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国际互认  
检测  
TESTING  
CNAS L0446



Page 1 of 114

# Test Report

Verified code: 252367

Report No.: E20220309137001-1

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: ETSI EN 301 489-17 V3.2.4 (2020-09)ElectroMagnetic Compatibility (EMC)standard for radio equipment and services;Part 17: Specific conditions for Broadband Data Transmission Systems;Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU ETSI EN 301 489-1 V2.2.3(2019-11)Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for Electro Magnetic Compatibility  
EN 61000-3-2: 2019 Electromagnetic compatibility (EMC) – Part 3-2: Limits– Limits for harmonic Current emissions (equipment input current  $\leq 16$  A per phase )  
EN 61000-3-3: 2013/A1:2019Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flickerin public low-voltage supply systems, for equipment with rated current  $\leq 16$  A per phase and not subject to conditional connection

Test Result: Pass

Prepared by: Yang Zhaojun

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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## Statement

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2. The sample information is provided by the client and responsible for its authenticity; The content of the report is only valid for the samples sent this time.
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5. Without the agreement of the laboratory, the client is not authorized to use the test results for unapproved propaganda.

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## Table of Contents

1.	TEST RESULT SUMMARY.....	6
2.	GENERAL DESCRIPTION OF EUT.....	8
2.1.	APPLICANT.....	8
2.2.	MANUFACTURER.....	8
2.3.	FACTORY.....	8
2.4.	BASIC DESCRIPTION OF EQUIPMENT UNDER TEST.....	8
2.5.	TEST MODE.....	9
2.6.	LOCAL SUPPORTIVE INSTRUMENTS.....	9
2.7.	CONFIGURATION OF SYSTEM UNDER TEST.....	9
3.	LABORATORY AND ACCREDITATIONS.....	11
3.1.	LABORATORY.....	11
3.2.	ACCREDITATIONS.....	11
3.3.	MEASUREMENT UNCERTAINTY.....	12
4.	LIST OF USED TEST EQUIPMENT AT GRGT.....	13
4.1.	LIST OF USED TEST EQUIPMENT.....	13
5.	EMISSION TEST.....	15
5.1.	RADIATED EMISSION MEASUREMENT (RE).....	15
5.1.1.	LIMITS.....	15
5.1.2.	TEST PROCEDURE.....	16
5.1.3.	TEST SETUP.....	17
5.1.4.	DATA SAMPLE.....	18
5.1.5.	PHOTOGRAPH OF THE TEST ARRANGEMENT.....	19
5.1.6.	TEST RESULTS.....	21
5.2.	CONDUCTED EMISSION MEASUREMENT (CE).....	45
5.2.1.	LIMITS.....	45
5.2.2.	TEST PROCEDURES.....	45
5.2.3.	TEST SETUP.....	46
5.2.4.	DATE SAMPLE.....	46
5.2.5.	PHOTOGRAPH OF THE TEST ARRANGEMENT.....	47
5.2.6.	TEST RESULTS.....	48
5.3.	VOLTAGE FLUCTUATIONS AND FLICKER.....	56
5.3.1.	LIMITS.....	56
5.3.2.	TEST PROCEDURES.....	56
5.3.3.	TEST SETUP.....	56
5.3.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT.....	57
5.3.5.	TEST RESULTS.....	58
6.	IMMUNITY TEST.....	62
6.1.	GENERAL DESCRIPTION.....	62
6.2.	GENERAL PERFORMANCE CRITERIA DESCRIPTION (ETSI EN 301 489-1/17).....	63
6.2.1.	GENERAL PERFORMANCE CRITERIA.....	63
6.2.2.	MINIMUM PERFORMANCE LEVEL.....	65
6.2.3.	PERFORMANCE CRITERIA FOR CONTINUOUS PHENOMENA.....	66

6.2.4.	PERFORMANCE CRITERIA FOR TRANSIENT PHENOMENA .....	66
6.3.	ELECTROSTATIC DISCHARGE(ESD) .....	67
6.3.1.	TEST SPECIFICATION .....	67
6.3.2.	TEST PROCEDURE.....	67
6.3.3.	TEST SETUP .....	68
6.3.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT .....	69
6.3.5.	TEST RESULTS .....	70
6.4.	RADIATED RADIO-FREQUENCY ELECTROMAGNETIC FIELD (RS) .....	72
6.4.1.	TEST SPECIFICATION .....	72
6.4.2.	TEST PROCEDURE.....	72
6.4.3.	TEST SETUP .....	73
6.4.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT .....	74
6.4.5.	TEST RESULTS .....	76
6.5.	ELECTRICAL FAST TRANSIENTS (EFT).....	80
6.5.1.	TEST SPECIFICATION .....	80
6.5.2.	TEST PROCEDURE.....	80
6.5.3.	TEST SETUP .....	81
6.5.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT .....	82
6.5.5.	TEST RESULTS .....	83
6.6.	SURGES.....	84
6.6.1.	TEST SPECIFICATION .....	84
6.6.2.	TEST PROCEDURE.....	84
6.6.3.	TEST SETUP .....	85
6.6.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT .....	86
6.6.5.	TEST RESULTS .....	87
6.7.	RADIO FREQUENCY CONTINUOUS CONDUCTED (CS) .....	88
6.7.1.	TEST SPECIFICATION .....	88
6.7.2.	TEST PROCEDURE.....	88
6.7.3.	TEST SETUP .....	89
6.7.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT .....	90
6.7.5.	TEST RESULTS .....	91
6.8.	VOLTAGE DIPS & SHORT INTERRUPTIONS .....	92
6.8.1.	TEST SPECIFICATION .....	92
6.8.2.	TEST PROCEDURE.....	92
6.8.3.	TEST SETUP .....	92
6.8.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT .....	93
6.8.5.	TEST RESULTS .....	94
APPENDIX A. PHOTOGRAPHS OF EUT .....		96



**REPORT ISSUED HISTORY**

<b>Report Version</b>	<b>Report No.</b>	<b>Description</b>	<b>Compile Date</b>
1.0	E20220309137001-1	Original Issue	2022/04/26

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## 1. TEST RESULT SUMMARY

### Emissions

Test Item	Test mode	Equipment test requirement	Test Method	Class / Severity	Test Result
<b>Performance Standard:</b> <b>ETSI EN 301 489-17 V3.2.4 (2020-09)&amp;ETSI EN 301 489-1 V2.2.3 (2019-11)</b>					
Conducted Emission	Mode 1 Mode 2	ETSI EN 301 489-17/7.1.1 ETSI EN 301 489-1/8.4	EN 55032:2015 annex A.3	Table A.10 Class B	PASS
Asymmetric mode conducted emissions	/	ETSI EN 301 489-17/7.1.1 ETSI EN 301 489-1/8.7	EN 55032:2015 annex A.3	Table A.12 Class B	Note <sup>1)</sup>
Radiated Emission	Mode 1 Mode 2 Mode 3	ETSI EN 301 489-17/7.1.1 ETSI EN 301 489-1/8.2	EN 55032:2015 Table A.4 and A.5	Table A.4 Class B Table A.5 Class B	PASS
Harmonic current	/	ETSI EN 301 489-17/7.1.1 ETSI EN 301 489-1/8.5	EN 61000-3-2:2019	/	Note <sup>2)</sup>
Voltage fluctuations and flicker	Mode 1 Mode 2	ETSI EN 301 489-17/7.1.1 ETSI EN 301 489-1/8.6	EN 61000-3-3:2013	/	PASS

### Immunity

Test Item	Test mode	Equipment test requirement	Test Method	Class / Severity	Test Result
<b>Performance Standard:</b> <b>ETSI EN 301 489-17 V3.2.4 (2020-09)&amp;ETSI EN 301 489-1 V2.2.3 (2019-11)</b>					
Electrostatic discharge (ESD)	Mode 1 Mode 2 Mode 3	ETSI EN 301 489-17/7.2.1 ETSI EN 301 489-1/9.3	EN 61000-4-2:2009	Test specification: ±2, ±4, ±8kV air discharge ±2, ±4kV Contact discharge Performance : Criteria B	PASS
RF electromagnetic field (RS)	Mode 1 Mode 2 Mode 3	ETSI EN 301 489-17/7.2.1 ETSI EN 301 489-1/9.2	EN61000-4-3:2006+ A1:2008+A2:2010	Test specification: Test level: For the frequency range 80MHz to 1000MHz, 1000MHz to 2700MHz and 2700MHz to 6000MHz, test level shall be 3 V/m, 80% AM(1kHz) Performance: Criteria A	PASS
Electrical fast transients(EFT)	Mode 1 Mode 2	ETSI EN 301 489-17/7.2.1 ETSI EN 301 489-1/9.4	EN 61000-4-4:2012	Test specification: AC power port: ±1kV, repetition rate: 5 kHz	PASS

				Performance: Criteria B	
Surges	Mode 1 Mode 2	ETSI EN 301 489-17/7.2.1 ETSI EN 301 489-1/9.8	EN 61000-4-5:2014+ A1:2017	Test specification: AC power port: 1.2/50 us pulse line to line: $\pm 1$ kV; Performance : Criteria B	PASS
Radio frequency continuous conducted(CS)	Mode 1 Mode 2	ETSI EN 301 489-17/7.2.1 ETSI EN 301 489-1/9.5	EN 61000-4-6:2014	Test specification: AC power port 0.15~80 MHz, 3Vrms, 80% AM, 1kHz Performance: Criteria A	PASS
Voltage Dips & Short Interruptions	Mode 1 Mode 2	ETSI EN 301 489-17/7.2.1 ETSI EN 301 489-1/9.7	EN 61000-4-11:2004	Test specification: 1. Voltage dips: i)0% residual voltage 0.5 cycle. Performance: Criteria B; ii) 0% residual voltage 1 cycle, Performance: Criteria B; iii)70% residual voltage 25 cycle. Performance: Criteria B; 2. Voltage interruption: 0% residual voltage during 250 cycles. Performance: Criteria C;	PASS

Note <sup>1)</sup>: Not applicable, since the EUT no telecommunication port.

<sup>2)</sup>: 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

Product Name: Curtain Driver E1  
 Product Model: CM-M01  
 Adding Model: /  
 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**

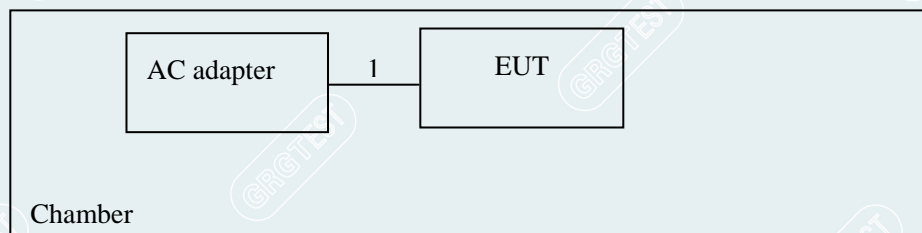
Mode No.	Description of the modes
1	Charging
2	Charging + Zigbee communication + motor rotation
3	Zigbee communication + motor rotation

**2.6. LOCAL SUPPORTIVE INSTRUMENTS**

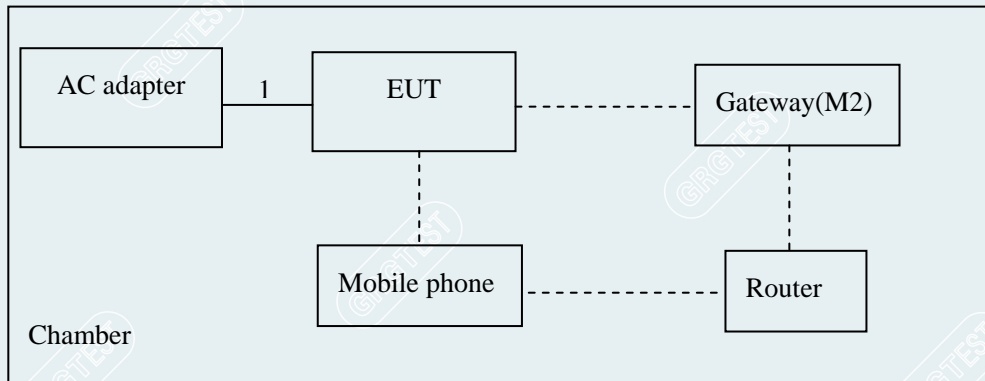
Name of Equipment	Manufacturer	Model	Serial Number	Note
Gateway( M2)	Lumi United Technology Co., Ltd.	ZHWG12LM	/	/
AC adapter	Aohai	A70-050200U-EU1	/	/
Mobile Phone	VIVO	VIVO Y79	/	/
Router	TP-LINK	TL-WDR6500	/	/
<b>Cable</b>				
1	USB Cable	Aqara	/	Unshielded 0.83m

**2.7. CONFIGURATION OF SYSTEM UNDER TEST**

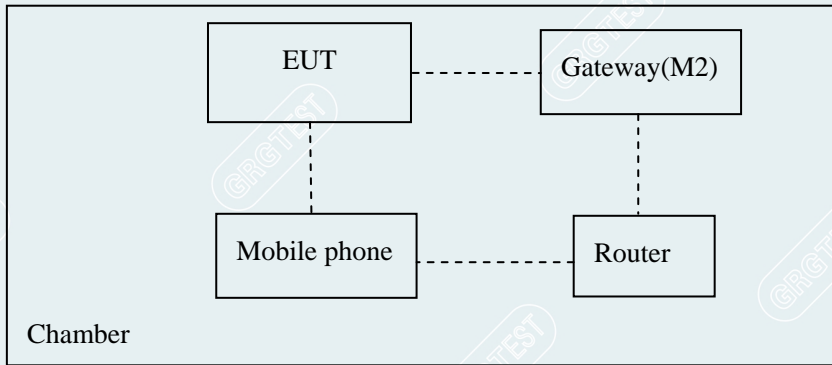
Mode 1



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.

Addr.: 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>

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### 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 <sup>1)</sup>
	150kHz~30MHz	2.8 dB <sup>1)</sup>
Radiated Emission (3m)	30MHz~200MHz(H)	4.3 dB <sup>1)</sup>
	200MHz~1000MHz(H)	4.5 dB <sup>1)</sup>
	30MHz~200MHz(V)	4.4 dB <sup>1)</sup>
	200MHz~1000MHz(V)	4.5 dB <sup>1)</sup>
	1GHz~6GHz(H)	4.5 dB <sup>1)</sup>
	1GHz~6GHz(V)	4.5 dB <sup>1)</sup>
Harmonic Current	/	2)
Voltage Fluctuation and Flicks	/	2)
Electrostatic discharge	/	2)
Radio-Frequency Electromagnetic Field	/	2)
Electrical fast transient/burst	/	2)
Surge	/	2)
Conducted radio frequency disturbances	/	2)
Power frequency magnetic field	/	2)
Voltage Dip & Voltage Interruptions	/	2)

Note<sup>1)</sup>: 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%.

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#### 4. LIST OF USED TEST EQUIPMENT AT GRGT

##### 4.1. LIST OF USED TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
<b>Conduction Emission</b>				
EZ-EMC	EZ	CCS-3A1-CE	/	/
EMI Receiver	R&S	ESCI	100783	2022-09-14
LISN(EUT)	R&S	ENV216	101543	2022-09-14
<b>Radiated Emission (Below 1GHz)</b>				
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
<b>Radiated Emission (Above 1GHz)</b>				
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
<b>Voltage Fluctuation and Flicks</b>				
Test S/W	/	CTS4	/	/
Power Source	SCHAFFNER	NSG1007	54789	2023-03-08
Harmonic & Flicker Tester	SCHAFFNER	CCN1000	72045	2022-09-24
<b>Electrostatic discharge</b>				
Dito ESD Simulator	EM Test	dito	V0809103493	2022-10-30
<b>Radio-Frequency Electromagnetic Field</b>				
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
<b>Electrical fast transient/burst</b>				
Test S/W	/	Win3025 Version 4.00	/	/
Fast Transients/Burst Generator	TESEQ	NSG 3025	26861	2022-09-04
<b>Surge</b>				
Surge simulator	3ctest	CWS 600G	ES0381813	2022-10-29
Lightning surge coupling decoupling network	3ctest	SPN 3618T	ES0941720	2022-11-05
<b>Conducted radio frequency disturbances</b>				
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
<b>Voltage Dip &amp; Voltage Interruptions</b>				
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. RADIATED EMISSION MEASUREMENT (RE)

Test Requirement: ETSI EN 301 489-17 V3.2.4/7.1.1  
ETSI EN 301 489-1 V2.2.3/8.2

Test Method: EN 55032 /annex A.2

#### 5.1.1. LIMITS

The ancillary equipment shall meet the class B limits given in CENELEC EN 55032 [1], annex A tables A.4 and A.5.

**Table A.4 – Requirements for radiated emissions at frequencies up to 1 GHz  
for class B equipment**

Frequency range(MHz)	Distance (m)	bandwidth	Limits (dBuV/m)		
			Peak (PK)	Quasi-peak (QP)	Average (Avg)
30 to 230	3	120 kHz	/	40	/
230 to 1000	3	120 kHz	/	47	/

**Table A.5 – Requirements for radiated emissions at frequencies above 1 GHz  
for class B equipment**

Frequency range(MHz)	Distance (m)	bandwidth	Limits (dBuV/m)		
			Peak (PK)	Quasi-peak (QP)	Average (Avg)
1000~3000	3	1MHz	70	/	50
3000~6000	3	1MHz	74	/	54

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### 5.1.2. TEST PROCEDURE

#### (1) Procedure of Preliminary Test

Radiated emission tests shall be made with the receive or transmit antenna located at a horizontal distance of 3m plus half of the maximum width of the EUT being tested, measured from the centre of the EUT. The tests shall be performed with the equipment configured as closely as possible to its typical, practical operation. Unless stated otherwise, cables and wiring shall be as specified by the manufacturer and the equipment shall be in its housing (or cabinet) with all covers and access panels in place. Any deviation from normal EUT operating conditions shall be included in the test report.

The EUT (on a non-conductive support structure, where applicable) shall be placed on a remotely operated turntable, to allow the EUT to be rotated. The height of the EUT above the ground plane shall be according to the following requirements.

-- Table-top equipment is placed on a non-conductive set-up table with height  $0.8\text{ m} \pm 0.01\text{ m}$ , CISPR 16-1-4 specifies the method to determine the impact of the non-conductive set-up table on test results.

-- Floor-standing equipment is placed on a non-conductive support, as specified in the applicable product standard. If there are no EUT height placement requirements in the product standard, the EUT shall be placed on a non-conductive support at a height of 5 cm to 15 cm above the ground plane.

Note: This is table-top equipment.

Interface cables, loads, and devices should be connected to at least one of each type of the interface ports of the EUT and, where practical, each cable shall be terminated in a device typical for its actual use. Where there are multiple interface ports of the same type, a typical number of these devices shall be connected to devices or loads. It is sufficient to connect only one of the loads, provided that it can be shown, for example by preliminary testing, that the connection of further ports would not significantly increase the level of disturbance (that is, more than 2 dB) or significantly degrade the immunity level.

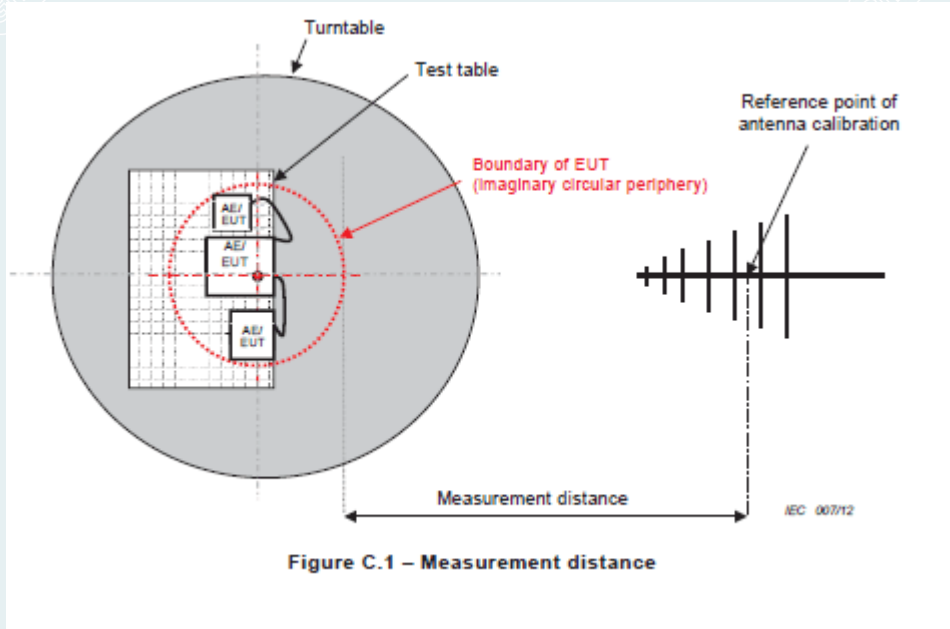
The test mode(s) were scanned during the preliminary test. After the preliminary scan, we found the test mode producing the highest emission level. The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

#### (2) Procedure of Final Test

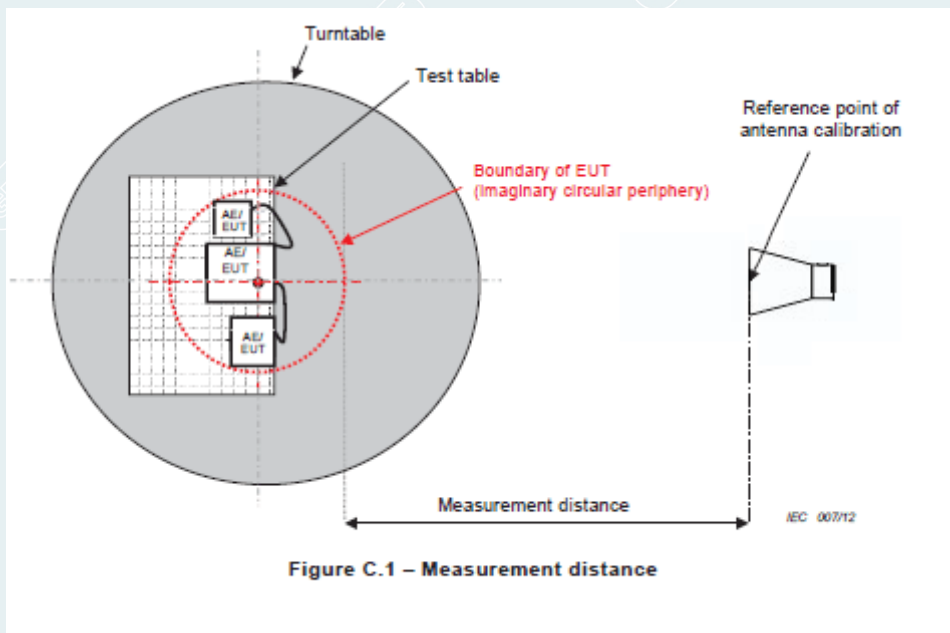
EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test. The Analyzer/ Receiver scanned from 30MHz to 1000MHz and 1000MHz to 6000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement 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. Record at least 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 for 30MHz~1000MHz only QP reading is presented, for 1000MHz~6000 MHz Peak and AVG reading is presented.



