter	Aohai	A70-050200U-EU1	/	/
Mobile Phone	VIVO	VIVO Y79	/	/
Router	TP-LINK	TL-WDR6500	/	/
Cable				
1	USB Cable	Aqara	/	Unshielded 0.83m

2.7 CONFIGURATION OF SYSTEM UNDER TEST

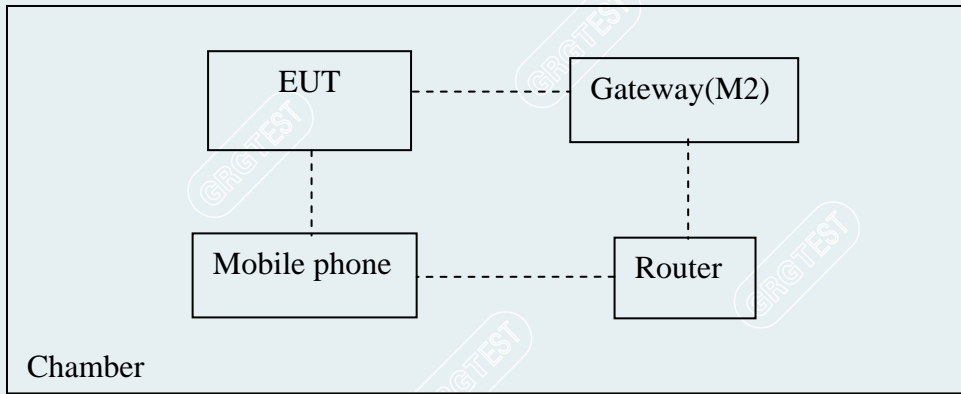
Mode 1



Mode 2



Mode 3



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3. LABORATORY AND ACCREDITATIONS

3.1 LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of Guangzhou GRG Metrology & Test Co., Ltd.

Add.: No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District
Shenzhen, 518110, People's Republic of China.

P.C.: 518000

Tel : 0755-61180008

Fax: 0755-61180008

3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA A2LA(Certificate#:2861.01)

China CNAS(L0446)

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada ISED (Company Number: 24897, CAB identifier:CN0069)

USA FCC (Registration Number: 759402, Designation Number:CN1198)

Copies of granted accreditation certificates are available for downloading from our web site,
<http://www.grgtest.com>

3.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Uncertainty
Conduction Emission	9kHz~150kHz	2.2 dB ¹⁾
	150kHz~10MHz	2.8 dB ¹⁾
	10MHz~30MHz	2.8 dB ¹⁾
Radiated Emission (3m)	30MHz~200MHz(H)	4.3 dB ¹⁾
	200MHz~1000MHz(H)	4.5 dB ¹⁾
	30MHz~200MHz(V)	4.4 dB ¹⁾
	200MHz~1000MHz(V)	4.5 dB ¹⁾
Disturbance Power	30MHz~300MHz	4.0 dB ¹⁾
Voltage Fluctuation and Flicks	/	2)
Electrostatic discharge	/	2)
Electrical fast transient/burst	/	2)
Surge	/	2)
Conducted radio frequency disturbances	/	2)
Voltage Dip & Voltage Interruptions	/	2)

Note¹⁾: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

²⁾Tests have proved that, EMS test item equipment meet the requirements of the standard with a confidence level of not less than 95%.

4. LIST OF USED TEST EQUIPMENT AT GRGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Conduction Emission				
EZ-EMC	EZ	CCS-3A1-CE	/	/
EMI Receiver	R&S	ESCI	100783	2022-09-14
LISN(EUT)	R&S	ENV216	101543	2022-09-14
Radiated Emission (Below 1GHz)				
Test S/W	EZ	CCS-03A1	/	/
Test Receiver	R&S	ESR7	102444	2022-09-22
Preamplifier	EMEC	EM330	/	2023-03-05
Bi-log Antenna	Schwarzbeck	VULB9160	VULB9160-3401	2022-10-27
Radiated Emission (Above 1GHz)				
Test S/W	Tonscend	JS32-RE	/	/
Spectrum analyzer	Agilent	N9020B	MY57120179	2022-08-08
Preamplifier	Tonscend	TAP01018048	AP20E8060075	2022-05-09
Bi-log Antenna	Schwarzbeck	BBHA 9120D	02143	2022-10-22
Voltage Fluctuation and Flicks				
Test S/W	/	CTS4	/	/
Power Source	SCHAFFNER	NSG1007	54789	2023-03-08
Harmonic & Flicker Tester	SCHAFFNER	CCN1000	72045	2022-09-24
Electrostatic discharge				
Dito ESD Simulator	EM Test	dito	V0809103493	2022-10-30
Radio-Frequency Electromagnetic Field				
Test S/W	Tonscend	JS35-RS	/	/
Signal generator	R&S	SMA100A	100434	2022-09-04
Switch	TOYO	BS5000	/	/
Power Meter	Keysight	N1914A	MY57090009	2022-10-11
Power Probe	Keysight	E9301A	MY57060008	2022-09-04
Log-periodic broadband antenna	Schaffner	CBL6143	5082	2023-01-08
Dual directional Coupler	AR	DC 6180A	0328212	2022-09-22
Power Amplifier	SCHAFFNER	CBA9433	3007	2022-10-29
Microwave Log.-Per. Antenna	Schwarzbeck	STLP9149	9149-163	2022-09-18
Power Amplifier	Milmega	AS1860-50	1079232	2022-10-29

Power Amplifier	TESEQ	CBA 3G-050	T44161	2023-04-06
Dual directional Coupler	AR	DC 7144A	327057	2022-09-22
Electrical fast transient/burst				
Test S/W	/	Win3025 Version 4.00	/	/
Fast Transients/Burst Generator	TESEQ	NSG 3025	26861	2022-09-04
Surge				
Surge simulator	3ctest	CWS 600G	ES0381813	2022-10-29
Lightning surge coupling decoupling network	3ctest	SPN 3618T	ES0941720	2022-11-05
Conducted radio frequency disturbances				
Test S/W	Tonscend	JS35-CS	/	/
Conduction and radiation immunity testing system	TESEQ	NSG4070	25807	2023-04-06
Coupled decoupled network	Luthi	CDN801-M2	1897	2022-09-11
Voltage Dip & Voltage Interruptions				
Test S/W	AMETEK	AC Source CIGuiSII-500lix	2.0.0.7-No v.2006	/
Power Source	SCHAFFNER	NSG1007	54789	2023-03-08
current switchgear	TESEQ	NSG2200-1	A17820	2022-09-24
Harmonic & Flicker Tester	SCHAFFNER	CCN1000	72045	2022-09-10

Note: The calibration interval of the above test instruments is 12 months.

5. EMISSION TEST

5.1 CONDUCTION EMISSION MEASUREMENT

5.1.1 LIMITS

Frequency range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15~0.50	66-56	59-46
0.50~5	56	46
5~30	60	50

NOTE: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases in line with the logarithm of the frequency in the range of 150 kHz to 0.5MHz.

(3) All emanations from a class B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

5.1.2 TEST PROCEDURE

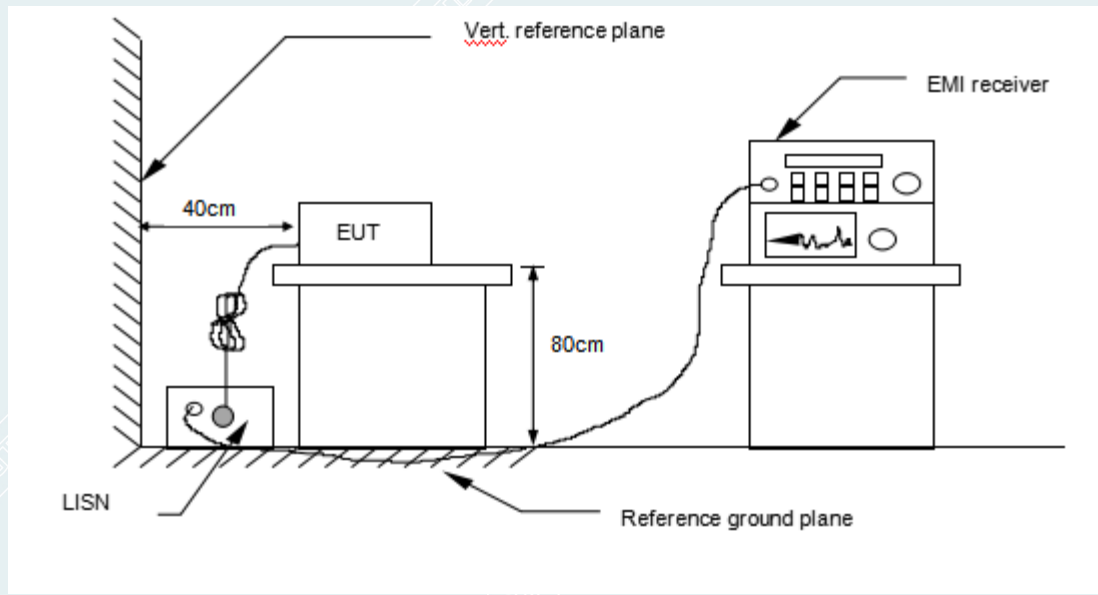
Procedure of Preliminary Test

- The EUT and Support equipment, if needed, was set up as per the test configuration to simulate typical usage per the user's manual. When 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 CISPR 14/EN 55014 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor standing equipment, it is placed on the ground plane, which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- All I/O cables were positioned to simulate typical actual usage as per CISPR 14/EN 55014 .
- The test equipment EUT received AC230V/50Hz main power, through a Line Impedance Stabilization Network (LISN), which supplied power source and was grounded to the ground plane.
- All support equipment power received from a second LISN.
- The EUT test program was started. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.
- The Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.
- During the above scans, the emissions were maximized by cable manipulation.
- The test mode(s) described in section 2.5 were scanned during the preliminary test.
- After the preliminary scan, we found the test mode described in section 2.5 producing the highest emission level.
- The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

Procedure of Final Test

- EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.
- The test data of the worst-case condition(s) was recorded.

5.1.3 TEST SETUP



5.1.4 DATA SAMPLE

Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XXXX	24.60	10.97	19.90	44.50	30.87	56.00	46.00	-11.50	-15.13	Pass

- Factor = Insertion loss of LISN + Cable Loss
- Result = Quasi-peak Reading/ Average Reading + Factor
- Limit = Limit stated in standard
- Margin = Result (dBuV) – Limit (dBuV)

5.1.5 PHOTOGRAPH OF THE TEST ARRANGEMENT

Mode 1 & Mode 2



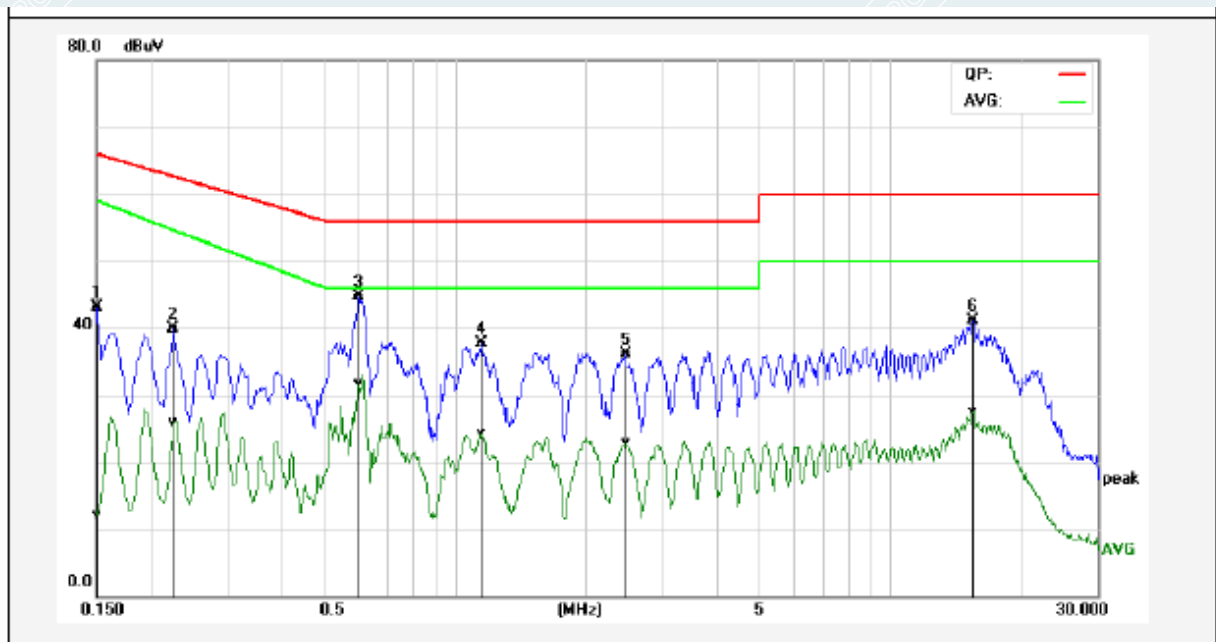
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5.1.6 TEST RESULTS

Motor 1:

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	22.5°C/49%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-28	Sample No.	E20220309137001-0005

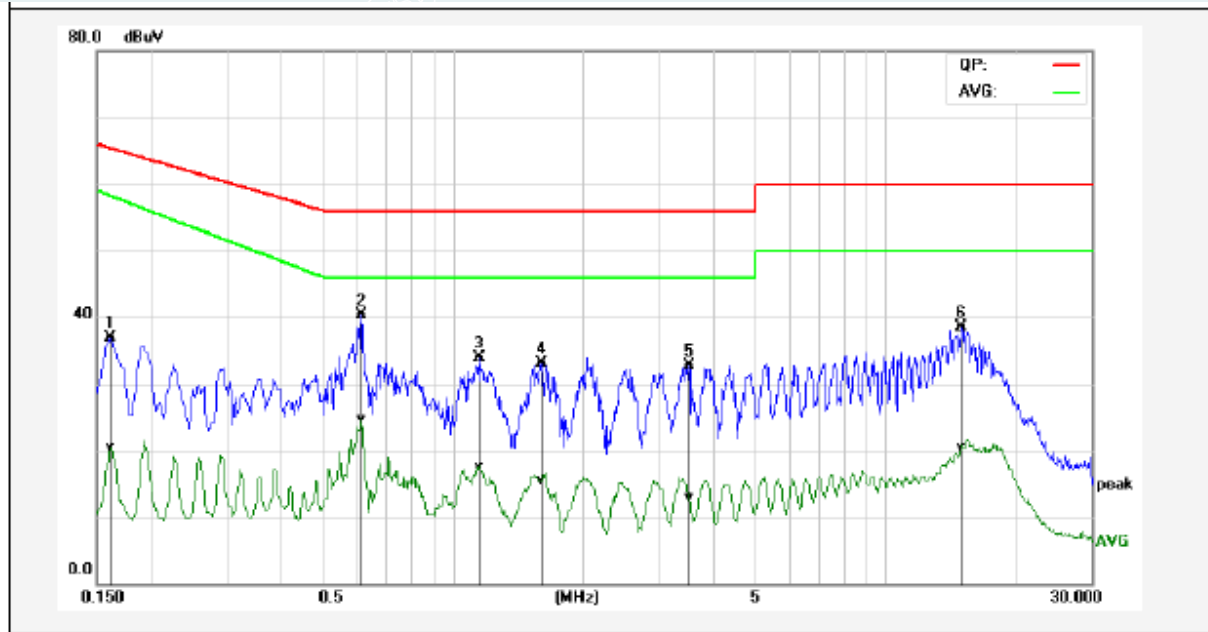
Line: L1



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1500	33.48	2.49	9.53	43.01	12.02	65.99	59.00	-22.98	-46.98	Pass
2	0.2260	30.27	16.27	9.55	39.82	25.82	62.59	54.57	-22.77	-28.75	Pass
3*	0.6020	35.07	22.10	9.57	44.64	31.67	56.00	46.00	-11.36	-14.33	Pass
4	1.1539	28.11	14.68	9.59	37.70	24.27	56.00	46.00	-18.30	-21.73	Pass
5	2.4620	26.52	13.21	9.61	36.13	22.82	56.00	46.00	-19.87	-23.18	Pass
6	15.4940	31.26	17.69	9.85	41.11	27.54	60.00	50.00	-18.89	-22.46	Pass

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	22.5°C/49%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-28	Sample No.	E20220309137001-0005

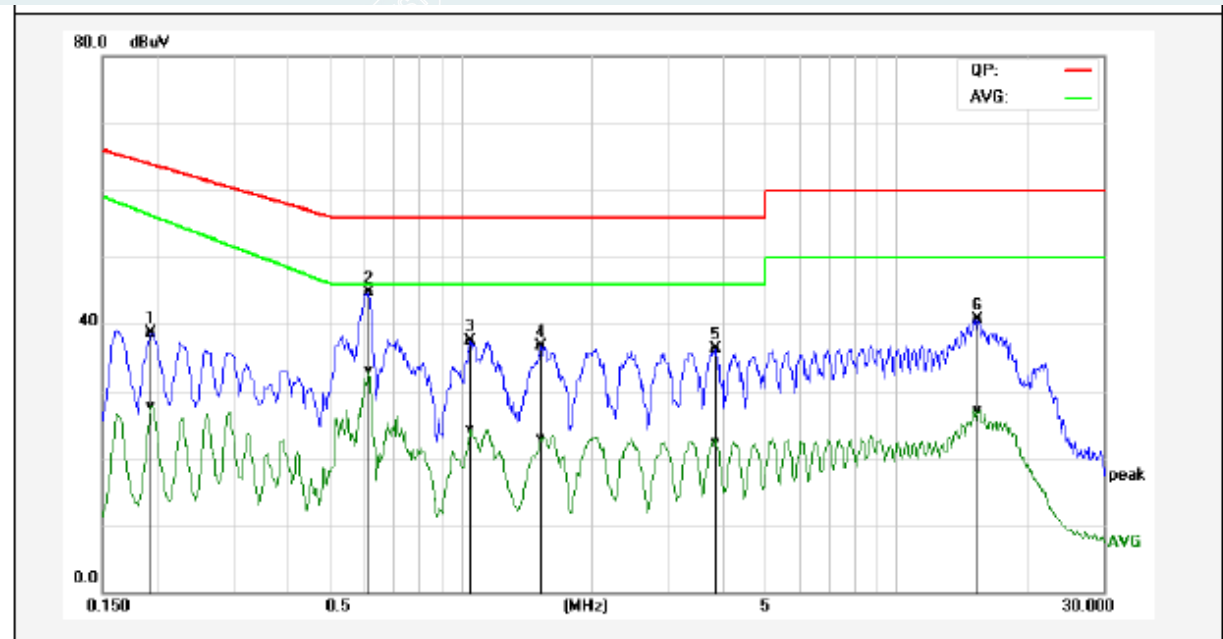
Line: N



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1620	27.40	11.03	9.52	36.92	20.55	65.36	58.17	-28.44	-37.62	Pass
2*	0.6140	30.63	15.00	9.68	40.31	24.68	56.00	46.00	-15.69	-21.32	Pass
3	1.1580	24.38	7.81	9.62	34.00	17.43	56.00	46.00	-22.00	-28.57	Pass
4	1.6100	23.46	5.89	9.62	33.08	15.51	56.00	46.00	-22.92	-30.49	Pass
5	3.5100	23.05	3.32	9.61	32.66	12.93	56.00	46.00	-23.34	-33.07	Pass
6	15.0500	28.63	10.66	9.89	38.52	20.55	60.00	50.00	-21.48	-29.45	Pass

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	22.5°C/49%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-28	Sample No.	E20220309137001-0005

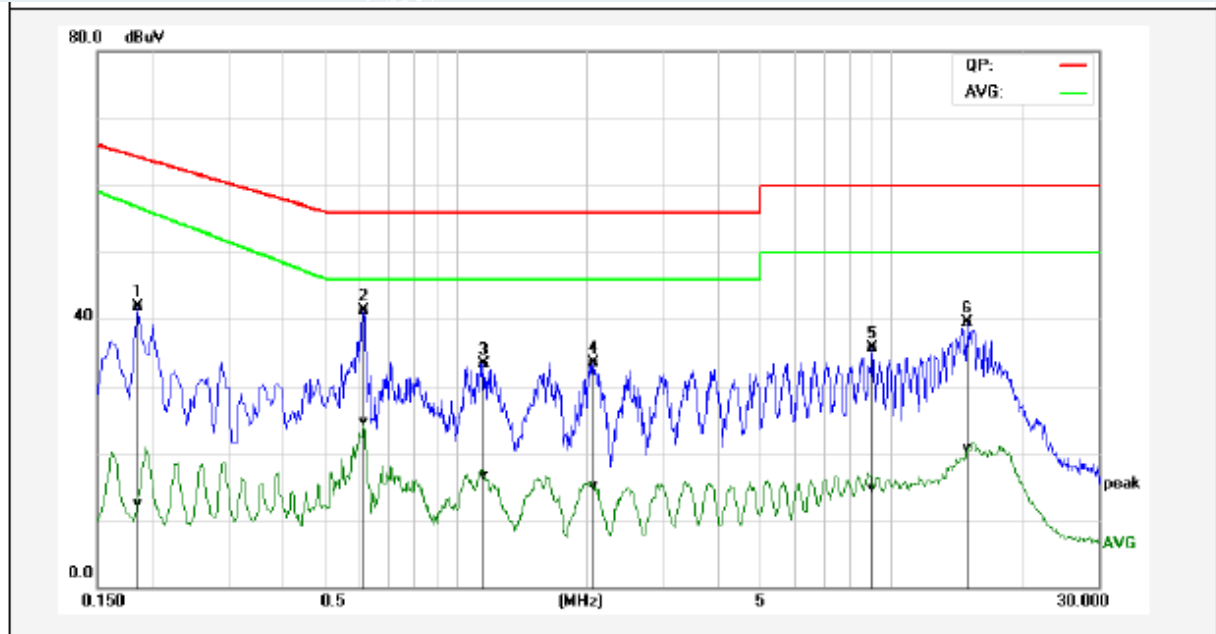
Line: L1



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1940	29.13	18.19	9.54	38.67	27.73	63.86	56.22	-25.19	-28.49	Pass
2*	0.6140	35.04	23.46	9.57	44.61	33.03	56.00	46.00	-11.39	-12.97	Pass
3	1.0540	27.92	14.74	9.59	37.51	24.33	56.00	46.00	-18.49	-21.67	Pass
4	1.5339	27.03	13.37	9.60	36.63	22.97	56.00	46.00	-19.37	-23.03	Pass
5	3.8620	26.70	12.63	9.65	36.35	22.28	56.00	46.00	-19.65	-23.72	Pass
6	15.4660	30.78	17.31	9.85	40.63	27.16	60.00	50.00	-19.37	-22.84	Pass

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	22.5°C/49%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-28	Sample No.	E20220309137001-0005

Line: N

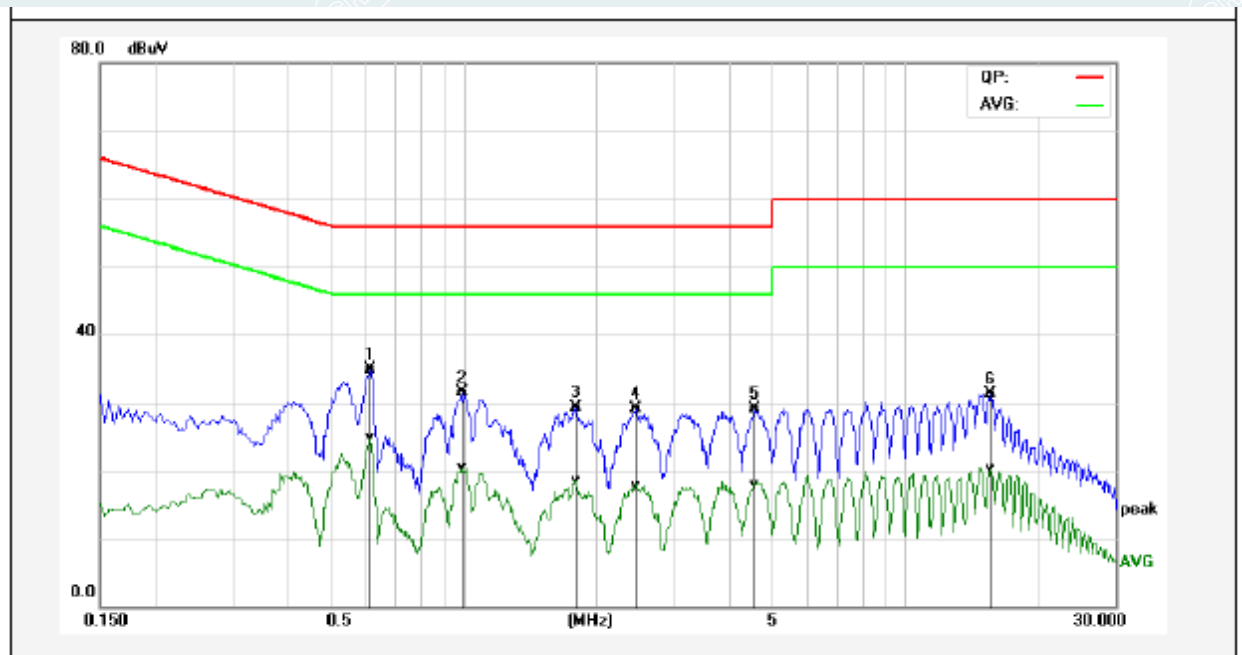


No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1860	32.33	2.96	9.55	41.88	12.51	64.21	56.68	-22.33	-44.17	Pass
2*	0.6140	31.53	15.09	9.68	41.21	24.77	56.00	46.00	-14.79	-21.23	Pass
3	1.1620	23.70	7.04	9.62	33.32	16.66	56.00	46.00	-22.68	-29.34	Pass
4	2.0700	23.91	5.47	9.60	33.51	15.07	56.00	46.00	-22.49	-30.93	Pass
5	9.0700	25.95	4.94	9.78	35.73	14.72	60.00	50.00	-24.27	-35.28	Pass
6	15.0380	29.53	10.72	9.89	39.42	20.61	60.00	50.00	-20.58	-29.39	Pass

Motor 2:

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.5°C/42%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-04-09	Sample No.	E20220309137001-0007

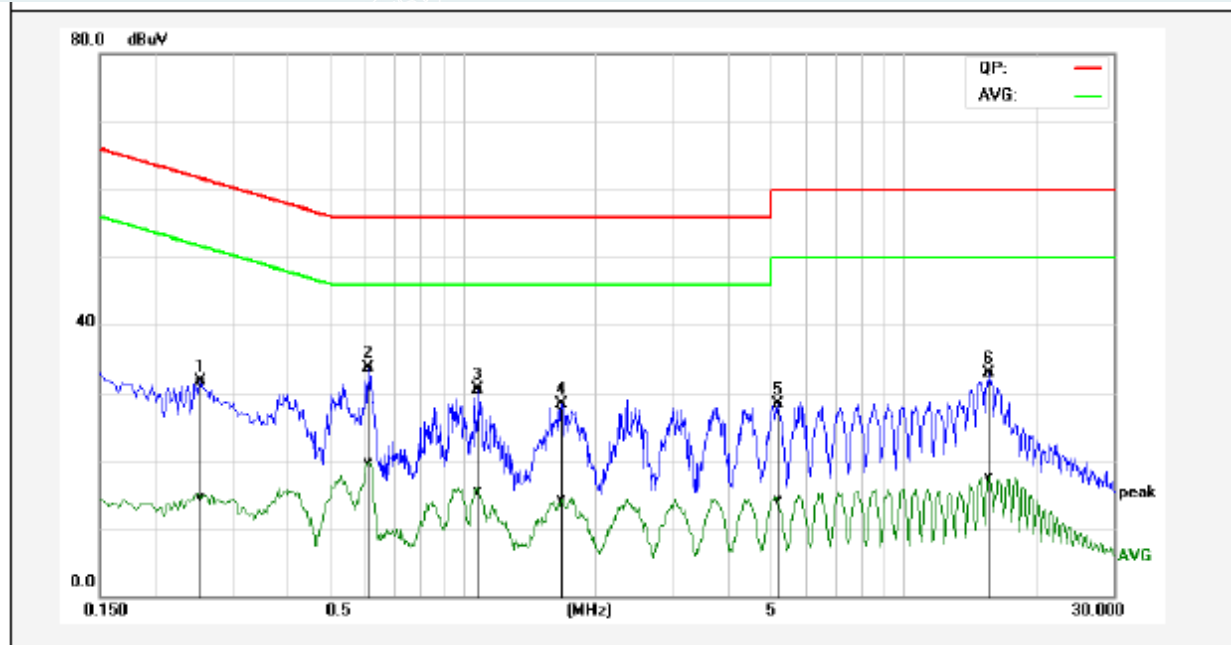
Line: L1



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.6140	25.32	15.30	9.57	34.89	24.87	56.00	46.00	-21.11	-21.13	Pass
2	0.9900	21.99	10.90	9.59	31.58	20.49	56.00	46.00	-24.42	-25.51	Pass
3	1.7940	19.66	8.84	9.60	29.26	18.44	56.00	46.00	-26.74	-27.56	Pass
4	2.4539	19.41	8.14	9.61	29.02	17.75	56.00	46.00	-26.98	-28.25	Pass
5	4.5860	19.51	8.27	9.66	29.17	17.93	56.00	46.00	-26.83	-28.07	Pass
6	15.6780	21.45	10.39	9.85	31.30	20.24	60.00	50.00	-28.70	-29.76	Pass

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.5°C/42%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-04-09	Sample No.	E20220309137001-0007

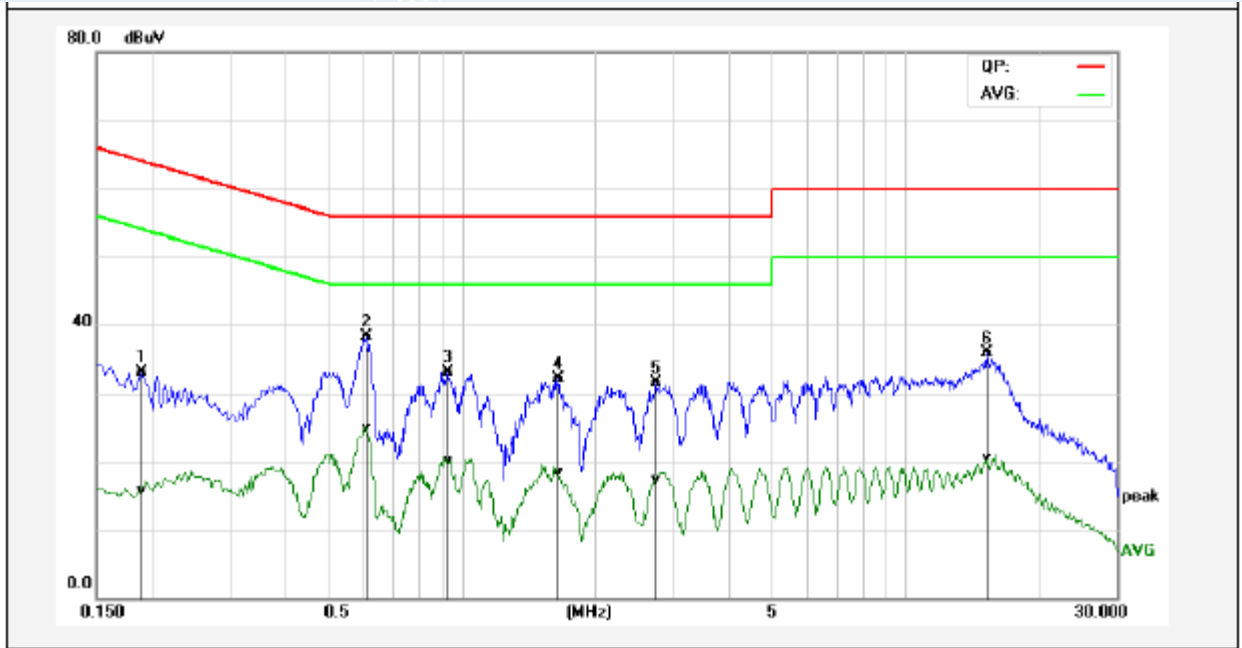
Line: N



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.2540	22.06	4.86	9.59	31.65	14.45	61.62	51.63	-29.97	-37.18	Pass
2*	0.6100	24.05	9.94	9.68	33.73	19.62	56.00	46.00	-22.27	-26.38	Pass
3	1.0859	20.86	5.81	9.63	30.49	15.44	56.00	46.00	-25.51	-30.56	Pass
4	1.6740	18.59	4.64	9.61	28.20	14.25	56.00	46.00	-27.80	-31.75	Pass
5	5.2100	18.72	4.47	9.67	28.39	14.14	60.00	50.00	-31.61	-35.86	Pass
6	15.6500	23.00	7.58	9.89	32.89	17.47	60.00	50.00	-27.11	-32.53	Pass

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.5°C/42%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-04-09	Sample No.	E20220309137001-0007

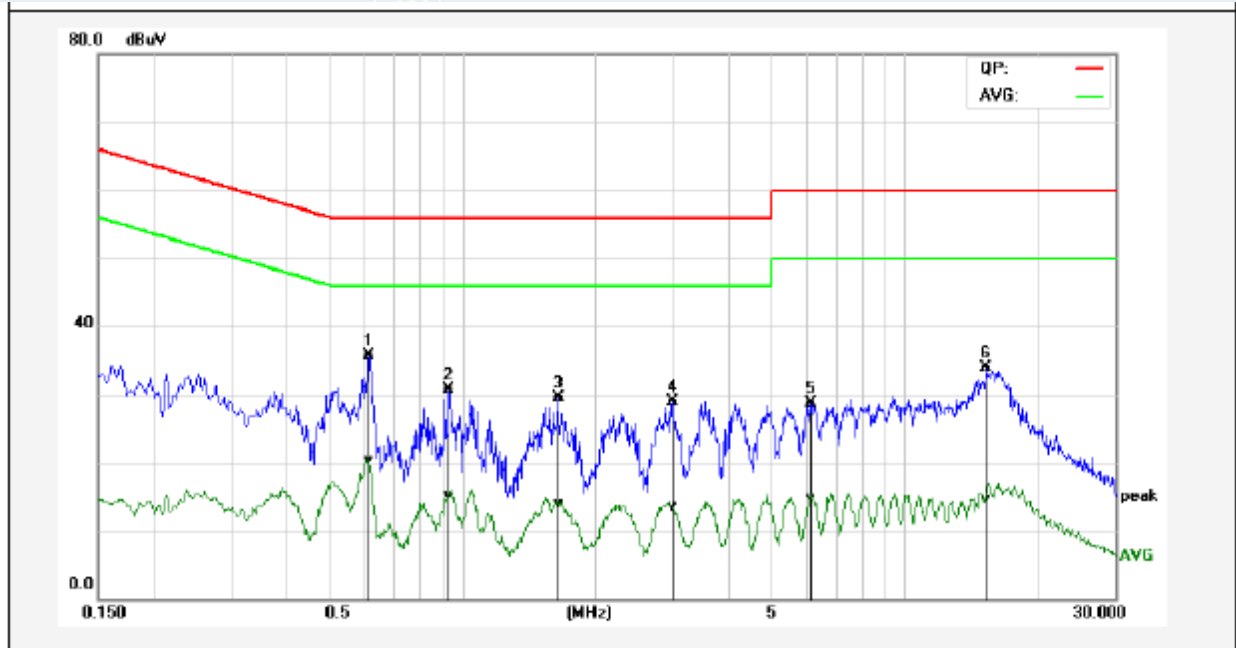
Line: L1



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1900	23.61	6.16	9.54	33.15	15.70	64.03	54.04	-30.88	-38.34	Pass
2*	0.6100	28.66	15.32	9.57	38.23	24.89	56.00	46.00	-17.77	-21.11	Pass
3	0.9300	23.48	10.55	9.59	33.07	20.14	56.00	46.00	-22.93	-25.86	Pass
4	1.6580	22.54	8.76	9.60	32.14	18.36	56.00	46.00	-23.86	-27.64	Pass
5	2.7460	21.90	7.69	9.61	31.51	17.30	56.00	46.00	-24.49	-28.70	Pass
6	15.3060	26.02	10.68	9.84	35.86	20.52	60.00	50.00	-24.14	-29.48	Pass

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.5°C/42%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-04-09	Sample No.	E20220309137001-0007

Line: N



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.6140	26.05	10.72	9.68	35.73	20.40	56.00	46.00	-20.27	-25.60	Pass
2	0.9340	21.01	5.41	9.64	30.65	15.05	56.00	46.00	-25.35	-30.95	Pass
3	1.6460	19.94	4.21	9.61	29.55	13.82	56.00	46.00	-26.45	-32.18	Pass
4	2.9860	19.30	3.95	9.60	28.90	13.55	56.00	46.00	-27.10	-32.45	Pass
5	6.1820	19.08	4.92	9.70	28.78	14.62	60.00	50.00	-31.22	-35.38	Pass
6	15.3660	23.97	4.53	9.89	33.86	14.42	60.00	50.00	-26.14	-35.58	Pass

5.2 RADIATED EMISSION MEASUREMENT

5.2.1 LIMITS

Below 1GHz

Frequency range (MHz)	Limits (dB μ V/m)
	Distance: 3m
	Quasi peak
30 ~ 230	40
230 ~ 1000	47

NOTE:(1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dB μ V/m) = 20 log Emission level (uV/m)

5.2.2 TEST PROCEDURE

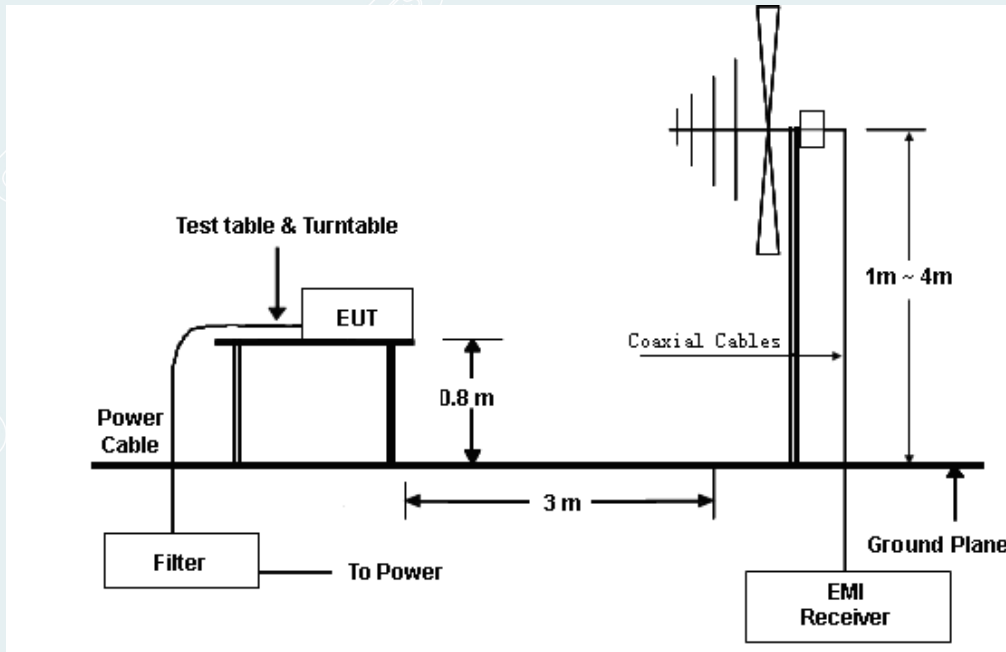
Procedure of Preliminary Test

- The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.1 meters is used which is placed on the ground plane. When the EUT is a floor standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- Support equipment, if needed, was placed as per CISPR 14/EN 55014.
- All I/O cables were positioned to simulate typical usage as per CISPR 14/EN 55014.
- The EUT received AC 230V/50Hz main power from the outlet socket under the turntable. All support equipment power received from another socket under the turntable.
- Mains cables, telephone lines or other connections to auxiliary equipment located outside the test are shall drape to the floor, be fitted with ferrite clamps or ferrite tubes placed on the floor at the point where the cable reaches the floor and then routed to the place where they leave the turntable. No extension cords shall be used to mains receptacle.
- The antenna was placed at 10 meter away from the EUT as stated in CISPR 14/EN 55014. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.
- The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- The test mode(s) described in section 2.5 were scanned during the preliminary test:
- After the preliminary scan, we found the test mode described in section 2.5 producing the highest emission level.
- The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

Procedure of Final Test

- EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test.
- The Analyzer / Receiver scanned from 30MHz to 1000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.
- The test data of the worst-case condition(s) was recorded.

5.2.3 TEST SETUP



5.2.4 DATA SAMPLE

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
XXXX	63.53	-27.15	36.38	43.50	-7.12	QP

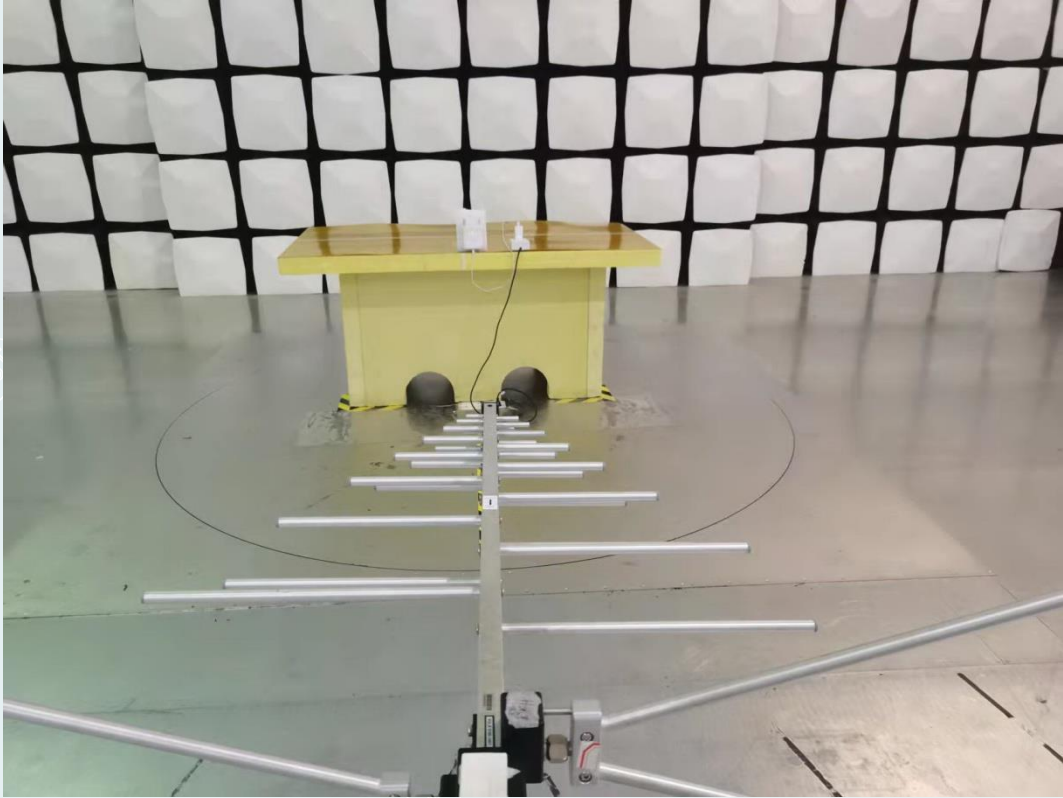
- Frequency (MHz) = Emission frequency in MHz
- Reading (dBuV) = Uncorrected Analyzer / Receiver reading
- Correct Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
- Result (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
- Limit (dBuV/m) = Limit stated in standard
- Margin (dB) = Result (dBuV/m) – Limit(dBuV/m)
- QP = Quasi-peak Reading

Calculation Formula

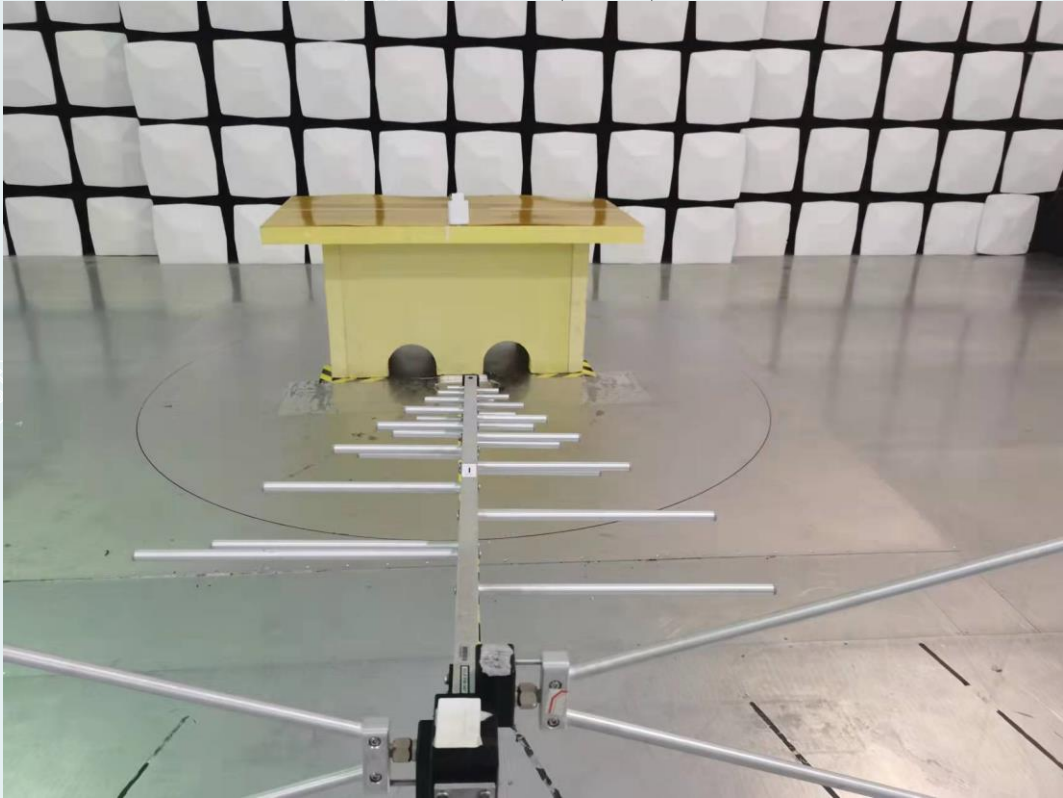
Margin (dB) = Result (dBuV/m) – Limits (dBuV/m)
 Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)

5.2.5 PHOTOGRAPH OF THE TEST ARRANGEMENT

Below 1GHz (Mode 1&Mode 2)



Below 1GHz (Mode 3)

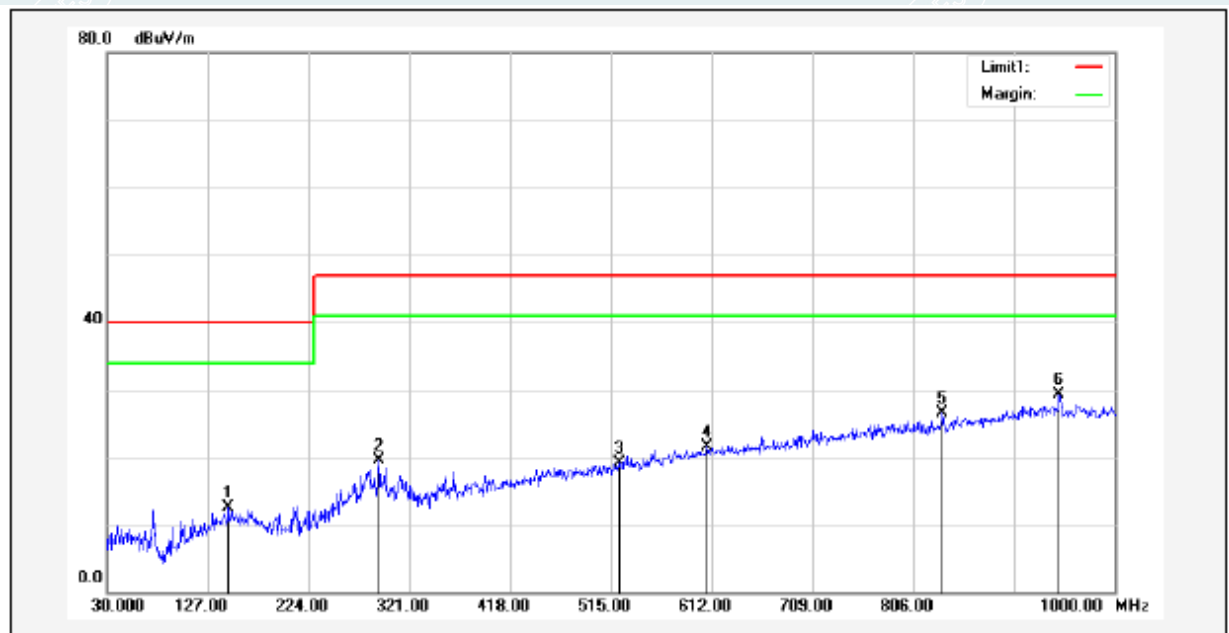


5.2.6 TEST RESULTS

Motor 1:

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.1 °C/48%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Zeng Xianglong
Test Date	2022-03-31	Sample No.	E20220309137001-0005

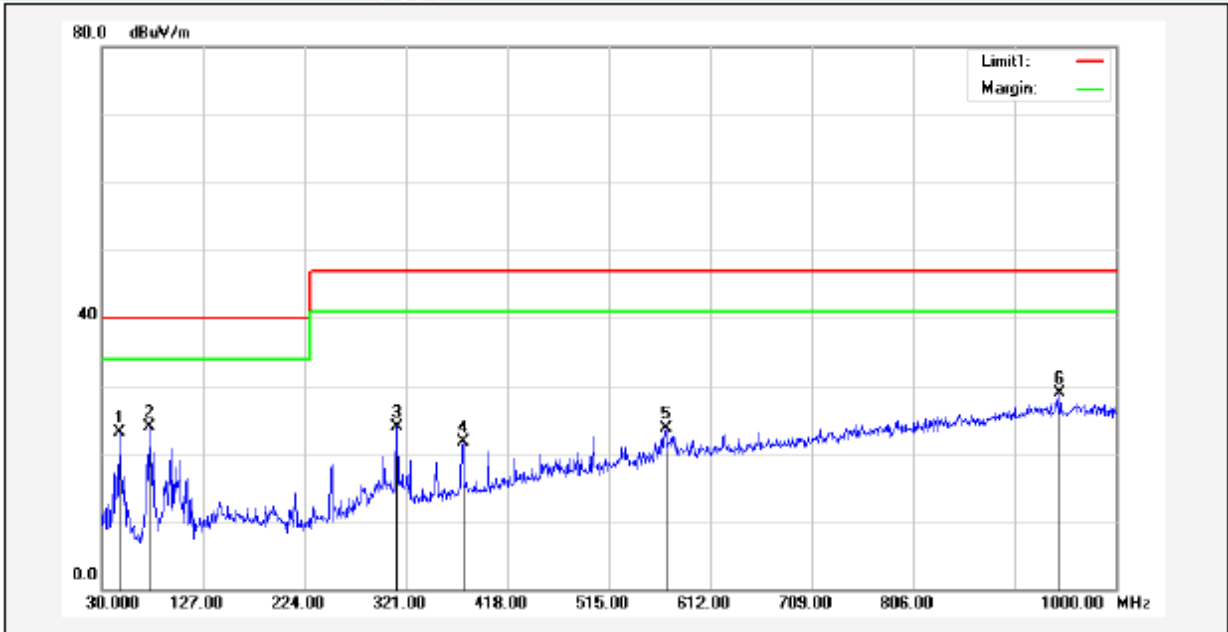
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	147.3700	37.44	-24.96	12.48	40.00	-27.52	167	199	QP
2	291.9000	43.29	-23.86	19.43	47.00	-27.57	68	100	QP
3	523.7300	36.34	-17.30	19.04	47.00	-27.96	360	290	QP
4	607.1500	36.54	-14.94	21.60	47.00	-25.40	311	399	QP
5	834.1300	37.56	-11.11	26.45	47.00	-20.55	48	399	QP
6*	946.6500	38.72	-9.44	29.28	47.00	-17.72	168	399	QP

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.1 °C/48%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Zeng Xianglong
Test Date	2022-03-31	Sample No.	E20220309137001-0005

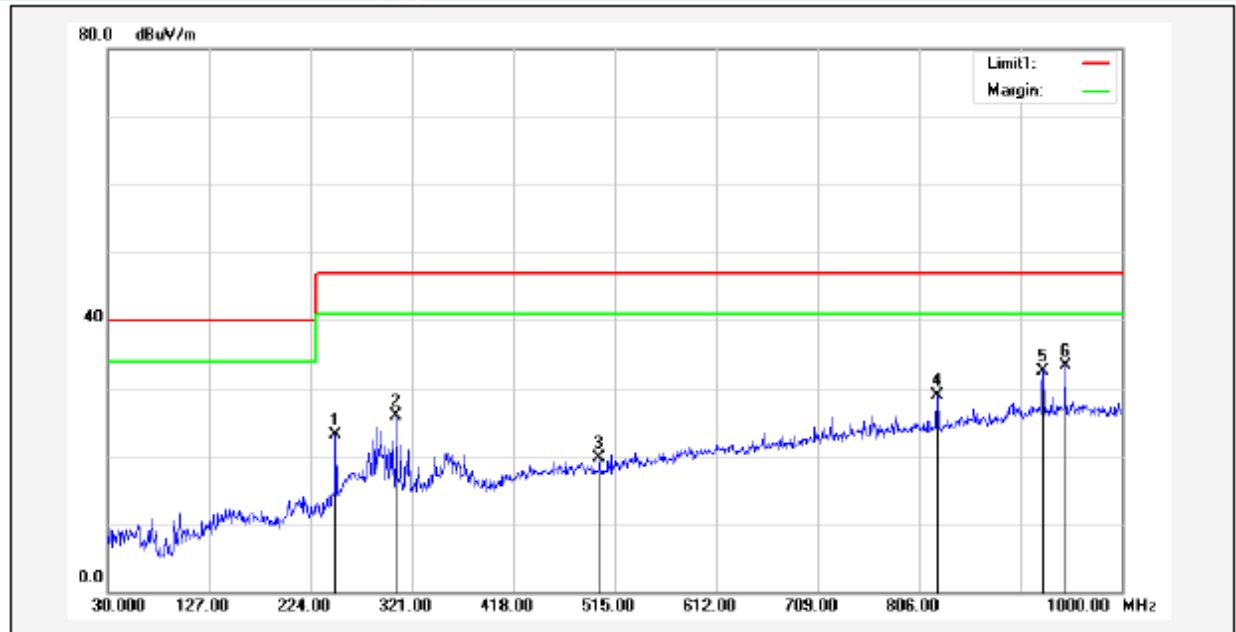
Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	47.4600	50.05	-26.99	23.06	40.00	-16.94	342	100	QP
2*	75.5900	54.28	-30.43	23.85	40.00	-16.15	60	100	QP
3	312.2700	47.21	-23.26	23.95	47.00	-23.05	47	100	QP
4	375.3200	43.09	-21.41	21.68	47.00	-25.32	255	100	QP
5	569.3200	39.78	-16.02	23.76	47.00	-23.24	246	100	QP
6	946.6500	38.43	-9.44	28.99	47.00	-18.01	342	100	QP

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.1 °C/48%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Zeng Xianglong
Test Date	2022-03-31	Sample No.	E20220309137001-0005