### 5.1.3. TEST SETUP



Below the frequency of 1GHz



Above the frequency of 1GHz(1GHz-6GHz)

**5.1.4. DATA SAMPLE**

**Below 1GHz**

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Remark
XXX.XXXX	48.49	-9.91	38.58	47.00	-8.42	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
- Over (dB) = Result (dBuV/m) – Limit(dBuV/m)
- QP = Quasi-peak Reading

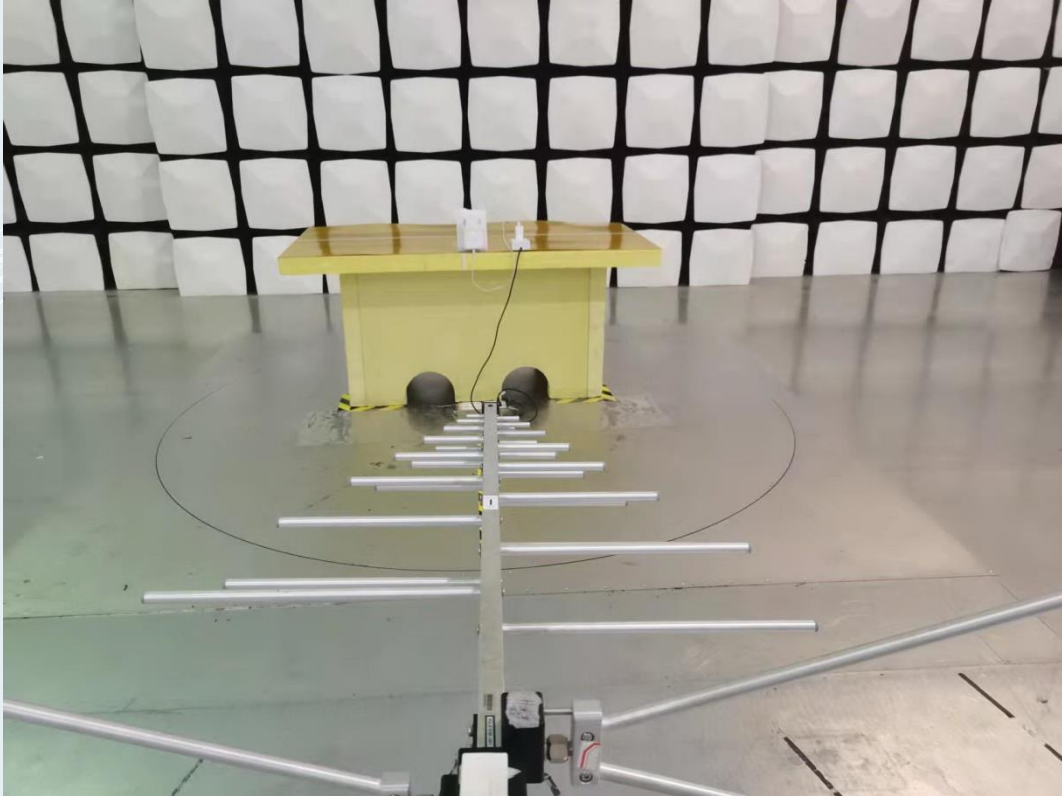
**Above 1GHz**

Frequency (MHz)	Reading (dBuV)	Level (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Remark
XXXX	56.70	34.18	-22.52	74	39.82	Peak
XXXX	46.34	23.80	-22.54	54	30.20	AVG

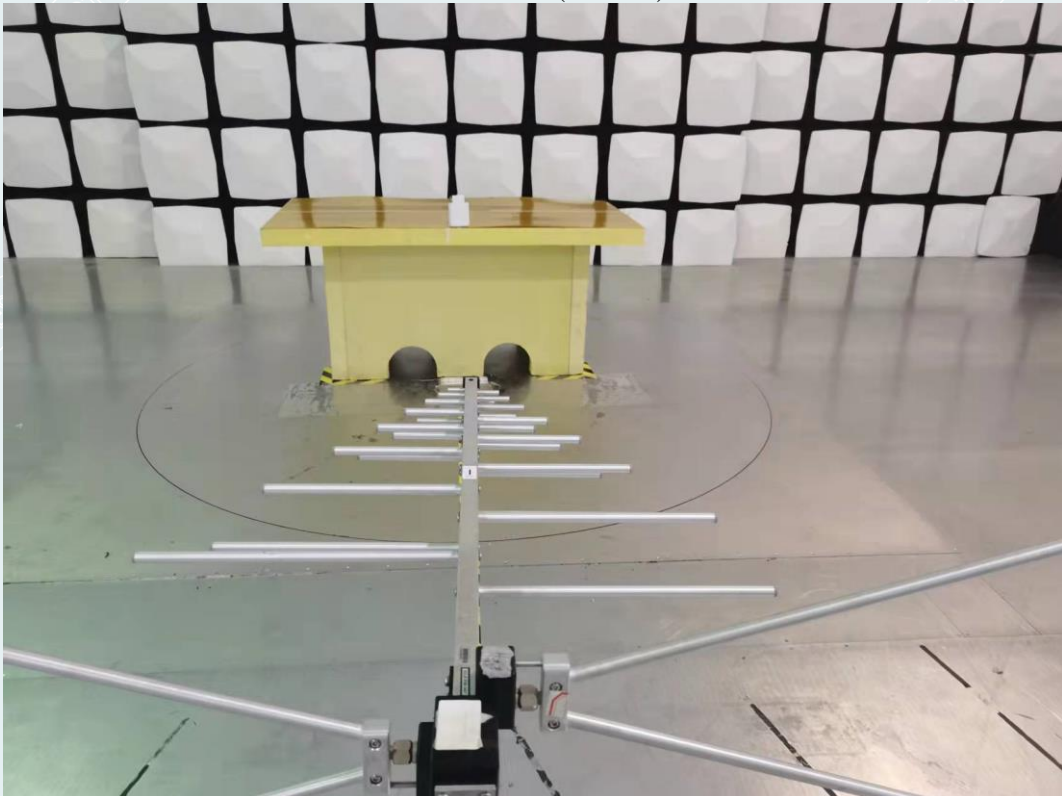
- Frequency (MHz) = Emission frequency in MHz
- Reading (dBuV) = Uncorrected Analyzer / Receiver reading
- Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
- Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)
- Limit (dBuV/m) = Limit stated in standard
- Margin (dB) =Limit(dBuV/m)- Level(dBuV/m)
- Peak = Peak Reading
- AVG = Average Reading

**5.1.5. PHOTOGRAPH OF THE TEST ARRANGEMENT**

Below 1GHz (Mode 1&Mode 2)

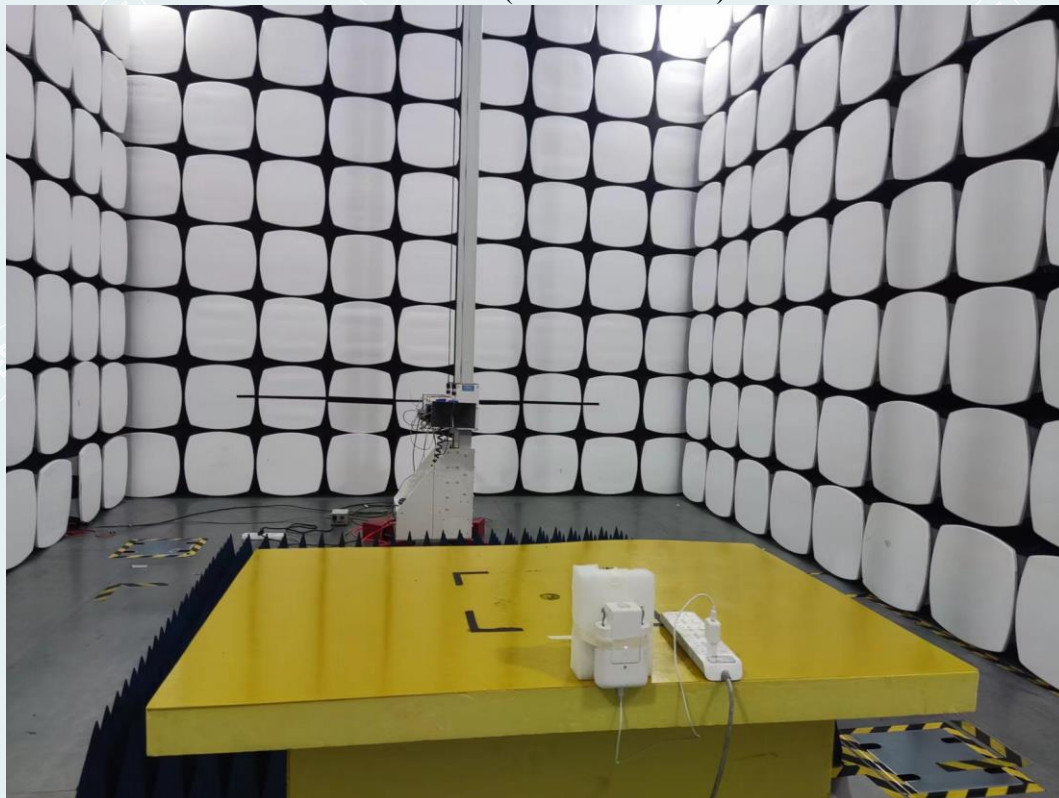


Below 1GHz (Mode 3)

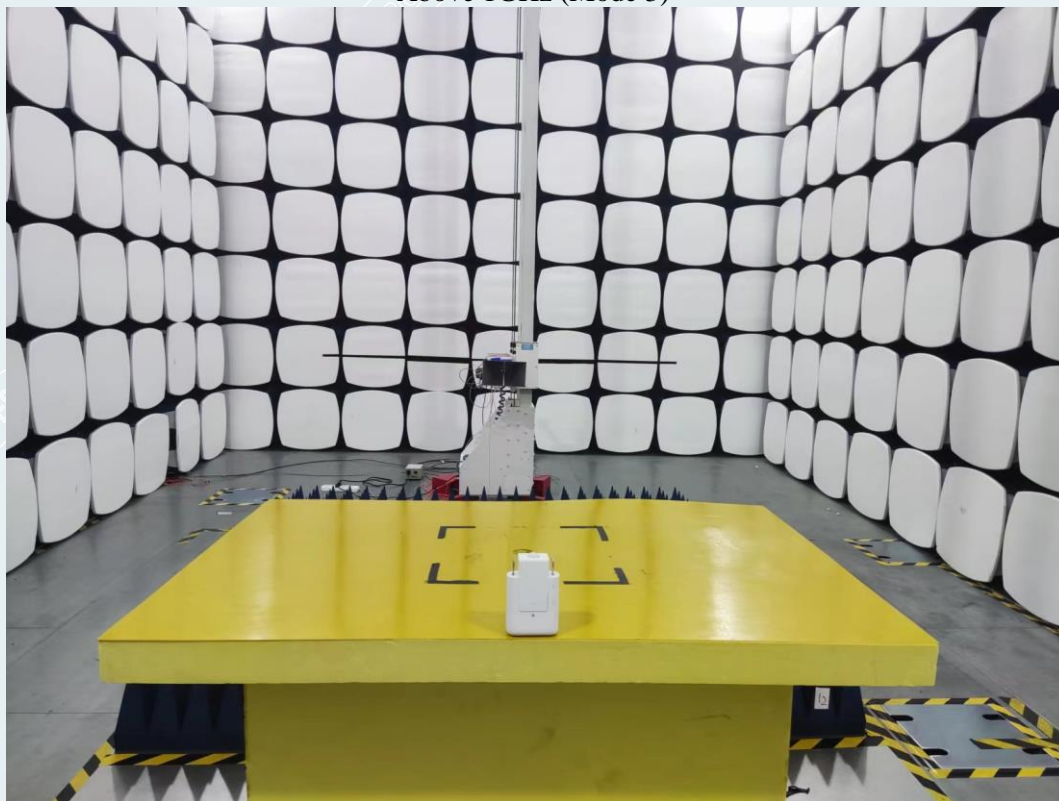




Above 1GHz (Mode 1&Mode 2)



Above 1GHz (Mode 3)





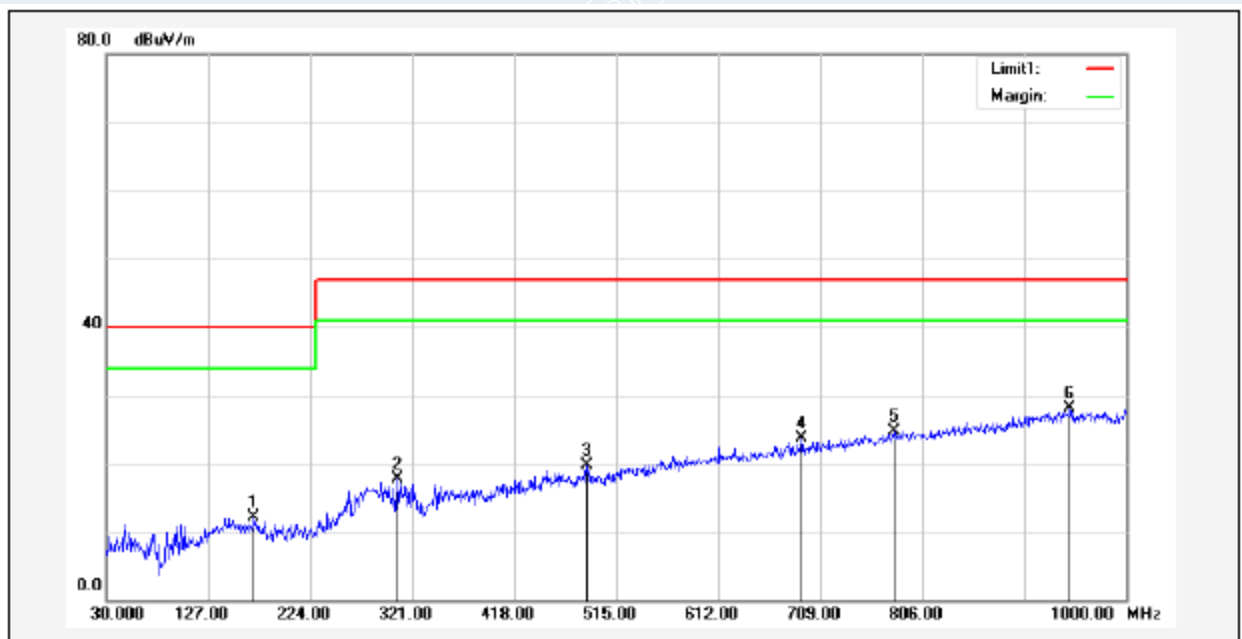
5.1.6. TEST RESULTS

Below 1GHz

Motor 1:

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Zeng Xianglong
Test Date	2022-03-31	Sample No.	E20220309137001-0005

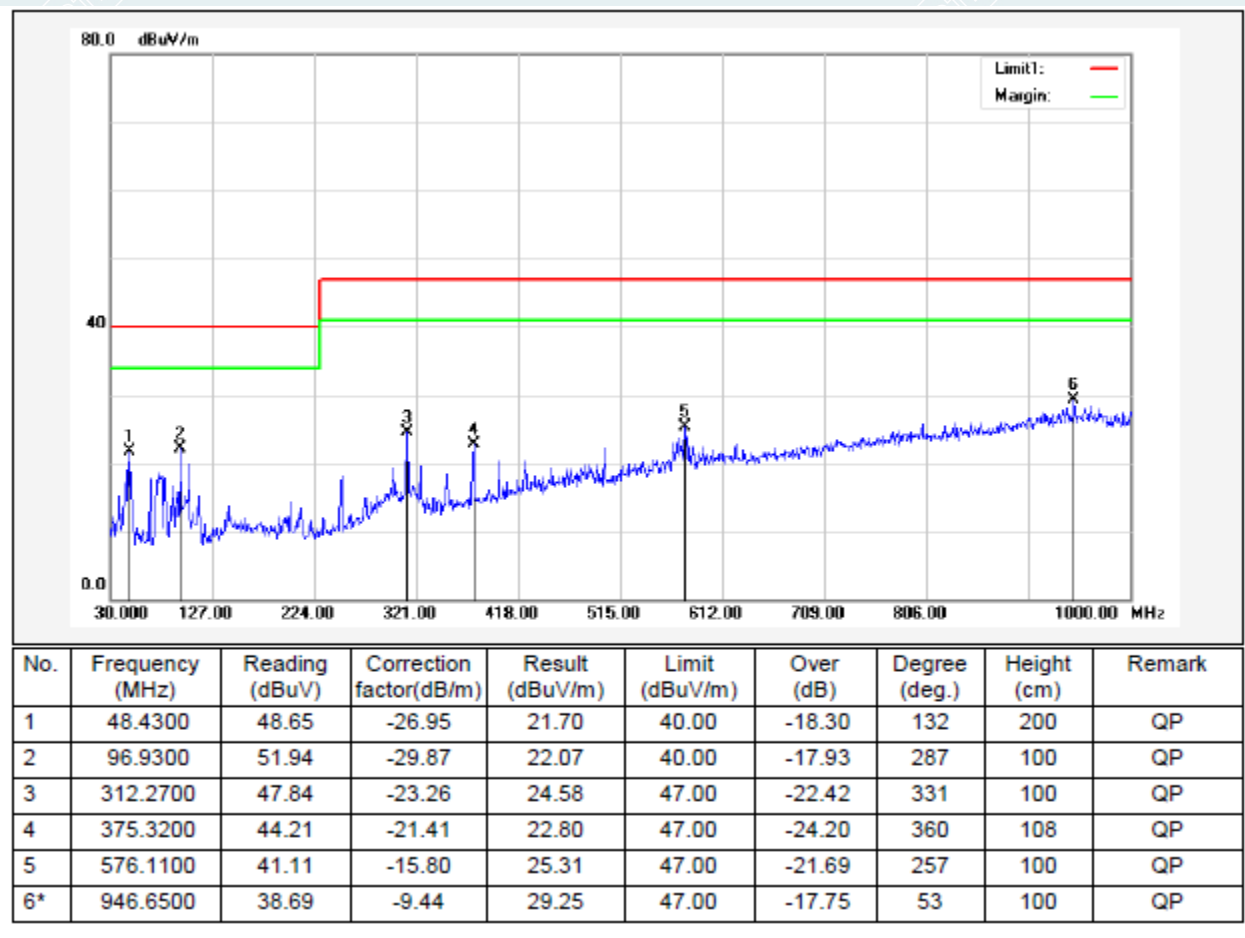
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	170.6500	37.33	-25.32	12.01	40.00	-27.99	356	100	QP
2	307.4200	41.13	-23.38	17.75	47.00	-29.25	64	100	QP
3	486.8700	37.84	-18.13	19.71	47.00	-27.29	76	399	QP
4	691.5400	37.22	-13.48	23.74	47.00	-23.26	187	299	QP
5	778.8400	36.56	-11.83	24.73	47.00	-22.27	0	199	QP
6*	946.6500	37.45	-9.44	28.01	47.00	-18.99	0	375	QP

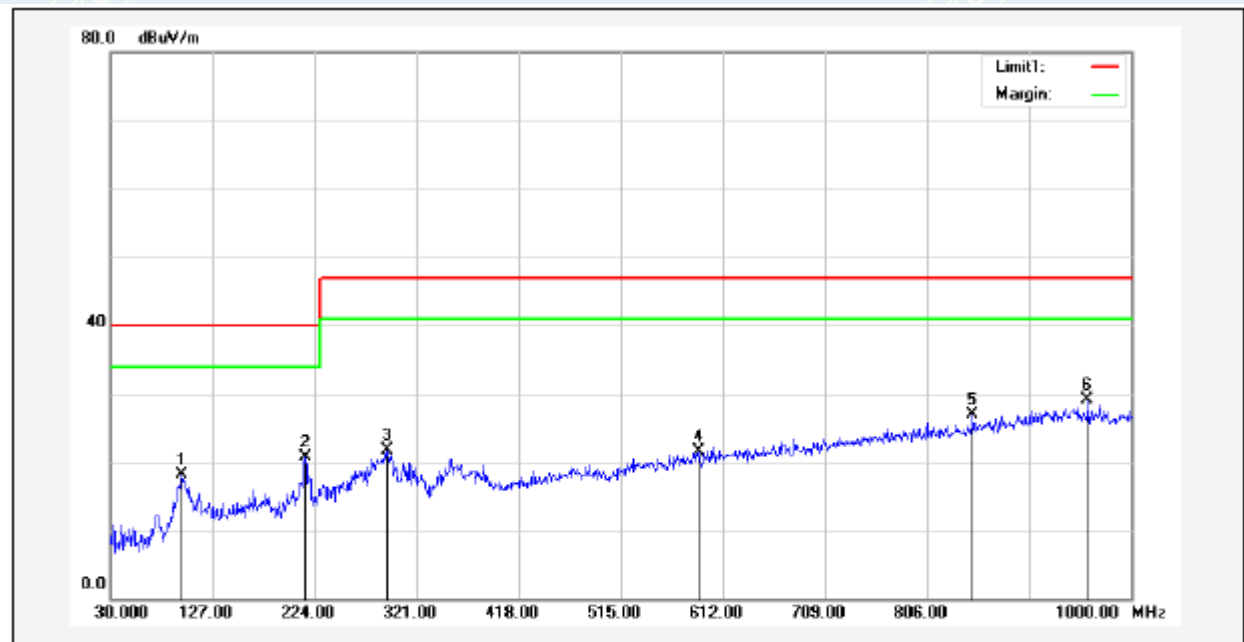
EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Zeng Xianglong
Test Date	2022-03-31	Sample No.	E20220309137001-0005

Polarity: Vertical



EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Zeng Xianglong
Test Date	2022-03-31	Sample No.	E20220309137001-0005

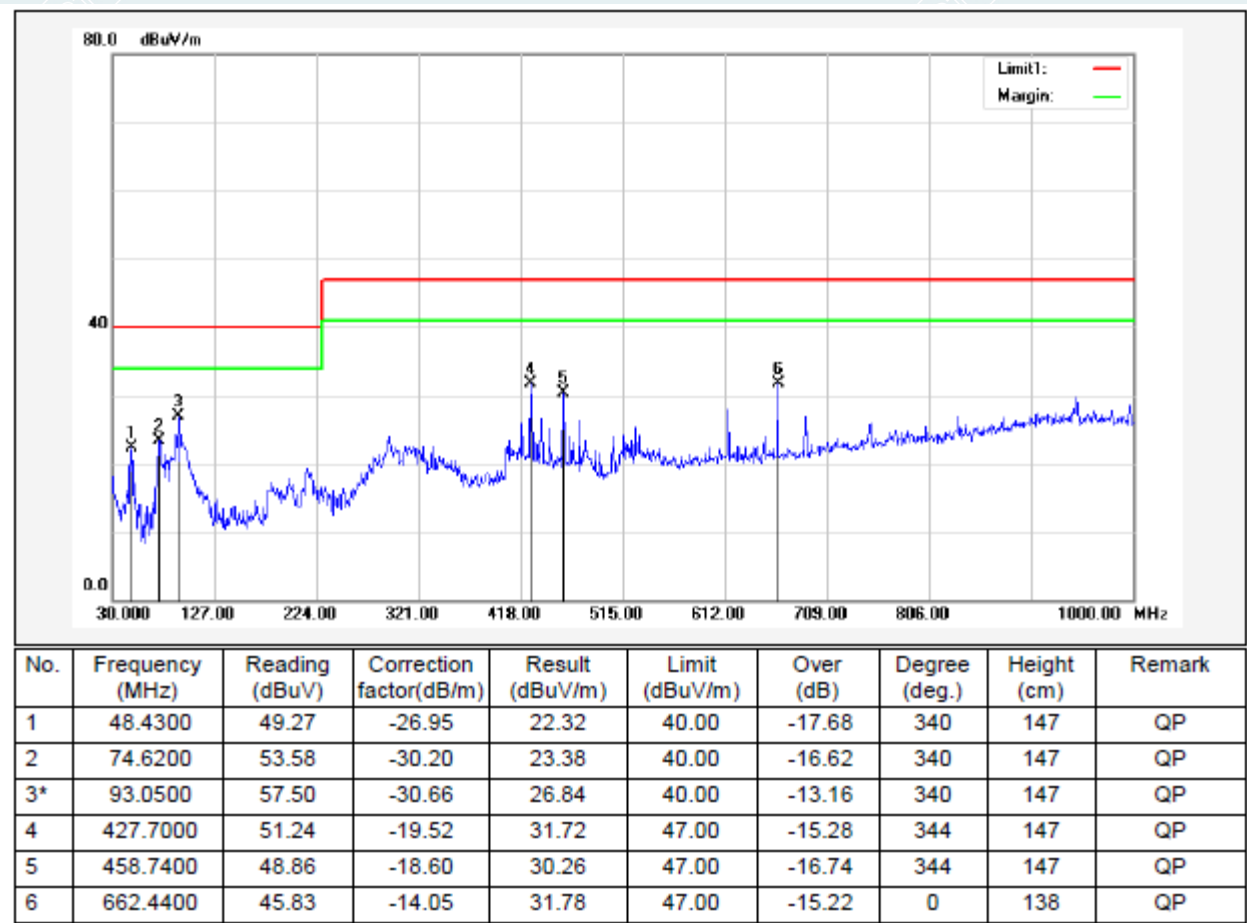
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	97.9000	47.83	-29.68	18.15	40.00	-21.85	340	300	QP
2	215.2700	47.80	-27.01	20.79	40.00	-19.21	88	200	QP
3	292.8700	45.48	-23.82	21.66	47.00	-25.34	63	200	QP
4	589.6900	36.84	-15.38	21.46	47.00	-25.54	2	399	QP
5	849.6500	37.72	-10.91	26.81	47.00	-20.19	359	198	QP
6*	958.2900	38.44	-9.30	29.14	47.00	-17.86	341	200	QP

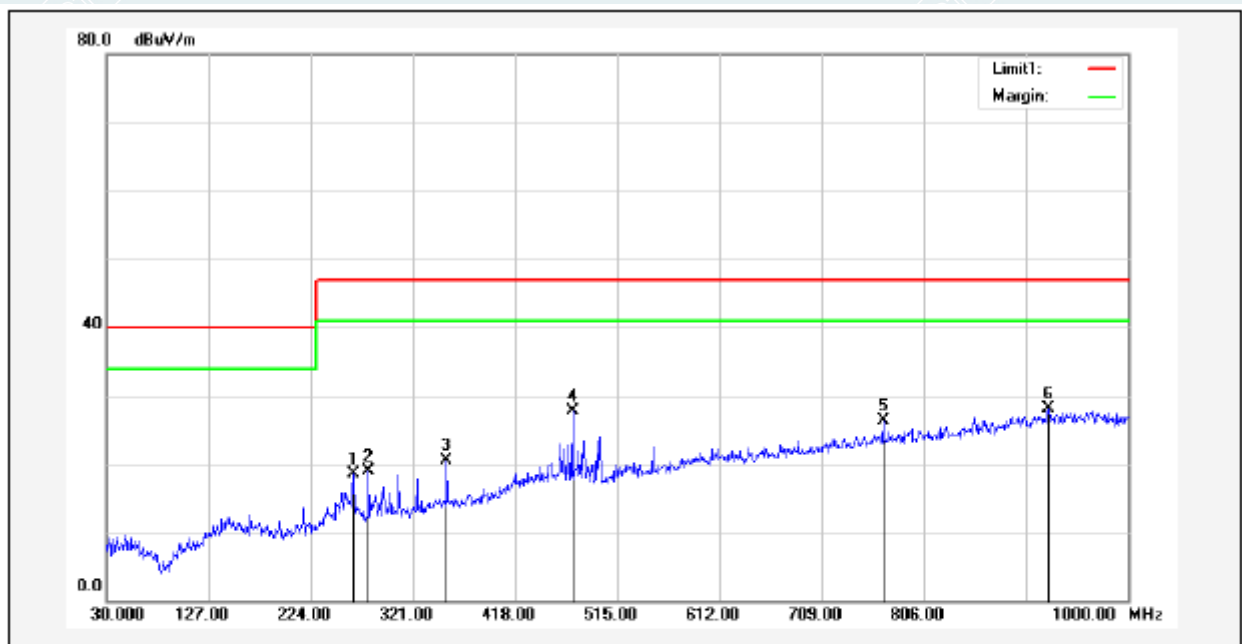
EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Zeng Xianglong
Test Date	2022-03-31	Sample No.	E20220309137001-0005

Polarity: Vertical



EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 3
Power supply	DC 3.7V	Tested By	Tang Shenghui
Test Date	2022-03-31	Sample No.	E20220309137001-0005

Polarity: Horizontal

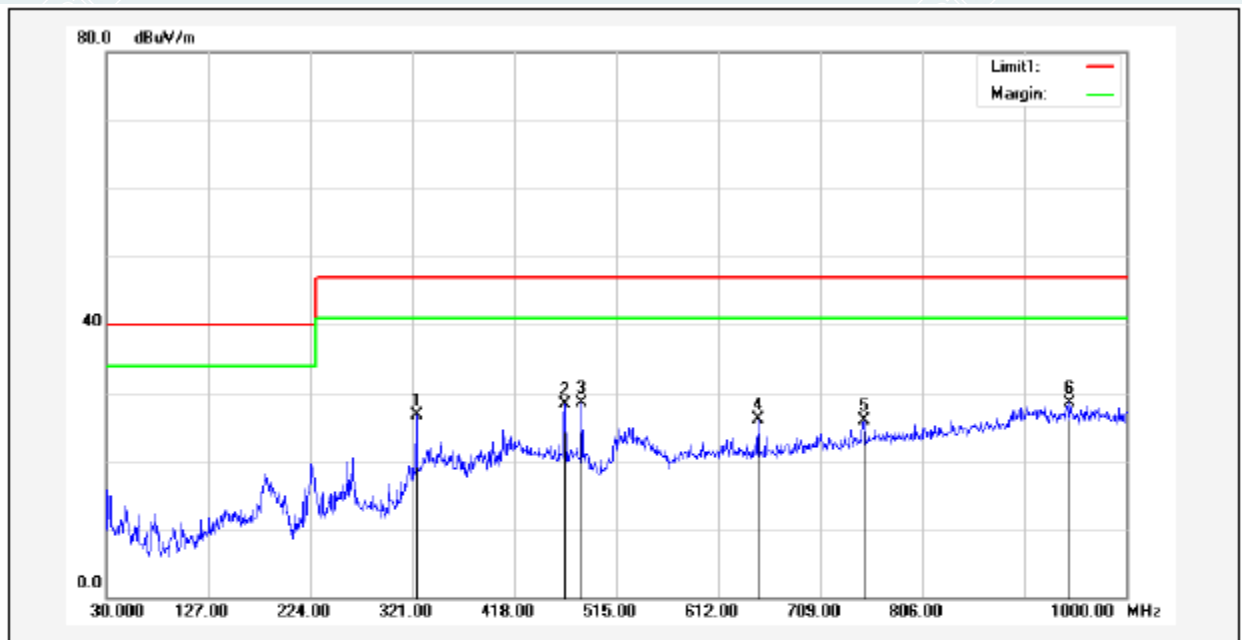


No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	264.7400	43.39	-24.84	18.55	47.00	-28.45	358	200	QP
2	279.2900	43.19	-24.31	18.88	47.00	-28.12	284	200	QP
3	353.0100	42.70	-22.24	20.46	47.00	-26.54	344	200	QP
4	472.3200	46.01	-18.38	27.63	47.00	-19.37	270	200	QP
5	767.2000	38.23	-12.01	26.22	47.00	-20.78	336	200	QP
6*	924.3400	37.81	-9.76	28.05	47.00	-18.95	72	300	QP



EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 3
Power supply	DC 3.7V	Tested By	Tang Shenghui
Test Date	2022-03-31	Sample No.	E20220309137001-0005

Polarity: Vertical

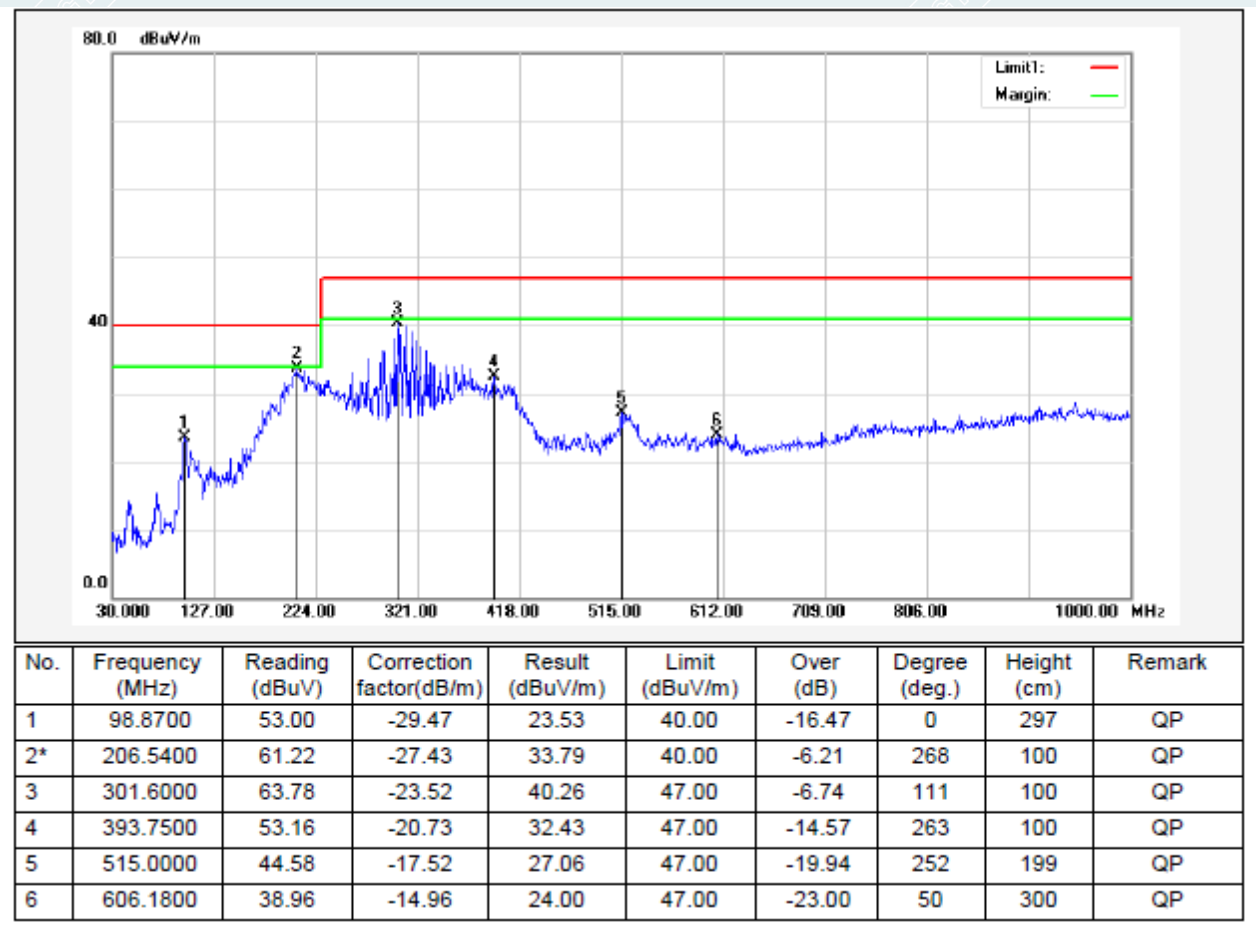


No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	324.8800	49.59	-22.95	26.64	47.00	-20.36	84	100	QP
2	466.5000	46.77	-18.47	28.30	47.00	-18.70	0	172	QP
3*	482.0200	46.81	-18.21	28.60	47.00	-18.40	2	200	QP
4	649.8300	40.40	-14.28	26.12	47.00	-20.88	0	102	QP
5	750.7100	38.21	-12.25	25.96	47.00	-21.04	223	200	QP
6	946.6500	38.04	-9.44	28.60	47.00	-18.40	0	148	QP

**Motor 2:**

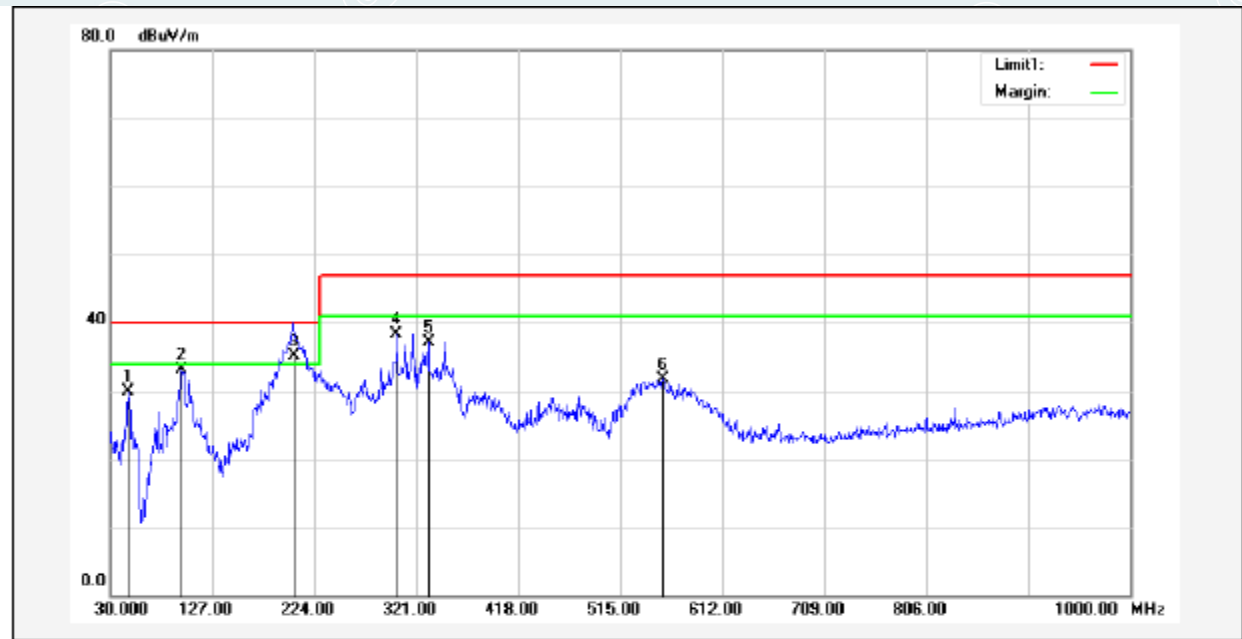
EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.0°C/46%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC 230V/50Hz	Tested By	Wang Xinyuan
Test Date	2022-04-09	Sample No.	E20220309137001-0007

Polarity: Horizontal



EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.0°C/46%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC 230V/50Hz	Tested By	Wang Xinyuan
Test Date	2022-04-09	Sample No.	E20220309137001-0007

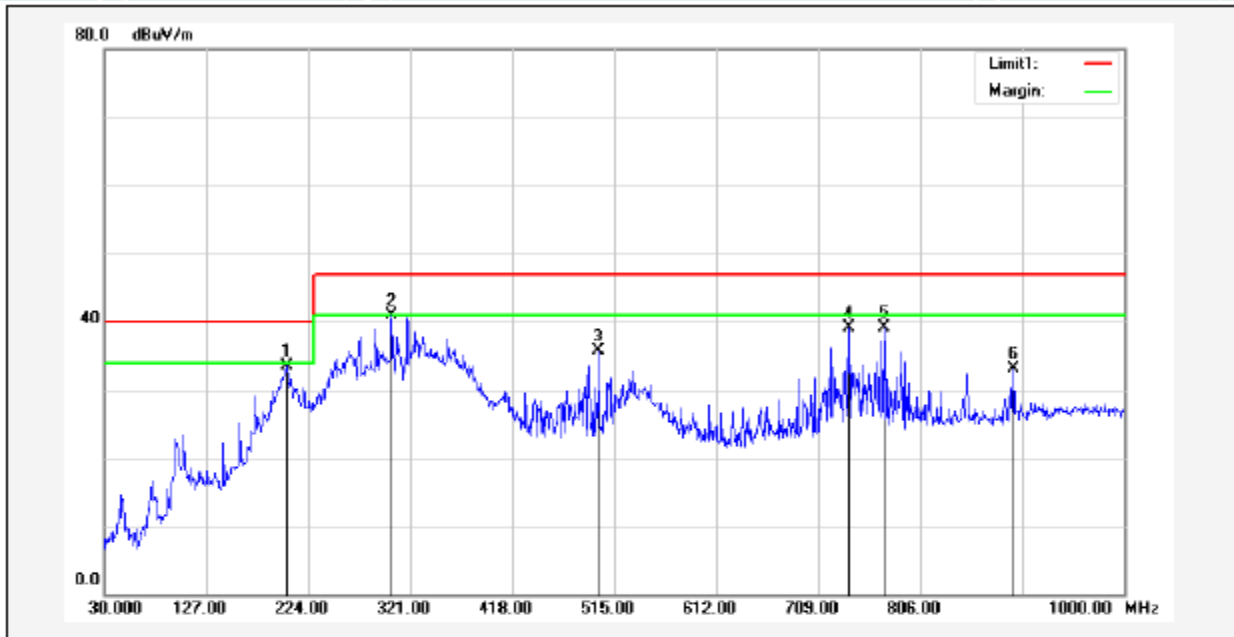
Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	47.4600	56.83	-26.99	29.84	40.00	-10.16	97	100	QP
2	97.9000	62.78	-29.68	33.10	40.00	-6.90	10	100	QP
3*	204.7790	62.71	-27.52	35.19	40.00	-4.81	0	100	QP
4	302.5700	61.81	-23.50	38.31	47.00	-8.69	325	200	QP
5	332.6400	59.83	-22.77	37.06	47.00	-9.94	335	100	QP
6	555.7400	48.05	-16.44	31.61	47.00	-15.39	171	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	AC 230V/50Hz	Tested By	Wang Xinyuan
Test Date	2022-04-06	Sample No.	E20220309137001-0007

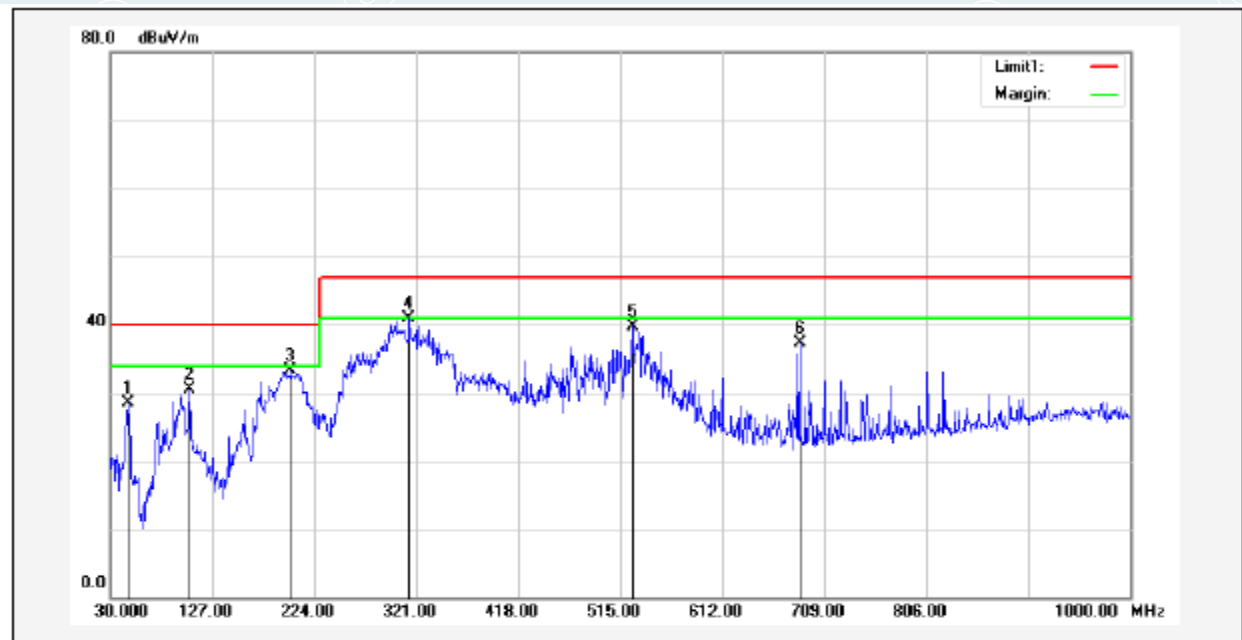
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	203.6300	61.09	-27.57	33.52	40.00	-6.48	285	100	QP
2*	303.5400	64.45	-23.47	40.98	47.00	-6.02	76	100	QP
3	500.4500	53.57	-17.90	35.67	47.00	-11.33	0	211	QP
4	738.1000	51.57	-12.51	39.06	47.00	-7.94	0	235	QP
5	771.0800	50.99	-11.95	39.04	47.00	-7.96	358	400	QP
6	894.2700	43.32	-10.20	33.12	47.00	-13.88	2	300	QP

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	24.0°C/46%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC 230V/50Hz	Tested By	Wang Xinyuan
Test Date	2022-04-06	Sample No.	E20220309137001-0007

Polarity: Vertical

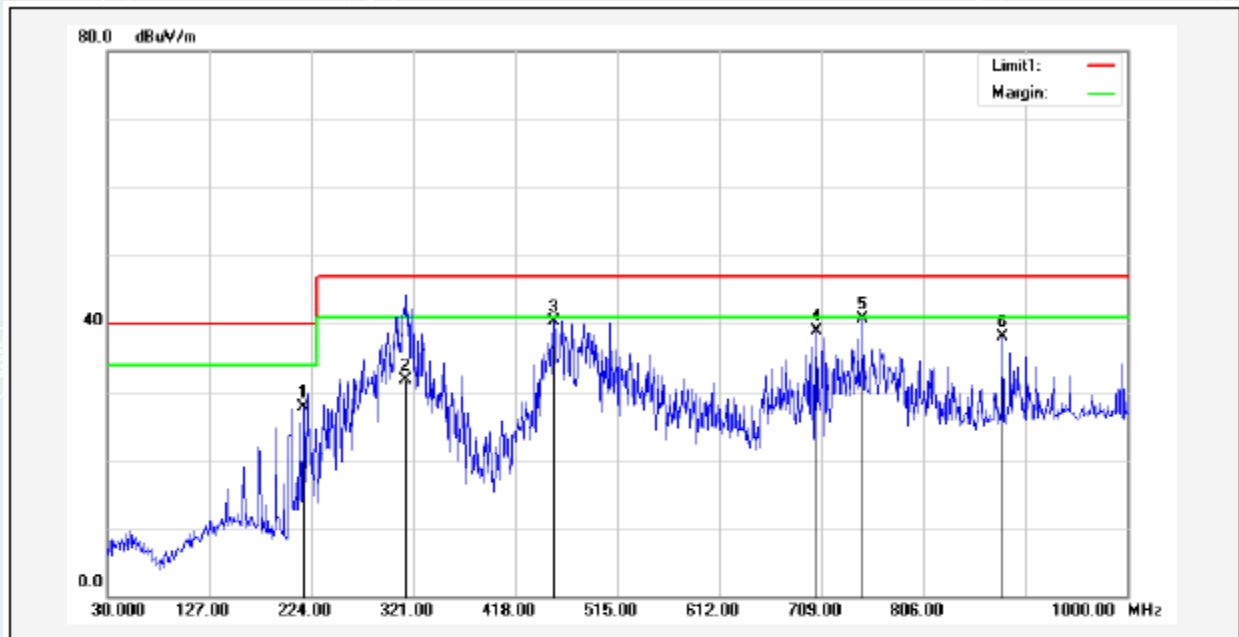


No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	47.4600	55.42	-26.99	28.43	40.00	-11.57	43	100	QP
2	105.6600	59.06	-28.49	30.57	40.00	-9.43	74	100	QP
3	201.6900	61.02	-27.66	33.36	40.00	-6.64	244	100	QP
4*	314.2100	64.05	-23.21	40.84	47.00	-6.16	349	100	QP
5	526.6400	56.97	-17.23	39.74	47.00	-7.26	87	100	QP
6	685.7200	50.84	-13.59	37.25	47.00	-9.75	359	140	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

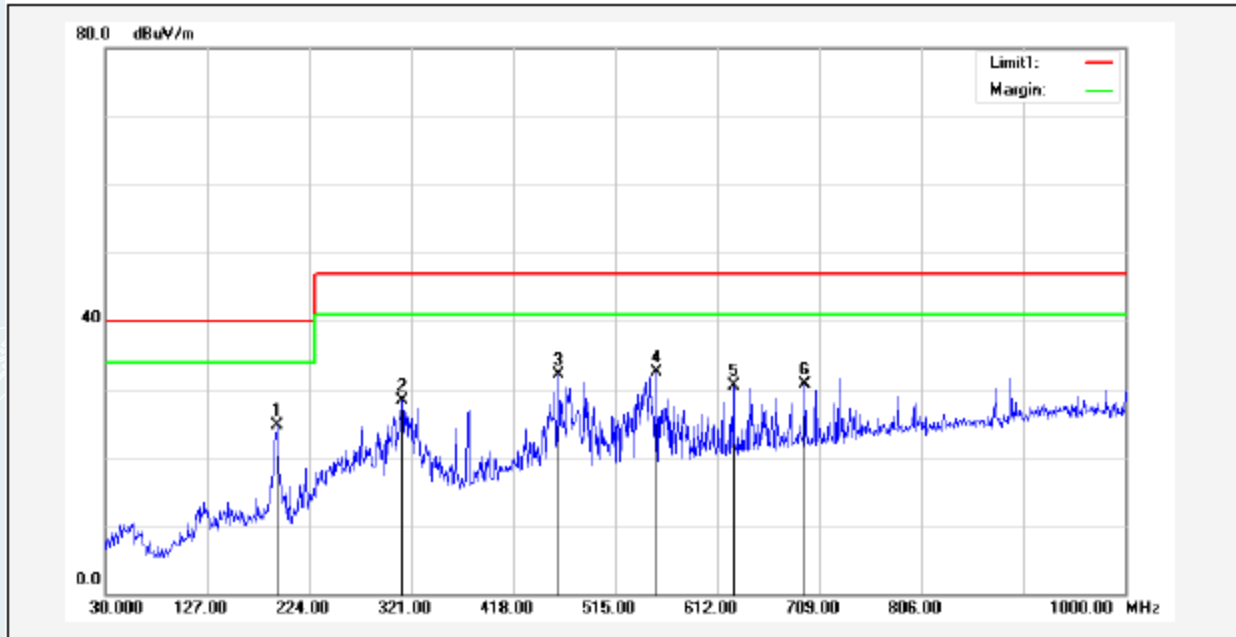
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	217.2100	54.68	-26.93	27.75	40.00	-12.25	274	100	QP
2	314.5275	54.93	-23.20	31.73	47.00	-15.27	104	100	QP
3	454.8600	58.99	-18.66	40.33	47.00	-6.67	264	199	QP
4	704.1500	52.06	-13.23	38.83	47.00	-8.17	268	199	QP
5*	748.7700	52.98	-12.29	40.69	47.00	-6.31	348	100	QP
6	881.6600	48.44	-10.40	38.04	47.00	-8.96	108	300	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

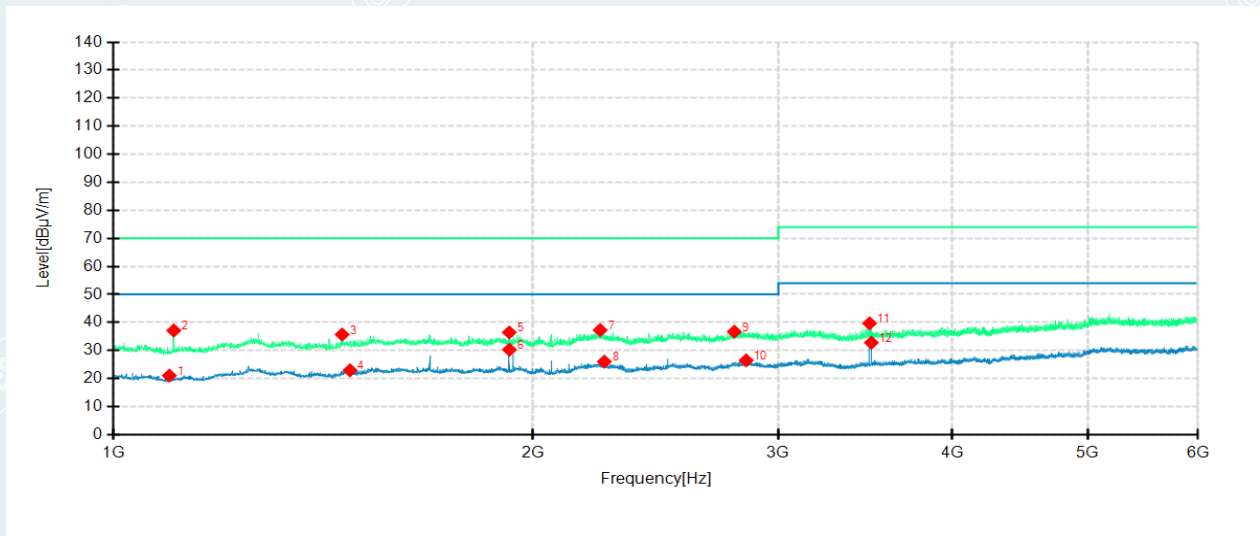


No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	192.9600	51.97	-27.17	24.80	40.00	-15.20	359	101	QP
2	312.2700	51.53	-23.26	28.27	47.00	-18.73	4	100	QP
3	461.6500	50.59	-18.55	32.04	47.00	-14.96	358	100	QP
4*	554.7700	48.88	-16.47	32.41	47.00	-14.59	359	101	QP
5	627.5200	45.12	-14.62	30.50	47.00	-16.50	200	100	QP
6	695.4200	44.11	-13.40	30.71	47.00	-16.29	173	100	QP

Above 1GHz

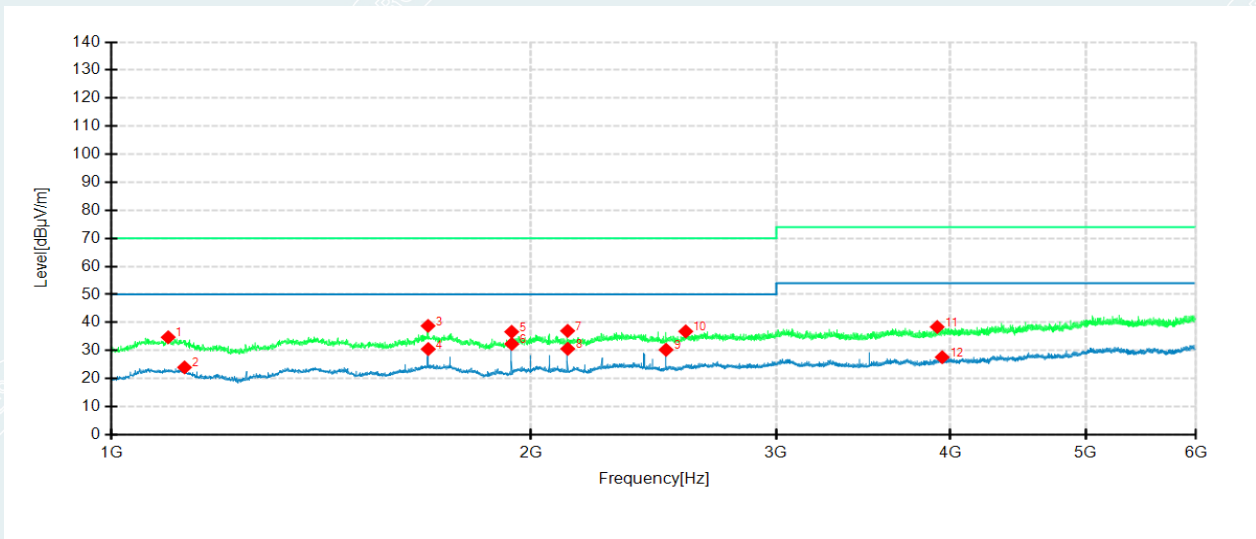
**Motor 1:**

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Lu Qiang
Test Date	2022-03-30	Sample No.	E20220309137001-0005



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1097.0000	46.23	21.07	-25.16	50.00	28.93	200	100	Horizontal
2	1105.0000	62.30	37.14	-25.16	70.00	32.86	100	296	Horizontal
3	1459.5000	58.64	35.71	-22.93	70.00	34.29	100	296	Horizontal
4	1478.5000	45.53	22.94	-22.59	50.00	27.06	200	310	Horizontal
5	1923.5000	57.28	36.44	-20.84	70.00	33.56	100	319	Horizontal
6	1924.0000	51.13	30.29	-20.84	50.00	19.71	100	327	Horizontal
7	2235.0000	56.47	37.29	-19.18	70.00	32.71	100	87	Horizontal
8	2250.5000	45.26	26.03	-19.23	50.00	23.97	200	278	Horizontal
9	2789.5000	54.94	36.72	-18.22	70.00	33.28	200	69	Horizontal
10	2845.0000	44.38	26.48	-17.90	50.00	23.52	100	0	Horizontal
11	3488.0000	56.81	39.69	-17.12	74.00	34.31	200	226	Horizontal
12	3498.5000	49.83	32.80	-17.03	54.00	21.20	200	226	Horizontal