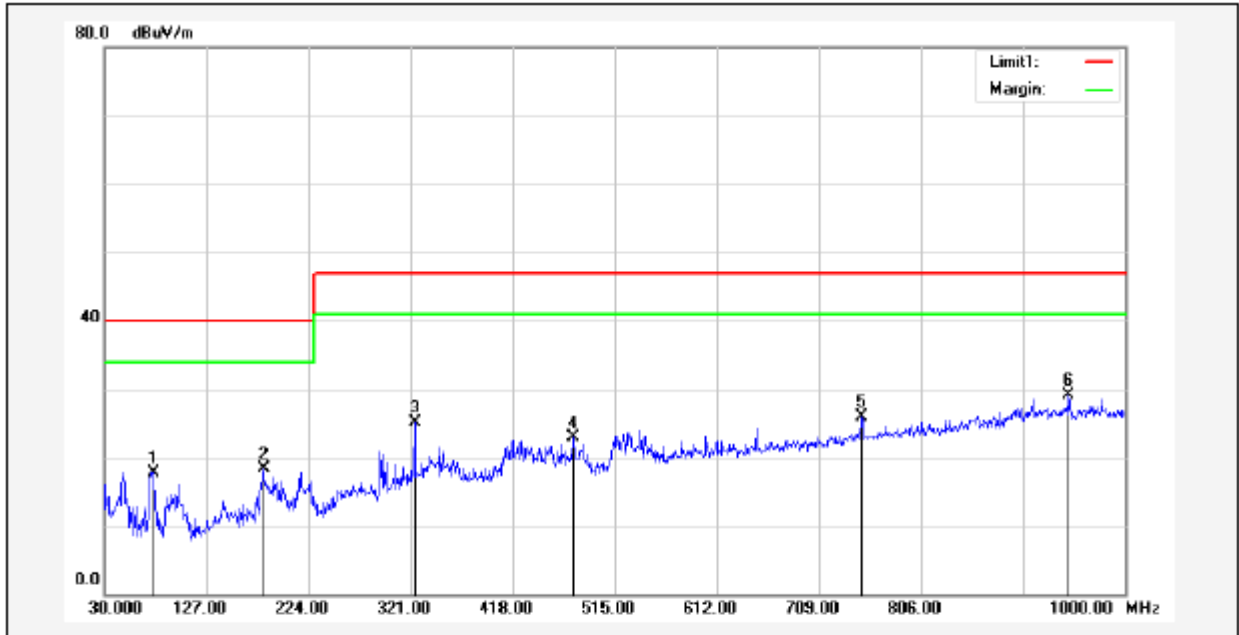
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	248.2500	48.62	-25.46	23.16	47.00	-23.84	360	240	QP
2	306.4500	49.26	-23.41	25.85	47.00	-21.15	262	100	QP
3	500.4500	37.54	-17.90	19.64	47.00	-27.36	318	200	QP
4	823.4600	40.07	-11.23	28.84	47.00	-18.16	58	100	QP
5	924.3400	42.36	-9.76	32.60	47.00	-14.40	360	272	QP
6*	945.6800	42.86	-9.46	33.40	47.00	-13.60	360	272	QP

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.1 °C/48%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Zeng Xianglong
Test Date	2022-03-31	Sample No.	E20220309137001-0005

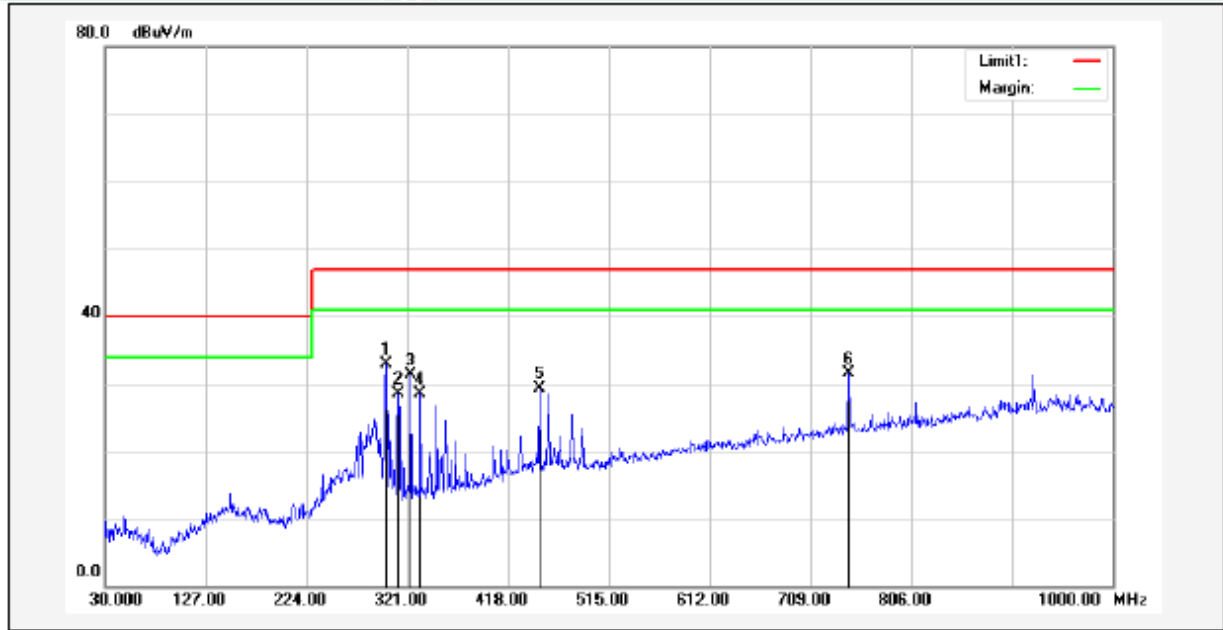
Polarity:Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	76.5600	48.38	-30.68	17.70	40.00	-22.30	55	100	QP
2	181.3200	44.46	-26.16	18.30	40.00	-21.70	147	100	QP
3	324.8800	47.97	-22.95	25.02	47.00	-21.98	58	100	QP
4	475.2300	41.21	-18.33	22.88	47.00	-24.12	96	100	QP
5	749.7400	38.20	-12.26	25.94	47.00	-21.06	354	100	QP
6*	946.6500	38.49	-9.44	29.05	47.00	-17.95	1	100	QP

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.1 °C/48%RH/101.0kPa	Test Mode	Mode 3
Power supply	DC 3.7V	Tested By	Zeng Xianglong
Test Date	2022-03-31	Sample No.	E20220309137001-0005

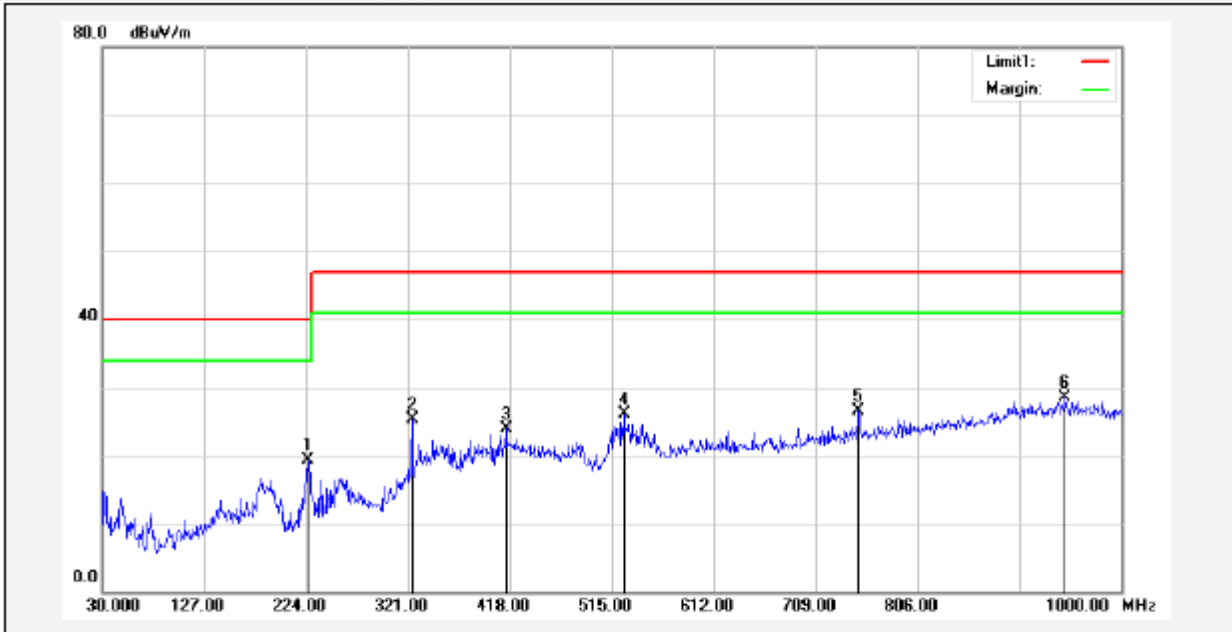
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1*	300.6300	56.45	-23.54	32.91	47.00	-14.09	96	100	QP
2	312.2700	51.70	-23.26	28.44	47.00	-18.56	96	100	QP
3	323.9100	54.37	-22.98	31.39	47.00	-15.61	96	100	QP
4	333.6100	51.30	-22.74	28.56	47.00	-18.44	96	100	QP
5	448.0700	48.12	-18.80	29.32	47.00	-17.68	157	100	QP
6	745.8600	43.76	-12.35	31.41	47.00	-15.59	153	100	QP

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.1 °C/48%RH/101.0kPa	Test Mode	Mode 3
Power supply	DC 3.7V	Tested By	Zeng Xianglong
Test Date	2022-03-31	Sample No.	E20220309137001-0005

Polarity: Vertical

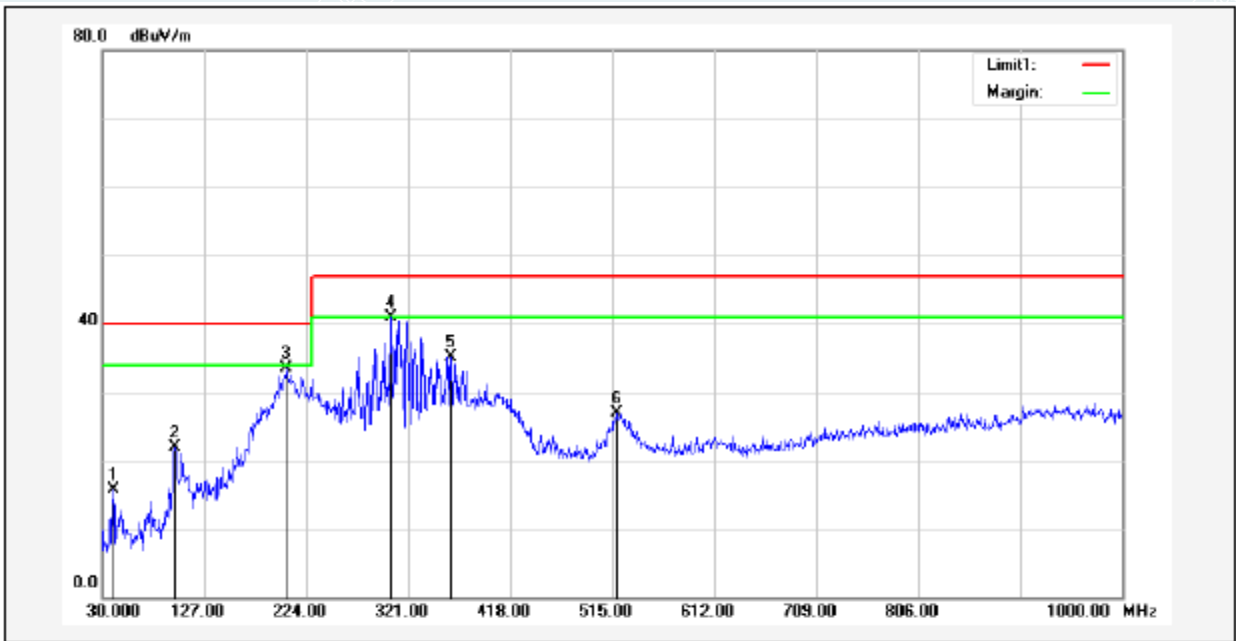


No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	225.9400	45.88	-26.50	19.38	40.00	-20.62	306	100	QP
2	324.8800	48.35	-22.95	25.40	47.00	-21.60	80	100	QP
3	414.1200	43.82	-20.00	23.82	47.00	-23.18	250	100	QP
4	526.6400	43.37	-17.23	26.14	47.00	-20.86	360	100	QP
5	749.7400	38.67	-12.26	26.41	47.00	-20.59	315	100	QP
6*	946.6500	37.95	-9.44	28.51	47.00	-18.49	224	100	QP

Motor 2

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.0°C/46%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Wang Xinyuan
Test Date	2022-04-06	Sample No.	E20220309137001-0007

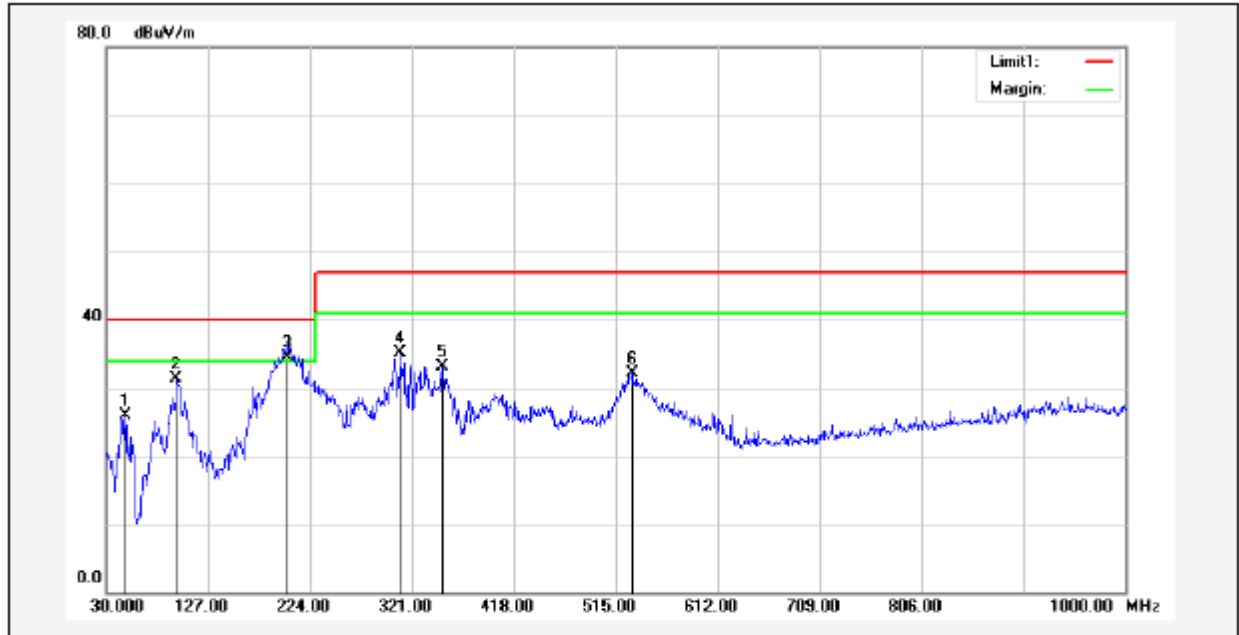
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	40.6700	42.99	-27.27	15.72	40.00	-24.28	65	100	QP
2	98.8700	51.42	-29.47	21.95	40.00	-18.05	213	200	QP
3	205.5700	61.01	-27.48	33.53	40.00	-6.47	175	200	QP
4*	304.5100	64.33	-23.45	40.88	47.00	-6.12	89	399	QP
5	361.7400	57.11	-21.91	35.20	47.00	-11.80	254	399	QP
6	518.8800	44.28	-17.42	26.86	47.00	-20.14	301	200	QP

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.0°C/46%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Wang Xinyuan
Test Date	2022-04-06	Sample No.	E20220309137001-0007

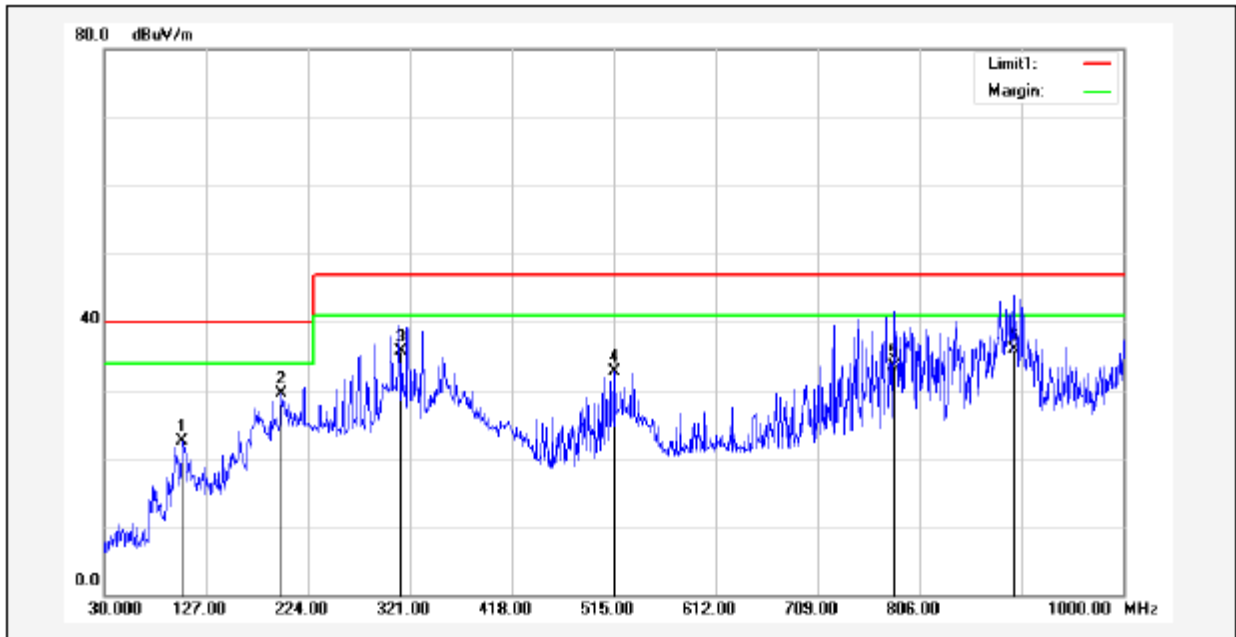
Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	48.4300	52.86	-26.95	25.91	40.00	-14.09	139	100	QP
2	96.9300	61.26	-29.87	31.39	40.00	-8.61	48	100	QP
3*	202.6600	62.14	-27.62	34.52	40.00	-5.48	296	100	QP
4	310.3300	58.38	-23.31	35.07	47.00	-11.93	359	128	QP
5	350.1000	55.51	-22.35	33.16	47.00	-13.84	358	100	QP
6	530.5200	49.16	-17.12	32.04	47.00	-14.96	214	100	QP

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.0°C/46%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Wang Xinyuan
Test Date	2022-04-06	Sample No.	E20220309137001-0007

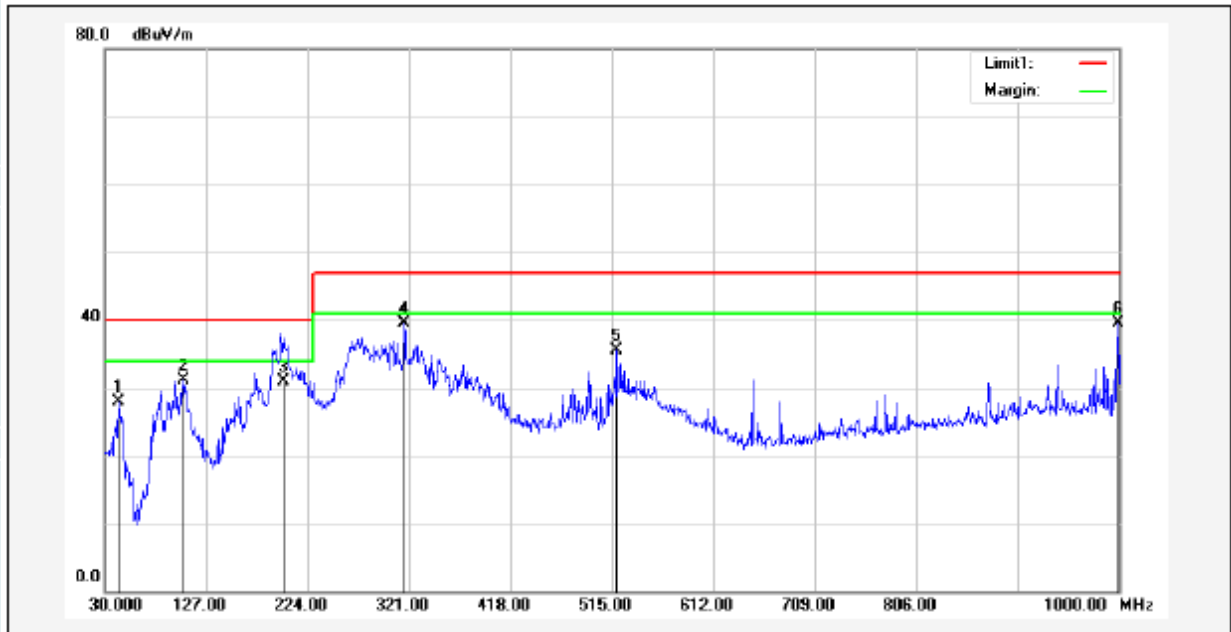
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	104.6900	51.21	-28.62	22.59	40.00	-17.41	191	300	QP
2*	198.7800	57.15	-27.64	29.51	40.00	-10.49	305	100	QP
3	313.0110	59.00	-23.24	35.76	47.00	-11.24	91	100	QP
4	515.9700	50.26	-17.50	32.76	47.00	-14.24	360	201	QP
5	781.7500	45.29	-11.79	33.50	47.00	-13.50	213	100	QP
6	895.2400	46.07	-10.18	35.89	47.00	-11.11	270	100	QP

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.0°C/46%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Wang Xinyuan
Test Date	2022-04-06	Sample No.	E20220309137001-0007

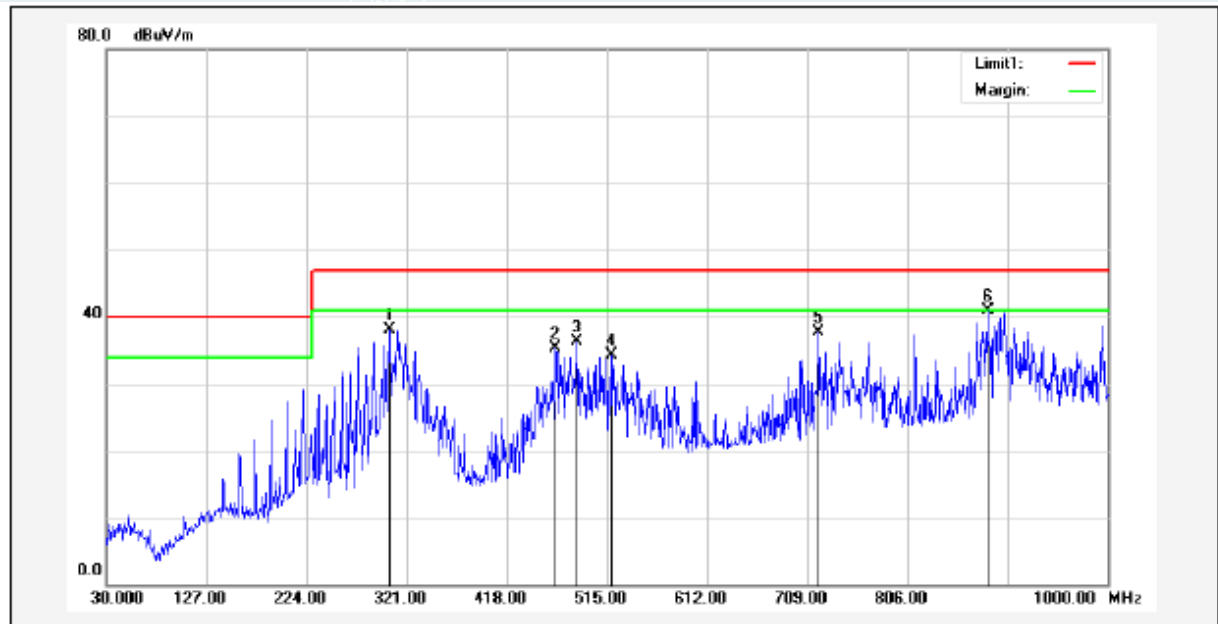
Polarity:Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	43.5800	55.06	-27.15	27.91	40.00	-12.09	358	100	QP
2	105.6600	59.61	-28.49	31.12	40.00	-8.88	125	100	QP
3	200.7580	58.69	-27.70	30.99	40.00	-9.01	329	102	QP
4	316.1500	62.61	-23.16	39.45	47.00	-7.55	289	199	QP
5	519.8500	52.81	-17.39	35.42	47.00	-11.58	358	100	QP
6*	999.0300	48.36	-8.82	39.54	47.00	-7.46	300	100	QP

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.0°C/46%RH/101.0kPa	Test Mode	Mode 3
Power supply	DC 3.7V	Tested By	Wang Xinyuan
Test Date	2022-04-06	Sample No.	E20220309137001-0007

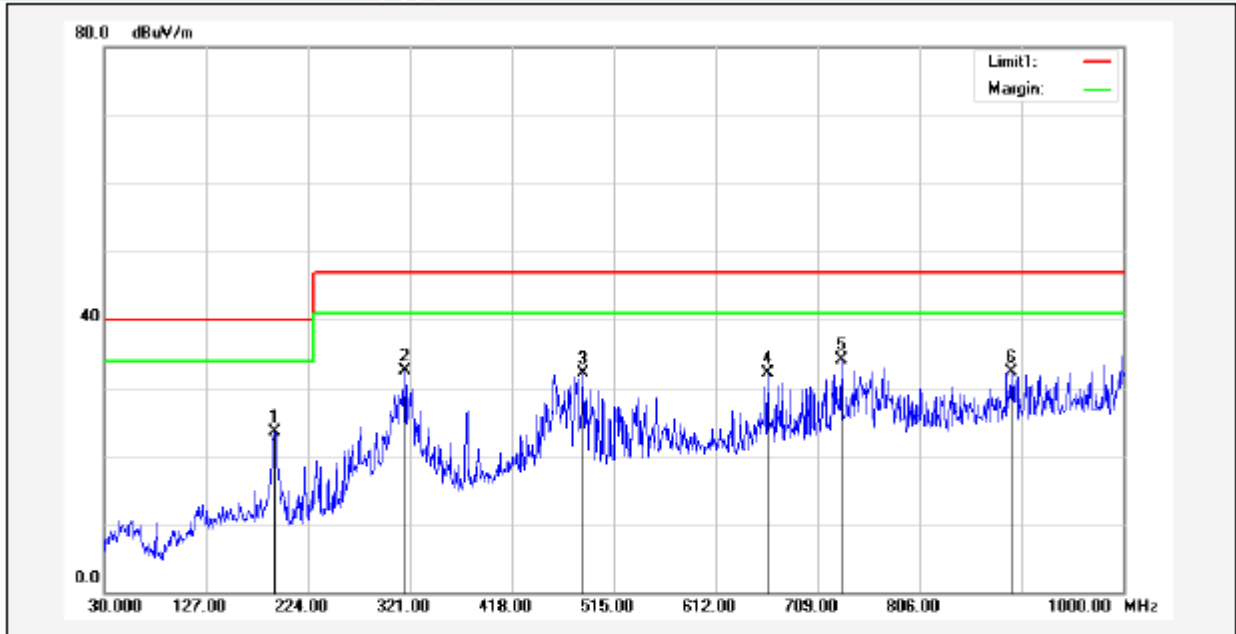
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	304.5100	61.53	-23.45	38.08	47.00	-8.92	115	100	QP
2	465.5300	53.78	-18.48	35.30	47.00	-11.70	69	200	QP
3	485.9000	54.42	-18.14	36.28	47.00	-10.72	73	399	QP
4	518.8800	51.79	-17.42	34.37	47.00	-12.63	279	399	QP
5	719.6700	50.65	-12.91	37.74	47.00	-9.26	176	100	QP
6*	883.6000	51.21	-10.37	40.84	47.00	-6.16	89	100	QP

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.0°C/46%RH/101.0kPa	Test Mode	Mode 3
Power supply	DC 3.7V	Tested By	Wang Xinyuan
Test Date	2022-04-06	Sample No.	E20220309137001-0007

Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	191.9900	50.58	-27.10	23.48	40.00	-16.52	11	100	QP
2	316.1500	55.73	-23.16	32.57	47.00	-14.43	208	300	QP
3	485.9000	50.32	-18.14	32.18	47.00	-14.82	129	200	QP
4	661.4700	46.10	-14.06	32.04	47.00	-14.96	177	200	QP
5*	731.3100	46.80	-12.66	34.14	47.00	-12.86	283	100	QP
6	893.3000	42.52	-10.21	32.31	47.00	-14.69	0	264	QP

5.3 DISTURBANCE POWER MEASUREMENT

5.3.1 LIMITS

FREQUENCY (MHz)	dB(pw)	
	Quasi-peak	Average
30 ~ 300	45 ~ 55 ¹⁾	35 ~ 45 ¹⁾
200 ~ 300	Margin 0 ~ 10	-

Note: ¹⁾ Increasing linearly with the frequency.