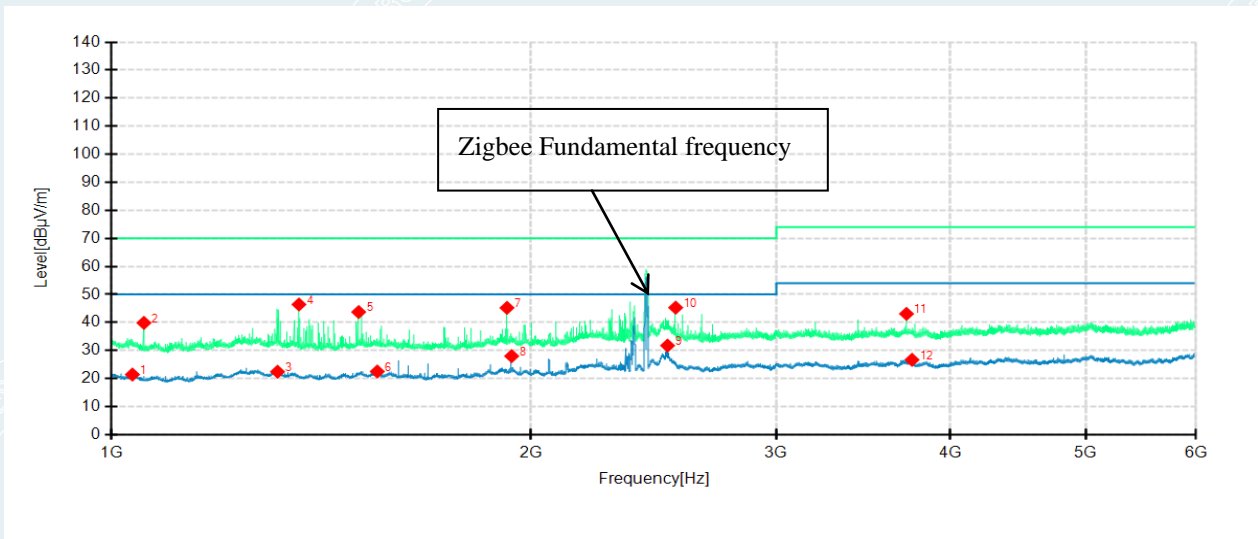
EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Lu Qiang
Test Date	2022-03-30	Sample No.	E20220309137001-0005



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1098.5000	56.65	34.73	-21.92	70.00	35.27	100	2	Vertical
2	1128.5000	47.06	23.99	-23.07	50.00	26.01	100	162	Vertical
3	1687.5000	59.04	38.79	-20.25	70.00	31.21	100	295	Vertical
4	1688.0000	50.75	30.51	-20.24	50.00	19.49	100	132	Vertical
5	1937.5000	58.38	36.67	-21.71	70.00	33.33	200	243	Vertical
6	1938.0000	54.04	32.34	-21.70	50.00	17.66	200	218	Vertical
7	2125.0000	57.89	37.01	-20.88	70.00	32.99	100	325	Vertical
8	2125.5000	51.47	30.60	-20.87	50.00	19.40	200	218	Vertical
9	2500.5000	50.55	30.26	-20.29	50.00	19.74	100	2	Vertical
10	2583.0000	56.17	36.81	-19.36	70.00	33.19	200	73	Vertical
11	3913.5000	54.15	38.40	-15.75	74.00	35.60	200	181	Vertical
12	3946.0000	43.21	27.62	-15.59	54.00	26.38	100	295	Vertical

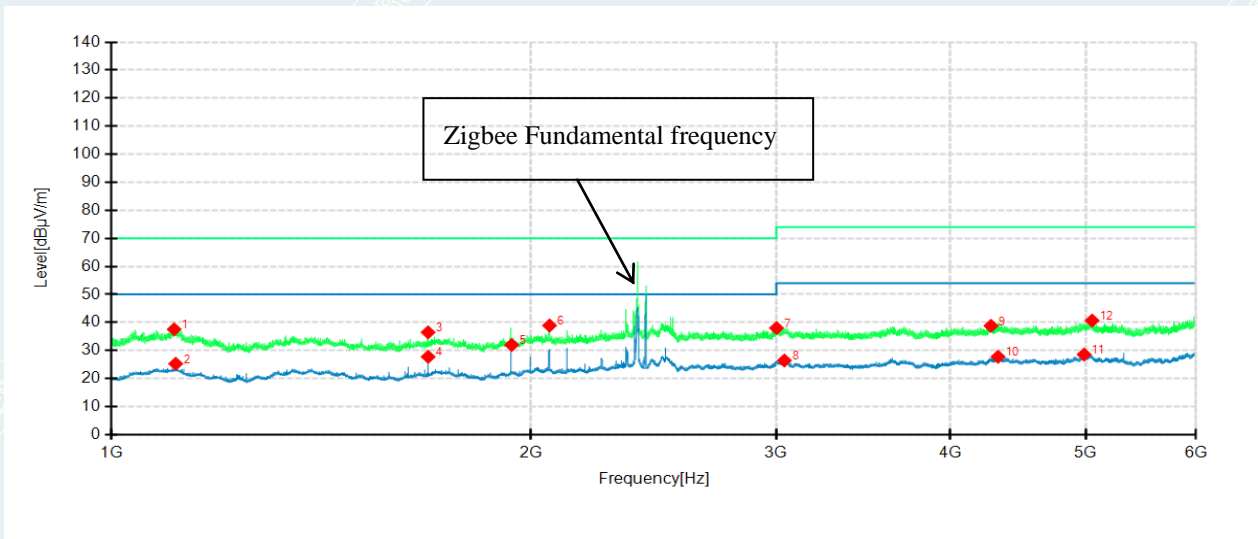


EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Lu Qiang
Test Date	2022-03-30	Sample No.	E20220309137001-0005



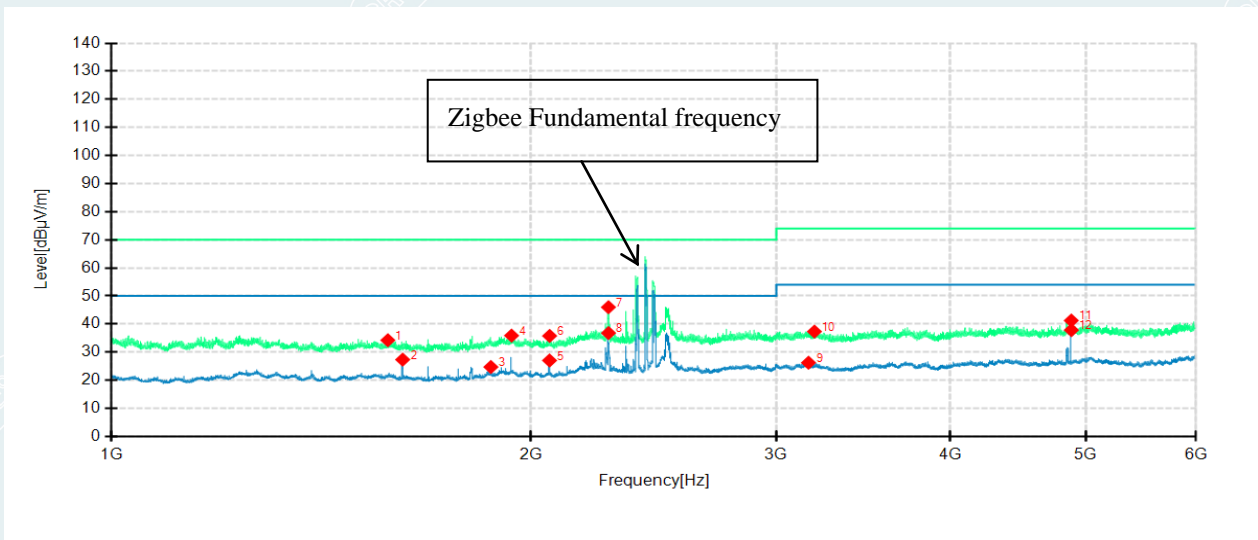
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1035.4000	45.92	21.42	-24.50	50.00	28.58	200	336	Horizontal
2	1055.4000	64.65	39.87	-24.78	70.00	30.13	100	142	Horizontal
3	1316.0000	44.85	22.43	-22.42	50.00	27.57	100	244	Horizontal
4	1363.4000	69.42	46.43	-22.99	70.00	23.57	100	142	Horizontal
5	1504.8000	66.18	43.73	-22.45	70.00	26.27	100	119	Horizontal
6	1551.6000	44.76	22.51	-22.25	50.00	27.49	100	112	Horizontal
7	1922.6000	65.83	45.23	-20.60	70.00	24.77	100	205	Horizontal
8	1937.6000	48.61	28.01	-20.60	50.00	21.99	100	41	Horizontal
9	2506.8000	46.10	31.76	-14.34	50.00	18.24	200	166	Horizontal
10	2540.2000	62.50	45.30	-17.20	70.00	24.70	100	221	Horizontal
11	3719.7000	58.84	43.08	-15.76	74.00	30.92	100	124	Horizontal
12	3753.9000	42.46	26.68	-15.78	54.00	27.32	100	288	Horizontal

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Lu Qiang
Test Date	2022-03-30	Sample No.	E20220309137001-0005



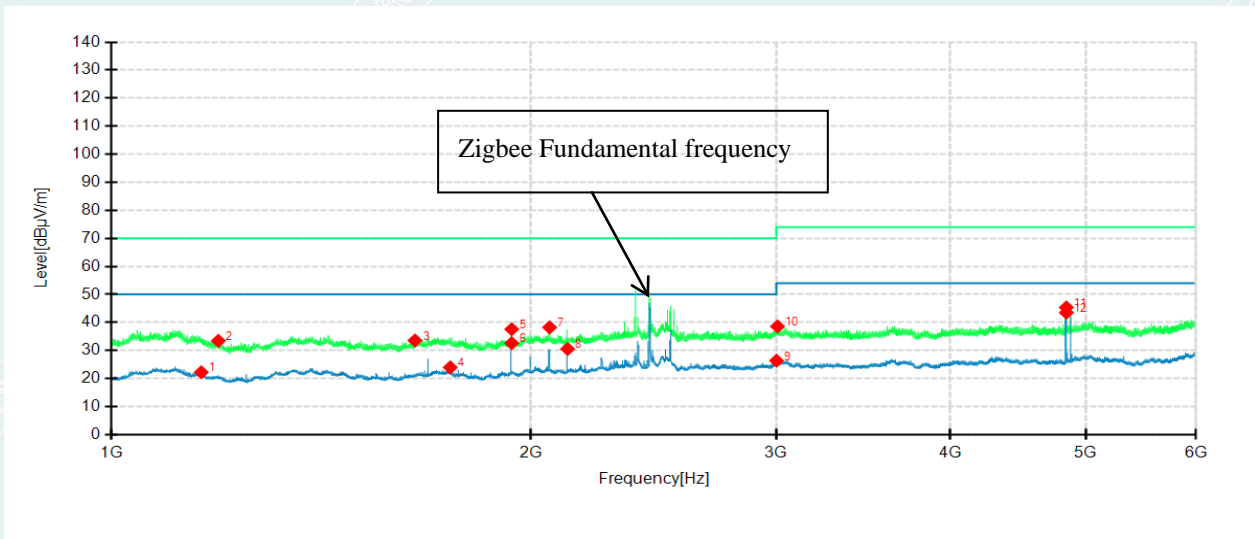
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1109.4000	59.64	37.58	-22.06	70.00	32.42	100	249	Vertical
2	1112.2000	47.44	25.28	-22.16	50.00	24.72	100	241	Vertical
3	1687.6000	58.20	36.48	-21.72	70.00	33.52	100	3	Vertical
4	1687.8000	49.48	27.76	-21.72	50.00	22.24	100	72	Vertical
5	1937.6000	53.53	31.98	-21.55	50.00	18.02	200	251	Vertical
6	2062.6000	58.99	38.93	-20.06	70.00	31.07	100	102	Vertical
7	3001.2000	54.67	38.01	-16.66	74.00	35.99	100	195	Vertical
8	3040.2000	42.76	26.44	-16.32	54.00	27.56	100	86	Vertical
9	4276.8000	52.94	38.80	-14.14	74.00	35.20	100	320	Vertical
10	4327.5000	41.61	27.77	-13.84	54.00	26.23	100	173	Vertical
11	4988.4000	39.29	28.57	-10.72	54.00	25.43	100	125	Vertical
12	5055.0000	51.04	40.69	-10.35	74.00	33.31	200	71	Vertical

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 3
Power supply	DC 3.7V	Tested By	Lu Qiang
Test Date	2022-03-30	Sample No.	E20220309137001-0005



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1579.0000	56.56	34.26	-22.30	70.00	35.74	100	152	Horizontal
2	1618.2000	49.92	27.35	-22.57	50.00	22.65	100	59	Horizontal
3	1872.0000	45.98	24.73	-21.25	50.00	25.27	100	67	Horizontal
4	1937.2000	56.49	35.89	-20.60	70.00	34.11	100	152	Horizontal
5	2062.6000	48.05	27.04	-21.01	50.00	22.96	200	174	Horizontal
6	2062.8000	56.80	35.79	-21.01	70.00	34.21	200	213	Horizontal
7	2273.4000	64.90	46.01	-18.89	70.00	23.99	100	292	Horizontal
8	2273.6000	55.71	36.81	-18.90	50.00	13.19	100	292	Horizontal
9	3163.8000	42.57	26.24	-16.33	54.00	27.76	200	296	Horizontal
10	3195.0000	54.07	37.33	-16.74	74.00	36.67	100	120	Horizontal
11	4883.7000	53.33	41.27	-12.06	74.00	32.73	100	103	Horizontal
12	4884.3000	49.90	37.85	-12.05	54.00	16.15	100	103	Horizontal

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 3
Power supply	DC 3.7V	Tested By	Lu Qiang
Test Date	2022-03-30	Sample No.	E20220309137001-0005

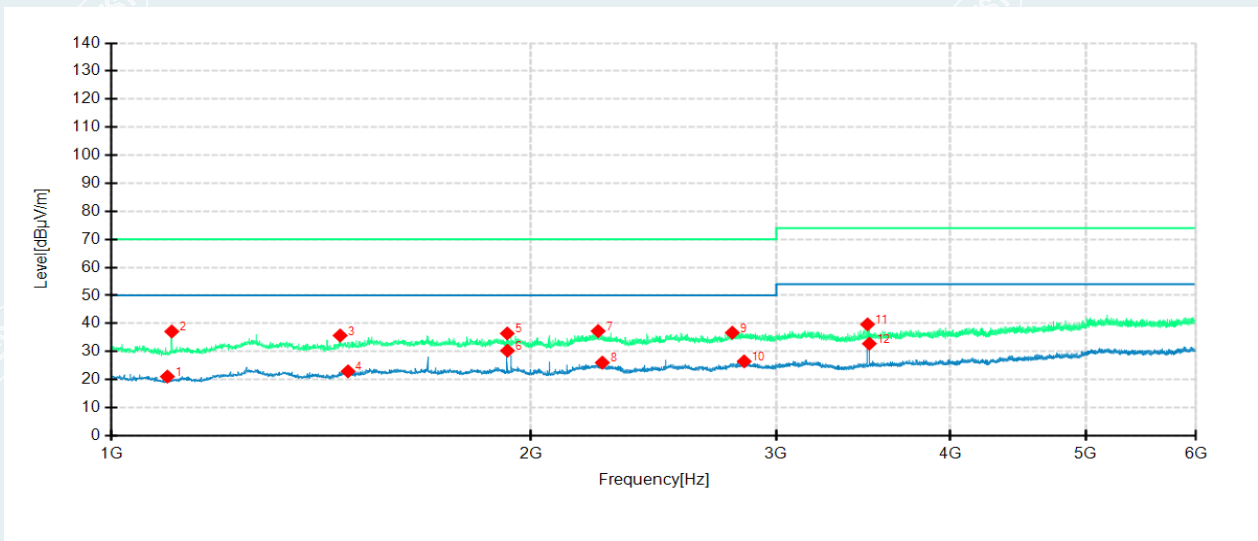


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1160.2000	46.06	22.25	-23.81	50.00	27.75	200	125	Vertical
2	1193.4000	57.98	33.47	-24.51	70.00	36.53	100	250	Vertical
3	1651.6000	56.11	33.57	-22.54	70.00	36.43	200	40	Vertical
4	1750.4000	45.47	23.98	-21.49	50.00	26.02	100	227	Vertical
5	1937.6000	59.16	37.61	-21.55	70.00	32.39	100	104	Vertical
6	1937.8000	54.17	32.62	-21.55	50.00	17.38	200	272	Vertical
7	2062.6000	58.32	38.26	-20.06	70.00	31.74	200	156	Vertical
8	2125.2000	50.86	30.56	-20.30	50.00	19.44	200	204	Vertical
9	3001.2000	43.03	26.37	-16.66	54.00	27.63	200	235	Vertical
10	3005.7000	55.21	38.59	-16.62	74.00	35.41	200	272	Vertical
11	4843.8000	58.13	45.37	-12.76	74.00	28.63	200	226	Vertical
12	4844.1000	56.26	43.50	-12.76	54.00	10.50	200	226	Vertical



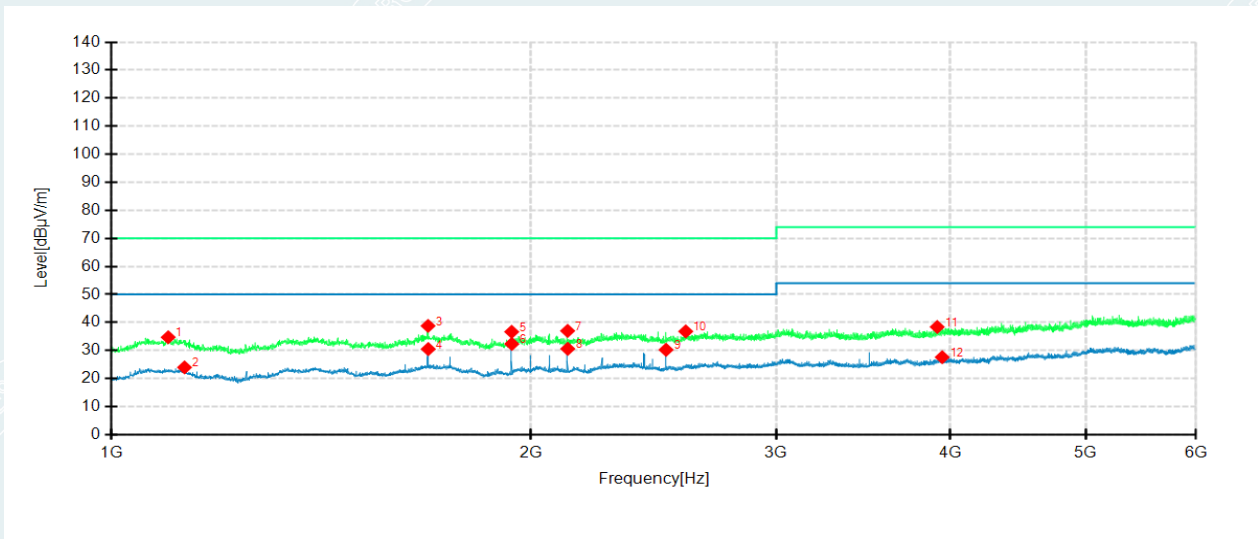
**Motor 2:**

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Lu Qiang
Test Date	2022-03-30	Sample No.	E20220309137001-0007



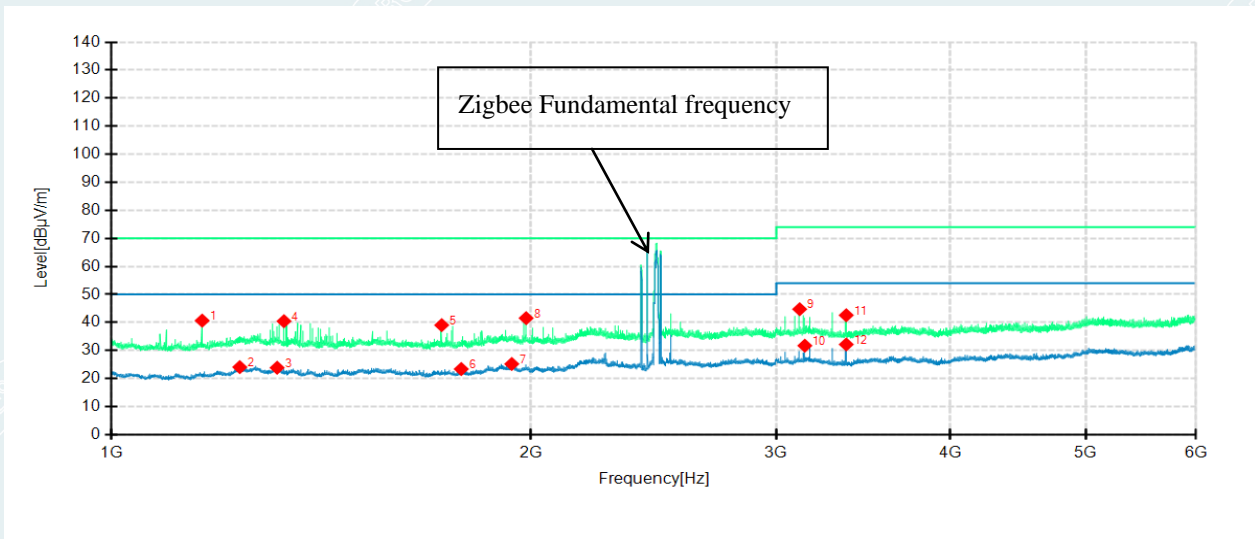
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1097.0000	46.23	21.07	-25.16	50.00	28.93	200	100	Horizontal
2	1105.0000	62.30	37.14	-25.16	70.00	32.86	100	296	Horizontal
3	1459.5000	58.64	35.71	-22.93	70.00	34.29	100	296	Horizontal
4	1478.5000	45.53	22.94	-22.59	50.00	27.06	200	310	Horizontal
5	1923.5000	57.28	36.44	-20.84	70.00	33.56	100	319	Horizontal
6	1924.0000	51.13	30.29	-20.84	50.00	19.71	100	327	Horizontal
7	2235.0000	56.47	37.29	-19.18	70.00	32.71	100	87	Horizontal
8	2250.5000	45.26	26.03	-19.23	50.00	23.97	200	278	Horizontal
9	2789.5000	54.94	36.72	-18.22	70.00	33.28	200	69	Horizontal
10	2845.0000	44.38	26.48	-17.90	50.00	23.52	100	0	Horizontal
11	3488.0000	56.81	39.69	-17.12	74.00	34.31	200	226	Horizontal
12	3498.5000	49.83	32.80	-17.03	54.00	21.20	200	226	Horizontal

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Lu Qiang
Test Date	2022-03-30	Sample No.	E20220309137001-0007



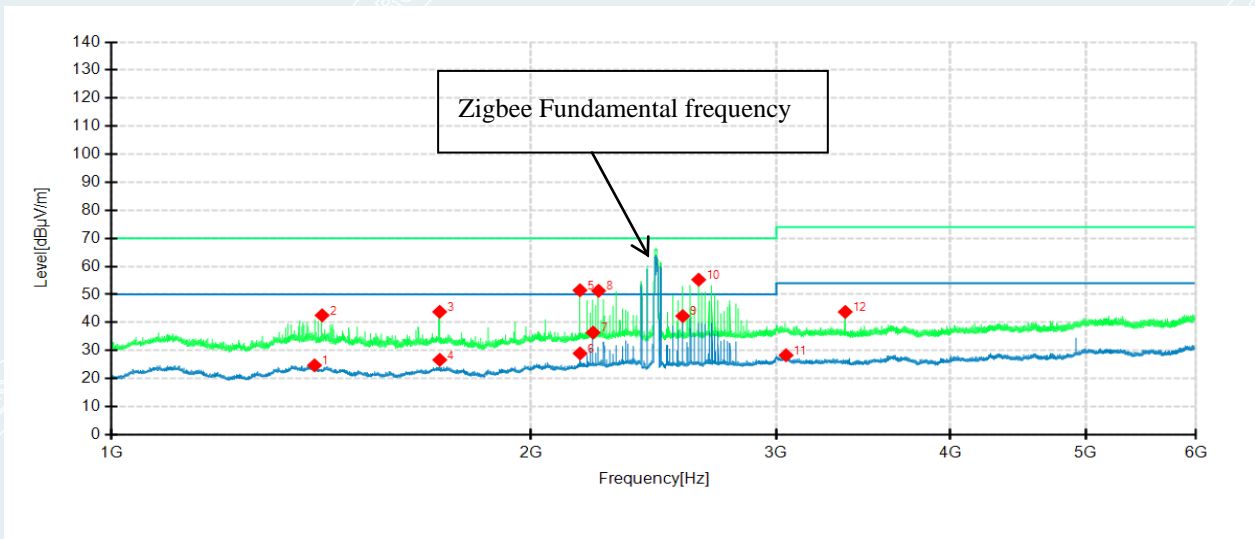
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1098.5000	56.65	34.73	-21.92	70.00	35.27	100	2	Vertical
2	1128.5000	47.06	23.99	-23.07	50.00	26.01	100	162	Vertical
3	1687.5000	59.04	38.79	-20.25	70.00	31.21	100	295	Vertical
4	1688.0000	50.75	30.51	-20.24	50.00	19.49	100	132	Vertical
5	1937.5000	58.38	36.67	-21.71	70.00	33.33	200	243	Vertical
6	1938.0000	54.04	32.34	-21.70	50.00	17.66	200	218	Vertical
7	2125.0000	57.89	37.01	-20.88	70.00	32.99	100	325	Vertical
8	2125.5000	51.47	30.60	-20.87	50.00	19.40	200	218	Vertical
9	2500.5000	50.55	30.26	-20.29	50.00	19.74	100	2	Vertical
10	2583.0000	56.17	36.81	-19.36	70.00	33.19	200	73	Vertical
11	3913.5000	54.15	38.40	-15.75	74.00	35.60	200	181	Vertical
12	3946.0000	43.21	27.62	-15.59	54.00	26.38	100	295	Vertical

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Lu Qiang
Test Date	2022-03-30	Sample No.	E20220309137001-0007