5.3.2 TEST PROCEDURE

The appliance to be tested is placed on a non-metallic table at least 0.8 m from other metallic objects and the lead to be measured on is stretched in a straight line for a distance sufficient to accommodate the absorbing clamp, and to permit the necessary measuring adjustment of position for tuning. The clamp is placed around the lead so as to measure a quantity proportional to the disturbance power on the lead.

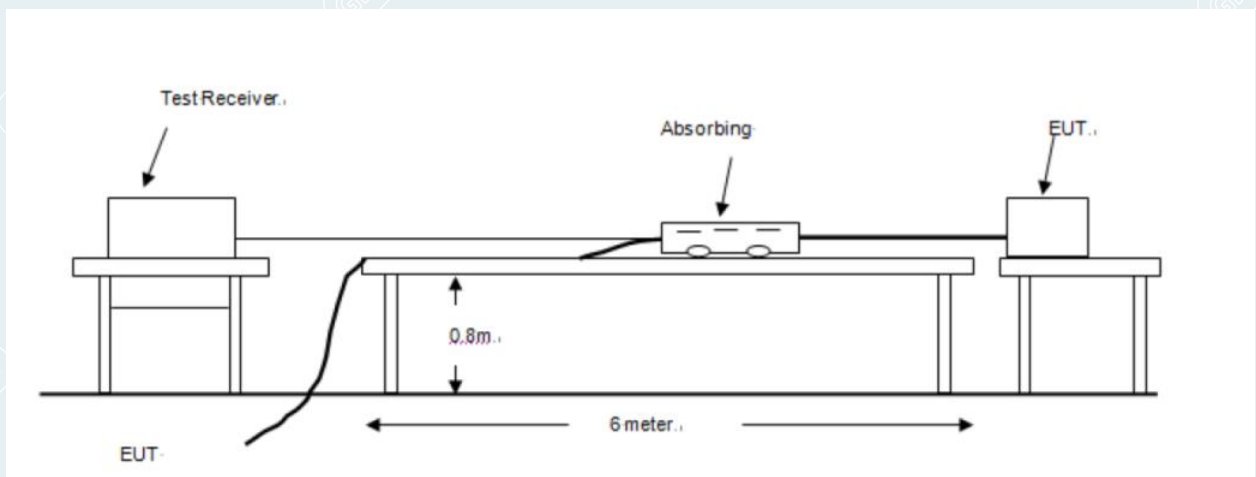
The absorbing clamp is positioned for maximum indication at each test frequency: the clamp shall be moved along the lead until the maximum value is found between a position adjacent to the appliance and a distance of about a half-wavelength from it.

The straight portion of the lead to be measured on should therefore be about 6 m long, this being equal to $\lambda_{\max}/2 + 0,6$ m in order to allow at any time the positioning of the absorbing clamp and a possible second clamp for additional isolation. Pre-testing is carried out in all operating modes to find the worst mode for the every test terminal.

Test Modes: Auto Mode

The test mode(s) were scanned during the preliminary test. A test at about 160 kHz and at about 50 MHz shall be made over a range of 0.9 to 1.1 times the rated voltage in order to check whether the level of disturbance varies considerably with the supply voltage; in which case, the measurements are to be made at the voltage that causes maximum disturbance. After the preliminary scan, we found the test mode producing the highest emission level. The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

5.3.3 TEST SETUP



5.3.4 DATA SAMPLE

Frequency (MHz)	Reading (dBpW)	Correct Factor (dB)	Result (dBpW)	Limit (dBpW)	Margin (dB)	Remark
XX.XXXX	35.54	4.56	40.10	55.00	-14.90	QP
XX.XXXX	29.66	4.56	34.22	45.00	-10.78	AVG

Frequency (MHz) = Emission frequency in MHz

Reading (dBpW) = Uncorrected Analyzer / Receiver reading

Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain

Result (dBpW) = Reading (dBpW) + Corr. Factor (dB)

Limit (dBpW) = Limit stated in standard

Margin (dB) = Result (dBpW) – Limit(dBpW)

QP = Quasi-peak Reading

AVG = Average Reading

Calculation Formula

Margin (dB) = Result (dBpW) – Limits (dBpW)

Result (dBpW) = Reading (dBpW) + Correction Factor (dB)

5.3.5 PHOTOGRAPH OF THE TEST ARRANGEMENT

Mode 1&Mode 2

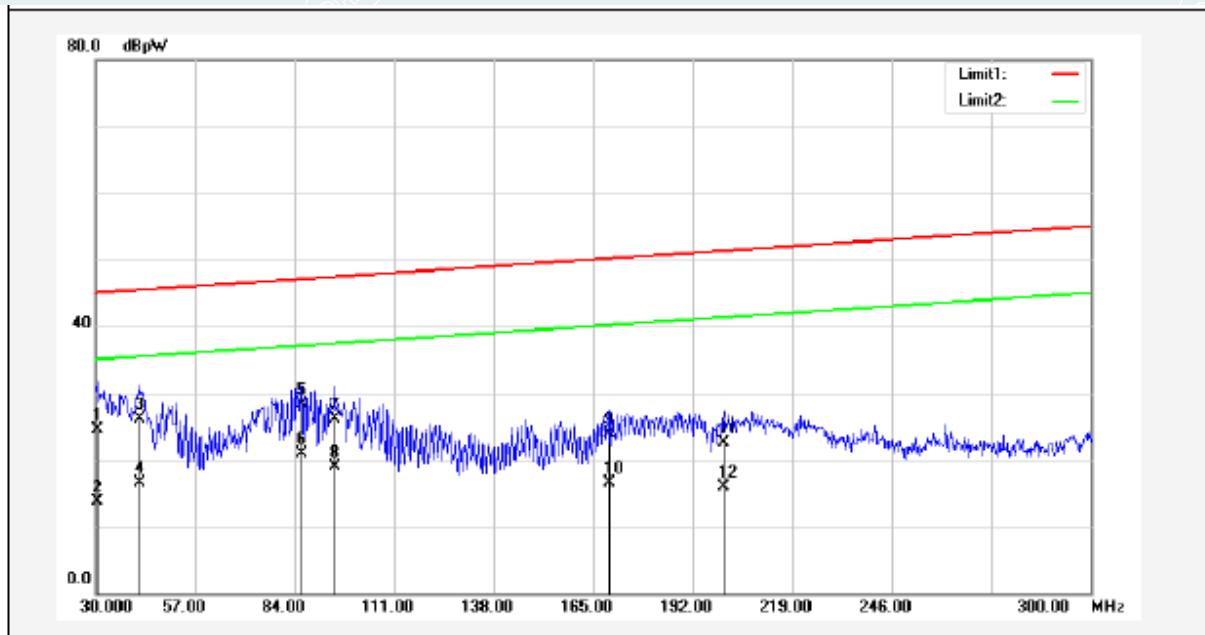


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5.3.6 TEST RESULTS

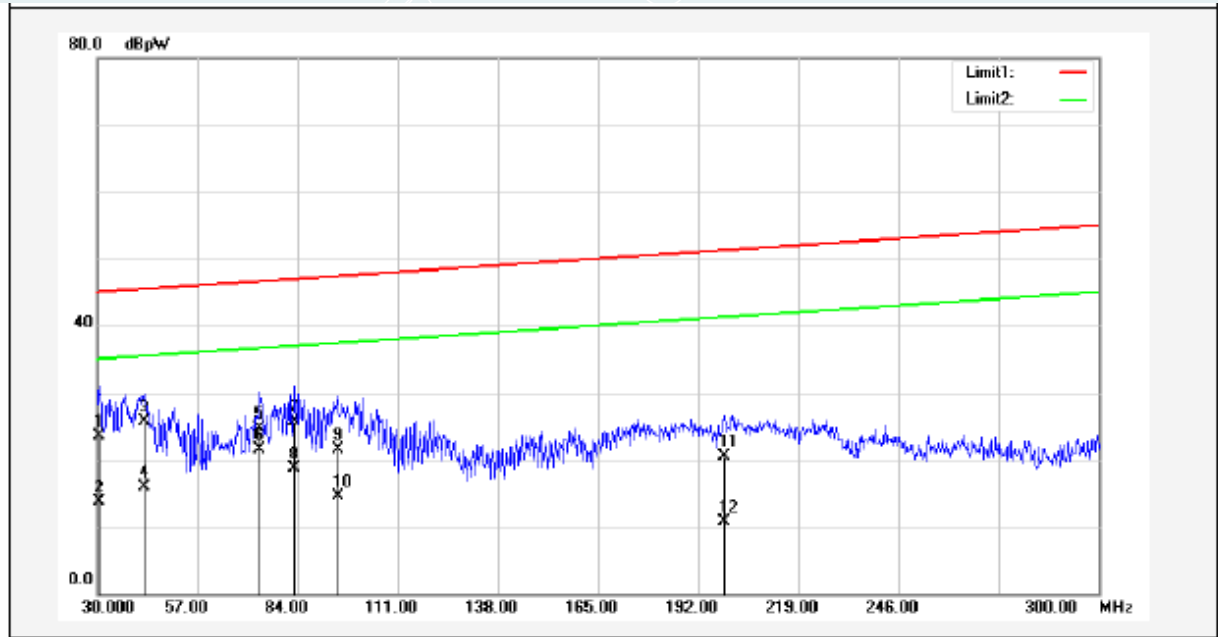
Motor 1:

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	22.50°C/49%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-28	Sample No.	E20220309137001-0005
Port	Main port		



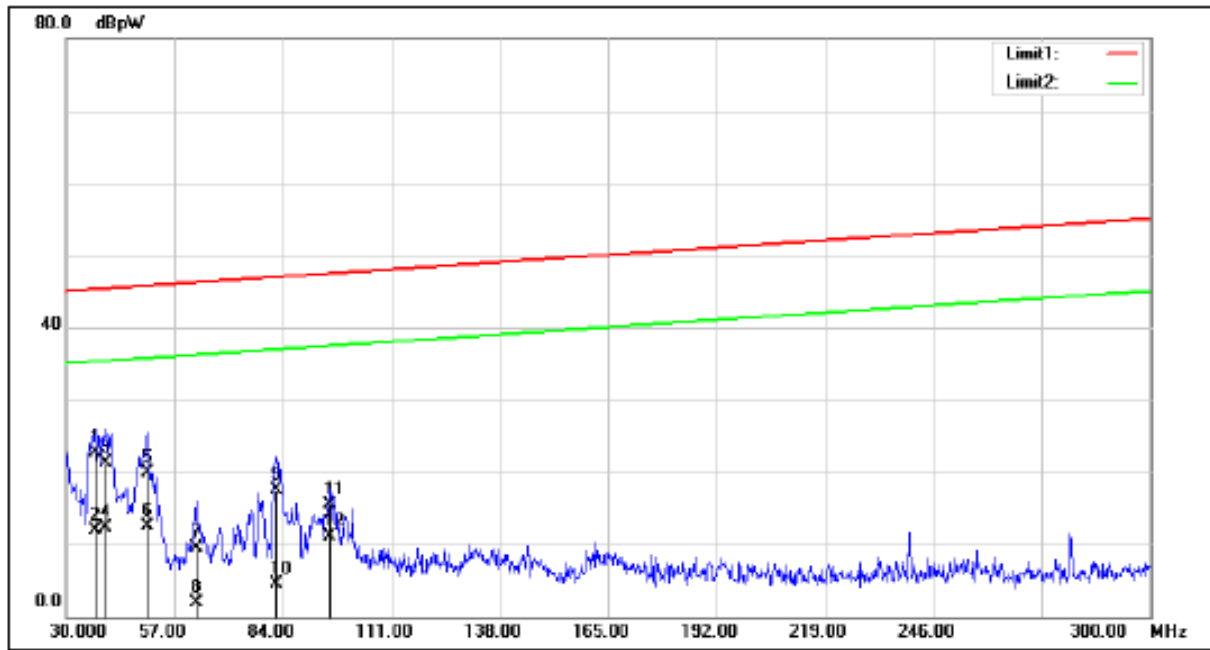
No.	Frequency (MHz)	Reading (dBpW)	Correction factor(dB)	Result (dBpW)	Limit (dBpW)	Over (dB)	Remark
1	30.5400	25.75	-1.15	24.60	45.02	-20.42	QP
2	30.5400	14.85	-1.15	13.70	35.02	-21.32	AVG
3	41.8800	29.10	-3.00	26.10	45.44	-19.34	QP
4	41.8800	19.60	-3.00	16.60	35.44	-18.84	AVG
5	85.8900	32.58	-4.18	28.40	47.07	-18.67	QP
6	85.8900	25.08	-4.18	20.90	37.07	-16.17	AVG
7	94.8000	30.97	-4.77	26.20	47.40	-21.20	QP
8	94.8000	23.77	-4.77	19.00	37.40	-18.40	AVG
9	169.3200	28.70	-4.80	23.90	50.16	-26.26	QP
10	169.3200	21.30	-4.80	16.50	40.16	-23.66	AVG
11	200.3700	27.98	-5.38	22.60	51.31	-28.71	QP
12	200.3700	21.28	-5.38	15.90	41.31	-25.41	AVG

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	22.50°C/49%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-28	Sample No.	E20220309137001-0005
Port	Main port		



No.	Frequency (MHz)	Reading (dBpW)	Correction factor(dB)	Result (dBpW)	Limit (dBpW)	Over (dB)	Remark
1	30.5400	24.65	-1.15	23.50	45.02	-21.52	QP
2	30.5400	14.95	-1.15	13.80	35.02	-21.22	AVG
3	42.6900	28.75	-3.05	25.70	45.47	-19.77	QP
4	42.6900	19.05	-3.05	16.00	35.47	-19.47	AVG
5	73.7400	28.24	-3.54	24.70	46.62	-21.92	QP
6	73.7400	25.04	-3.54	21.50	36.62	-15.12	AVG
7	83.1900	29.50	-3.80	25.70	46.97	-21.27	QP
8	83.1900	22.50	-3.80	18.70	36.97	-18.27	AVG
9	94.8000	26.27	-4.77	21.50	47.40	-25.90	QP
10	94.8000	19.27	-4.77	14.50	37.40	-22.90	AVG
11	199.0200	25.98	-5.38	20.60	51.26	-30.66	QP
12	199.0200	16.08	-5.38	10.70	41.26	-30.56	AVG

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	22.50°C/49%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-28	Sample No.	E20220309137001-0005
Port	USB Cable		

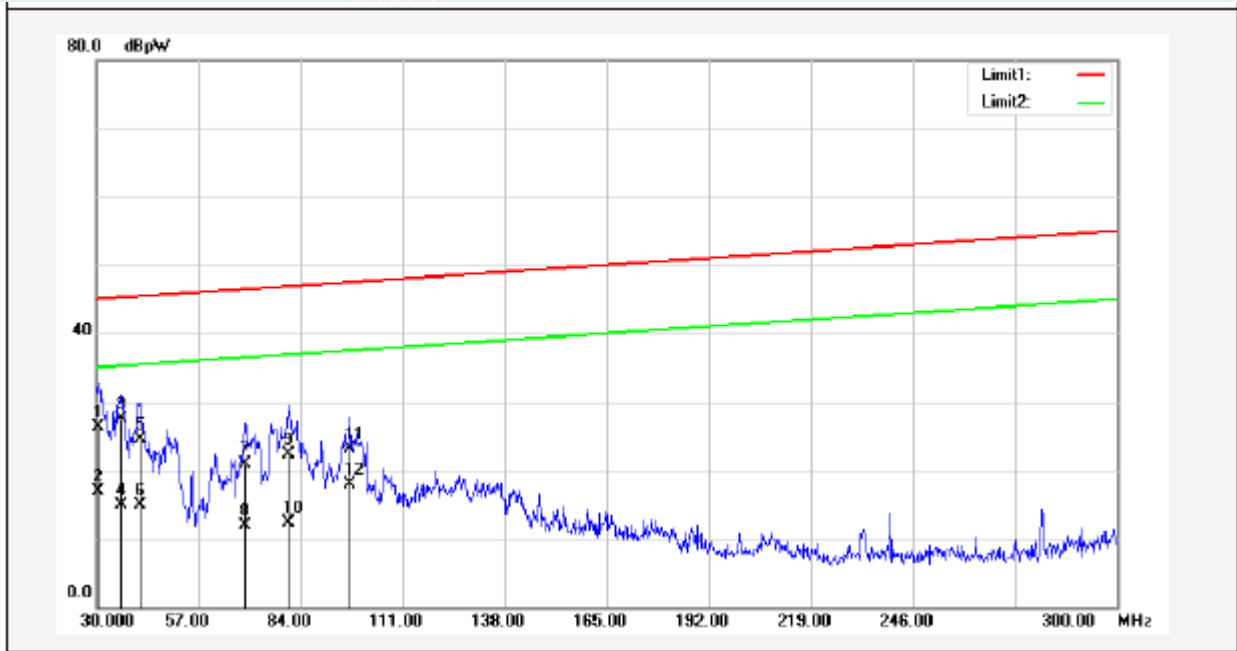


No.	Frequency (MHz)	Reading (dBpW)	Correct Factor (dB)	Result (dBpW)	Limit (dBpW)	Margin (dB)	Remark
1*	37.2900	25.14	-2.34	22.80	45.27	-22.47	QP
2	37.2900	14.34	-2.34	12.00	35.27	-23.27	AVG
3	39.7200	24.39	-2.99	21.40	45.36	-23.96	QP
4	39.7200	15.29	-2.99	12.30	35.36	-23.06	AVG
5	50.2500	23.66	-3.76	19.90	45.75	-25.85	QP
6	50.2500	16.26	-3.76	12.50	35.75	-23.25	AVG
7	62.6700	13.38	-3.88	9.50	46.21	-36.71	QP
8	62.6700	5.88	-3.88	2.00	36.21	-34.21	AVG
9	82.3800	21.35	-3.75	17.60	46.94	-29.34	QP
10	82.3800	8.25	-3.75	4.50	36.94	-32.44	AVG
11	95.6100	20.12	-4.62	15.50	47.43	-31.93	QP
12	95.6100	15.72	-4.62	11.10	37.43	-26.33	AVG

Note: Record the connection data for the worst mode in Mode1 and Mode2.

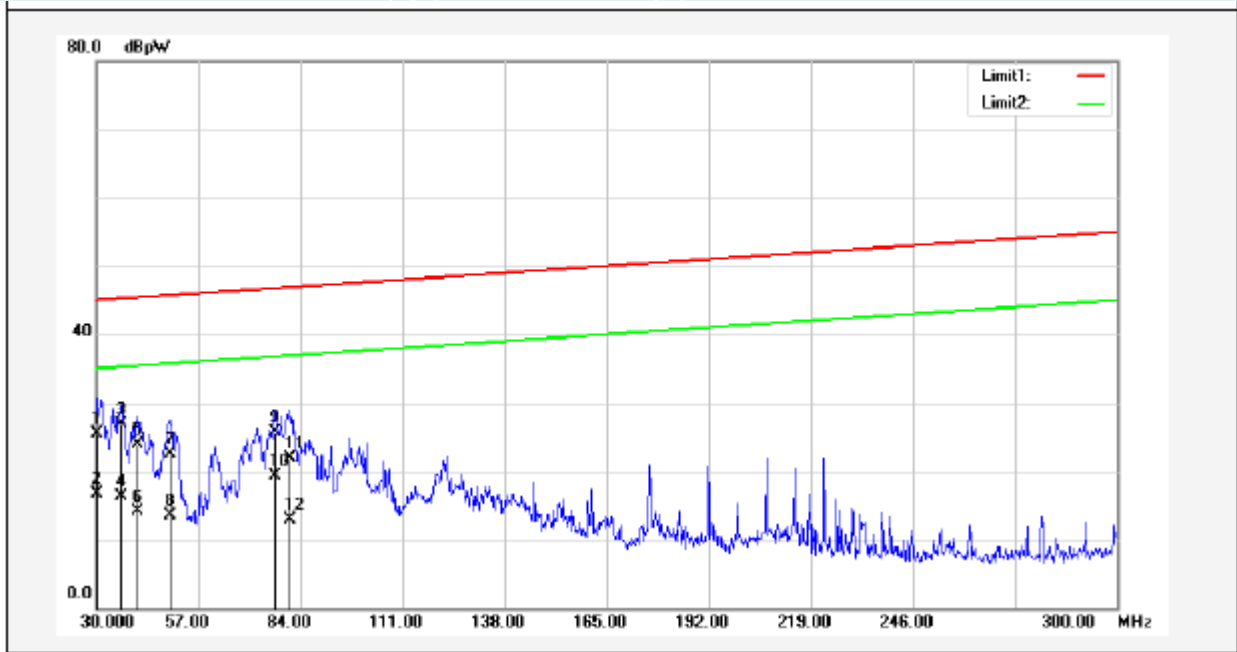
Motor 2:

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.60°C/53%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-04-28	Sample No.	E20220309137001-0007
Port	Main port		



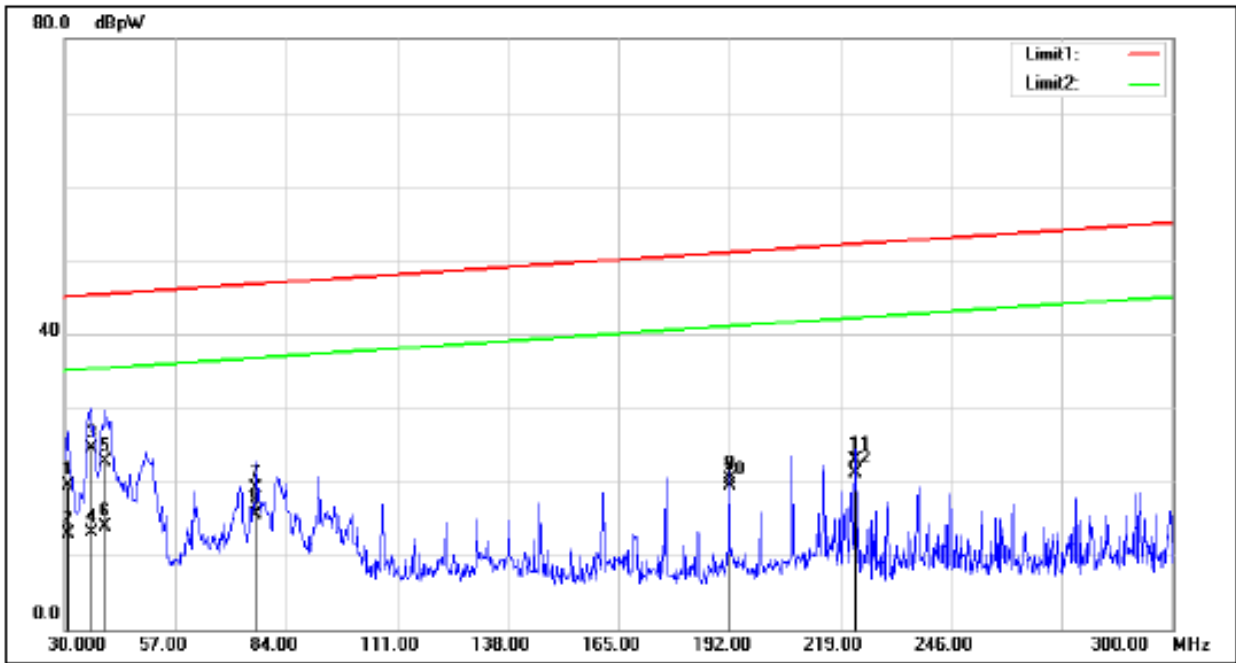
No.	Frequency (MHz)	Reading (dBpW)	Correction factor(dB)	Result (dBpW)	Limit (dBpW)	Over (dB)	Remark
1	30.5400	27.39	-0.99	26.40	45.02	-18.62	QP
2	30.5400	17.99	-0.99	17.00	35.02	-18.02	AVG
3	36.7500	29.70	-2.20	27.50	45.25	-17.75	QP
4	36.7500	17.20	-2.20	15.00	35.25	-20.25	AVG
5	41.6100	27.78	-3.18	24.60	45.43	-20.83	QP
6	41.6100	18.18	-3.18	15.00	35.43	-20.43	AVG
7	69.4200	24.76	-3.76	21.00	46.46	-25.46	QP
8	69.4200	15.66	-3.76	11.90	36.46	-24.56	AVG
9	81.0300	25.97	-3.57	22.40	46.89	-24.49	QP
10	81.0300	15.97	-3.57	12.40	36.89	-24.49	AVG
11	97.2300	27.71	-4.61	23.10	47.49	-24.39	QP
12	97.2300	22.51	-4.61	17.90	37.49	-19.59	AVG

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.60°C/53%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-04-28	Sample No.	E20220309137001-0007
Port	Main port		



No.	Frequency (MHz)	Reading (dBpW)	Correction factor(dB)	Result (dBpW)	Limit (dBpW)	Over (dB)	Remark
1	30.0000	26.41	-0.91	25.50	45.00	-19.50	QP
2	30.0000	17.61	-0.91	16.70	35.00	-18.30	AVG
3	36.7500	29.10	-2.20	26.90	45.25	-18.35	QP
4	36.7500	18.50	-2.20	16.30	35.25	-18.95	AVG
5	41.0700	27.05	-3.15	23.90	45.41	-21.51	QP
6	41.0700	17.25	-3.15	14.10	35.41	-21.31	AVG
7	49.4400	26.31	-3.71	22.60	45.72	-23.12	QP
8	49.4400	17.21	-3.71	13.50	35.72	-22.22	AVG
9	77.2500	29.33	-3.53	25.80	46.75	-20.95	QP
10	77.2500	22.83	-3.53	19.30	36.75	-17.45	AVG
11	81.3000	25.61	-3.61	22.00	46.90	-24.90	QP
12	81.3000	16.51	-3.61	12.90	36.90	-24.00	AVG

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.60°C/53%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-04-28	Sample No.	E20220309137001-0007
Port	USB Cable		



No.	Frequency (MHz)	Reading (dBpW)	Correct Factor(dB)	Result (dBpW)	Limit (dBpW)	Margin (dB)	Remark
1	30.8100	20.54	-1.04	19.50	45.03	-25.53	QP
2	30.8100	14.04	-1.04	13.00	35.03	-22.03	AVG
3*	36.4800	26.63	-2.13	24.50	45.24	-20.74	QP
4	36.4800	15.23	-2.13	13.10	35.24	-22.14	AVG
5	39.9900	25.87	-3.07	22.80	45.37	-22.57	QP
6	39.9900	16.97	-3.07	13.90	35.37	-21.47	AVG
7	76.7100	22.76	-3.56	19.20	46.73	-27.53	QP
8	76.7100	19.16	-3.56	15.60	36.73	-21.13	AVG
9	192.0000	25.57	-5.27	20.30	51.00	-30.70	QP
10	192.0000	24.87	-5.27	19.60	41.00	-21.40	AVG
11	222.7800	28.50	-5.50	23.00	52.14	-29.14	QP
12	222.7800	26.70	-5.50	21.20	42.14	-20.94	AVG

Note: Record the connection data for the worst mode in Mode1 and Mode2.