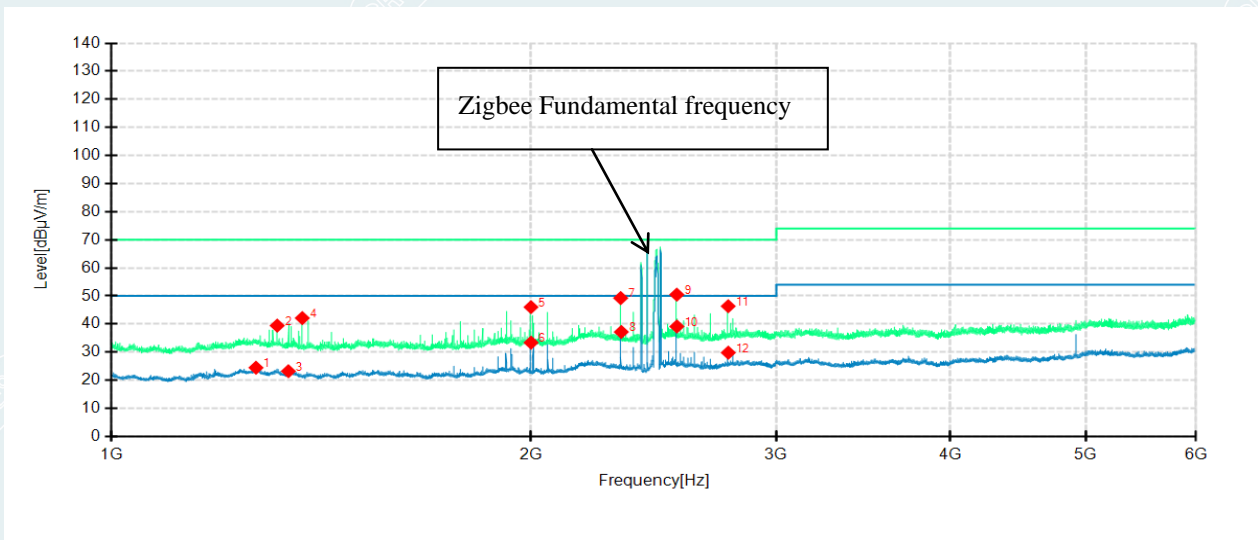
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1161.8000	65.02	40.67	-24.35	70.00	29.33	200	278	Horizontal
2	1236.4000	46.49	24.08	-22.41	50.00	25.92	100	39	Horizontal
3	1315.0000	46.27	23.86	-22.41	50.00	26.14	200	302	Horizontal
4	1330.0000	63.08	40.47	-22.61	70.00	29.53	100	233	Horizontal
5	1726.0000	61.82	39.06	-22.76	70.00	30.94	100	199	Horizontal
6	1782.8000	45.99	23.40	-22.59	50.00	26.60	200	10	Horizontal
7	1937.8000	45.81	25.21	-20.60	50.00	24.79	200	263	Horizontal
8	1984.4000	62.40	41.54	-20.86	70.00	28.46	100	186	Horizontal
9	3117.9000	61.26	44.74	-16.52	74.00	29.26	200	341	Horizontal
10	3144.6000	47.95	31.74	-16.21	54.00	22.26	200	341	Horizontal
11	3367.2000	59.99	42.58	-17.41	74.00	31.42	200	341	Horizontal
12	3367.5000	49.58	32.17	-17.41	54.00	21.83	200	341	Horizontal

EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Lu Qiang
Test Date	2022-03-30	Sample No.	E20220309137001-0007



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1399.0000	46.14	24.72	-21.42	50.00	25.28	100	358	Vertical
2	1416.6000	64.20	42.55	-21.65	70.00	27.45	100	19	Vertical
3	1720.2000	65.26	43.80	-21.46	70.00	26.20	100	76	Vertical
4	1720.4000	48.13	26.67	-21.46	50.00	23.33	100	76	Vertical
5	2169.0000	71.05	51.49	-19.56	70.00	18.51	100	76	Vertical
6	2169.2000	48.54	28.98	-19.56	50.00	21.02	100	76	Vertical
7	2216.4000	55.40	36.42	-18.98	50.00	13.58	100	72	Vertical
8	2236.6000	70.39	51.30	-19.09	70.00	18.70	100	76	Vertical
9	2570.2000	60.92	42.30	-18.62	50.00	7.70	100	108	Vertical
10	2639.0000	73.37	55.26	-18.11	70.00	14.74	100	113	Vertical
11	3048.6000	44.55	28.31	-16.24	54.00	25.69	200	174	Vertical
12	3361.8000	60.55	43.77	-16.78	74.00	30.23	100	86	Vertical

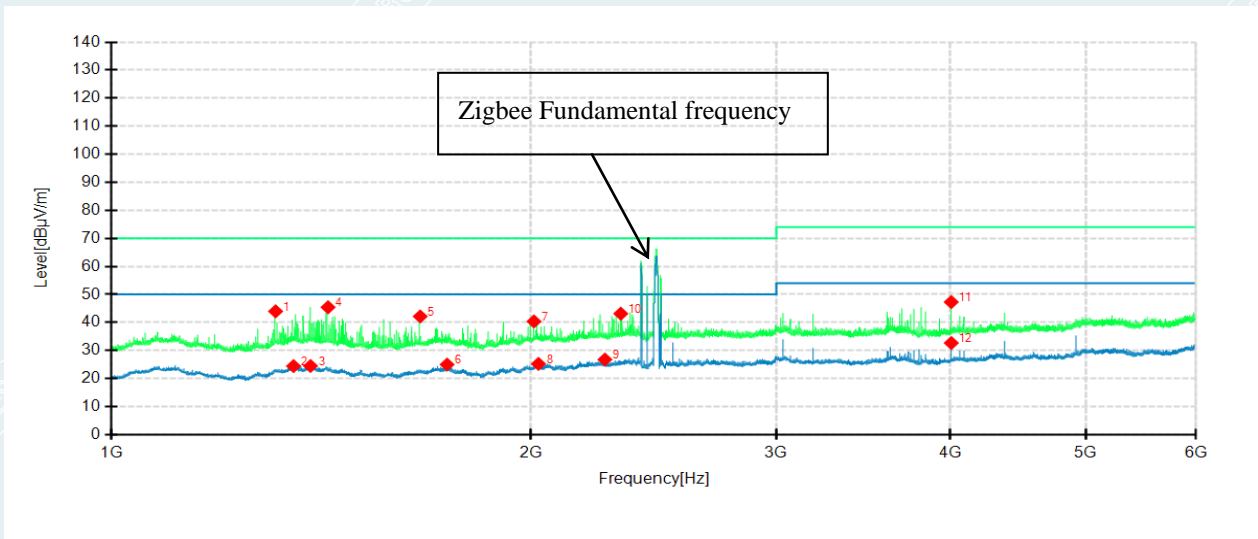
EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 3
Power supply	DC 3.7V	Tested By	Lu Qiang
Test Date	2022-03-30	Sample No.	E20220309137001-0007



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1270.0000	46.54	24.47	-22.07	50.00	25.53	200	221	Horizontal
2	1315.2000	61.87	39.46	-22.41	70.00	30.54	100	268	Horizontal
3	1339.8000	45.95	23.21	-22.74	50.00	26.79	200	1	Horizontal
4	1371.0000	65.20	42.14	-23.06	70.00	27.86	100	72	Horizontal
5	2000.4000	67.02	46.04	-20.98	70.00	23.96	200	51	Horizontal
6	2000.6000	54.37	33.39	-20.98	50.00	16.61	200	47	Horizontal
7	2319.8000	68.61	49.26	-19.35	70.00	20.74	200	165	Horizontal
8	2322.2000	56.56	37.20	-19.36	50.00	12.80	200	165	Horizontal
9	2545.2000	68.49	50.48	-18.01	70.00	19.52	200	165	Horizontal
10	2545.4000	57.16	39.15	-18.01	50.00	10.85	200	165	Horizontal
11	2770.8000	64.08	46.36	-17.72	70.00	23.64	200	165	Horizontal
12	2771.0000	47.55	29.83	-17.72	50.00	20.17	200	165	Horizontal



EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.0°C/60%RH/101.0kPa	Test Mode	Mode 3
Power supply	DC 3.7V	Tested By	Lu Qiang
Test Date	2022-03-30	Sample No.	E20220309137001-0007



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1311.8000	66.65	43.98	-22.67	70.00	26.02	200	344	Vertical
2	1351.2000	46.02	24.45	-21.57	50.00	25.55	100	175	Vertical
3	1389.6000	45.95	24.50	-21.45	50.00	25.50	200	198	Vertical
4	1430.4000	67.27	45.43	-21.84	70.00	24.57	100	118	Vertical
5	1665.8000	64.38	42.16	-22.22	70.00	27.84	100	86	Vertical
6	1741.4000	46.47	25.00	-21.47	50.00	25.00	100	113	Vertical
7	2010.2000	60.56	40.37	-20.19	70.00	29.63	100	72	Vertical
8	2025.2000	45.32	25.25	-20.07	50.00	24.75	200	133	Vertical
9	2260.2000	45.92	26.79	-19.13	50.00	23.21	200	161	Vertical
10	2320.2000	61.64	43.15	-18.49	70.00	26.85	100	274	Vertical
11	4005.3000	62.77	47.29	-15.48	74.00	26.71	200	65	Vertical
12	4005.6000	48.15	32.68	-15.47	54.00	21.32	200	65	Vertical

## 5.2. CONDUCTED EMISSION MEASUREMENT (CE)

Test Requirement:	ETSI EN 301 489-17 V3.2.4/7.1.1 ETSI EN 301 489-1 V2.2.3/8.4
Test Method:	EN 55032 /annex A.3

### 5.2.1. LIMITS

Frequency (MHz)	Quasi-peak (dB $\mu$ V)	Average (dB $\mu$ V)
0.15 ~ 0.5	66~56	56~46
0.5 ~ 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 0.15~0.5 MHz.

### 5.2.2. TEST PROCEDURES

The test method shall be in accordance with CENELEC EN 55032 [1] annex A.3 and the Artificial Mains Networks (AMNs) shall be connected to the AC mains power source.

The measurement frequency range extends from 150 kHz to 30 MHz. When the EUT is a transmitter operating at frequencies below 30 MHz, then the exclusion band for transmitters applies for measurements in the transmit mode of operation.

#### (1) Procedure of Preliminary Test

For measurement of the disturbance voltage the equipment under test (EUT) is connected to the power supply mains and any other extended network via one or more artificial network(s). A EUT, whether intended to be grounded or not, and which is to be used on a table is configured as follows:

--Either the bottom or the rear of the EUT shall be at a controlled distance of 40 cm from a reference ground plane. This ground plane is normally the wall or floor of a shielded room. It may also be a grounded metal plane of at least 2m by 2m. This is physically accomplished as follows:

- 1) Place the EUT on a table of non-conducting material which is at least 80 cm high. Place the EUT so that it is 40 cm from the wall of the shielded room, or
- 2) Place the EUT on a table of non-conducting material which is 40 cm high so that the bottom of the EUT is 40 cm above the ground plane.

-- All other conductive surfaces of the EUT shall be at least 80 cm from the reference ground plane.

-- The AANs are placed on the floor that one side of the AAN housings is 40 cm from the vertical reference ground plane and other metallic parts.

-- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 cm to 40 cm long, hanging approximately in the middle between the ground plane and the table.

-- I/O cables that are connected to a peripheral shall be bundled in the centre. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.

The test mode(s) were scanned during the preliminary test. 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.

**(2) 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, 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.

**5.2.3. TEST SETUP**

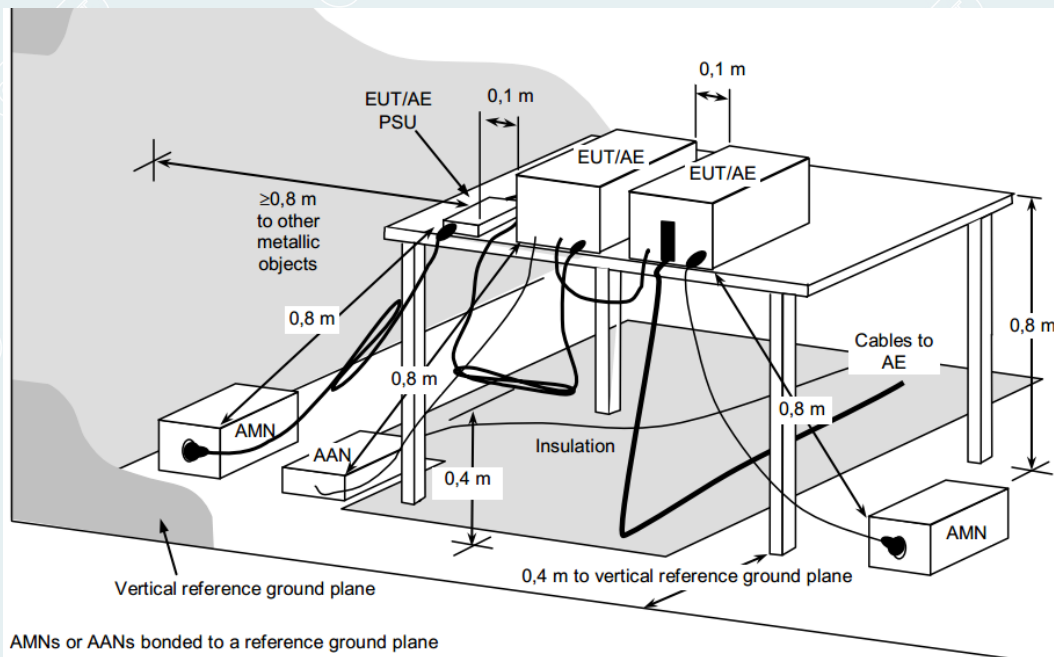


Figure 7.2-1: Test arrangement for Conducted emission measurement

**5.2.4. DATE 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)
X.XXXX	32.69	25.65	11.52	44.21	37.17	65.78	55.79	-21.57	-18.62

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

**5.2.5. PHOTOGRAPH OF THE TEST ARRANGEMENT**

Mode 1 & Mode 2



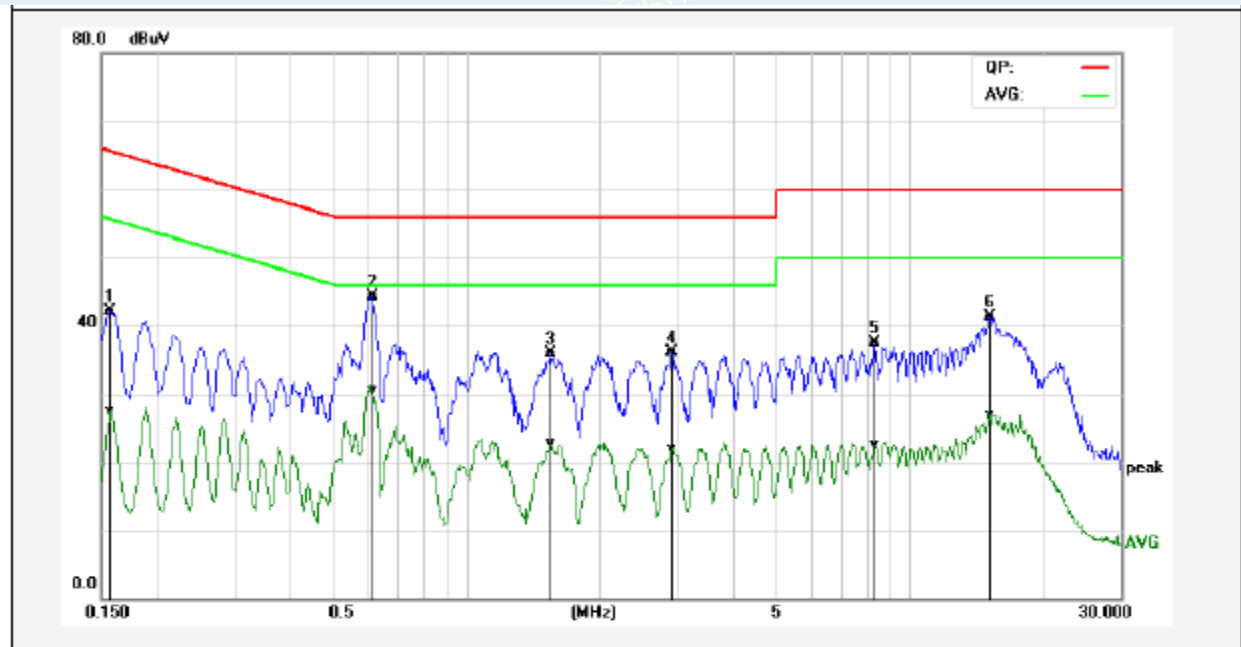
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5.2.6. TEST RESULTS

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

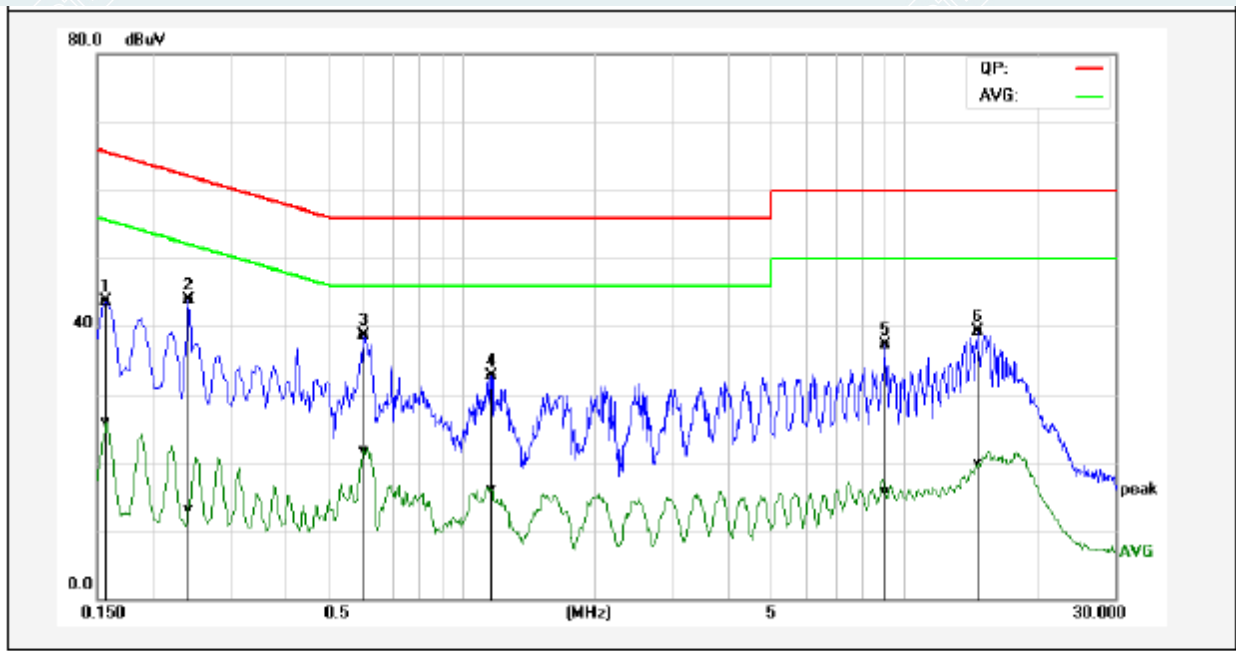


No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1580	32.63	18.02	9.53	42.16	27.55	65.56	55.57	-23.40	-28.02	Pass
2*	0.6140	34.70	20.85	9.57	44.27	30.42	56.00	46.00	-11.73	-15.58	Pass
3	1.5500	26.35	13.06	9.60	35.95	22.66	56.00	46.00	-20.05	-23.34	Pass
4	2.9020	26.43	12.23	9.62	36.05	21.85	56.00	46.00	-19.95	-24.15	Pass
5	8.3460	27.85	12.79	9.75	37.60	22.54	60.00	50.00	-22.40	-27.46	Pass
6	15.1620	31.38	17.04	9.84	41.22	26.88	60.00	50.00	-18.78	-23.12	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

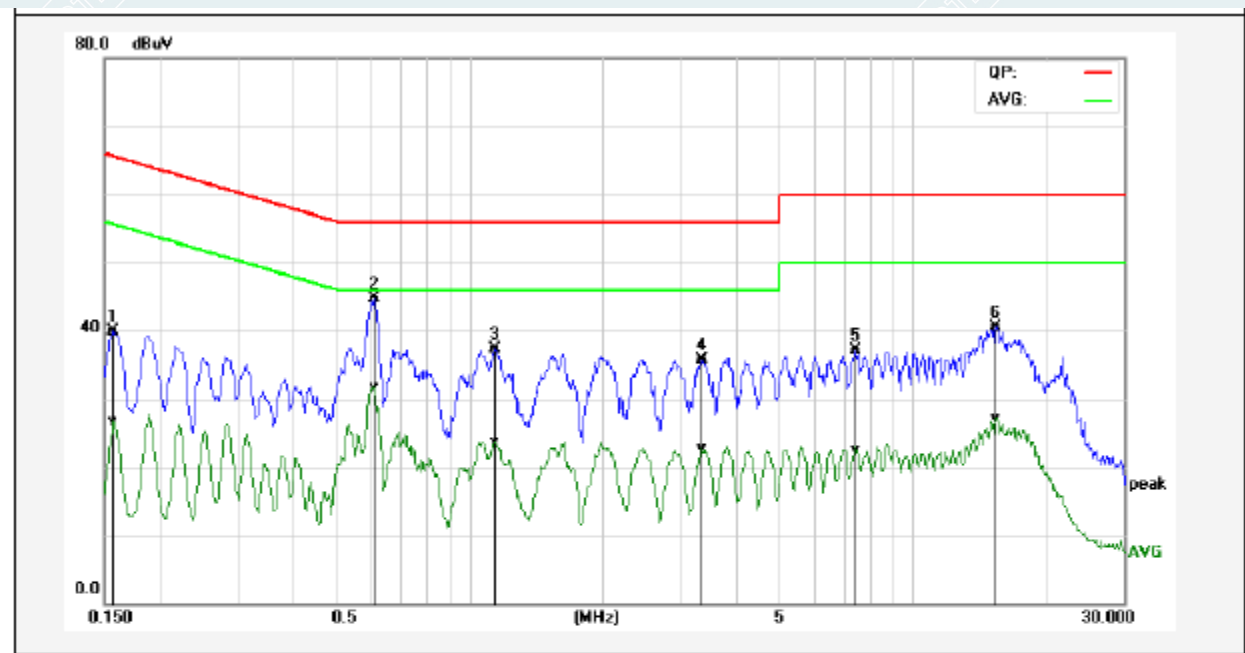
Line: N



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	0.1580	34.24	16.36	9.51	43.75	25.87	65.56	55.57	-21.81	-29.70	Pass
2	0.2420	34.38	3.42	9.59	43.97	13.01	62.02	52.03	-18.05	-39.02	Pass
3*	0.6020	29.11	12.12	9.68	38.79	21.80	56.00	46.00	-17.21	-24.20	Pass
4	1.1700	23.12	6.46	9.62	32.74	16.08	56.00	46.00	-23.26	-29.92	Pass
5	9.0860	27.49	5.91	9.78	37.27	15.69	60.00	50.00	-22.73	-34.31	Pass
6	14.6260	29.49	10.11	9.88	39.37	19.99	60.00	50.00	-20.63	-30.01	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

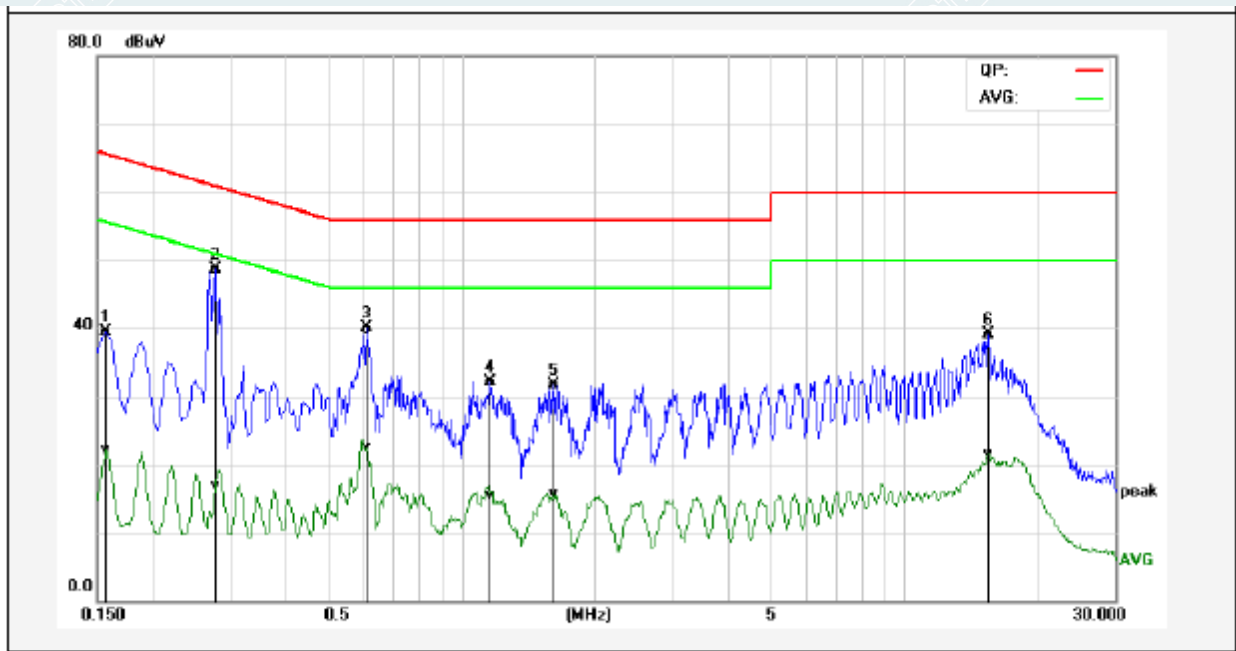
Line: L1



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	0.1580	30.28	17.18	9.53	39.81	26.71	65.56	55.57	-25.75	-28.86	Pass
2*	0.6100	35.08	22.05	9.57	44.65	31.62	56.00	46.00	-11.35	-14.38	Pass
3	1.1460	27.71	14.05	9.59	37.30	23.64	56.00	46.00	-18.70	-22.36	Pass
4	3.3540	26.00	13.01	9.63	35.63	22.64	56.00	46.00	-20.37	-23.36	Pass
5	7.4340	27.34	12.74	9.74	37.08	22.48	60.00	50.00	-22.92	-27.52	Pass
6	15.4580	30.62	17.20	9.85	40.47	27.05	60.00	50.00	-19.53	-22.95	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

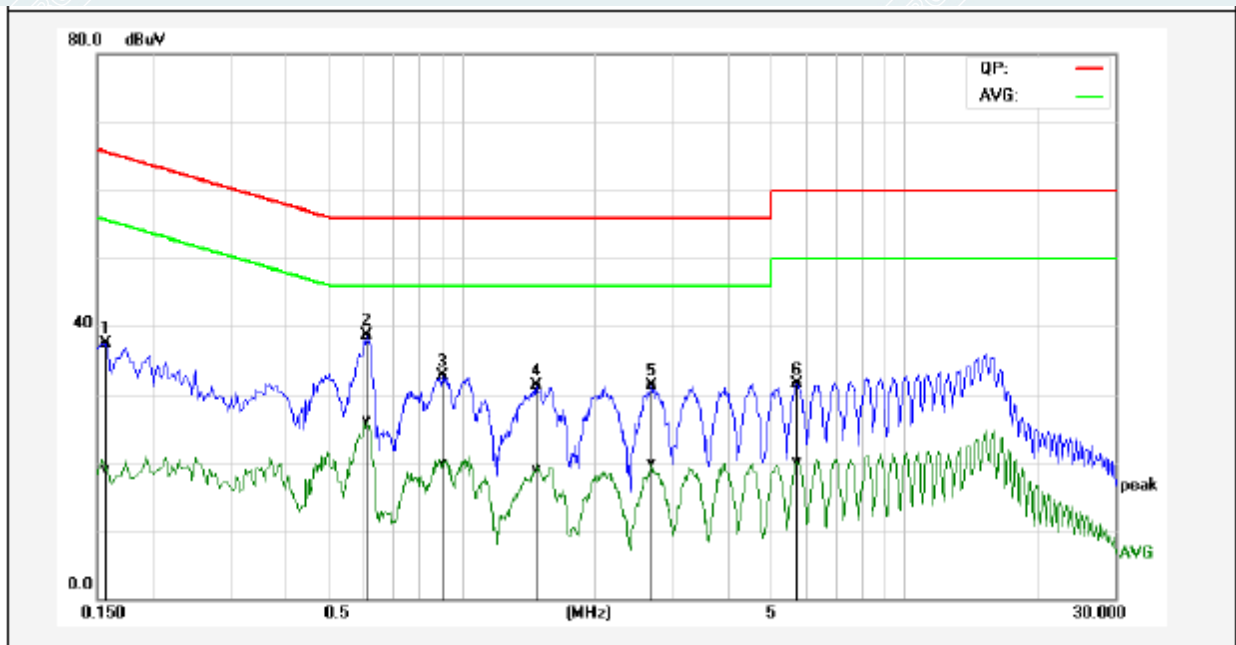


No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1580	29.93	12.62	9.51	39.44	22.13	65.56	55.57	-26.12	-33.44	Pass
2*	0.2779	39.11	7.32	9.60	48.71	16.92	60.88	50.88	-12.17	-33.96	Pass
3	0.6100	30.32	12.85	9.68	40.00	22.53	56.00	46.00	-16.00	-23.47	Pass
4	1.1620	22.45	5.88	9.62	32.07	15.50	56.00	46.00	-23.93	-30.50	Pass
5	1.6220	22.04	6.18	9.62	31.66	15.80	56.00	46.00	-24.34	-30.20	Pass
6	15.4940	29.15	11.68	9.89	39.04	21.57	60.00	50.00	-20.96	-28.43	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

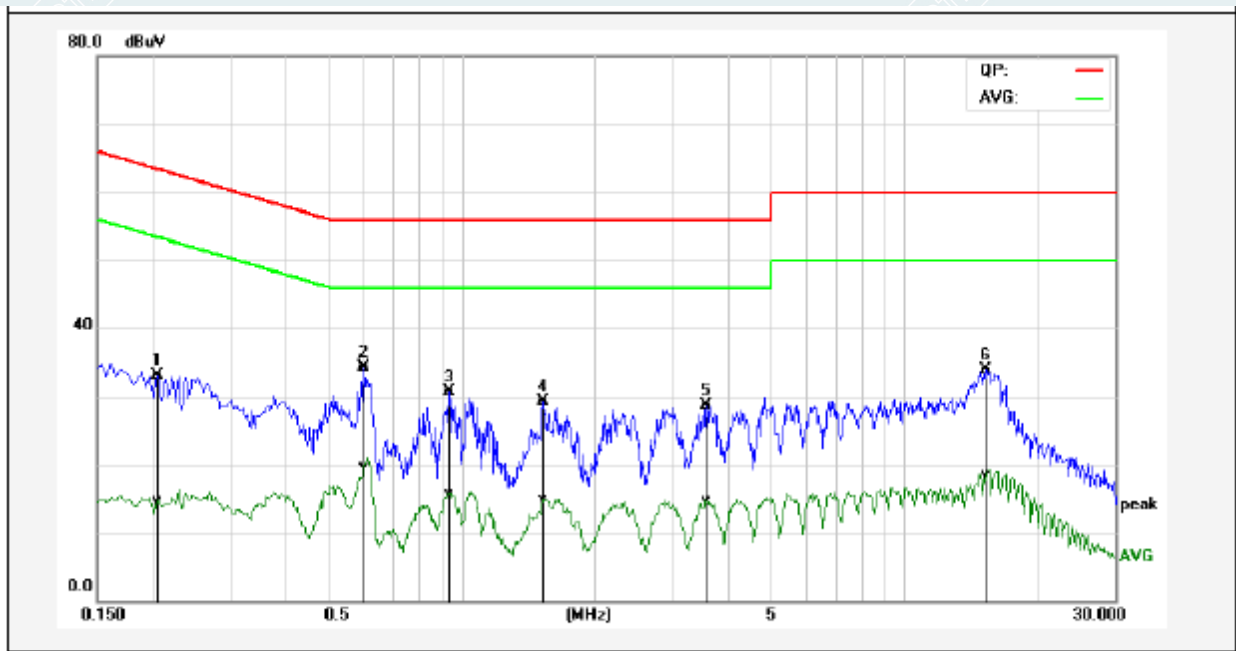
Line: L1



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	0.1580	28.06	9.41	9.53	37.59	18.94	65.56	55.57	-27.97	-36.63	Pass
2*	0.6100	29.05	16.48	9.57	38.62	26.05	56.00	46.00	-17.38	-19.95	Pass
3	0.9060	23.10	10.37	9.59	32.69	19.96	56.00	46.00	-23.31	-26.04	Pass
4	1.4780	21.67	9.33	9.59	31.26	18.92	56.00	46.00	-24.74	-27.08	Pass
5	2.7060	21.77	10.27	9.61	31.38	19.88	56.00	46.00	-24.62	-26.12	Pass
6	5.7300	21.81	10.35	9.69	31.50	20.04	60.00	50.00	-28.50	-29.96	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

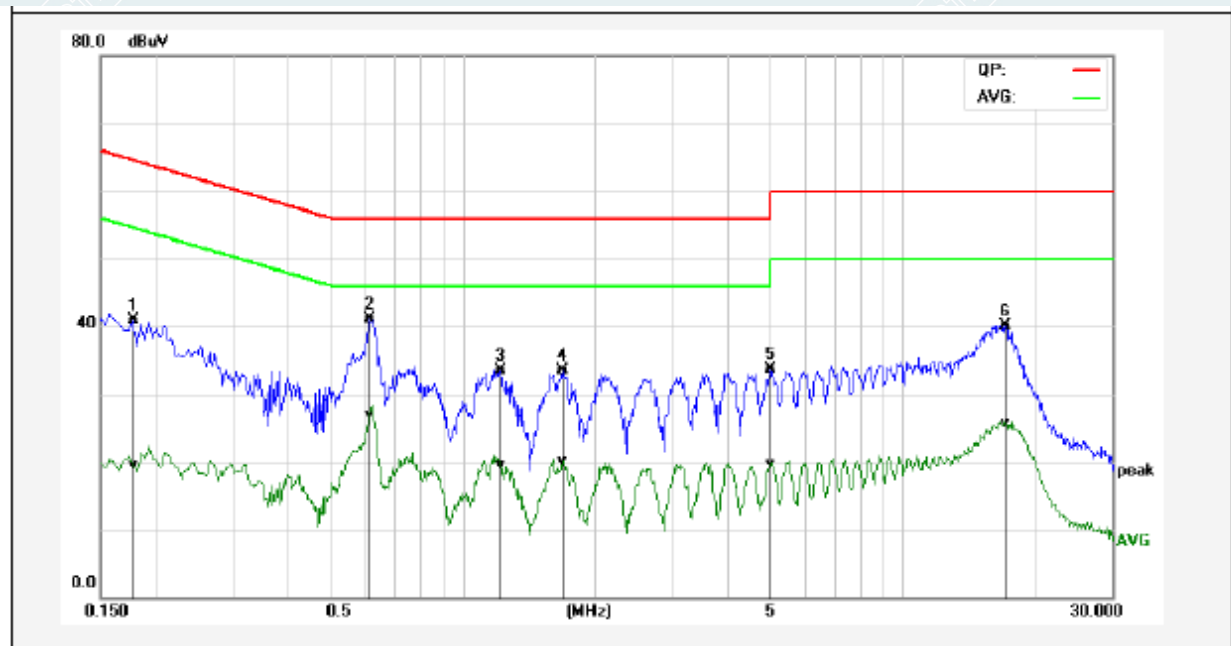


No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.2060	23.44	5.13	9.57	33.01	14.70	63.36	53.37	-30.35	-38.67	Pass
2*	0.6020	24.56	10.04	9.68	34.24	19.72	56.00	46.00	-21.76	-26.28	Pass
3	0.9420	21.15	6.06	9.64	30.79	15.70	56.00	46.00	-25.21	-30.30	Pass
4	1.5339	19.67	5.20	9.62	29.29	14.82	56.00	46.00	-26.71	-31.18	Pass
5	3.5820	19.03	5.12	9.62	28.65	14.74	56.00	46.00	-27.35	-31.26	Pass
6	15.2420	24.04	8.65	9.89	33.93	18.54	60.00	50.00	-26.07	-31.46	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

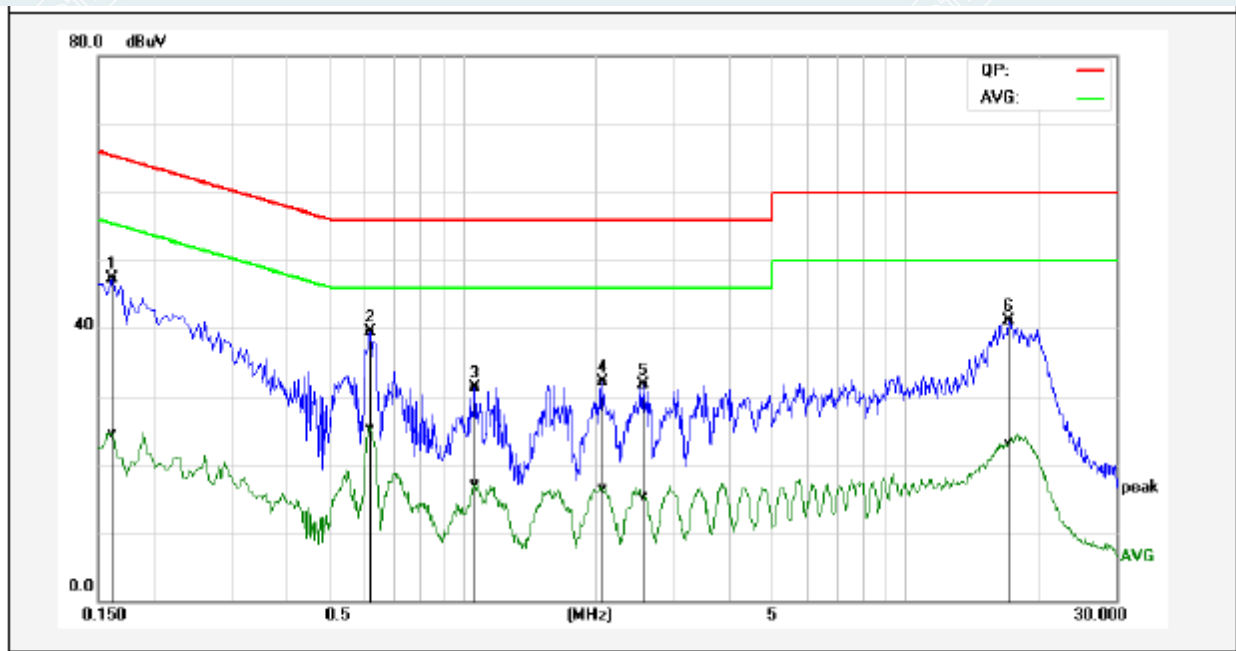
Line: L1



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	0.1780	31.43	9.99	9.54	40.97	19.53	64.57	54.58	-23.60	-35.05	Pass
2*	0.6140	31.44	17.34	9.57	41.01	26.91	56.00	46.00	-14.99	-19.09	Pass
3	1.2220	23.96	9.93	9.59	33.55	19.52	56.00	46.00	-22.45	-26.48	Pass
4	1.6860	23.93	10.46	9.60	33.53	20.06	56.00	46.00	-22.47	-25.94	Pass
5	5.0100	23.95	10.00	9.67	33.62	19.67	60.00	50.00	-26.38	-30.33	Pass
6	17.1180	30.30	15.83	9.88	40.18	25.71	60.00	50.00	-19.82	-24.29	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	0.1620	37.75	14.92	9.52	47.27	24.44	65.36	55.36	-18.09	-30.92	Pass
2*	0.6180	29.75	15.72	9.68	39.43	25.40	56.00	46.00	-16.57	-20.60	Pass
3	1.0700	21.75	7.47	9.63	31.38	17.10	56.00	46.00	-24.62	-28.90	Pass
4	2.0700	22.48	6.92	9.60	32.08	16.52	56.00	46.00	-23.92	-29.48	Pass
5	2.5660	22.13	5.71	9.60	31.73	15.31	56.00	46.00	-24.27	-30.69	Pass
6	17.1700	31.17	13.10	9.91	41.08	23.01	60.00	50.00	-18.92	-26.99	Pass

### 5.3. VOLTAGE FLUCTUATIONS AND FLICKER

Test Requirement: ETSI EN 301 489-17 V3.2.4/7.1.1  
 ETSI EN 301 489-1 V2.2.3/8.6

Test Method: EN 61000-3-3:2013

#### 5.3.1. LIMITS

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%	$d_{max}$ means maximum relative voltage change.
dc (%)	3.3%	dc means relative steady-state voltage change

#### 5.3.2. TEST PROCEDURES

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.

#### 5.3.3. TEST SETUP

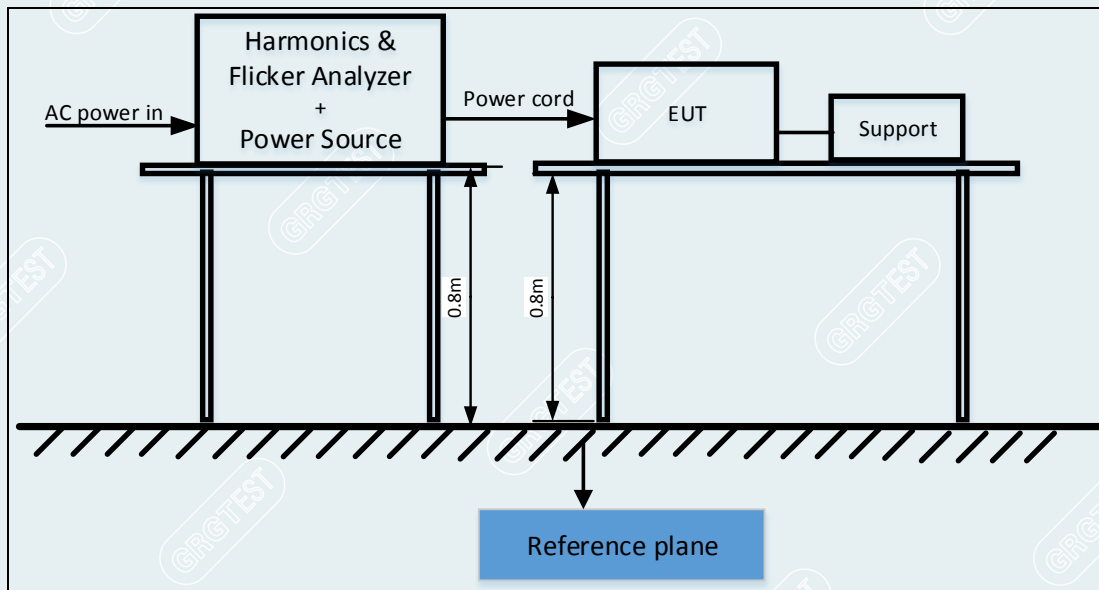


Figure 7.4-1: Test arrangement for Voltage fluctuations and flicker measurement.

**5.3.4. PHOTOGRAPH OF THE TEST ARRANGEMENT**

Mode 1 & Mode 2



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

**5.3.5. TEST RESULTS**

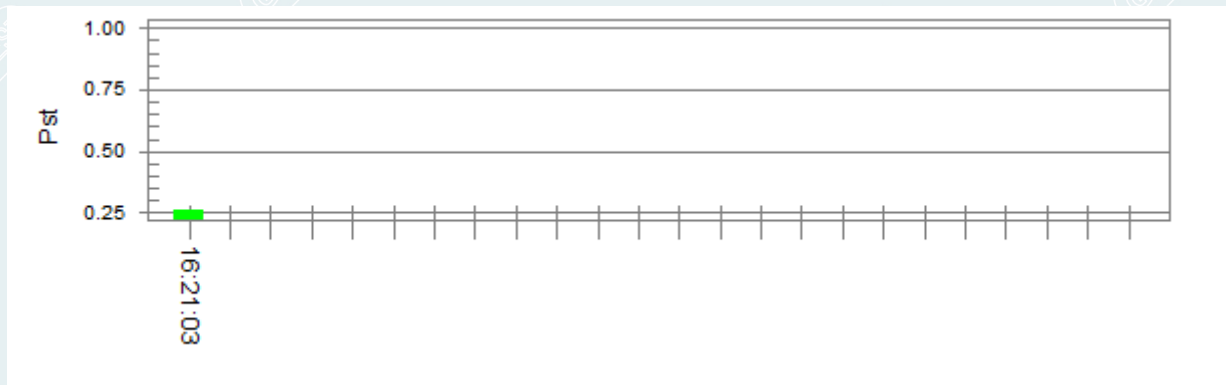
**Motor 1:**

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

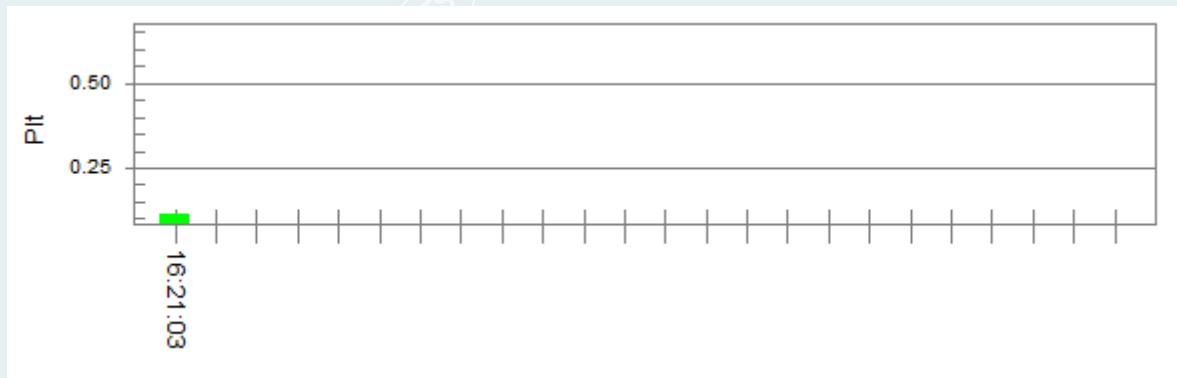
**Test category: All parameters (European limits)**      **Test Margin: 100**  
**Test date: 2022/4/1**      **Start time: 16:10:42**      **End time: 16:21:10**  
**Test duration (min): 10**      **Data file name: F-000163.cts\_data**  
 Test Result: Pass      Status: Test Completed

**Pst<sub>i</sub> and limit line**

**European Limits**



**Plt and limit line**



**Parameter values recorded during the test:**

Vrms at the end of test (Volt):	230.02		
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



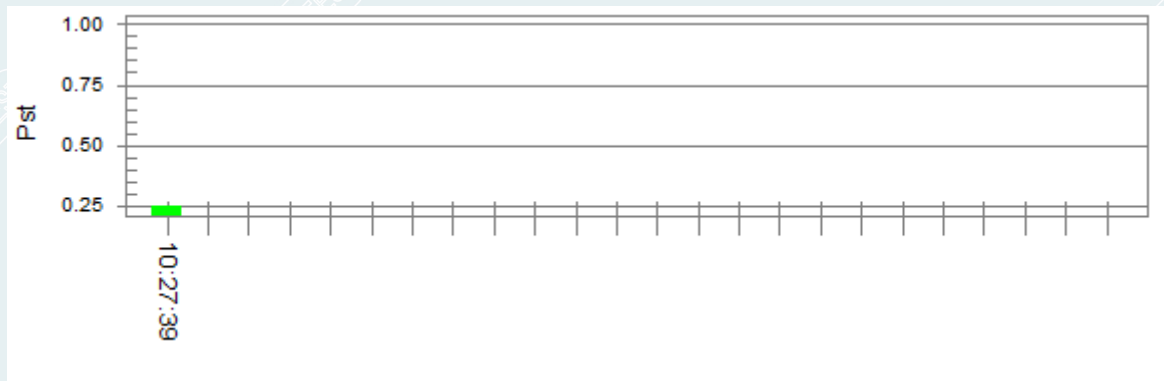
EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.8°C/34%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-03-30	Sample No.	E20220309137001-0005

**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**

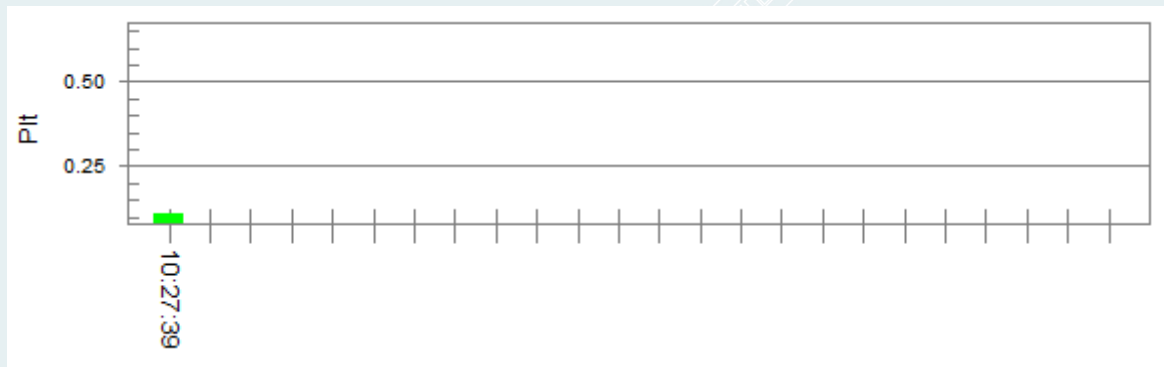
Test Result: Pass    Status: Test Completed

**Pst<sub>i</sub> and limit line**

**European Limits**



**Plt and limit line**



**Parameter values recorded during the test:**

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

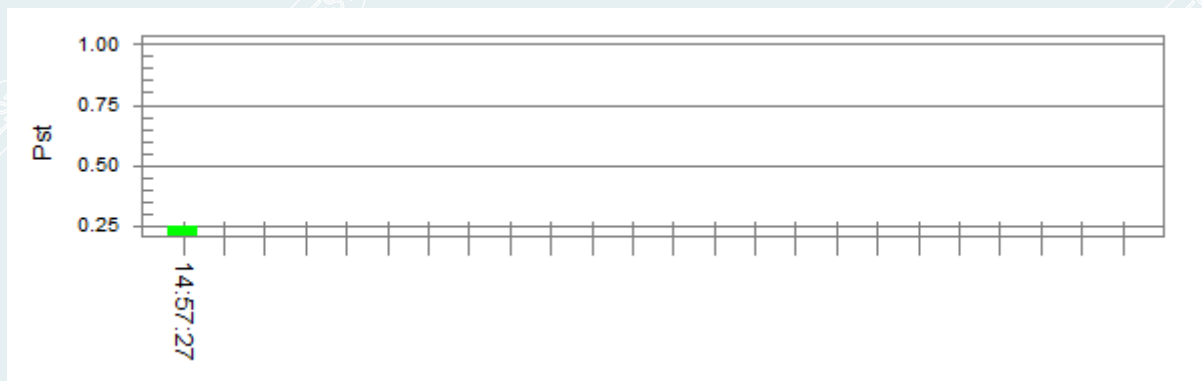
**Motor 2:**

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

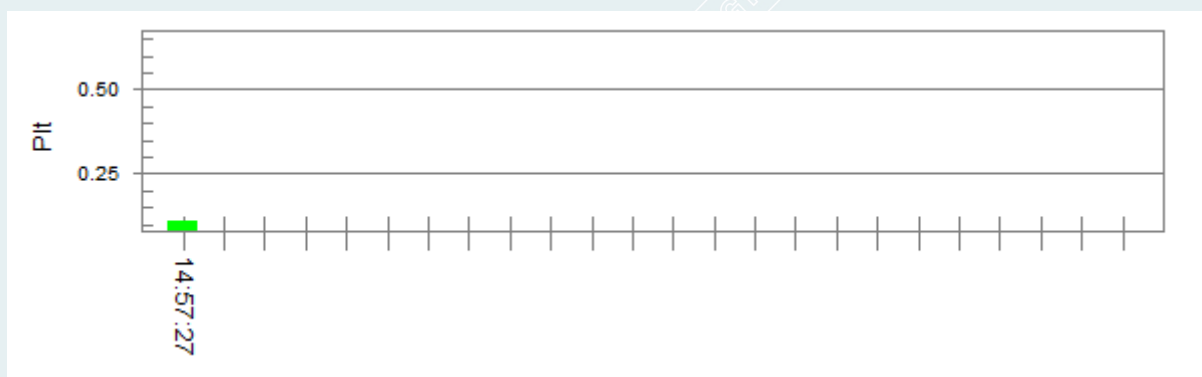
**Test category: All parameters (European limits)**                      **Test Margin: 100**  
**Test date: 2022/4/28**    **Start time: 14:47:06**    **End time: 14:57:33**  
**Test duration (min): 10**    **Data file name: F-000163.cts\_data**  
 Test Result: Pass    Status: Test Completed