5.4 VOLTAGE FLUCTUATION & FLICKER MEASUREMENT

5.4.1 LIMITS

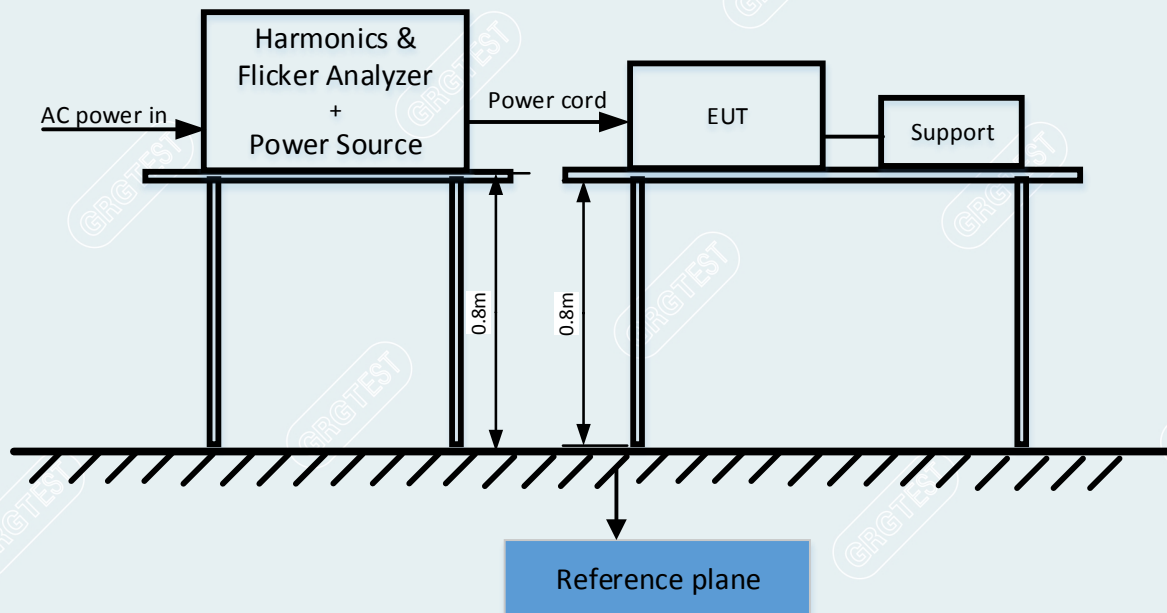
Test Item	Test Item	Limit	Remark
	P_{st}	1.0	P_{st} means short-term flicker indicator.
	P_{lt}	0.65	P_{lt} means long-term flicker indicator.
	T_{dt} (ms)	500	T_{dt} means maximum time that dt exceeds 3 %.
	d_{max} (%)	4%,6%,7%	d_{max} means maximum relative voltage change.
	dc (%)	3.3%	dc means relative steady-state voltage change

5.4.2 TEST PROCEDURE

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.

During the flick measurement, the measure time shall include that part of whole operation cycle in which the EUT produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

5.4.3 TEST SETUP



5.4.4 PHOTOGRAPH OF THE TEST ARRANGEMENT

Mode 1 & Mode 2



----- The following blanks -----

5.4.5 TEST RESULTS

Motor 1:

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.8°C/34%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-04-01	Sample No.	E20220309137001-0005

Test category: All parameters (European limits)

Test Margin: 100

Test date: 2022/4/1

Start time: 16:10:42

End time: 16:21:10

Test duration (min): 10

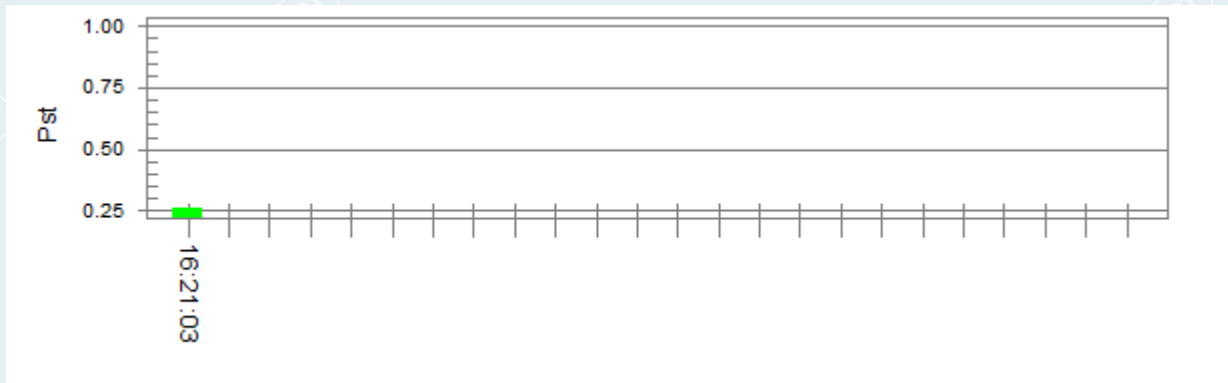
Data file name: F-000163.cts_data

Test Result: Pass

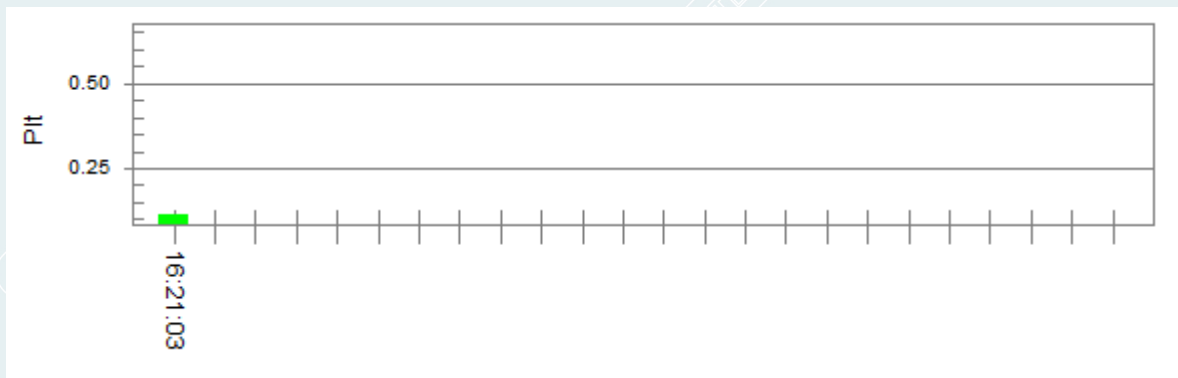
Status: Test Completed

Pst and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 230.05

Highest dt (%):

Test limit (%):

T-max (mS): 0

Test limit (mS): 500.0 Pass

Highest dc (%): 0.00

Test limit (%): 3.30 Pass

Highest dmax (%): 0.00

Test limit (%): 4.00 Pass

Highest Pst (10 min. period): 0.259

Test limit: 1.000 Pass

Highest Plt (2 hr. period): 0.113

Test limit: 0.650 Pass

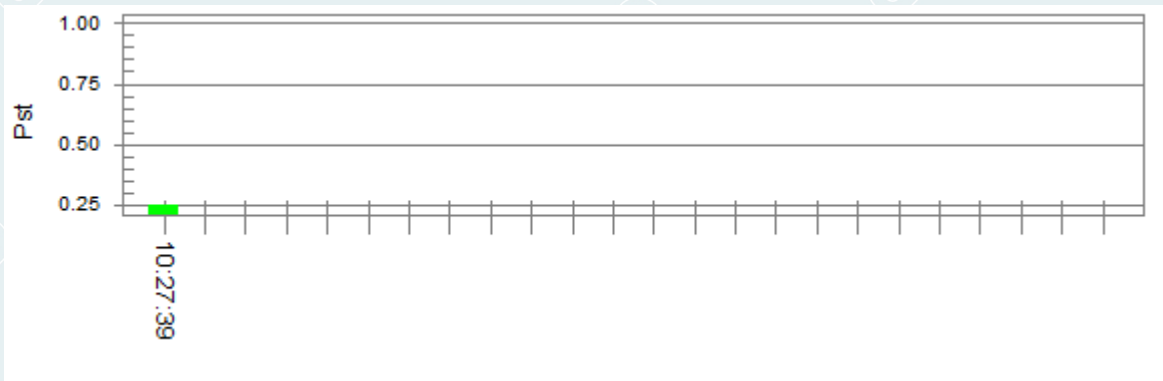
EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.8°C/34%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-30	Sample No.	E20220309137001-0005

Test category: All parameters (European limits) **Test Margin: 100**
Test date: 2022/3/30 **Start time: 10:17:18** **End time: 10:27:45**
Test duration (min): 10 **Data file name: F-000161.cts_data**

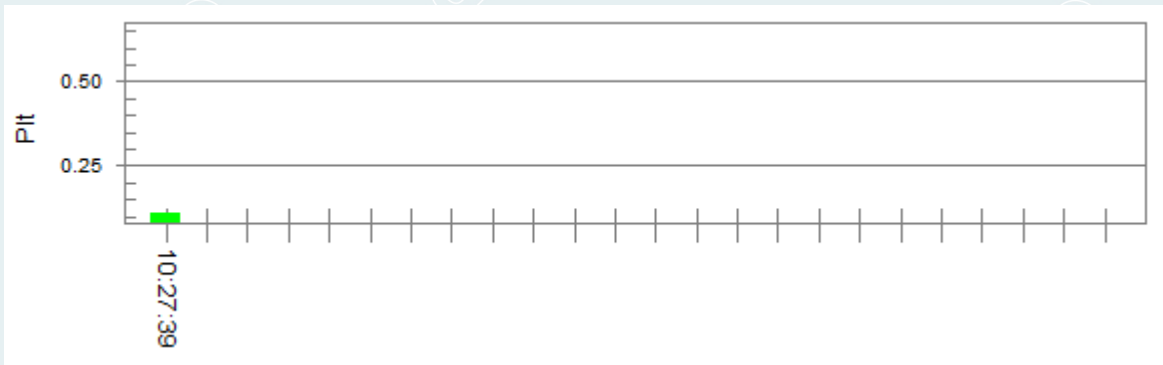
Test Result: Pass Status: Test Completed

Pst and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.07		
Highest dt (%):	0	Test limit (%):	500.0 Pass
T-max (mS):	0.00	Test limit (mS):	3.30 Pass
Highest dc (%):	0.00	Test limit (%):	4.00 Pass
Highest dmax (%):	0.00	Test limit (%):	1.000 Pass
Highest Pst (10 min. period):	0.248	Test limit:	0.650 Pass
Highest Plt (2 hr. period):	0.108	Test limit:	

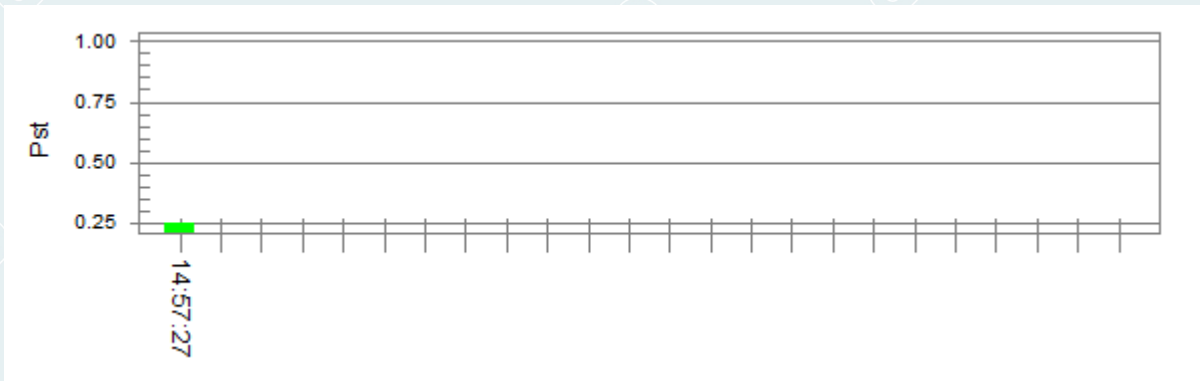
Motor 2:

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.8°C/34%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-04-28	Sample No.	E20220309137001-0007

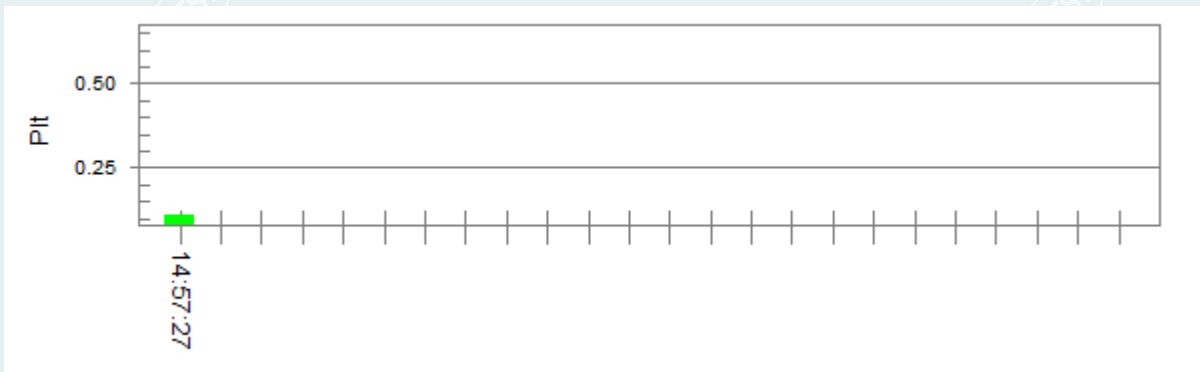
Test category: All parameters (European limits) **Test Margin: 100**
Test date: 2022/4/28 **Start time: 14:47:06** **End time: 14:57:33**
Test duration (min): 10 **Data file name: F-000163.cts_data**
Test Result: Pass **Status: Test Completed**

Pst and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.06		
Highest dt (%):		Test limit (%):	
T-max (mS):	0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.00	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.248	Test limit:	1.000 Pass
Highest Plt (2 hr. period):	0.108	Test limit:	0.650 Pass

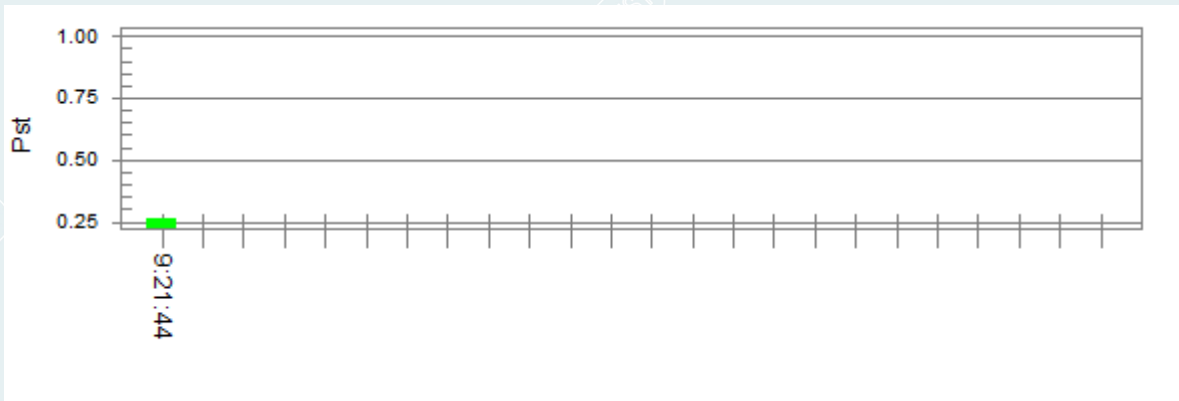
EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.8°C/34%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-04-11	Sample No.	E20220309137001-0007

Test category: All parameters (European limits) **Test Margin: 100**
Test date: 2022/4/11 **Start time: 9:11:23** **End time: 9:21:50**
Test duration (min): 10 **Data file name: F-000170.cts_data**

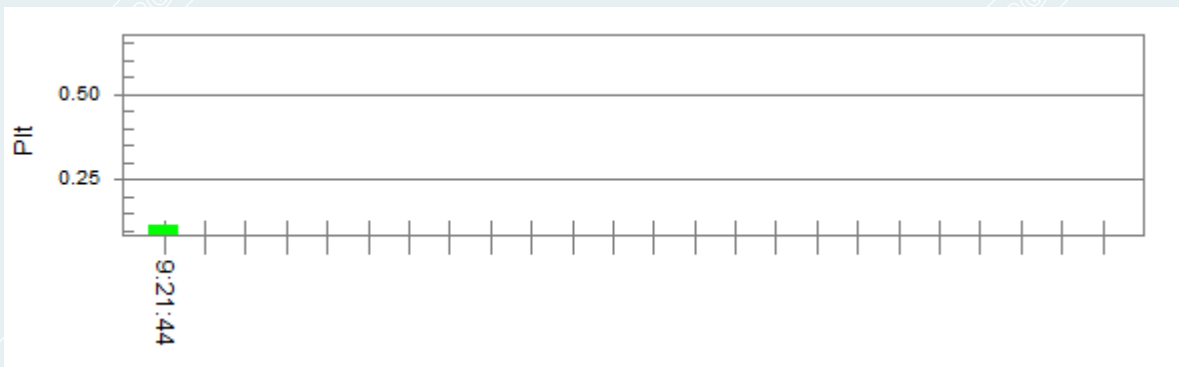
Test Result: Pass **Status: Test Completed**

Pst and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.00		
Highest dt (%):	0	Test limit (%):	
T-max (mS):	0.00	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.00	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.261	Test limit:	1.000 Pass
Highest Plt (2 hr. period):	0.114	Test limit:	0.650 Pass

6. IMMUNITY TEST

6.1 GENERAL DESCRIPTION

EN 55014-2:2015		
Test Method	Test Type	Minimum Requirement
IEC 61000-4-2	Electrostatic discharge immunity test	Enclosure port: Contact Discharge : ± 2 , ± 4 kV (Direct/Indirect) Air Discharge: ± 2 , ± 4 , ± 8 kV (Direct); Performance Criterion B
IEC 61000-4-3	Continuous RF electromagnetic field disturbances	Radio-Frequency Electromagnetic Field Susceptibility Test – RS: 80 ~1000 MHz, 3V/m, 80% AM(1kHz), Performance Criterion A
IEC 61000-4-4	Electrical fast transient/burst immunity test	AC Input Power: ± 1 kV 5/50 Tr/Th ns 5kHz Performance Criterion B
IEC 61000-4-5	Surge immunity test	AC Input Port: 1.2/50 (8/20) Tr/Th us line to line: ± 1.0 kV 90 °, -270 ° Performance Criterion B
IEC 61000-4-6	Conducted radio frequency disturbances immunity test	AC Input Power: 0.15MHz-80MHz 3V 80% AM(1kHz) Performance Criterion A
IEC 61000-4-11	Voltage Dip & Voltage Interruptions immunity test	AC Input Port: 0%,0.5T Performance Criterion C 70%,25T for 50Hz Performance Criterion C 40%,10 T for 50Hz Performance Criterion C

----- The following blanks -----

6.2 GENERAL PERFORMANCE CRITERIA DESCRIPTION

Criteria A	<p>The apparatus shall continue to operate as intended during the test.</p> <p>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.</p>
Criteria B	<p>The apparatus shall continue to operate as intended after the test.</p> <p>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.</p>
Criteria C	<p>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.</p>

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6.3 ELECTROSTATIC DISCHARGE IMMUNITY TEST

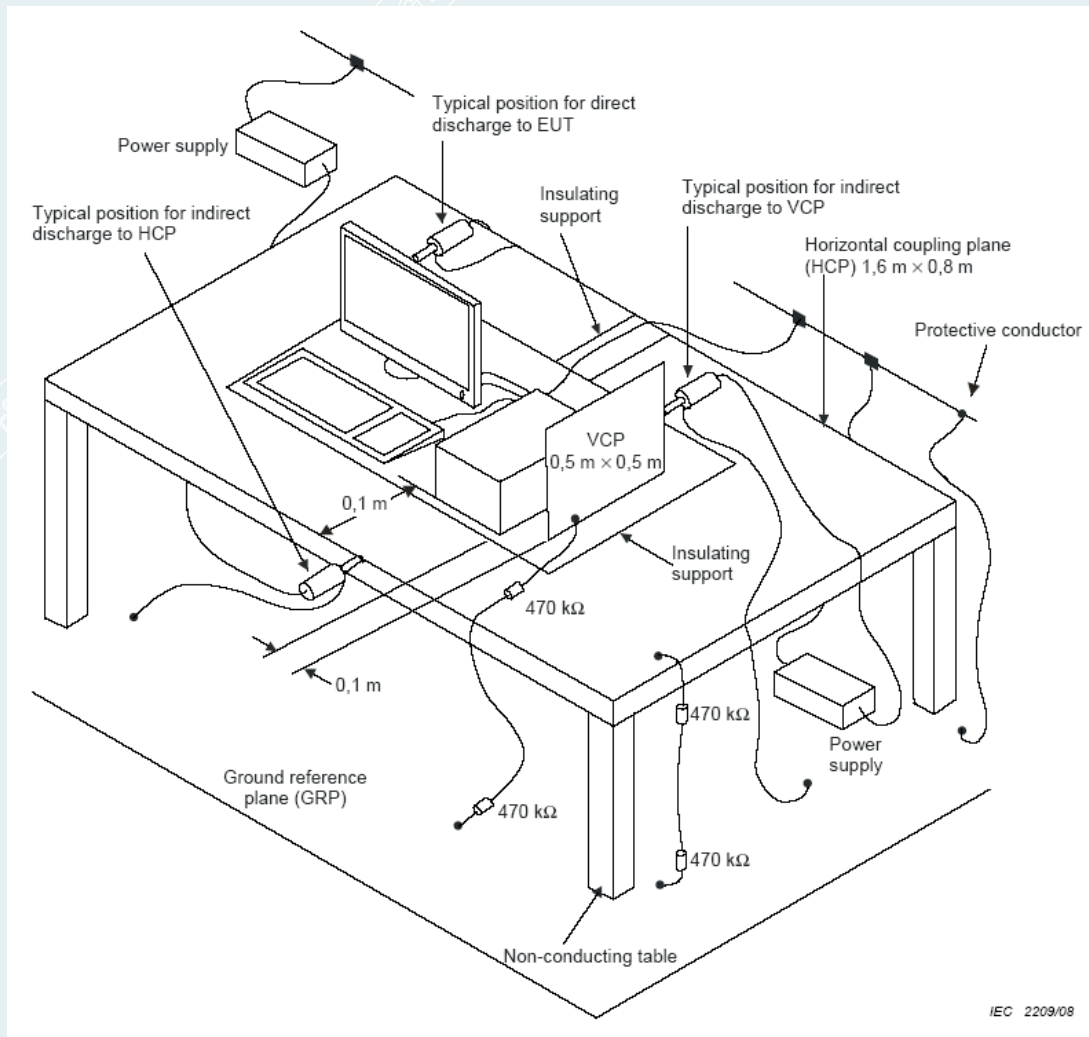
6.3.1 TEST SPECIFICATION

Test Method	IEC 61000-4-2:2008
Discharge Impedance	330 ohm / 150 pF
Discharge Voltage	Enclosure port: Contact Discharge : $\pm 2, \pm 4$ kV (Direct/Indirect) Air Discharge: $\pm 2, \pm 4, \pm 8$ kV (Direct);
Polarity	Positive & Negative
Number of Discharge	Minimum 10 times at each test point
Discharge Mode	Single Discharge 1 second minimum

6.3.2 TEST PROCEDURE

- a) The EUT was located 0.1 m minimum from all side of the HCP (dimensions 1.6m * 0.8m).
- b) The support units were located another table 30 cm away from the EUT, but direct support unit was/were located at same location as EUT on the HCP and keep at a distance of 10 cm with EUT.
- a) The time interval between two successive single discharges was at least 1 second.
- b) Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- c) Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
- d) At least ten single discharges (in the most sensitive polarity) were applied at the front edge of each HCP opposite the center point of each unit of the EUT and 0.1 meters from the front of the EUT. The long axis of the discharge electrode was in the plane of the HCP and perpendicular to its front edge during the discharge.
- e) At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane (VCP) in sufficiently different positions that the four faces of the EUT were completely illuminated. The VCP (dimensions 0.5m * 0.5m) was placed vertically to and 0.1 meters from the EUT.

6.3.3 TEST SETUP



----- The following blanks -----

6.3.4 PHOTOGRAPH OF THE TEST ARRANGEMENT

Mode 2



----- The following blanks -----

6.3.5 TEST RESULTS**Motor 1:**

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.7°C/47%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-30	Sample No.	E20220309137001-0005

Discharge point	Discharge voltage	C-Conduct A-Air	Required Performance	Actual performance	Result
Vertical coupling plane	±2, ±4kV	C	Criterion B	Criterion A ¹⁾	PASS
Horizontal coupling plane	±2, ±4kV	C	Criterion B	Criterion A ¹⁾	PASS
Metal hanger	±2, ±4kV	C	Criterion B	Criterion A ¹⁾	PASS
Shell gaps	±2, ±4, ±8kV	A	Criterion B	Criterion A ¹⁾	PASS
Indicator light	±2, ±4, ±8kV	A	Criterion B	Criterion A ¹⁾	PASS
Shift knob	±2, ±4, ±8kV	A	Criterion B	Criterion A ¹⁾	PASS
Type-C input port	±2, ±4, ±8kV	A	Criterion B	Criterion A ¹⁾	PASS

NOTE: ¹⁾Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.

Motor 2:

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.7°C/47%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-30	Sample No.	E20220309137001-0007

Discharge point	Discharge voltage	C-Conduct A-Air	Required Performance	Actual performance	Result
Vertical coupling plane	±2, ±4kV	C	Criterion B	Criterion A ¹⁾	PASS
Horizontal coupling plane	±2, ±4kV	C	Criterion B	Criterion A ¹⁾	PASS
Metal hanger	±2, ±4kV	C	Criterion B	Criterion A ¹⁾	PASS
Shell gaps	±2, ±4, ±8kV	A	Criterion B	Criterion A ¹⁾	PASS
Indicator light	±2, ±4, ±8kV	A	Criterion B	Criterion A ¹⁾	PASS
Shift knob	±2, ±4, ±8kV	A	Criterion B	Criterion A ¹⁾	PASS
Type-C input port	±2, ±4, ±8kV	A	Criterion B	Criterion A ¹⁾	PASS
NOTE: ¹⁾ Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.					

6.4 CONTINUOUS RF ELECTROMAGNETIC FIELD DISTURBANCES

6.4.1 TEST SPECIFICATION

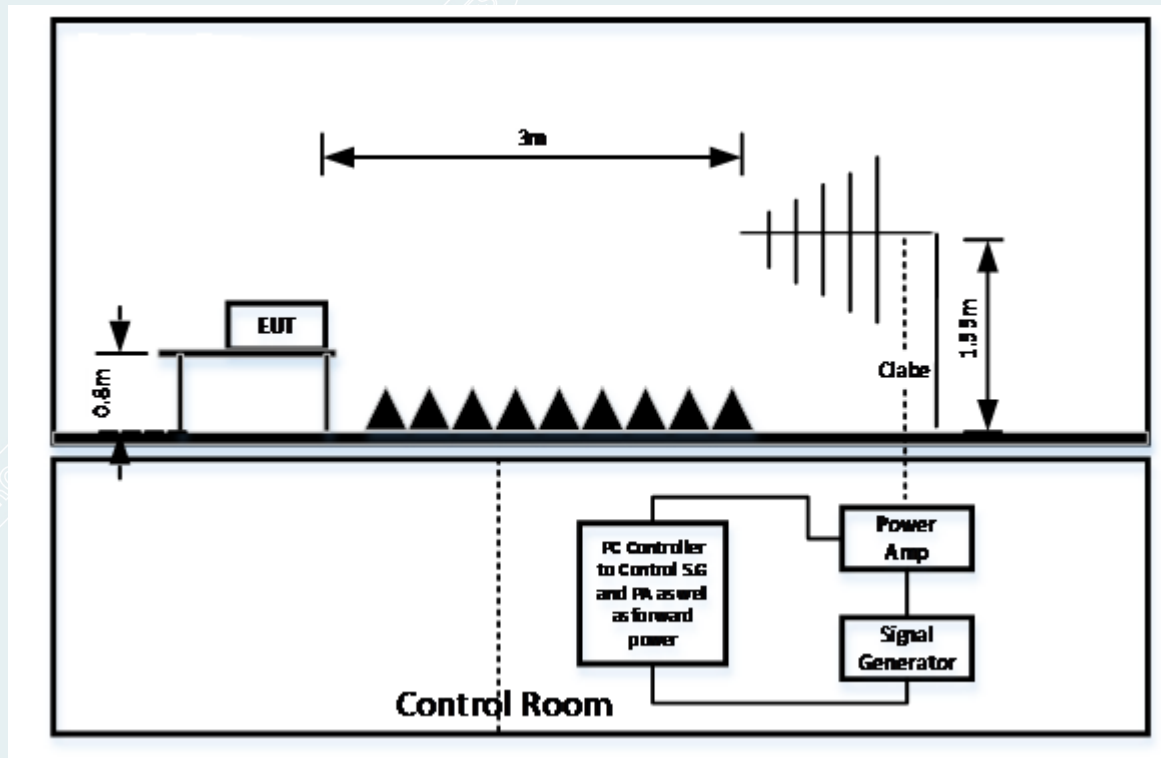
Basic Standard	IEC 61000-4-3:2006+A1:2007+A2:2010
Frequency Range	80 MHz ~1000 MHz;
Field Strength	3V/m
Modulation	1kHz Sine Wave, 80%, AM Modulation
Frequency Step	1 % of preceding frequency value
Polarity of Antenna	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.55m

6.4.2 TEST PROCEDURE

- The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.
- The frequency range is swept from 80MHz to 1000MHz with the signal 80% amplitude modulated with a 1 kHz sine-wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s, where the frequency range is swept incrementally; the step size was 1% of preceding frequency value.
- The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

----- The following blanks -----

6.4.3 TEST SETUP



NOTE:

(1) Table-top equipment

The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

(2) Floor-standing equipment

The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

Note: the EUT is a Table-top equipment.

Note: the EUT is a table-top equipment.

6.4.4 PHOTOGRAPH OF THE TEST ARRANGEMENT

80MHz~1000MHz (Mode 1& Mode 2)



80MHz~1000MHz (Mode 3)



6.4.5 TEST RESULTS**Motor 1:**

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.5°C/45%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Wang Xinyuan
Test Date	2022-03-30	Sample No.	E20220309137001-0005

Frequency (MHz)	Field strength (V/m)	EUT orientation	Antenna polarization	Required criterion	Actual performance	Result
80~1000	3	Front	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Left	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Right	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Rear	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass

NOTE: ¹⁾Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.5°C/45%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Wang Xinyuan
Test Date	2022-03-30	Sample No.	E20220309137001-0005

Frequency (MHz)	Field strength (V/m)	EUT orientation	Antenna polarization	Required criterion	Actual performance	Result
80~1000	3	Front	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Left	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Right	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Rear	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass

NOTE: ¹⁾Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.5°C/45%RH/101kPa	Test Mode	Mode 3
Power supply	DC 3.7V	Tested By	Wang Xinyuan
Test Date	2022-03-30	Sample No.	E20220309137001-0005

Frequency (MHz)	Field strength (V/m)	EUT orientation	Antenna polarization	Required criterion	Actual performance	Result
80~1000	3	Front	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Left	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Right	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
Rear	H	Criterion A	Criterion A ¹⁾	pass		
	V	Criterion A	Criterion A ¹⁾	pass		

NOTE: ¹⁾Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.

Motor 2:

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.5°C/45%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Wang Xinyuan
Test Date	2022-03-30	Sample No.	E20220309137001-0007

Frequency (MHz)	Field strength (V/m)	EUT orientation	Antenna polarization	Required criterion	Actual performance	Result
80~1000	3	Front	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Left	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Right	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
Rear	H	Criterion A	Criterion A ¹⁾	pass		
	V	Criterion A	Criterion A ¹⁾	pass		

NOTE: ¹⁾Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.5°C/45%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Wang Xinyuan
Test Date	2022-03-30	Sample No.	E20220309137001-0007

Frequency (MHz)	Field strength (V/m)	EUT orientation	Antenna polarization	Required criterion	Actual performance	Result
80~1000	3	Front	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Left	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Right	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
Rear	H	Criterion A	Criterion A ¹⁾	pass		
	V	Criterion A	Criterion A ¹⁾	pass		

NOTE: ¹⁾Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.5°C/45%RH/101kPa	Test Mode	Mode 3
Power supply	DC 3.7V	Tested By	Wang Xinyuan
Test Date	2022-03-30	Sample No.	E20220309137001-0007

Frequency (MHz)	Field strength (V/m)	EUT orientation	Antenna polarization	Required criterion	Actual performance	Result
80~1000	3	Front	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Left	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
		Right	H	Criterion A	Criterion A ¹⁾	pass
			V	Criterion A	Criterion A ¹⁾	pass
Rear	H	Criterion A	Criterion A ¹⁾	pass		
	V	Criterion A	Criterion A ¹⁾	pass		

NOTE: ¹⁾Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.

6.5 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

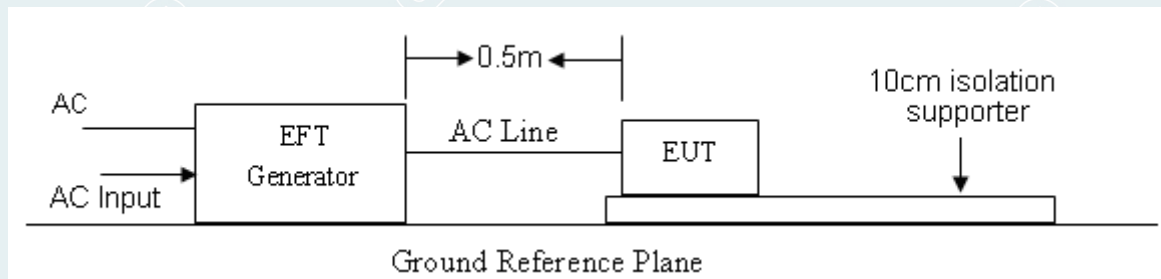
6.5.1 TEST SPECIFICATION

Test Method	IEC 61000-4-4:2012
Test Voltage	AC Input and output Power: ± 1 kV
Polarity	Positive and Negative
Impulse Frequency	5 kHz
Impulse Wave-shape	5 ns/50ns for voltage
Burst Duration	15 ms at 5kHz
Burst Period	300 ms
Test Duration	12 min

6.5.2 TEST PROCEDURE

- Both positive and negative polarity discharges were applied.
- The length of the “hot wire” from the coaxial output of the EFT generator to the terminals on the EUT should not exceed 1 meter.
- The duration time of each test sequential was 2 minute.
- The transient/burst waveform was in accordance with IEC61000-4-4, 5/50ns.

6.5.3 TEST SETUP



6.5.4 PHOTOGRAPH OF THE TEST ARRANGEMENT

Mode 2



----- The following blanks -----

6.5.5 TEST RESULTS**Motor 1:**

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.1 °C/45%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-30	Sample No.	E20220309137001-0005

Test Point	Polarity	Test Level (kV)	Required Performance	Actual performance	Result
L	+	1	Criterion B	Criterion A ¹⁾	PASS
	-	1	Criterion B	Criterion A ¹⁾	PASS
N	+	1	Criterion B	Criterion A ¹⁾	PASS
	-	1	Criterion B	Criterion A ¹⁾	PASS
L-N	+	1	Criterion B	Criterion A ¹⁾	PASS
	-	1	Criterion B	Criterion A ¹⁾	PASS

NOTE: ¹⁾Before test, during the test, and after test, the EUT function is normal,zigbee connection communication is normal.

Motor 2:

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.1 °C/45%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-30	Sample No.	E20220309137001-0007

Test Point	Polarity	Test Level (kV)	Required Performance	Actual performance	Result
L	+	1	Criterion B	Criterion A ¹⁾	PASS
	-	1	Criterion B	Criterion A ¹⁾	PASS
N	+	1	Criterion B	Criterion A ¹⁾	PASS
	-	1	Criterion B	Criterion A ¹⁾	PASS
L-N	+	1	Criterion B	Criterion A ¹⁾	PASS
	-	1	Criterion B	Criterion A ¹⁾	PASS

NOTE: ¹⁾Before test, during the test, and after test, the EUT function is normal,zigbee connection communication is normal.

6.6 SURGE IMMUNITY TEST

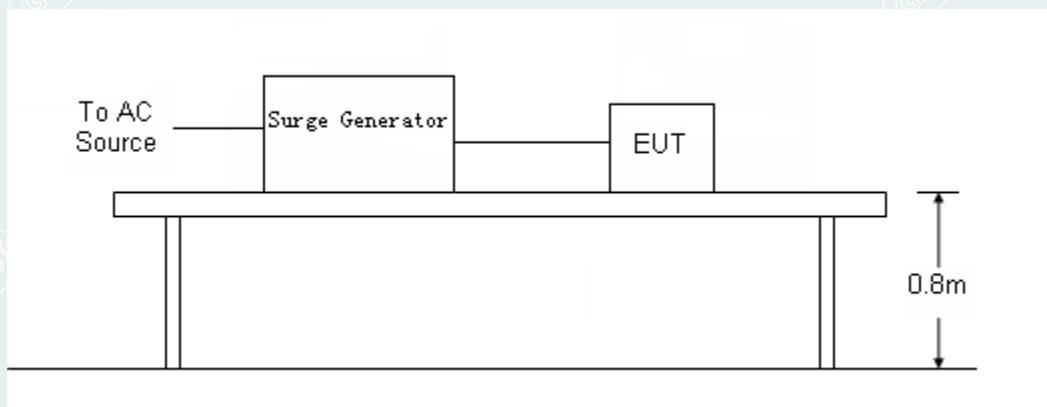
6.6.1 TEST SPECIFICATION

Test Method	IEC 61000-4-5:2017
Wave-Shape	Combination Wave AC Input Port: 1.2/50 μ s Open Circuit Voltage 8/20 μ s Short Circuit Current
Test Voltage	AC Input Port: Line to line: 1kV
Generator Source Impedance	AC Input Port: Line to line 2ohm
Polarity	Positive and Negative
Phase Angle	90 °, -270 °
Pulse Repetition Rate	1 minute
Number of Tests	5 times for each phase angel

6.6.2 TEST PROCEDURE

- Set up the EUT and test generator.
- Power Port for line to line coupling mode, provide a 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
- Pulses shall be applied to the a.c. voltage wave as follows; five positive polarity pulses and five negative polarity pulses.
- Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

6.6.3 TEST SETUP



6.6.4 PHOTOGRAPH OF THE TEST ARRANGEMENT

Mode 2



----- The following blanks -----

6.6.5 TEST RESULTS**Motor 1:**

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.1 °C/45%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-30	Sample No.	E20220309137001-0005

Test port	Polarity	Test Level	Phase	Required Performance	Actual performance	Result
L-N	+	1kV	90 °	Criterion B	Criterion A ¹⁾	PASS
	-	1kV	270 °	Criterion B	Criterion A ¹⁾	PASS

NOTE: ¹⁾ Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.

Motor 2:

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.1 °C/45%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-30	Sample No.	E20220309137001-0007

Test port	Polarity	Test Level	Phase	Required Performance	Actual performance	Result
L-N	+	1kV	90 °	Criterion B	Criterion A ¹⁾	PASS
	-	1kV	270 °	Criterion B	Criterion A ¹⁾	PASS

NOTE: ¹⁾ Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.

6.7 CONDUCTED RADIO FREQUENCY DISTURBANCES IMMUNITY TEST

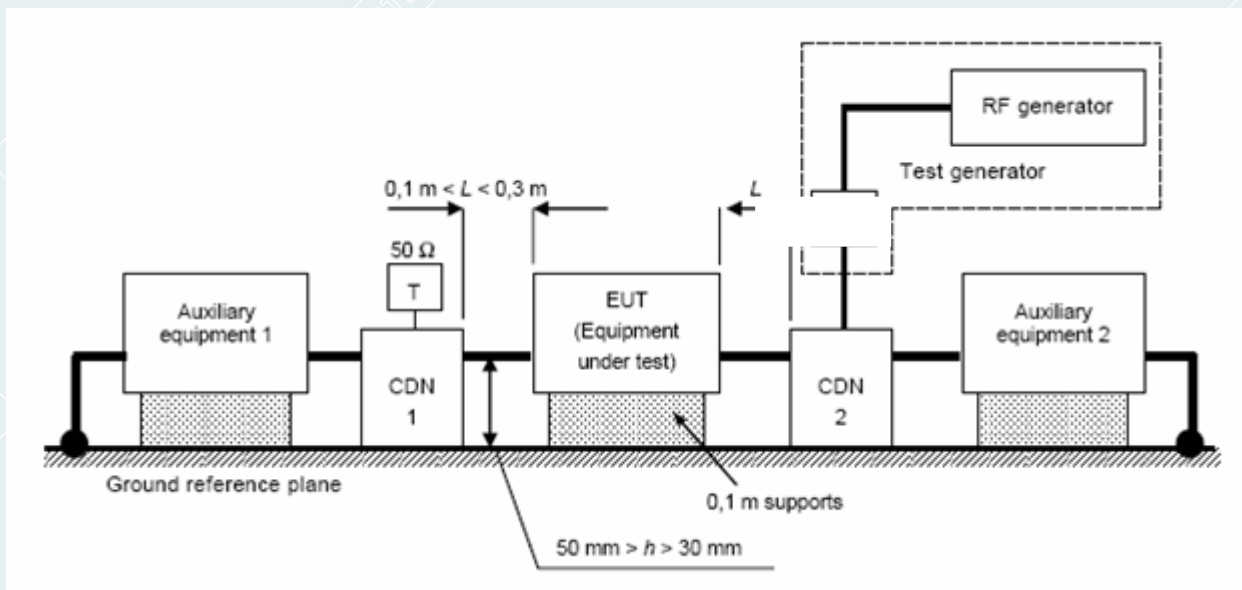
6.7.1 TEST SPECIFICATION

Test Method	IEC 61000-4-6:2013
Frequency Range	0.15MHz ~ 80MHz
Field Strength	AC Input Power: 0.15MHz-80MHz 3V
Modulation	1kHz ,80% AM
Injection Method	AC Input Power:CDN
Frequency Step	1%
Dwell Time	1s

6.7.2 TEST PROCEDURE

- Set up the EUT, CDN and test generators.
- Let the EUT work in test mode and measure it.
- The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- The disturbance signal described below is injected to EUT through CDN.
- The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- The frequency range is using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave.
- The rate of sweep shall not exceed $1.5 \cdot 10^{-3}$ decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

6.7.3 TEST SETUP



6.7.4 PHOTOGRAPH OF THE TEST ARRANGEMENT

Mode 2



----- The following blanks -----

6.7.5 TEST RESULTS**Motor 1:**

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.1 °C/45%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-30	Sample No.	E20220309137001-0005

Test Ports	Frequency Band(MHz)	Field Strength (Vrms)	Injection Method	Required Performance	Actual performance	Result
Power port	0.15~80	3	CDN	Criterion A	Criterion A ¹⁾	Pass

NOTE: ¹⁾Before test, during the test, and after test, the EUT function is normal,zigbee connection communication is normal.

Motor 2:

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.1 °C/45%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-30	Sample No.	E20220309137001-0007

Test Ports	Frequency Band(MHz)	Field Strength (Vrms)	Injection Method	Required Performance	Actual performance	Result
Power port	0.15~80	3	CDN	Criterion A	Criterion A ¹⁾	Pass

NOTE: ¹⁾Before test, during the test, and after test, the EUT function is normal,zigbee connection communication is normal.

6.8 VOLTAGE DIP & VOLTAGE INTERRUPTIONS IMMUNITY TEST

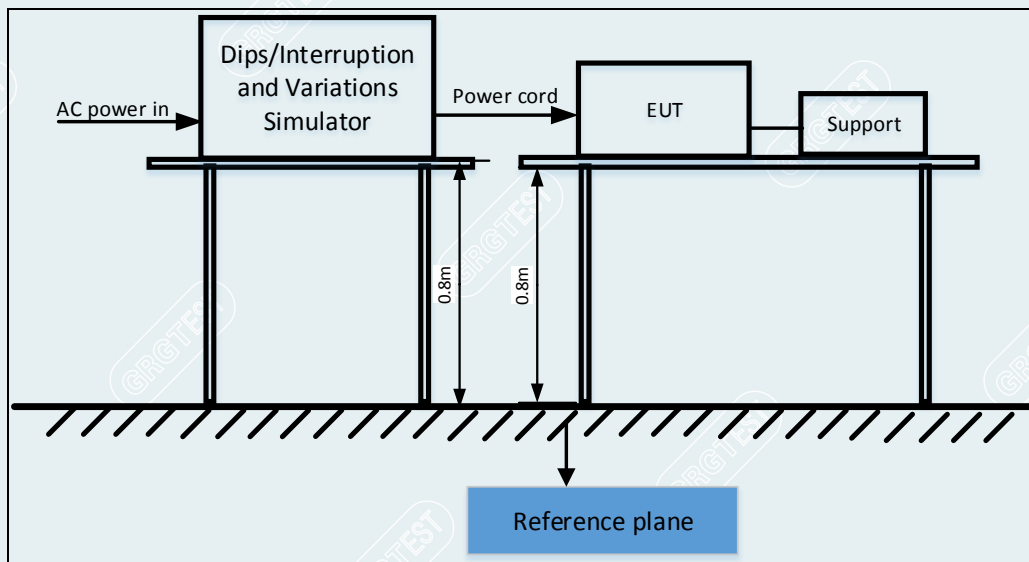
6.8.1 TEST SPECIFICATION

Test Method	IEC 61000-4-11:2004+AMD1:2017
Test duration time	0%,0.5T 70%,25T for 50Hz 40%,10 T for 50Hz
Interval between event	10s for each dips at each test angle
Phase Angle	0°,180°
Test cycle	3

6.8.2 TEST PROCEDURE

- The EUT and test generator.
- The interruptions is introduced at selected phase angles with specified duration.
- Record any degradation of performance.

6.8.3 TEST SETUP



6.8.4 PHOTOGRAPH OF THE TEST ARRANGEMENT

Mode 2



----- The following blanks -----

6.8.5 TEST RESULTS**Motor 1:**

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.1 °C/45%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-30	Sample No.	E20220309137001-0005

Test level % U _T	Voltage Dips & Interruptions % U _T	Duration (Period)	Angle	Required Performance	Actual performance	Result
0	100	0.5	0°	B	A ¹⁾	PASS
			180°	B	A ¹⁾	PASS
60	40	10	0°	B	A ¹⁾	PASS
			180°	B	A ¹⁾	PASS
30	70	25	0°	B	A ¹⁾	PASS
			180°	B	A ¹⁾	PASS

NOTE: ¹⁾Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.

Motor 2:

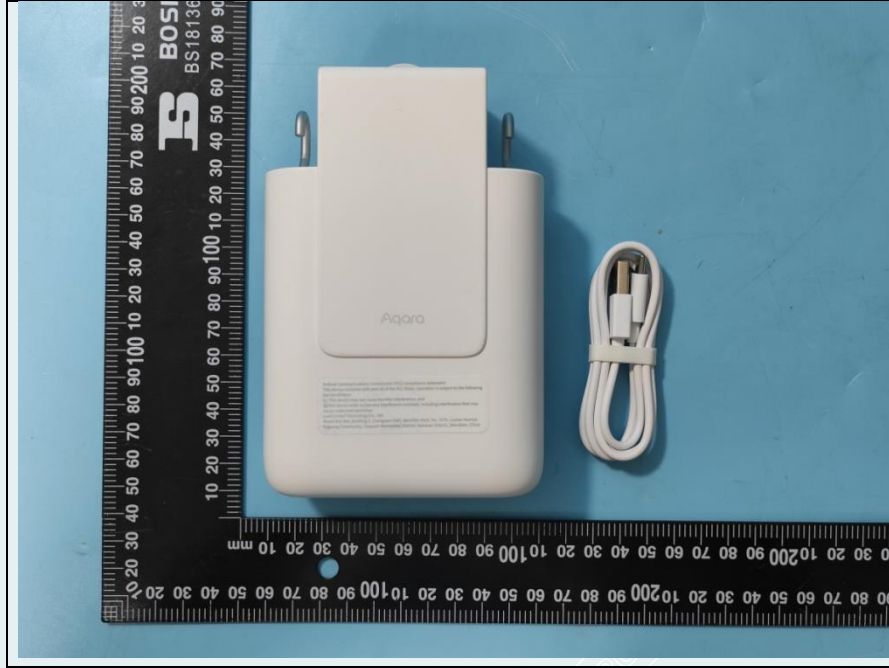
EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	23.1 °C/45%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-30	Sample No.	E20220309137001-0007

Test level % U _T	Voltage Dips & Interruptions % U _T	Duration (Period)	Angle	Required Performance	Actual performance	Result
0	100	0.5	0°	B	A ¹⁾	PASS
			180°	B	A ¹⁾	PASS
60	40	10	0°	B	A ¹⁾	PASS
			180°	B	A ¹⁾	PASS
30	70	25	0°	B	A ¹⁾	PASS
			180°	B	A ¹⁾	PASS

NOTE: ¹⁾Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.

APPENDIX A: PHOTOGRAPH OF THE EUT

External Photos of EUT



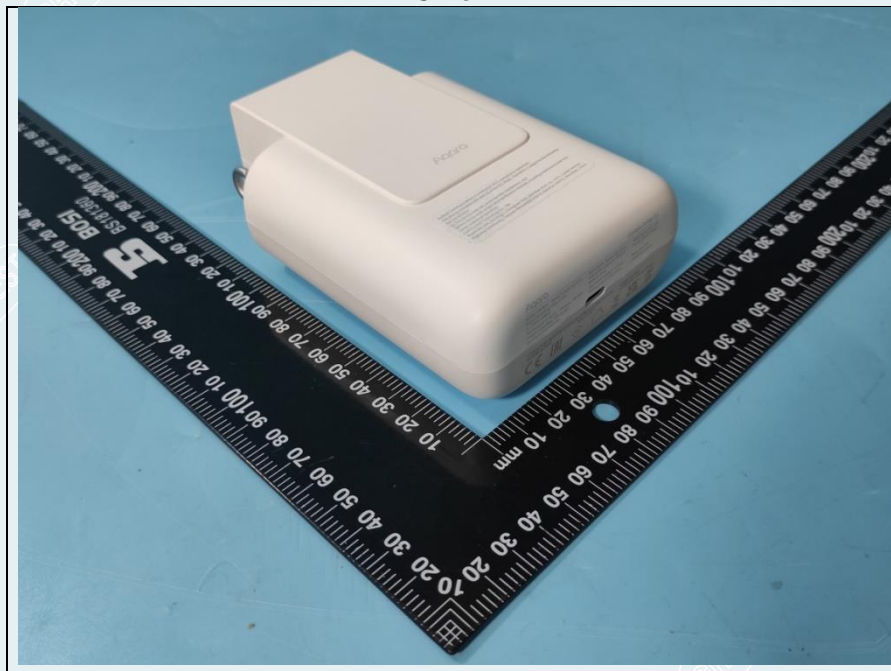
EUT-1



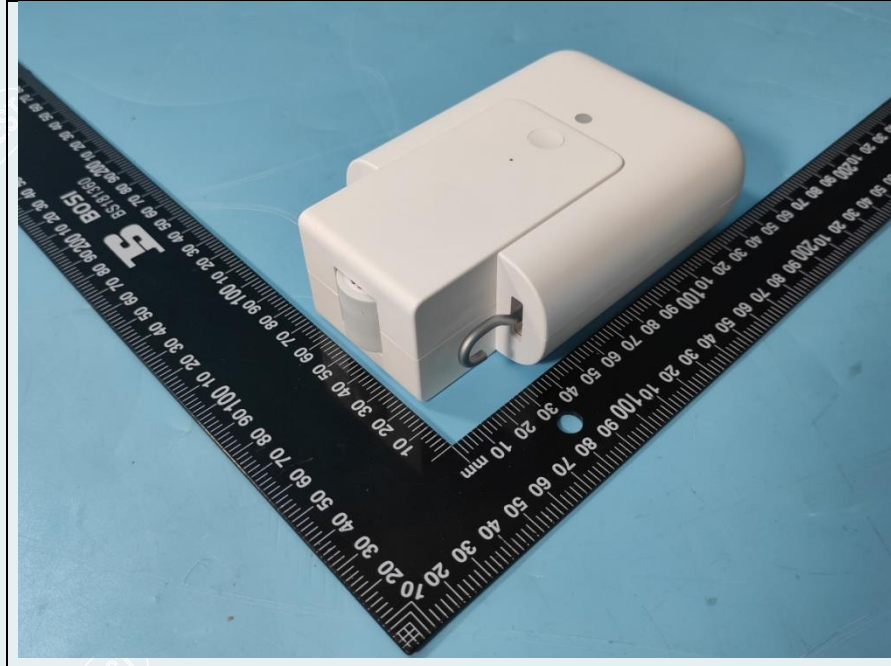
EUT-2



EUT-3



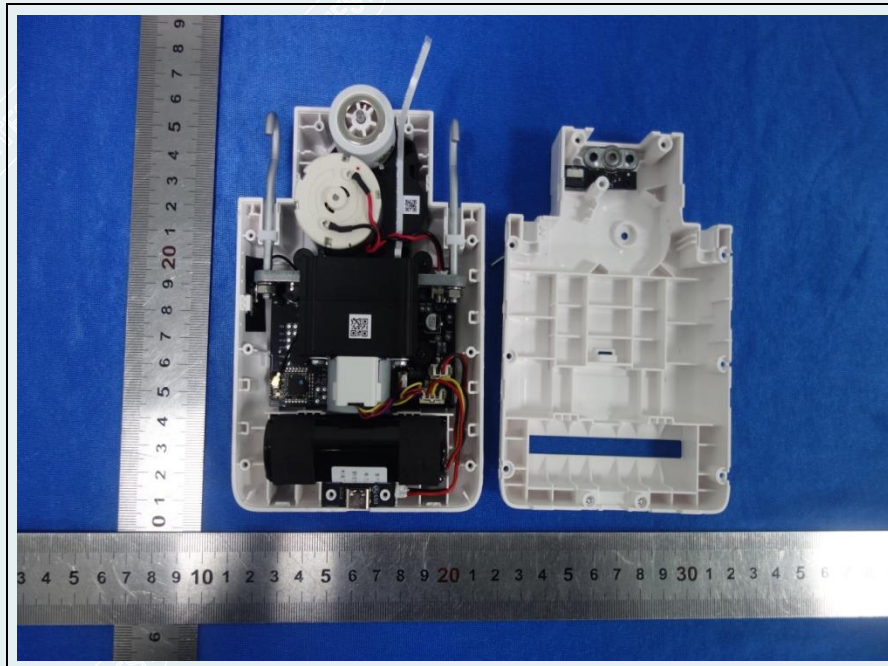
EUT-4



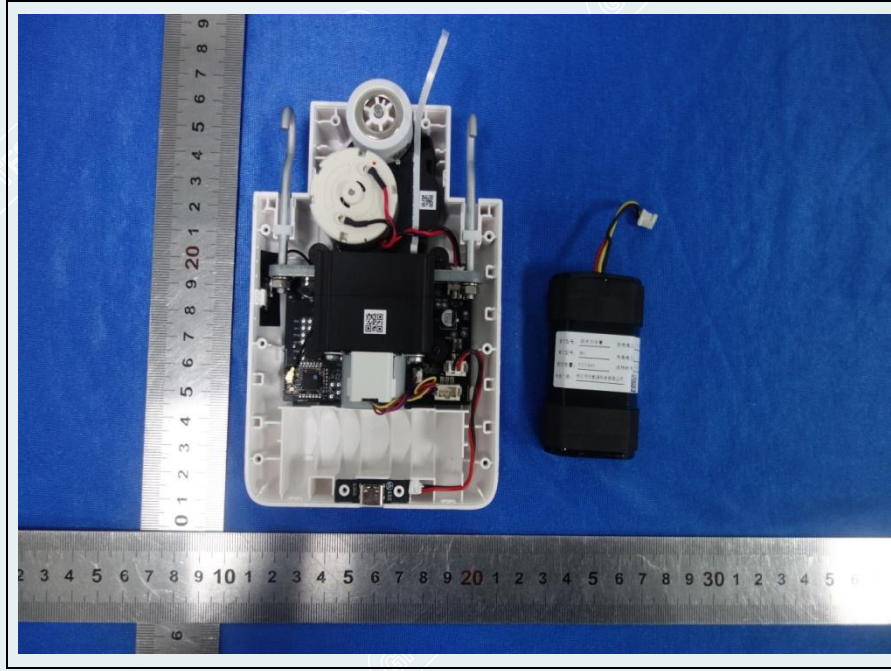
EUT-5

Internal Photos of EUT

Motor 1:



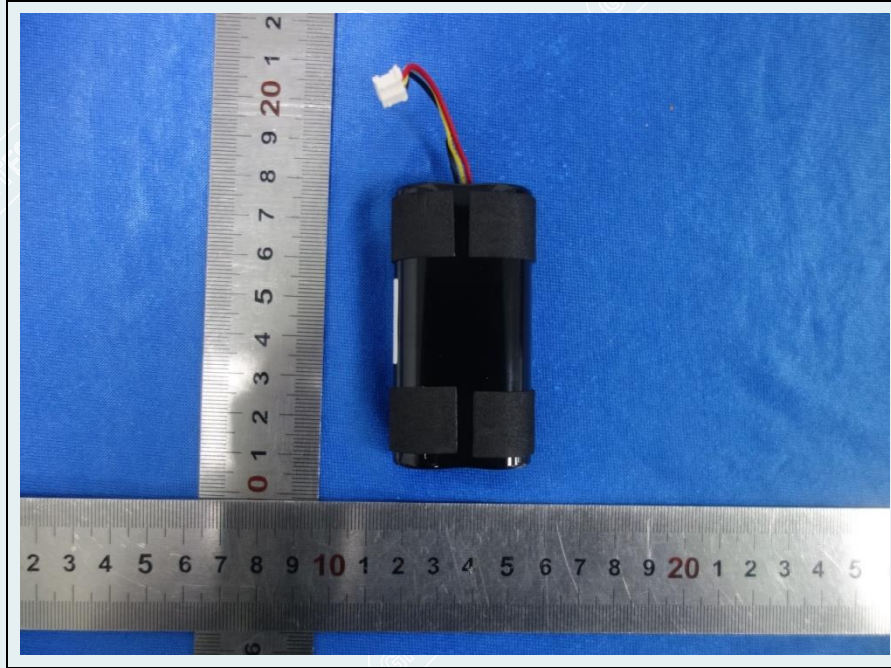
EUT-1



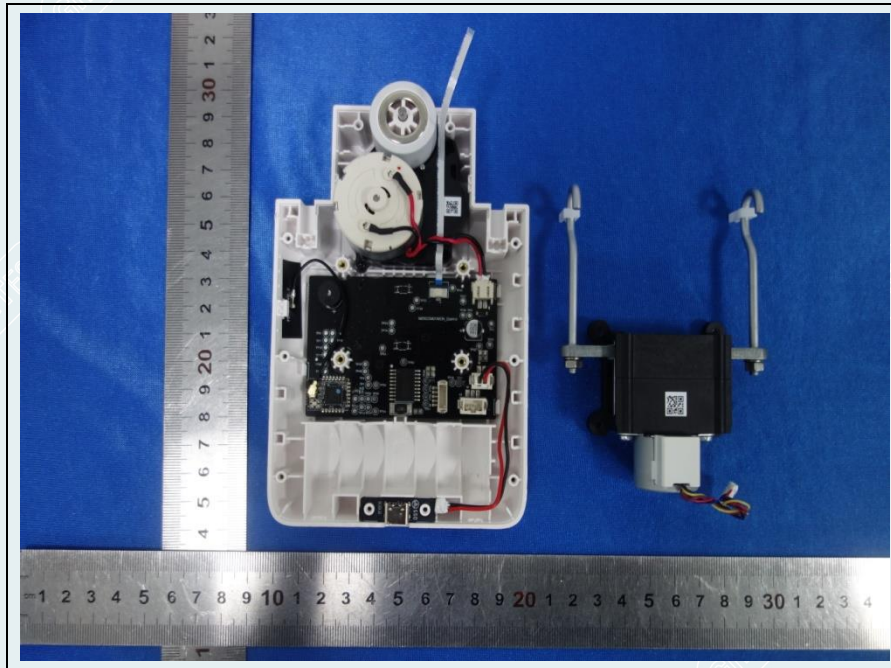
EUT-2



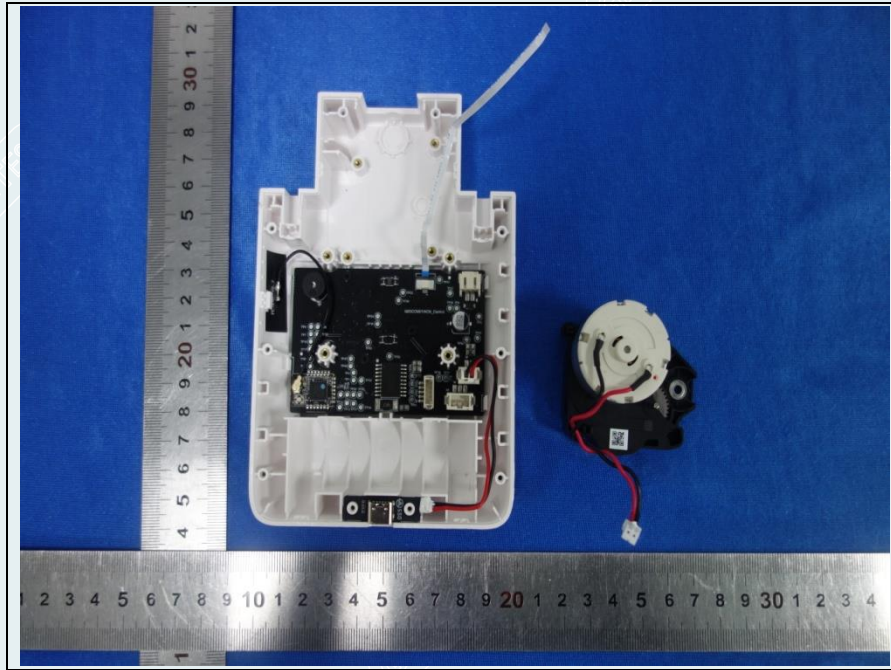
EUT-3



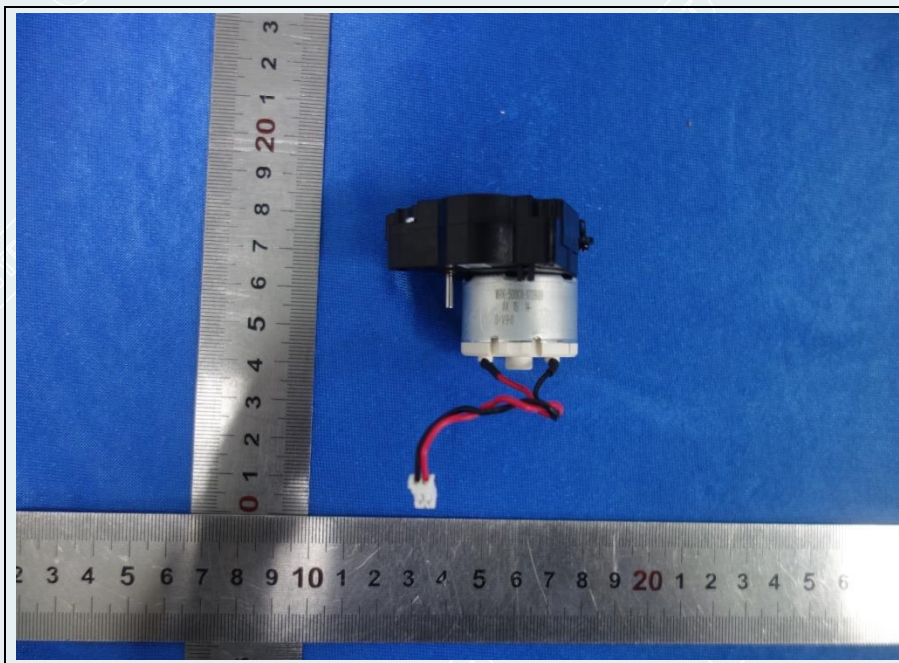
EUT-4



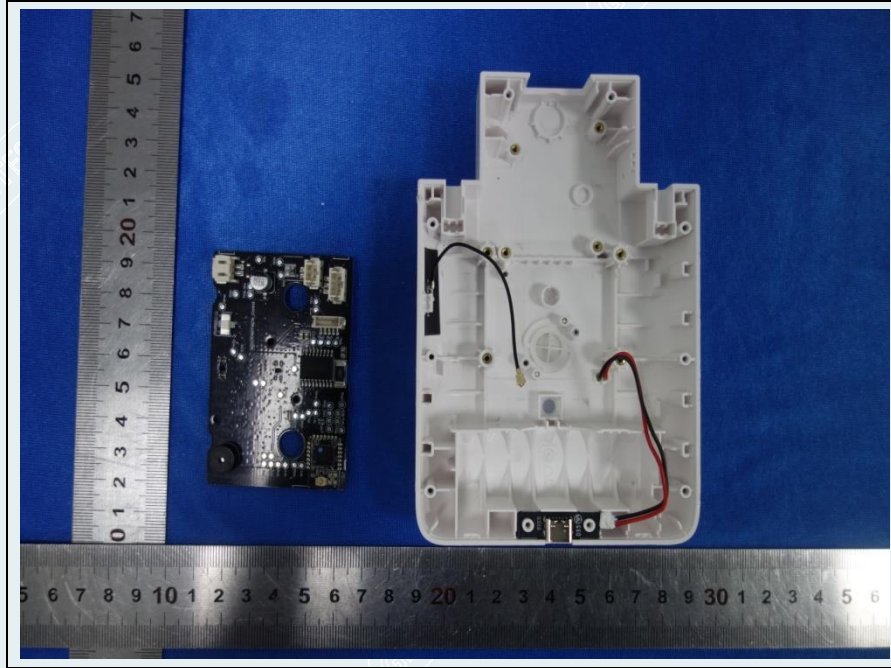
EUT-5



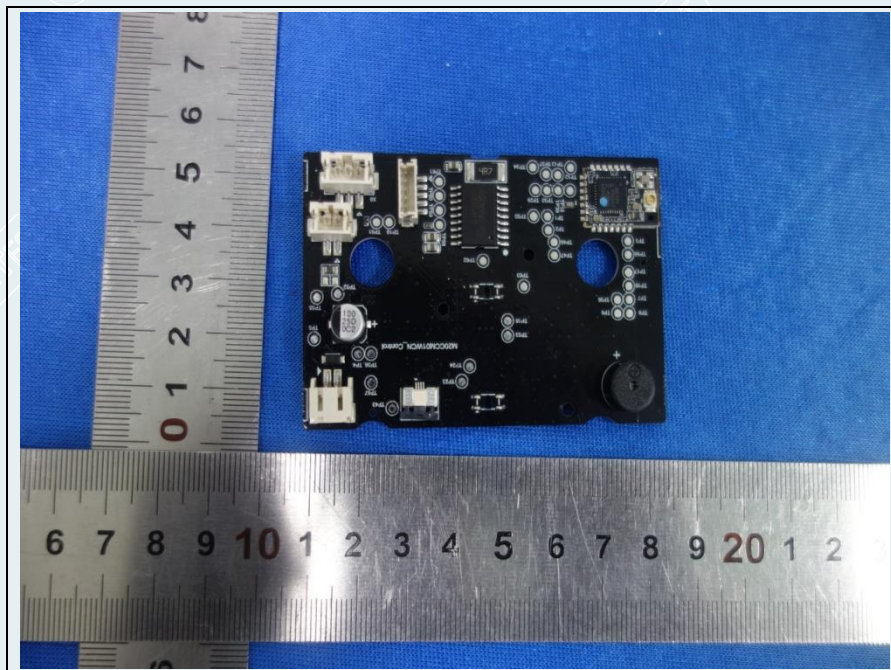
EUT-6



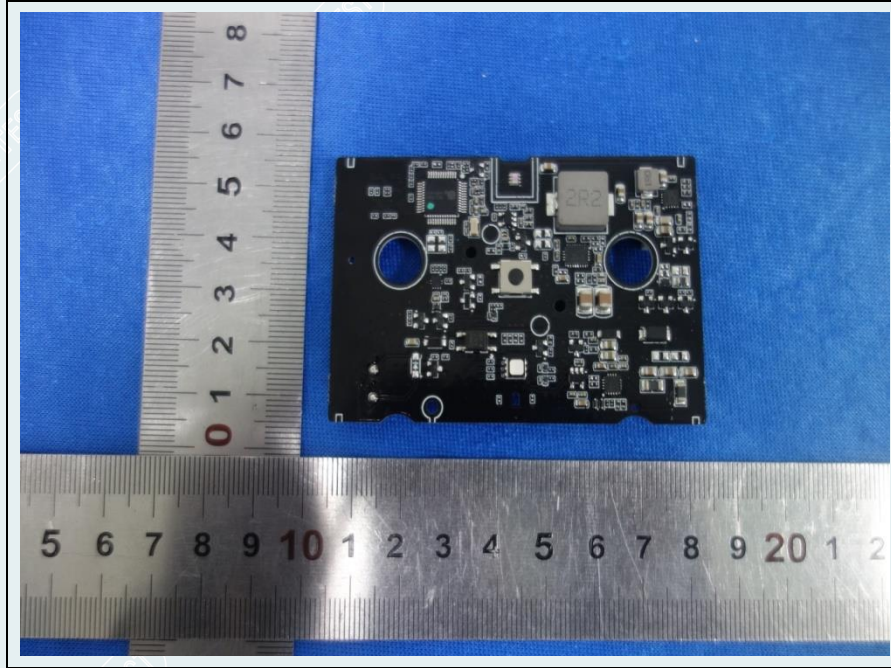
EUT-7



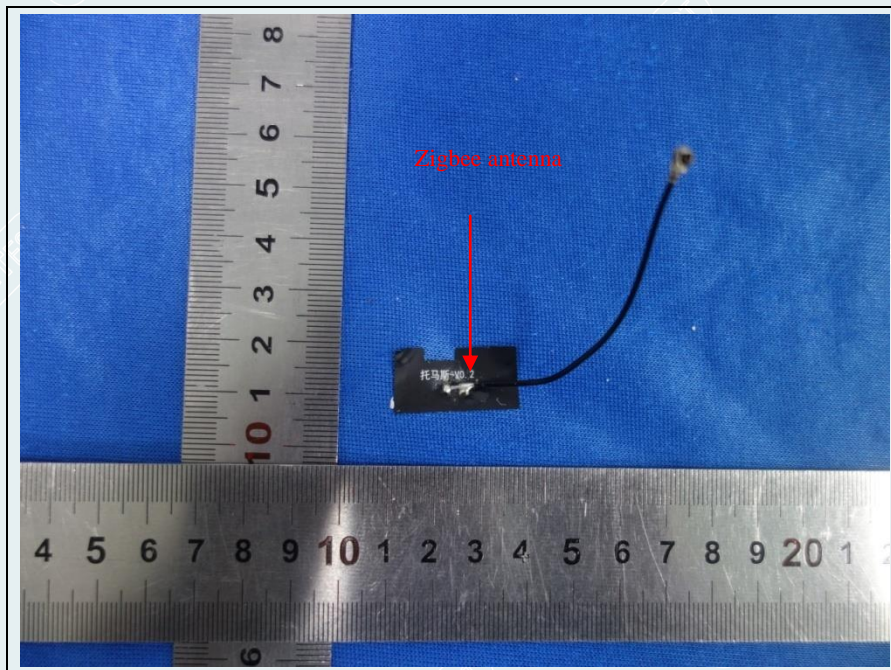
EUT-8



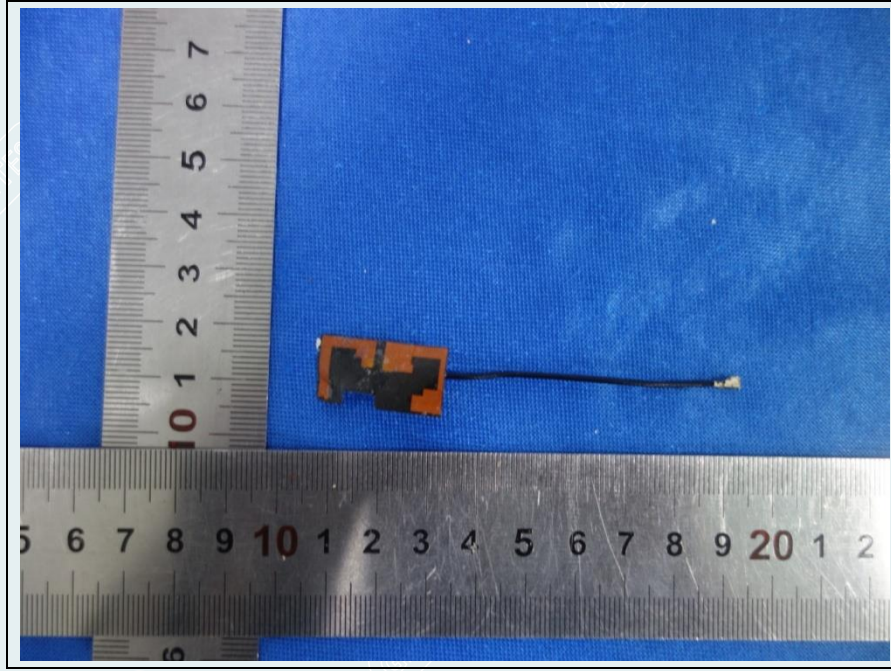
EUT-9



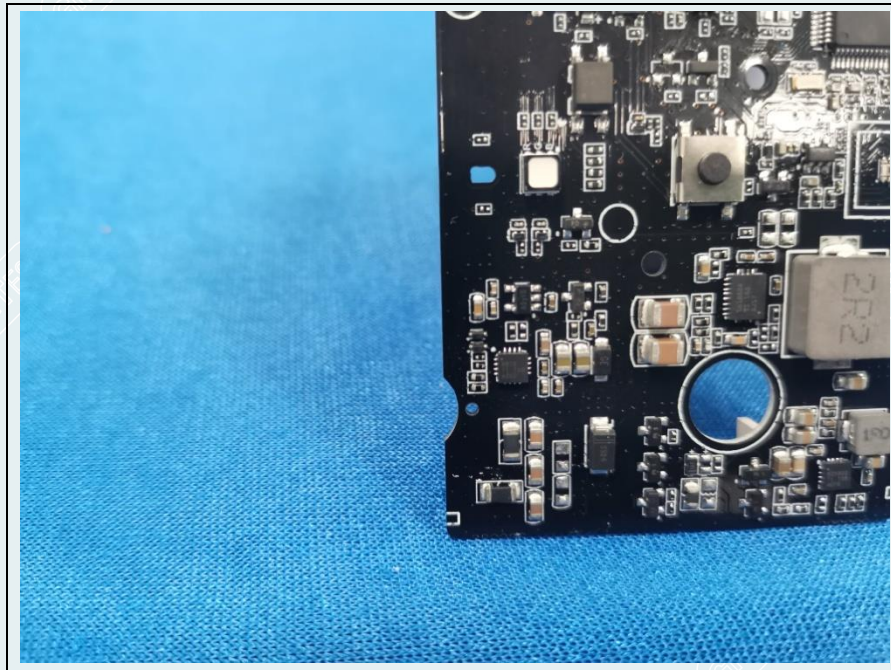
EUT-10



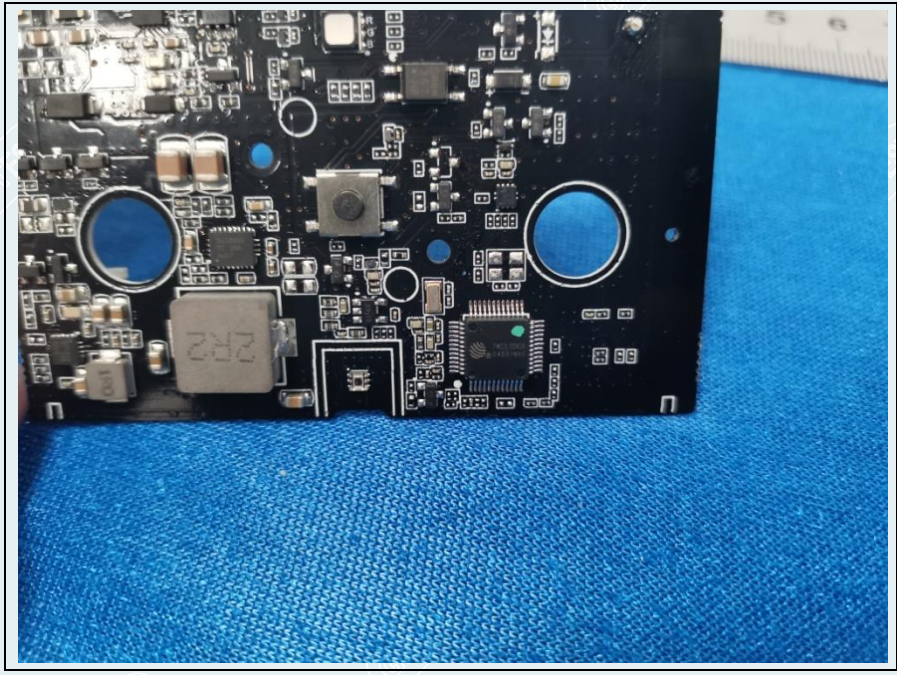
EUT-11



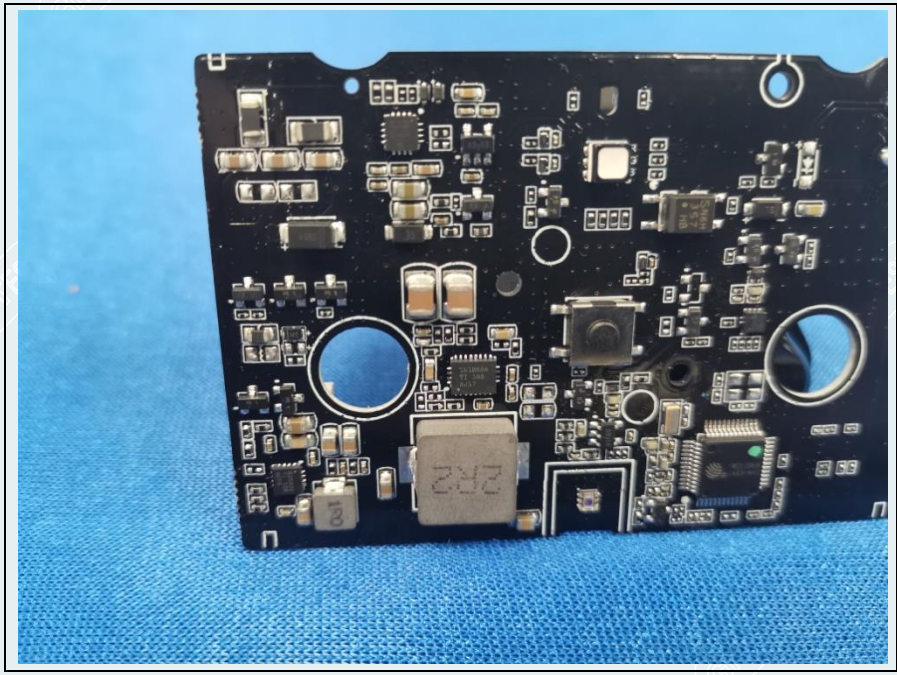
EUT-12



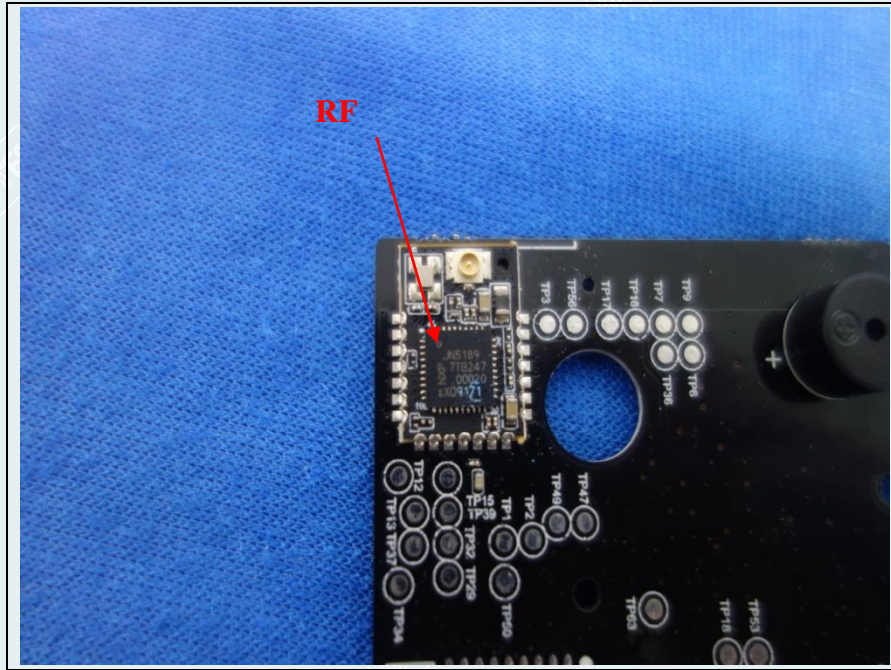
EUT-13



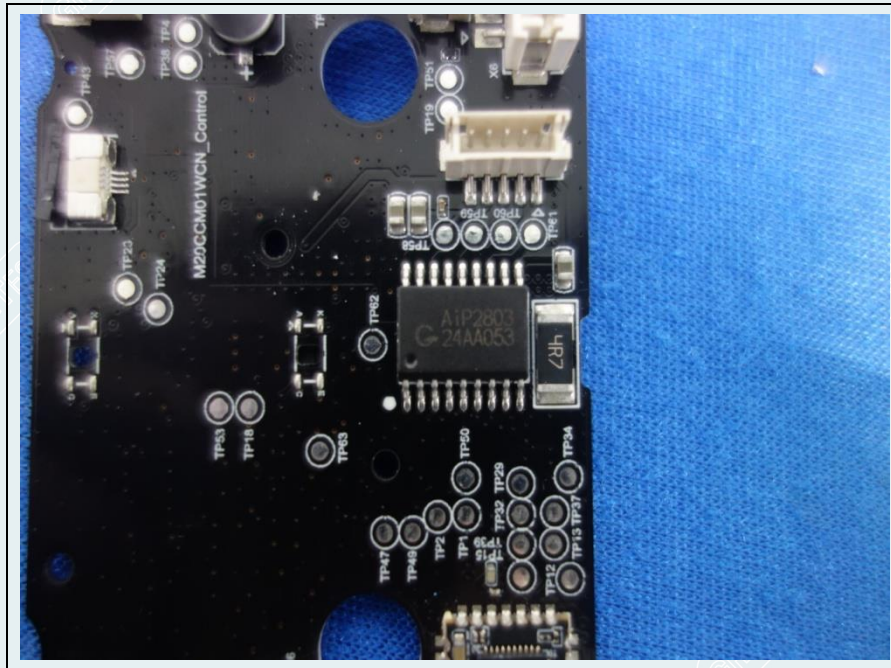
EUT-14



EUT-15



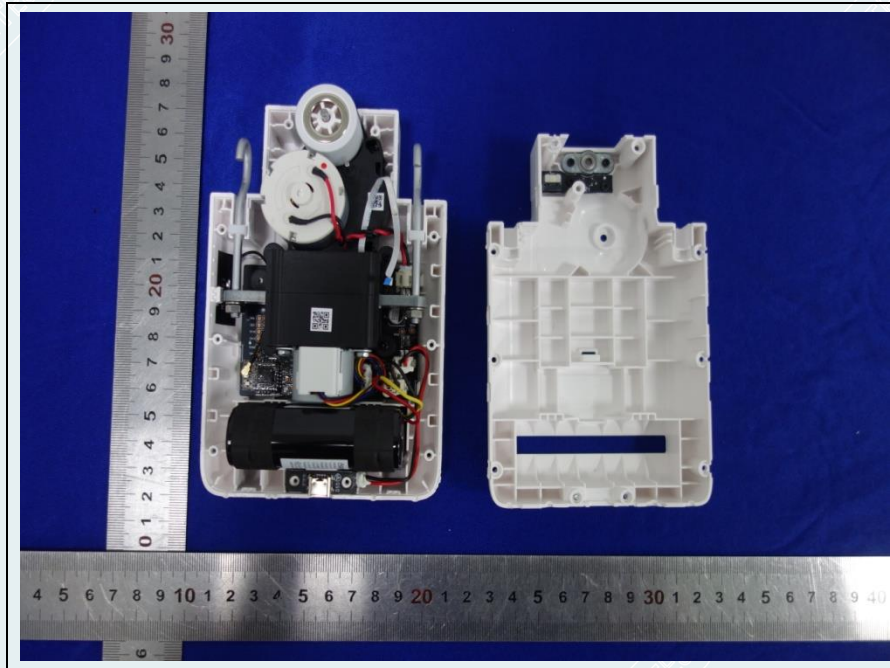
EUT-16



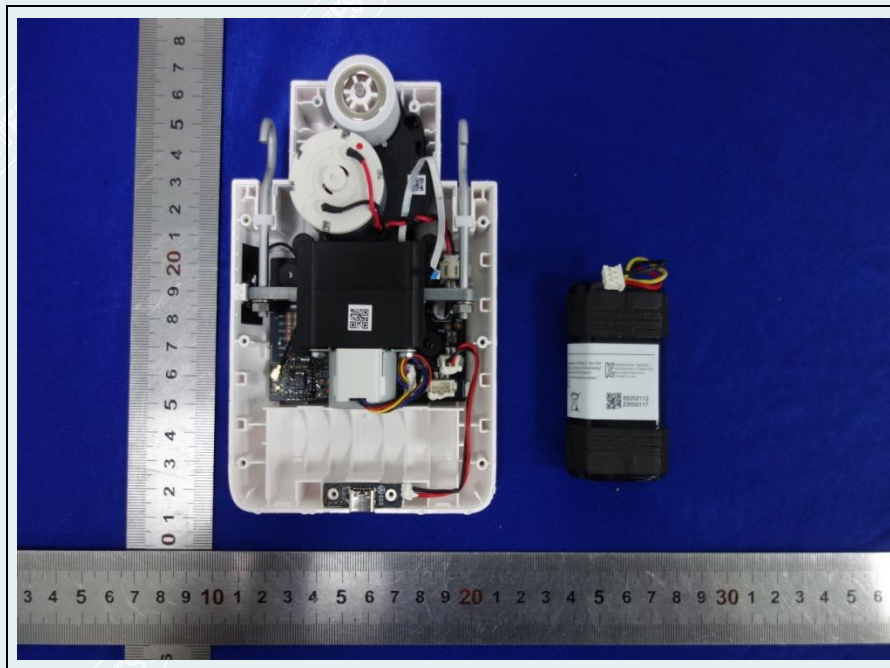
EUT-17

Internal Photos of EUT

Motor 2:



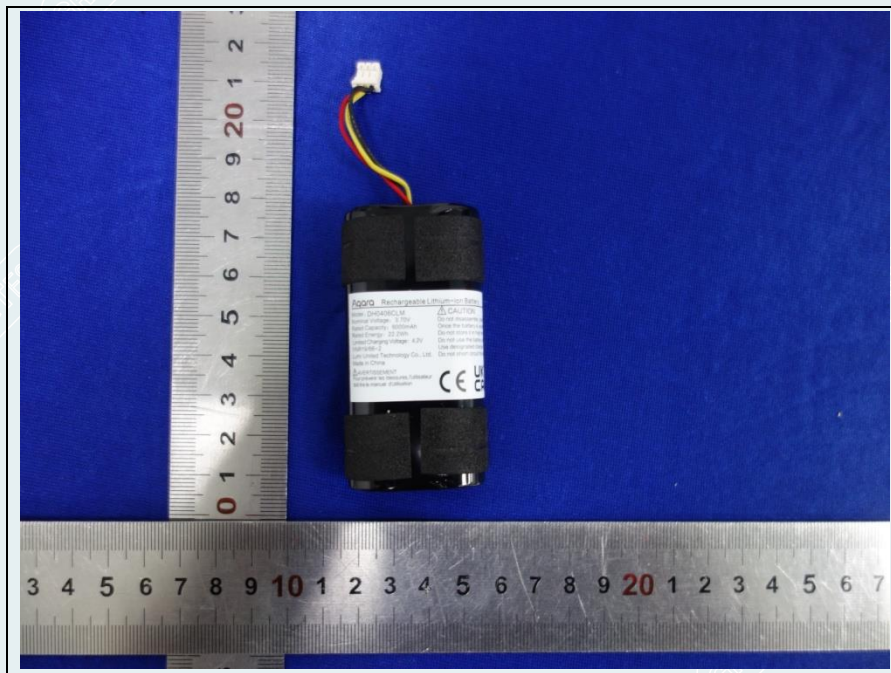
EUT-18



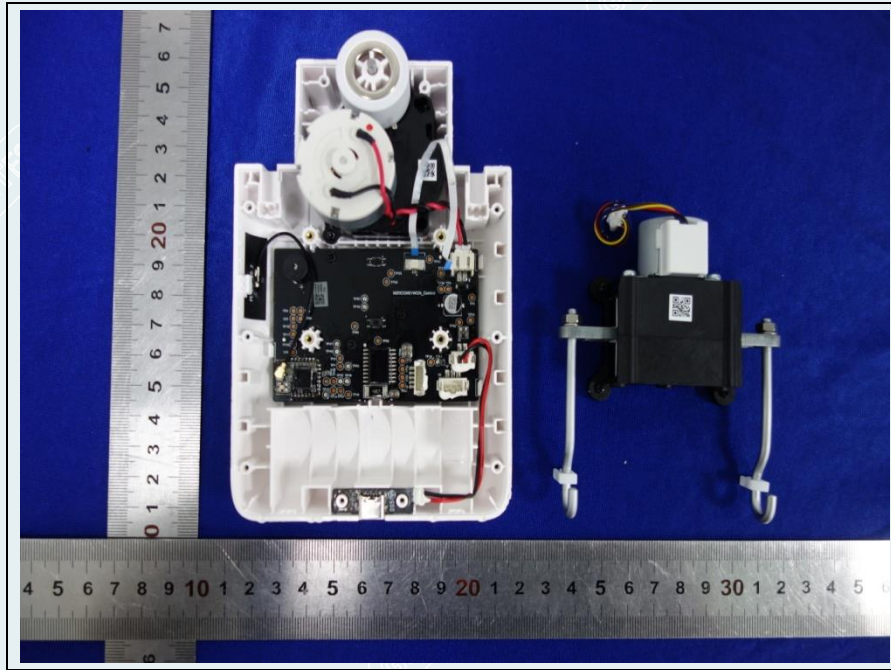
EUT-19



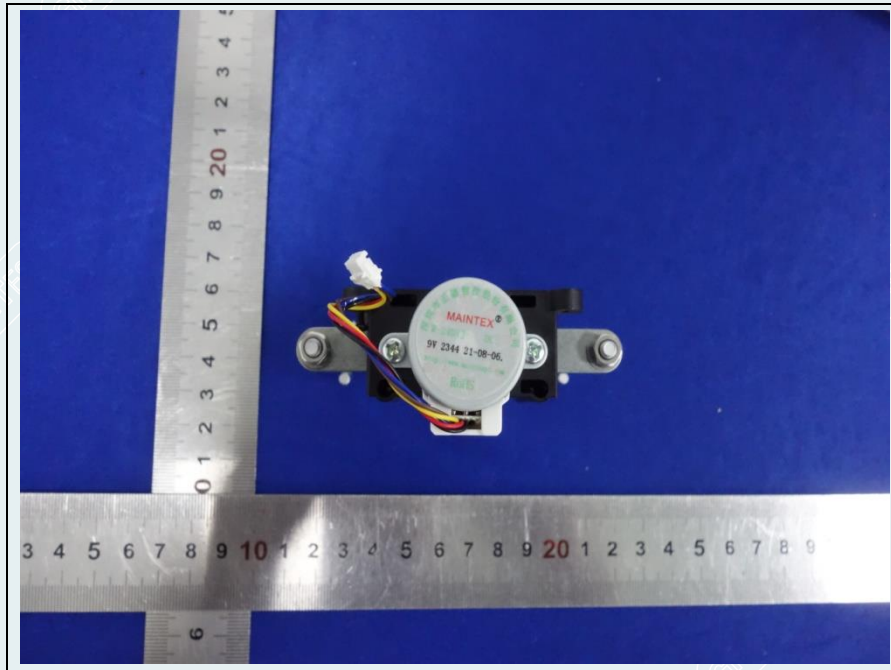
EUT-20



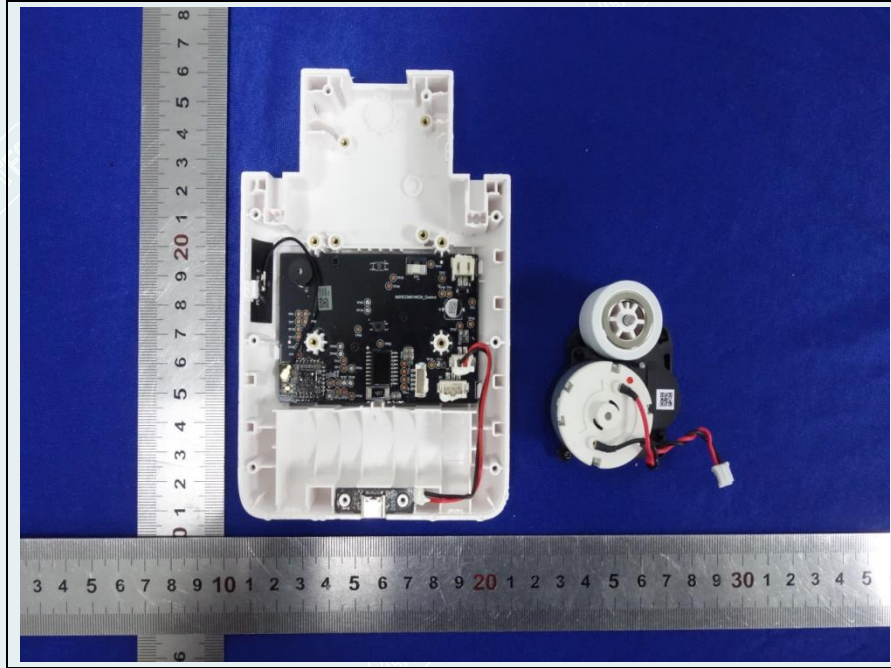
EUT-21



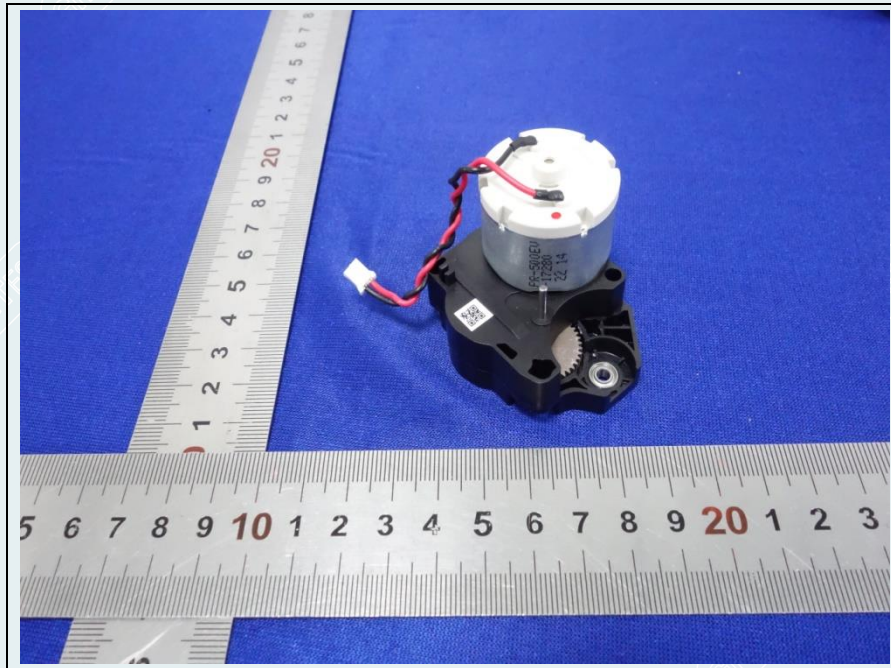
EUT-22



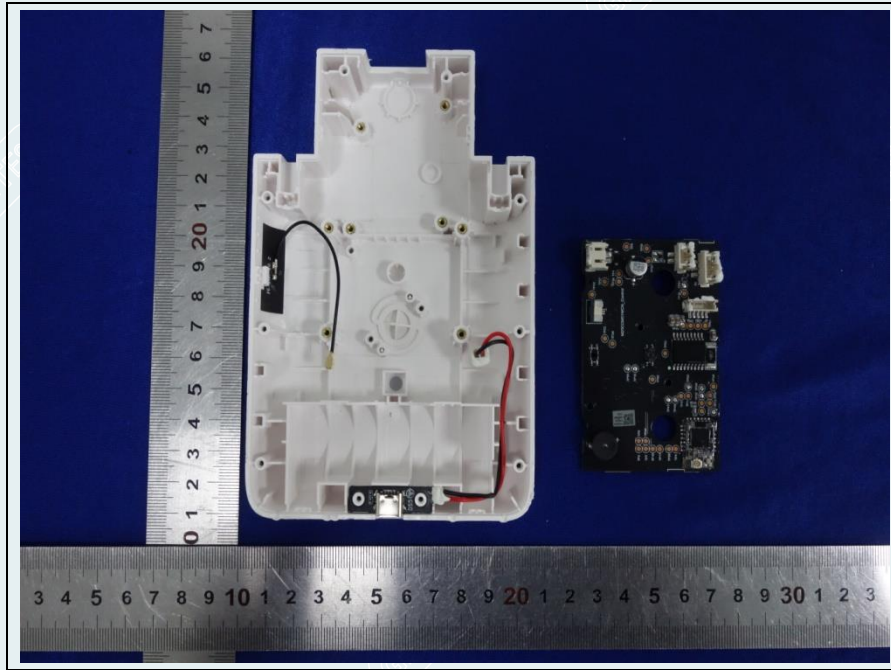
EUT-23



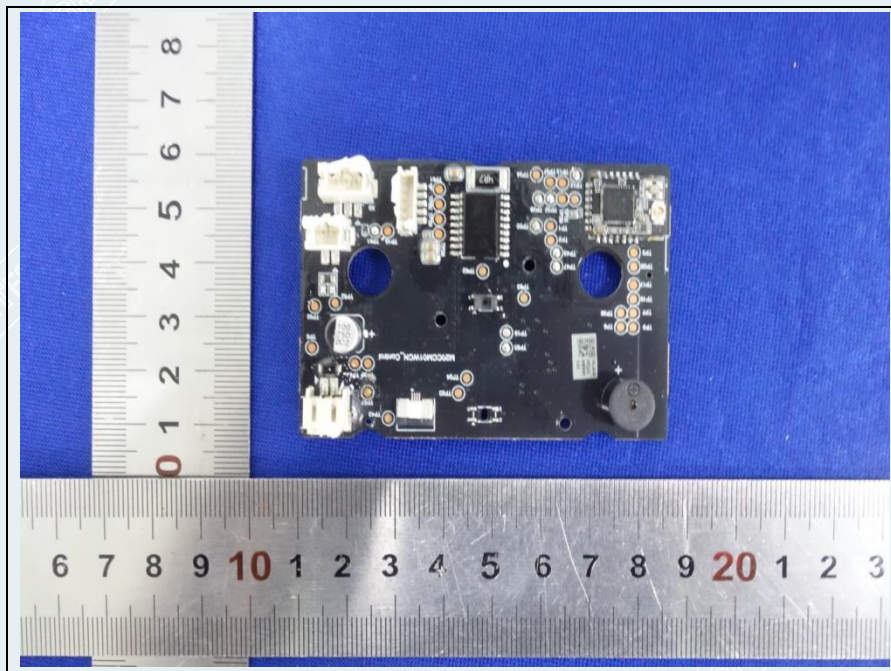
EUT-24



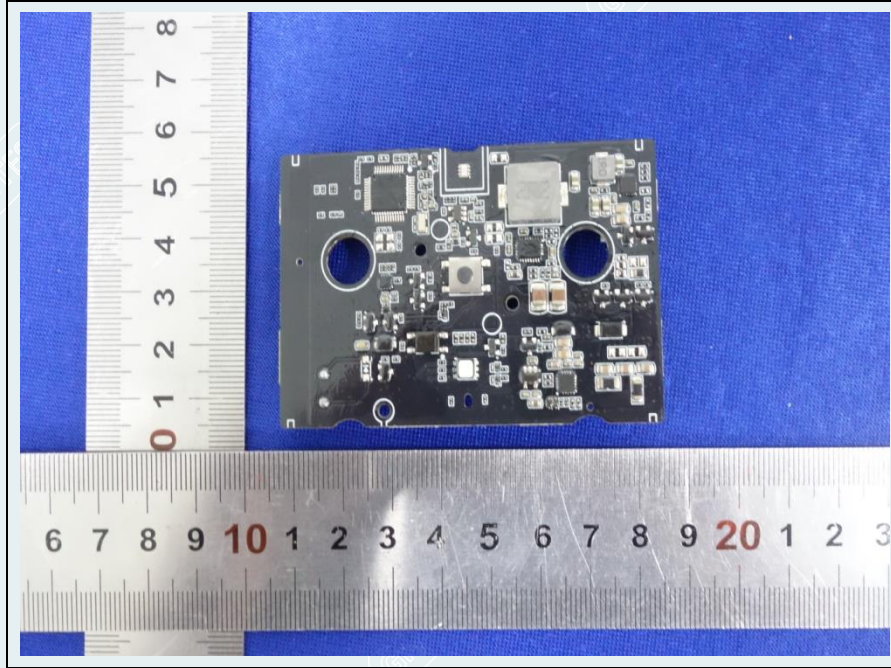
EUT-25



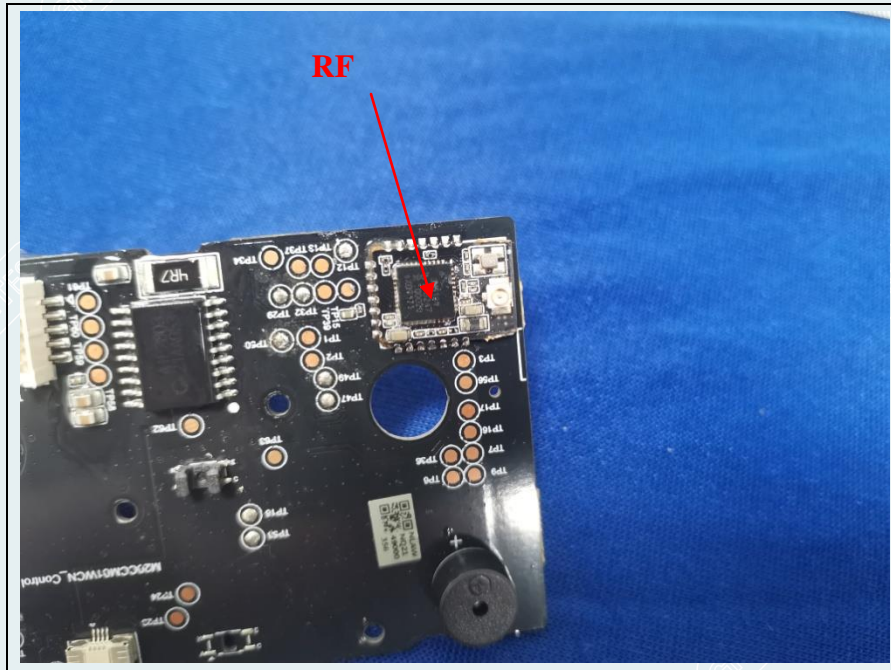
EUT-26



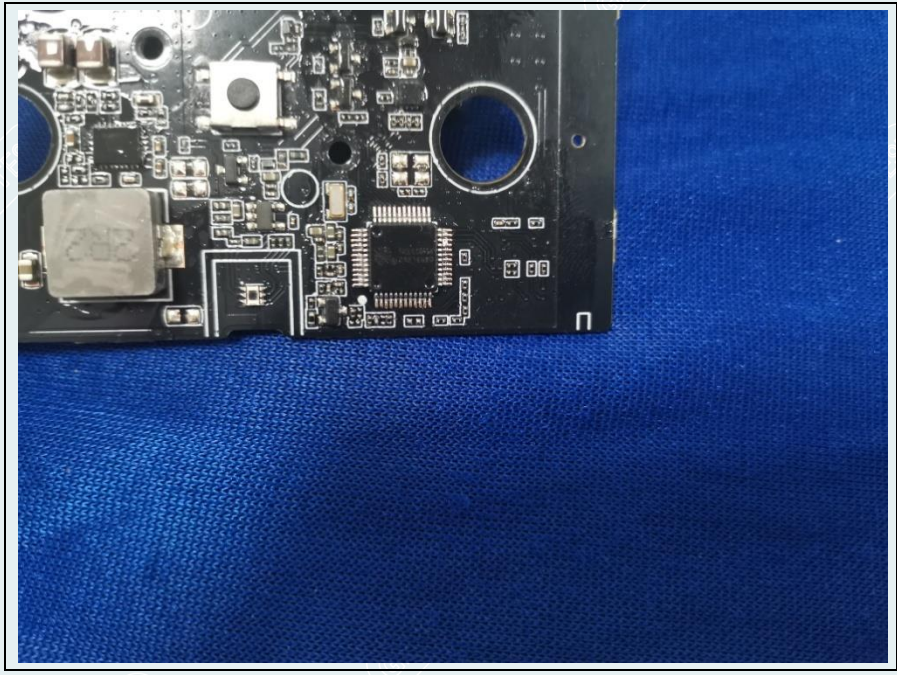
EUT-27



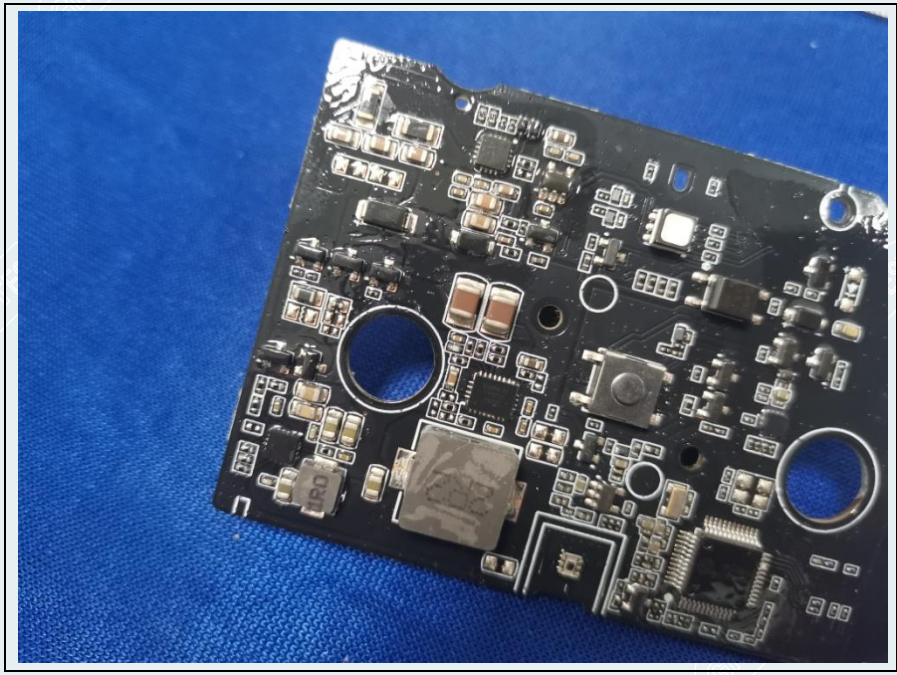
EUT-28



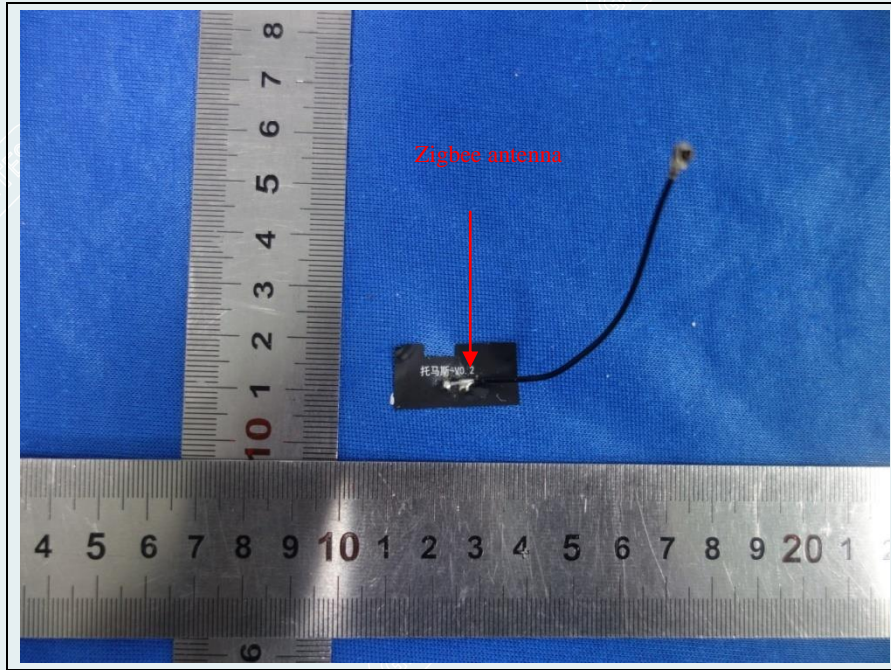
EUT-29



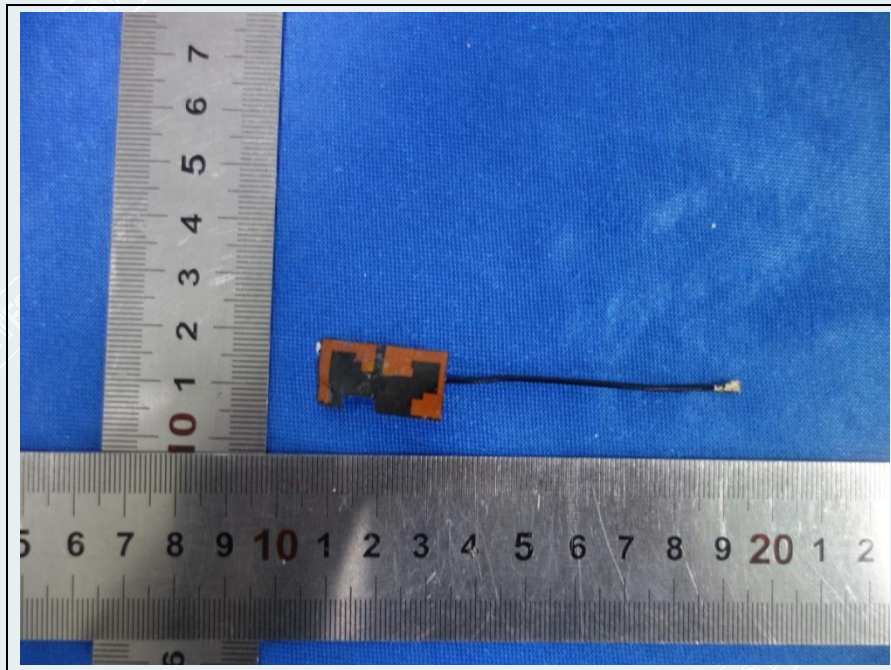
EUT-30



EUT-31



EUT-32



EUT-33

----- End of Report -----