**Pst<sub>i</sub> and limit line**

**European Limits**



**Plt and limit line**



**Parameter values recorded during the test:**

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

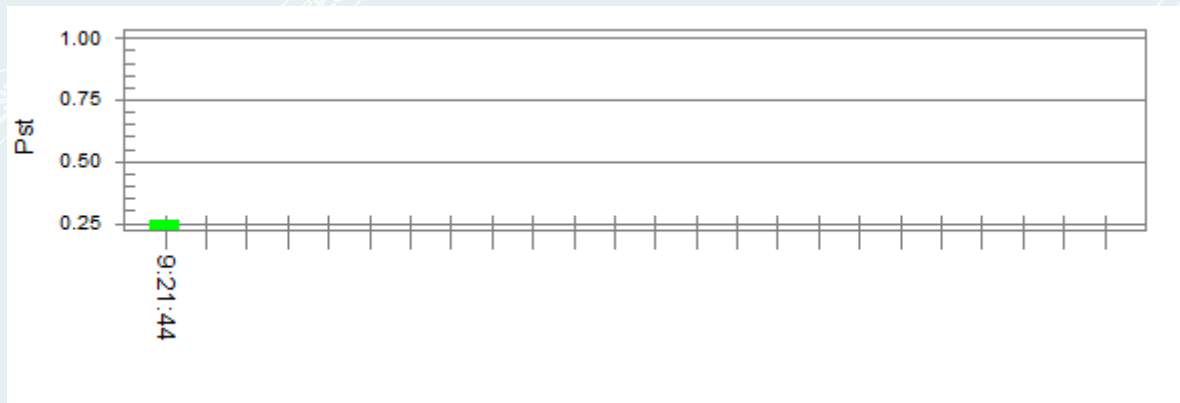
EUT Name	Curtain Driver E1	Model	CM-M01
Environmental Conditions	25.8°C/34%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2022-04-11	Sample No.	E20220309137001-0007

**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**

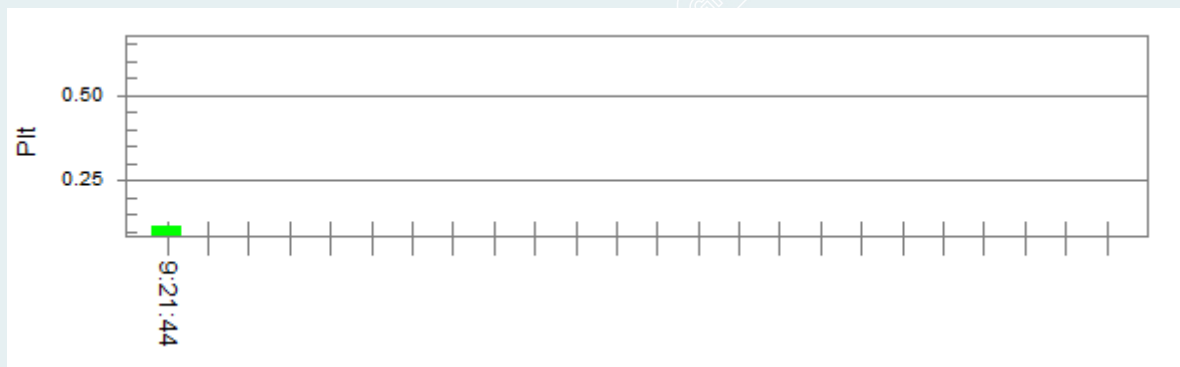
**Test Result: Pass**    **Status: Test Completed**

**Pst<sub>i</sub> and limit line**

**European Limits**



**Plt and limit line**



**Parameter values recorded during the test:**

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

## 6. IMMUNITY TEST

### 6.1. GENERAL DESCRIPTION

EMC Immunity					
ETSI EN 301 489-17 V3.2.4&ETSI EN 301 489-1 V2.2.3					
Item	Application port	Basic Standard	Test method	Performance Criterion	Result
Electrostatic discharge (ESD)	Enclosure port	ETSI EN 301 489-17 V3.2.4 /7.2.1 ETSI EN 301 489-1 V2.2.3/9.3	EN 61000-4-2	Test specification: ±2, ±4, ±8kV air discharge ±2, ±4kV Contact discharge Performance : Criteria B	PASS
Radiated radio-frequency electromagnetic (RS)	Enclosure port	ETSI EN 301 489-1 V2.2.3/9.2 ETSI EN 301 489-17 V3.2.4 /7.2.1	EN 61000-4-3	Test specification: Test level: For the frequency range 80MHz to 6000MHz, test level shall be 3 V/m, 80% AM(1kHz) Performance: Criteria A	PASS
Electrical fast transients(EFT)	AC mains power input port/signal ports	EN 301 489-17 V3.2.2 /7.2.1 EN 301 489-1 V2.2.3 /9.4	EN 61000-4-4	Test specification: AC power Port: ±1kV repetition rate: 5 kHz Performance: Criteria B	PASS
Surge	AC mains power input port	EN 301 489-17 V3.2.4 /7.2.1 EN 301 489-1 V2.2.3 /9.8	EN 61000-4-5	Test specification: AC Power Port: 1.2/50 us pulse line to line: ±1kV; Performance : Criteria B	PASS
Radio frequency continuous conducted(CS)	AC mains power input port	EN 301 489-17 V3.2.4 /7.2.1 EN 301 489-1 V2.2.3 /9.5	EN 61000-4-6	Test specification: AC power port 0.15~80 MHz, 3Vrms, 80% AM, 1kHz Performance: Criteria A	PASS
Voltage Dips & Short Interruptions	AC mains power input port	EN 301 489-17 V3.2.4 /7.2.1 EN 301 489-1 V2.2.3 /9.7	EN 61000-4-11	Test specification: 1. Voltage dips: i)0% residual voltage 0.5 cycle. Performance: Criteria B; ii) 0% residual voltage 1 cycle, Performance: Criteria B; iii)70% residual voltage 25 cycle. Performance: Criteria B; 2. Voltage interruption: 0% residual voltage during 250 cycles. Performance: Criteria C;	PASS

**6.2. GENERAL PERFORMANCE CRITERIA DESCRIPTION (ETSI EN 301 489-1/17)**

**6.2.1. GENERAL PERFORMANCE CRITERIA**

The performance criteria are:

- Performance criteria A for immunity tests with phenomena of a continuous nature;
- Performance criteria B for immunity tests with phenomena of a transient nature;
- Performance criteria C for immunity tests with power interruptions exceeding a certain time.

The equipment shall meet the minimum performance criteria as specified in the following clauses.

**Performance table**

Criteria	During Test	After test (i.e. as a result of the application of the test)
A	Shall operate as intended. (See note). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance. Shall be no loss of function. Shall be no loss of critical stored data.
B	May be loss of function.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no loss of critical stored data.
C	May be loss of function.	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no loss of critical stored data.

NOTE: Operate as intended during the test allows a level of degradation in accordance with clause 6.2.2.

Performance Criteria	Description
Performance criteria for continuous phenomena applied to transmitters and receivers	If no further details are given in the relevant part of EN 301 489 series [i.13] dealing with the particular type of radio equipment, the following general performance criteria for continuous phenomena shall apply. During and after the test, the apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer when the apparatus is used as intended. In some cases this permissible performance level may be replaced by a permissible loss of performance. During the test the EUT shall not unintentionally transmit or change its actual operating state and stored data. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deduced from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.
Performance criteria for transient phenomena applied to transmitters and receivers	If no further details are given in the relevant part of EN 301 489 series [i.13] dealing with the particular type of radio equipment, the following general performance criteria for transient phenomena shall apply. For surges applied to symmetrically operated wired network ports intended to be connected directly to outdoor lines the following criteria applies: <ul style="list-style-type: none"> <li>• For products with only one symmetrical port intended for connection to outdoor lines, loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A SW reboot is not allowed.</li> </ul>



	<p>Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.</p> <ul style="list-style-type: none"> <li>• For products with more than one symmetrical port intended for connection to outdoor lines, loss of function on the port under test is allowed, provided the function is self-recoverable. A SW reboot is not allowed. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.</li> </ul> <p>For all other ports the following applies:</p> <ul style="list-style-type: none"> <li>• After the test, the equipment shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer, when the equipment is used as intended. In some cases this permissible performance level may be replaced by a permissible loss of performance.</li> <li>• During the EMC exposure to an electromagnetic phenomenon, a degradation of performance is, however, allowed. No change of the actual mode of operation (e.g. unintended transmission) or stored data is allowed.</li> <li>• If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deduced from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.</li> </ul>
Performance criteria for equipment which does not provide a continuous communication link	<p>For radio equipment which does not provide a continuous communication link, the performance criteria described in clauses 6.1 and 6.2 are not appropriate, in these cases the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation. The related specifications set out in clause 5.3 have also to be taken into account. The performance criteria specified by the manufacturer shall give the same degree of immunity protection as called for in clauses 6.1 and 6.2.</p>
Performance criteria for ancillary equipment tested on a stand alone basis	<p>If ancillary equipment is intended to be tested on a stand alone basis, the performance criteria described in clauses 6.1 and 6.2 are not appropriate, in these cases the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation. The related specifications set out in clause 5.3 have also to be taken into account. The performance criteria specified by the manufacturer shall give the same degree of immunity protection as called for in clauses 6.1 and 6.2.</p>

Performance Criteria	Description
CT	The performance criteria A shall apply. Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an ACKnowledgement (ACK) or Not ACKnowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.
TT	The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply. Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) or not-acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.
CR	The performance criteria A shall apply. Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.
TR	The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration for which performance criteria C shall apply. Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Note:

Criterion A applies for immunity tests with phenomena of a continuous nature. (CT, CR)

Criterion B applies for immunity tests with phenomena of a transient nature. (TT, TR)

Criterion C for immunity tests with power interruptions exceeding a certain time.

### 6.2.2. MINIMUM PERFORMANCE LEVEL

For equipment that supports a PER or FER, the minimum performance level shall be a PER or FER less than or equal to 10 %.

For equipment that does not support a PER or a FER, the minimum performance level shall be no loss of the wireless transmission function needed for the intended use of the equipment.

### **6.2.3. PERFORMANCE CRITERIA FOR CONTINUOUS PHENOMENA**

The performance criteria A shall apply.

Where the EUT is a transmitter in standby mode, unintentional transmission shall not occur during the test.

Where the EUT is a transceiver in receive mode, unintentional transmission shall not occur during the test.

### **6.2.4. PERFORMANCE CRITERIA FOR TRANSIENT PHENOMENA**

The performance criteria B shall apply, except for voltage dips greater than or equal to 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply.

Where the EUT is a transmitter in standby mode, unintentional transmission shall not occur as a result of the application of the test.

Where the EUT is a transceiver in receive mode, unintentional transmission shall not occur as a result of the application of the test.

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

### 6.3. ELECTROSTATIC DISCHARGE(ESD)

#### 6.3.1. TEST SPECIFICATION

Test Requirement:	ETSI EN 301 489-17 V3.2.4 /7.2.1 ETSI EN 301 489-1 V2.2.3/9.3
Test Method:	EN 61000-4-2:2009
Discharge Impedance:	330 ohm / 150 pF
Discharge Voltage:	Air Discharge : $\pm 2\text{kV}$ , $\pm 4\text{kV}$ , $\pm 8\text{kV}$ ; Contact Discharge: $\pm 2\text{kV}$ , $\pm 4\text{kV}$ ;
Polarity:	Positive & Negative
Number of Discharge:	10 times at each test point
Discharge Mode:	Single Discharge 1 second

#### 6.3.2. TEST PROCEDURE

##### The basic test procedure was in accordance with EN 61000-4-2:

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manner:

- (1) The test shall be performed with single discharges. On each pre-selected point at least 10 single discharges (in the most sensitive polarity) shall be applied.

NOTE 1 The minimum number of discharges applied is depending on the EUT; for products with synchronized circuits the number of discharges should be larger.

For the time interval between successive single discharges an initial value of 1 s is recommended. Longer intervals may be necessary to determine whether a system failure has occurred.

NOTE 2 The points to which the discharges should be applied may be selected by means of an exploration carried out at a repetition rate of 20 discharges per second, or more.

##### Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge.

##### Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge.

- (2) Air discharges at insulation surfaces of the EUT.

It was at least ten single discharges with positive and negative at the same selected point.

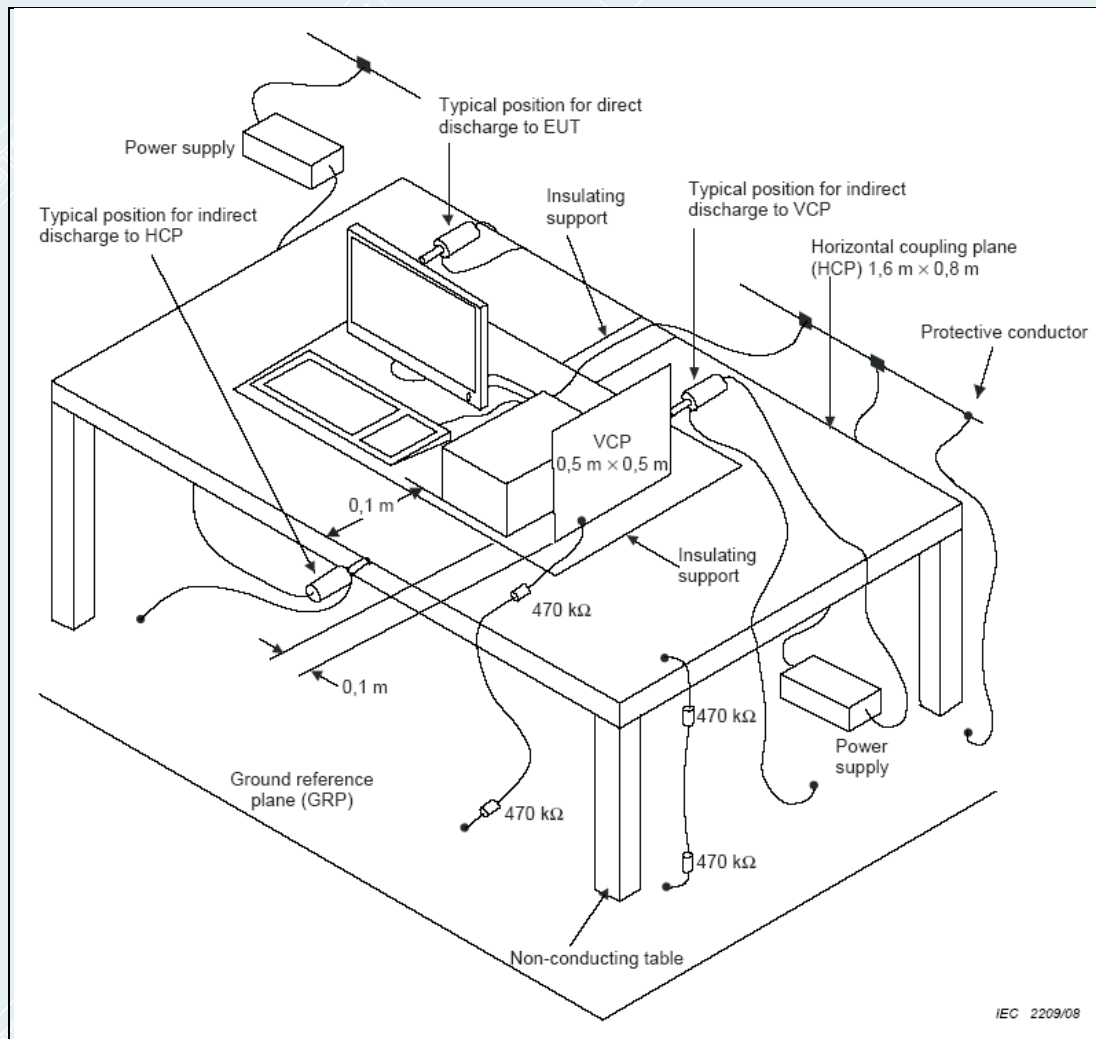
- (3) For TABLE-TOP equipment:

The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP



by means of a cable with 940k total impedance. The equipment under test was installed in a representative system as described in EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

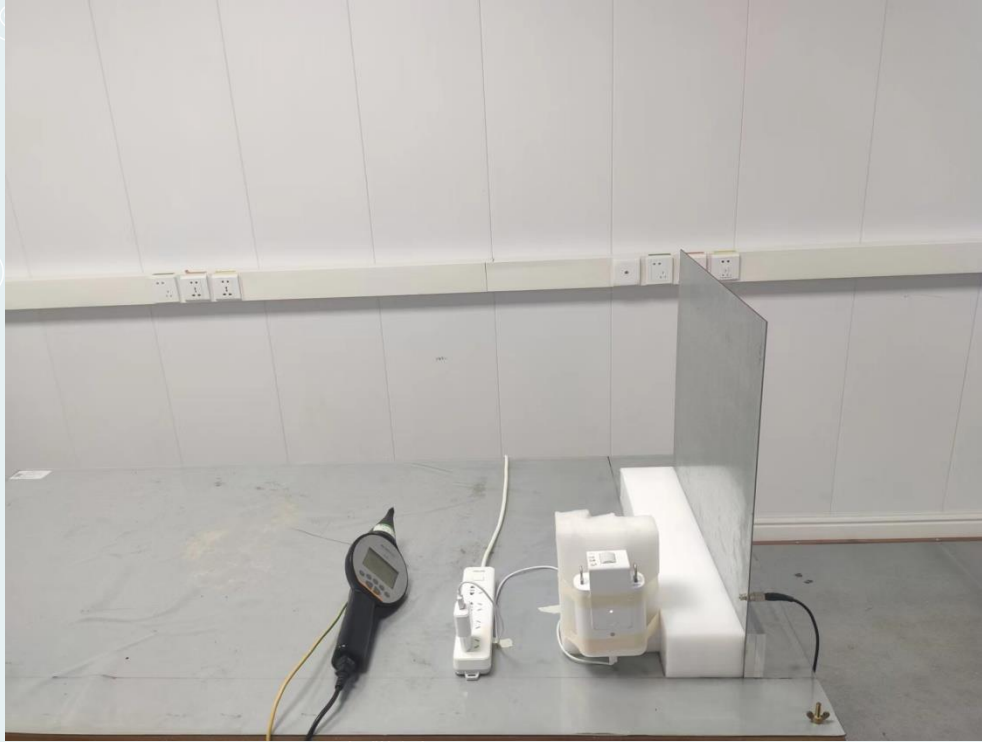
**6.3.3. TEST SETUP**





**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 <sup>1)</sup>	PASS
Horizontal coupling plane	±2, ±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Metal hanger	±2, ±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Shell gaps	±2, ±4, ±8kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
Indicator light	±2, ±4, ±8kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
Shift knob	±2, ±4, ±8kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
Type-C input port	±2, ±4, ±8kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
NOTE: <sup>1)</sup> 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 <sup>1)</sup>	PASS
Horizontal coupling plane	±2, ±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Metal hanger	±2, ±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Shell gaps	±2, ±4, ±8kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
Indicator light	±2, ±4, ±8kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
Shift knob	±2, ±4, ±8kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
Type-C input port	±2, ±4, ±8kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
NOTE: <sup>1)</sup> Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.					

## 6.4. RADIATED RADIO-FREQUENCY ELECTROMAGNETIC FIELD (RS)

### 6.4.1. TEST SPECIFICATION

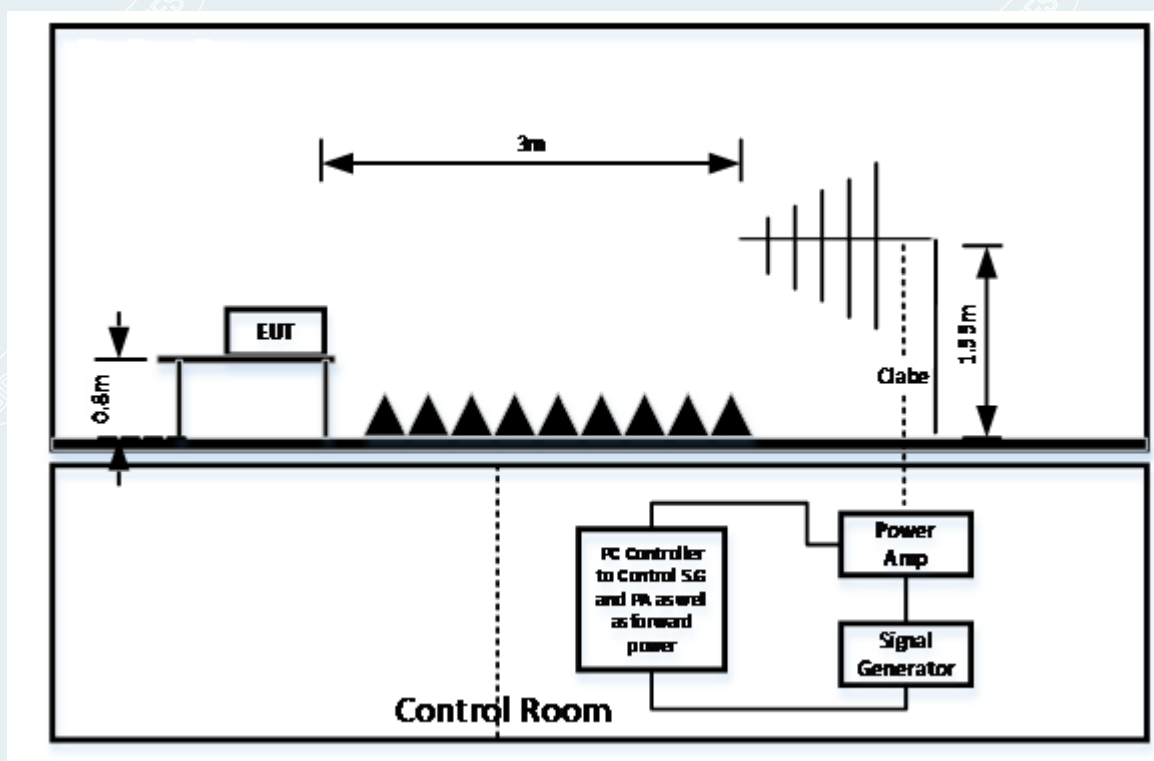
Test Requirement:	ETSI EN 301 489-17 V3.2.4 /7.2.1 ETSI EN 301 489-1 V2.2.3/9.2
Test Method:	EN 61000-4-3:2006+A2:2010
Frequency Range:	80MHz ~ 6000MHz
Field Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.55m

### 6.4.2. TEST PROCEDURE

- (1) The testing is performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.
- (2) The frequency range is swept from 80 MHz ~6000 MHz, with the signal 80% amplitude modulated with a 1 kHz sine-wave. The rate of sweep did not exceed  $1.5 \times 10^{-3}$  decade/s, where the frequency range is swept incrementally; the step size is 1% of preceding frequency value.
- (3) The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- (4) The test is 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 EN 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 EN 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.**



**6.4.4. PHOTOGRAPH OF THE TEST ARRANGEMENT**

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



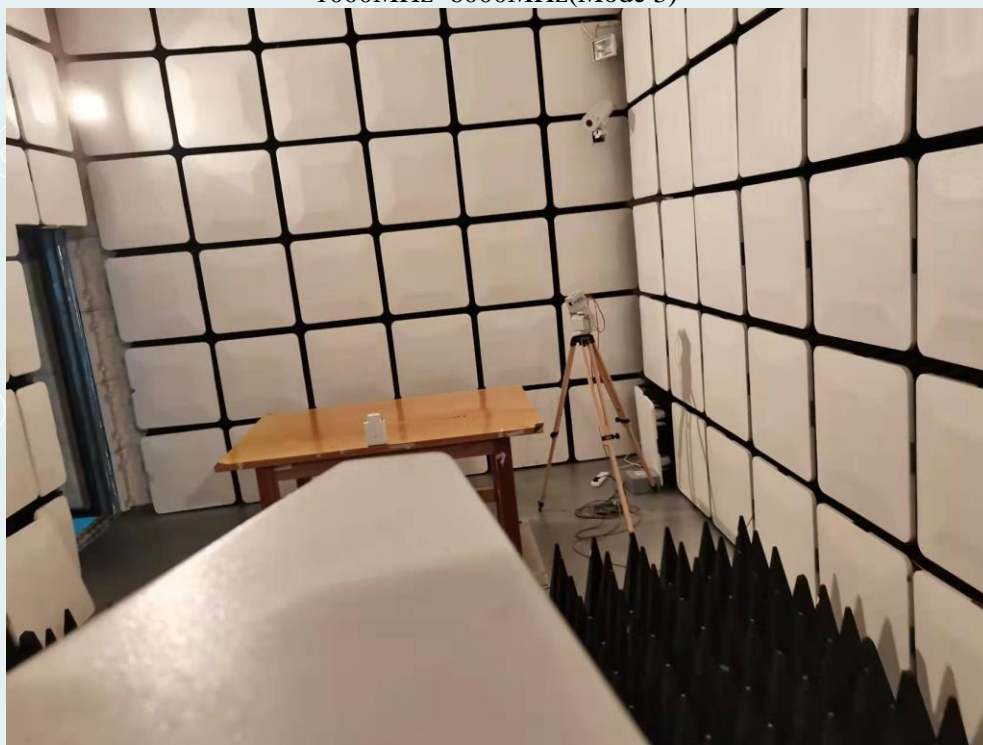
1000MHz~6000MHz (Mode 1 & Mode 2)



80MHz~1000MHz (Mode 3)



1000MHz~6000MHz (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
80~6000	3	Front	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Left	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Right	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Rear	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
NOTE: <sup>1)</sup> 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
80~6000	3	Front	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Left	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Right	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Rear	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass



NOTE: <sup>1)</sup>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	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
80~6000	3	Front	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Left	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Right	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
Rear	H	Criterion A	Criterion A <sup>1)</sup>	pass		
	V	Criterion A	Criterion A <sup>1)</sup>	pass		

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

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

**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
80~6000	3	Front	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Left	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Right	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
Rear	H	Criterion A	Criterion A <sup>1)</sup>	pass		
	V	Criterion A	Criterion A <sup>1)</sup>	pass		

NOTE: <sup>1)</sup>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
80~6000	3	Front	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Left	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Right	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
Rear	H	Criterion A	Criterion A <sup>1)</sup>	pass		
	V	Criterion A	Criterion A <sup>1)</sup>	pass		

NOTE: <sup>1)</sup>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	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
80~6000	3	Front	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Left	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
		Right	H	Criterion A	Criterion A <sup>1)</sup>	pass
			V	Criterion A	Criterion A <sup>1)</sup>	pass
Rear	H	Criterion A	Criterion A <sup>1)</sup>	pass		
	V	Criterion A	Criterion A <sup>1)</sup>	pass		

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

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## 6.5. ELECTRICAL FAST TRANSIENTS (EFT)

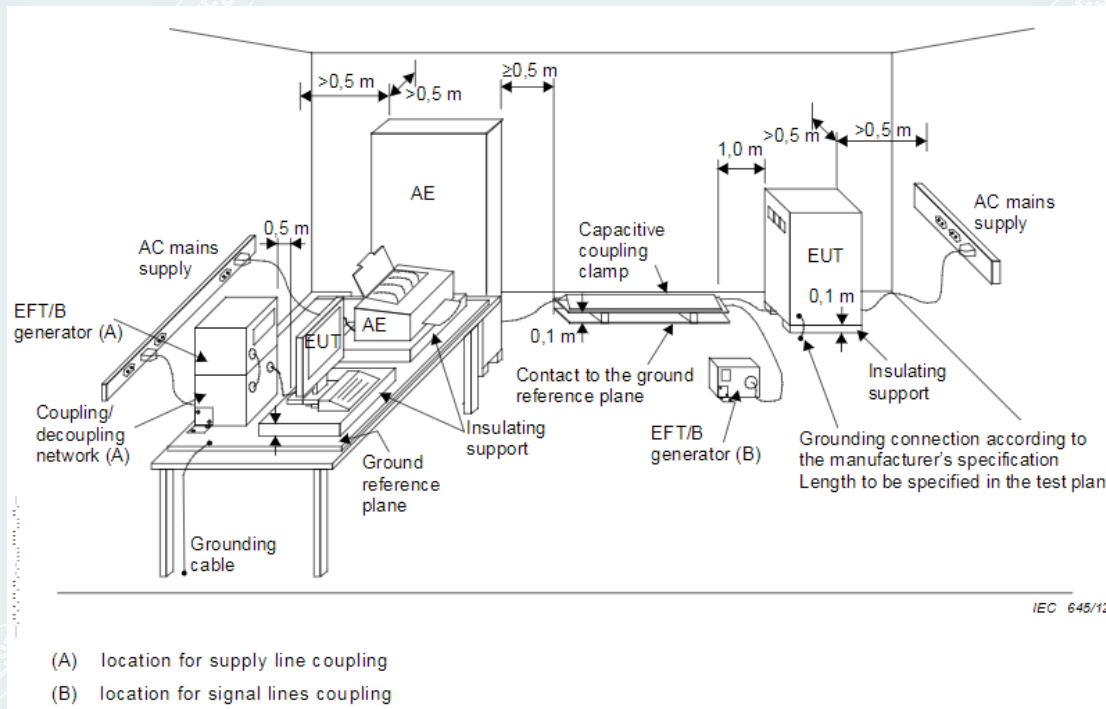
### 6.5.1. TEST SPECIFICATION

Test Requirement:	ETSI EN 301 489-17 V3.2.4 /7.2.1 ETSI EN 301 489-1 V2.2.3/9.4
Test Method:	EN 61000-4-4:2012
Test Voltage:	AC power Port: $\pm 1$ kV
Polarity:	Positive and Negative
Impulse Frequency:	5 kHz
Impulse Wave-shape:	5 ns/50ns for voltage
Burst Duration:	15 ms
Burst Period:	300 ms
Test Duration:	1 min for each polarity

### 6.5.2. TEST PROCEDURE

- (1) EUTs, whether stationary floor-mounted or table top, and equipment designed to be mounted in other configurations, shall be placed on a ground reference plane and shall be insulated from it by an insulating support  $0.1 \text{ m} \pm 0.01 \text{ m}$  thick. The test generator and the coupling/ decoupling network shall be placed directly on, and bonded to, the ground reference plane.
- (2) The minimum distance between the EUT and all other conductive structures (e.g. the walls of a shielded room), except the ground reference plane shall be more than 0.5 m. If the manufacturer provides a non-detachable supply cable more than  $0.5 \text{ m} \pm 0.05 \text{ m}$  long with the equipment, the excess length of this cable shall be folded to avoid a flat coil and situated at a distance of 0,1 m above the ground reference plane.
- (3) For input and AC power ports:  
The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test can't less than 1min.
- (4) The transient/burst waveform was in accordance with EN 61000-4-4, 5/50ns.

### 6.5.3. TEST SETUP



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

#### 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 <sup>1)</sup>	PASS
	-	1	Criterion B	Criterion A <sup>1)</sup>	PASS
N	+	1	Criterion B	Criterion A <sup>1)</sup>	PASS
	-	1	Criterion B	Criterion A <sup>1)</sup>	PASS
L-N	+	1	Criterion B	Criterion A <sup>1)</sup>	PASS
	-	1	Criterion B	Criterion A <sup>1)</sup>	PASS

NOTE: <sup>1)</sup>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 <sup>1)</sup>	PASS
	-	1	Criterion B	Criterion A <sup>1)</sup>	PASS
N	+	1	Criterion B	Criterion A <sup>1)</sup>	PASS
	-	1	Criterion B	Criterion A <sup>1)</sup>	PASS
L-N	+	1	Criterion B	Criterion A <sup>1)</sup>	PASS
	-	1	Criterion B	Criterion A <sup>1)</sup>	PASS

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



## 6.6. SURGES

### 6.6.1. TEST SPECIFICATION

Test Requirement:	ETSI EN 301 489-17 V3.2.4 /7.2.1 ETSI EN 301 489-1 V2.2.3/9.8
Test Method:	EN 61000-4-5: 2014+ A1:2017
Wave-Shape:	AC power supply port: 1.2/50(8/20) Tr/Th $\mu$ s combination wave
Test Voltage:	AC Port: line to line: $\pm 1$ kV Performance Criterion B
Generator Source Impedance:	AC power supply port: Line to line 2ohm, Line to PE12ohm
Polarity:	Positive and Negative
Phase Angle:	0 °, 90 °, 180 °, 270 °
Pulse Repetition Rate:	1 minute
Number of tests:	5 positive and 5 negative at the selected points

### 6.6.2. TEST PROCEDURE

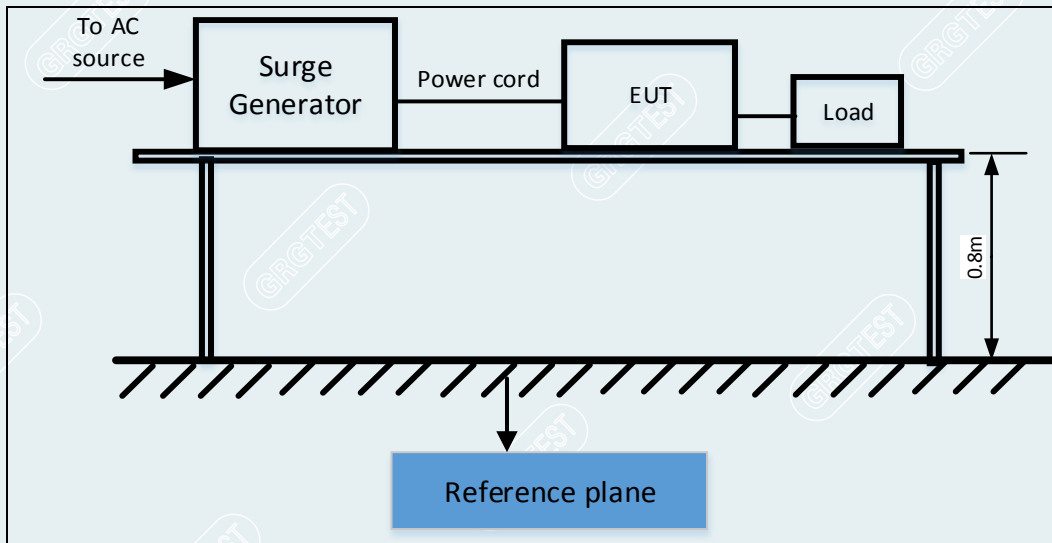
(1) For EUT power supply:

The surge is applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.

(2) For test applied to unshielded un-symmetrically operated interconnection lines of EUT: The surge was applied to the lines via the capacitive coupling. The coupling / decoupling networks didn't influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.

(3) For test applied to unshielded symmetrically operated interconnection / telecommunication lines of EUT: The surge was applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestors were not specified. The interconnection line between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.

**6.6.3. TEST SETUP**



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

**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	0 °	Criterion B	Criterion A <sup>1)</sup>	PASS
	+/-	1kV	90 °	Criterion B	Criterion A <sup>1)</sup>	PASS
	+/-	1kV	180 °	Criterion B	Criterion A <sup>1)</sup>	PASS
	+/-	1kV	270 °	Criterion B	Criterion A <sup>1)</sup>	PASS

NOTE: <sup>1)</sup> 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	0 °	Criterion B	Criterion A <sup>1)</sup>	PASS
	+/-	1kV	90 °	Criterion B	Criterion A <sup>1)</sup>	PASS
	+/-	1kV	180 °	Criterion B	Criterion A <sup>1)</sup>	PASS
	+/-	1kV	270 °	Criterion B	Criterion A <sup>1)</sup>	PASS

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

## 6.7. RADIO FREQUENCY CONTINUOUS CONDUCTED (CS)

### 6.7.1. TEST SPECIFICATION

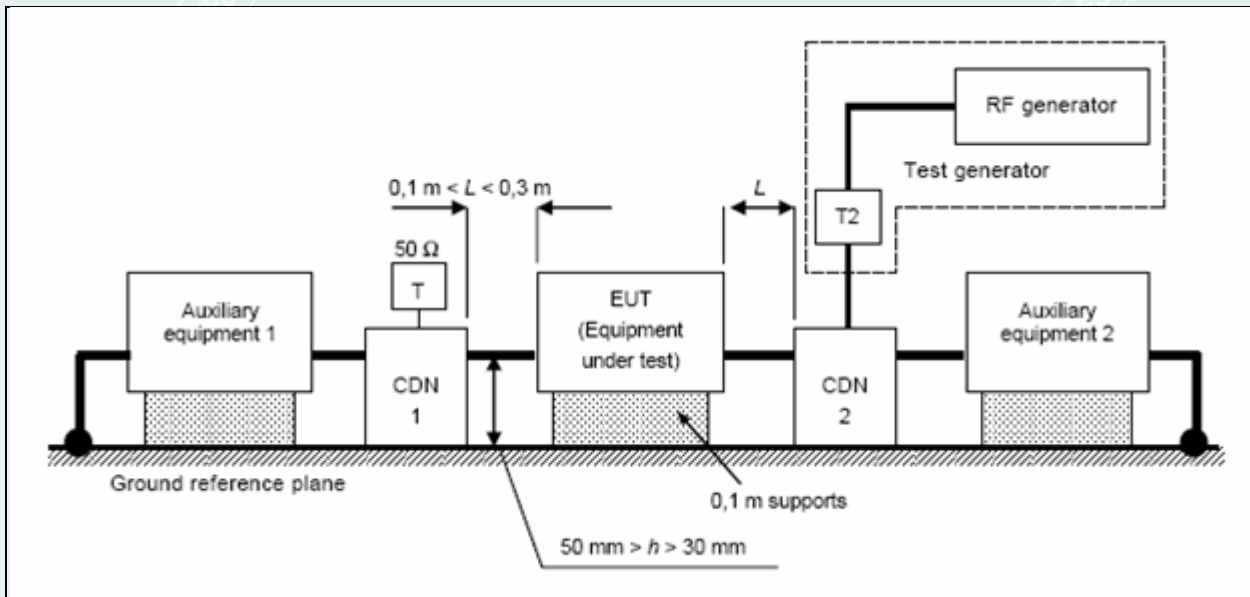
Test Requirement:	ETSI EN 301 489-17 V3.2.4 /7.2.1 ETSI EN 301 489-1 V2.2.3/9.5
Test Method:	EN 61000-4-6:2014
Frequency Range:	0.15 MHz~80 MHz
Field Strength:	3V (r.m.s), 80%, 1kHz
Modulation:	1 kHz, 80% AM
Frequency Step:	1% of the preceding frequency value
Dwell Time:	2s

### 6.7.2. TEST PROCEDURE

- (1) Set up the EUT, CDN and Injection clamp as shown on Section 6.7.3
- (2) Let the EUT work in test mode and measure it.
- (3) 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).
- (4) The disturbance signal described below is injected to EUT through CDN.
- (5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- (6) The frequency range is swept from 150 kHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave.
- (7) The rate of sweep shall not exceed  $1.5 \times 10^{-3}$  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.
- (8) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.



### 6.7.3. TEST SETUP



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

**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 <sup>1)</sup>	Pass

NOTE: <sup>1)</sup>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 <sup>1)</sup>	Pass

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

**6.8. VOLTAGE DIPS & SHORT INTERRUPTIONS**

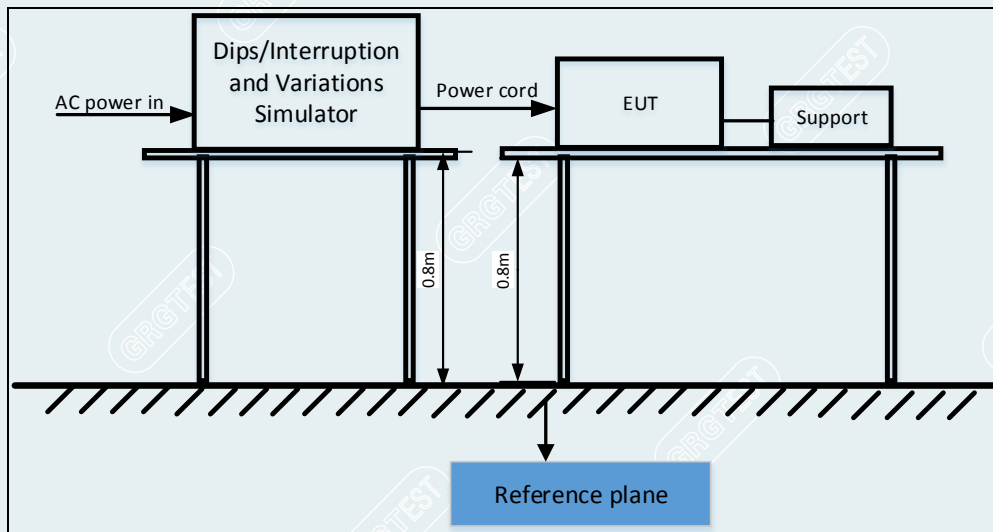
**6.8.1. TEST SPECIFICATION**

Test Requirement:	ETSI EN 301 489-17 V3.2.4 /7.2.1 ETSI EN 301 489-1 V2.2.3/9.7
Test Method:	EN 61000-4-11:2004
Test duration time:	Test specification: 1. Voltage dips: i)0% residual voltage 0.5 cycle. Performance: Criteria B; ii) 0% residual voltage 1 cycle, Performance: Criteria B; iii)70% residual voltage 25 cycle. Performance: Criteria B; 2. Voltage interruption: 0% residual voltage during 250 cycles. Performance: Criteria C;
Interval between event:	10s for each dips at each test angle
Phase Angle:	0 °, 45 °, 90 °, 135 °, 180 °, 225 °, 270 °, 315 °
Test cycle:	3

**6.8.2. TEST PROCEDURE**

- (1) The EUT and test generator were setup as shown on Section
- (2) The interruption is introduced at selected phase angles with specified duration.
- (3) 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

Voltage(% Residual)		Duration (Period)	Angle	Required Performance	Actual performance	Result
Voltage dips	0	0.5	0 °, 45 °, 90 °, 135 °, 180 °, 225 °, 270 °, 315 °	Criterion B	Criterion A <sup>1)</sup>	PASS
	0	10	0 °, 45 °, 90 °, 135 °, 180 °, 225 °, 270 °, 315 °	Criterion B	Criterion A <sup>1)</sup>	PASS
	70	25	0 °, 45 °, 90 °, 135 °, 180 °, 225 °, 270 °, 315 °	Criterion B	Criterion A <sup>1)</sup>	PASS
Voltage interruptions	0	250	0 °, 45 °, 90 °, 135 °, 180 °, 225 °, 270 °, 315 °	Criterion C	Criterion B <sup>2)</sup>	PASS

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

<sup>2)</sup>The EUT can work normally before the test, signal interruption during test and the EUT can be recoverable by operator.

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

**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

Voltage(%Residual)		Duration (Period)	Angle	Required Performance	Actual performance	Result
Voltage dips	0	0.5	0 °, 45 °, 90 °, 135 °, 180 °, 225 °, 270 °, 315 °	Criterion B	Criterion A <sup>1)</sup>	PASS
	0	10	0 °, 45 °, 90 °, 135 °, 180 °, 225 °, 270 °, 315 °	Criterion B	Criterion A <sup>1)</sup>	PASS
	70	25	0 °, 45 °, 90 °, 135 °, 180 °, 225 °, 270 °, 315 °	Criterion B	Criterion A <sup>1)</sup>	PASS
Voltage interruptions	0	250	0 °, 45 °, 90 °, 135 °, 180 °, 225 °, 270 °, 315 °	Criterion C	Criterion B <sup>2)</sup>	PASS

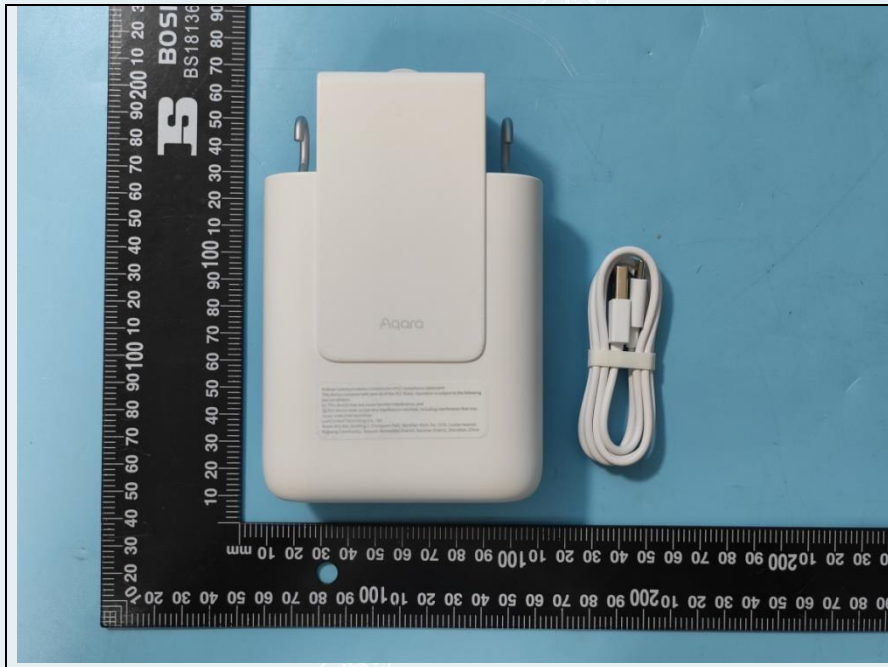
NOTE: <sup>1)</sup> Before test, during the test, and after test, the EUT function is normal, zigbee connection communication is normal.

<sup>2)</sup> The EUT can work normally before the test, signal interruption during test and the EUT can be recoverable by operator.

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

## APPENDIX A. PHOTOGRAPHS OF EUT

### External Photos of EUT



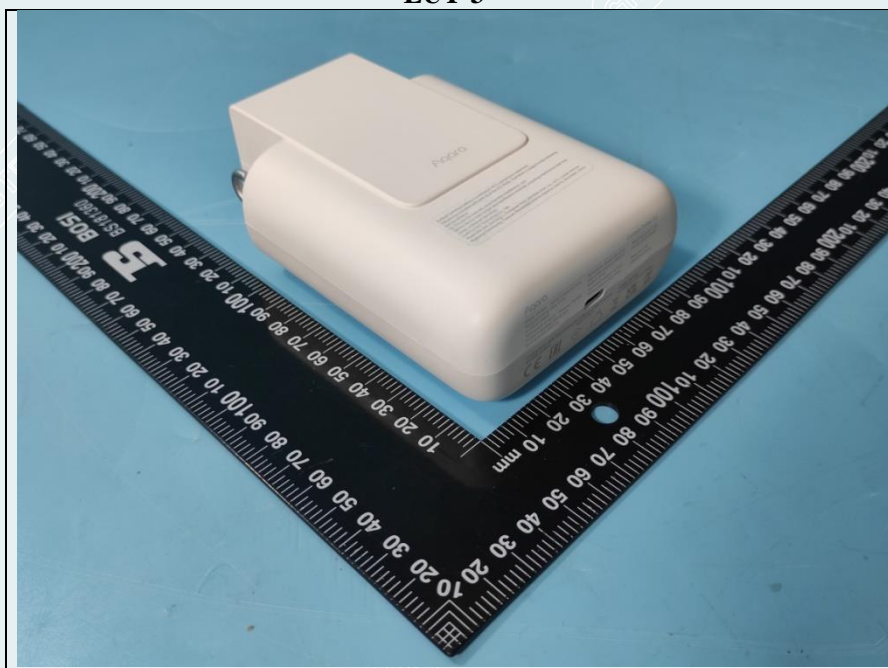
EUT-1



EUT-2

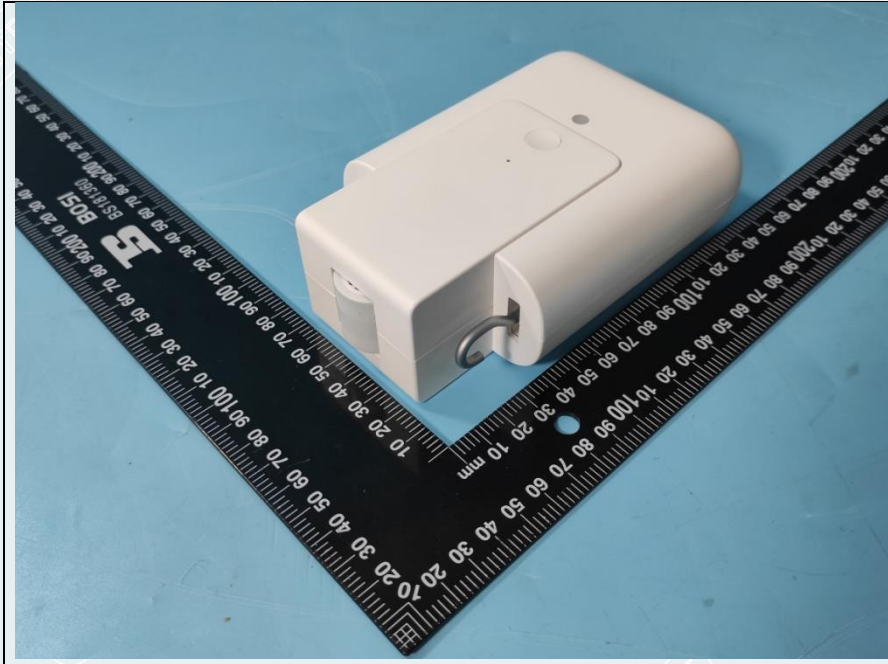


**EUT-3**



**EUT-4**

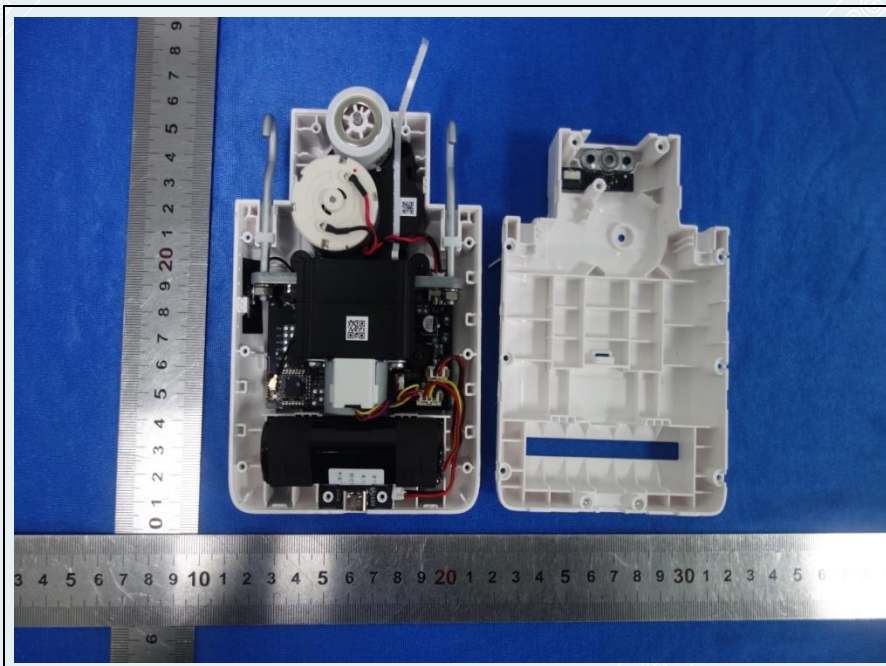




**EUT-5**

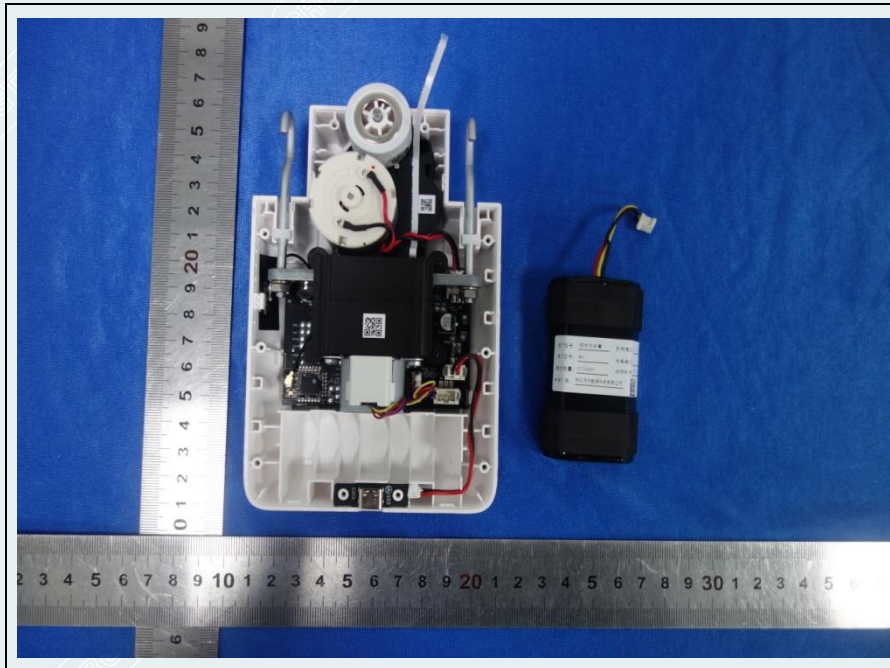
**Internal Photos of EUT**

**Motor 1:**



**EUT-1**

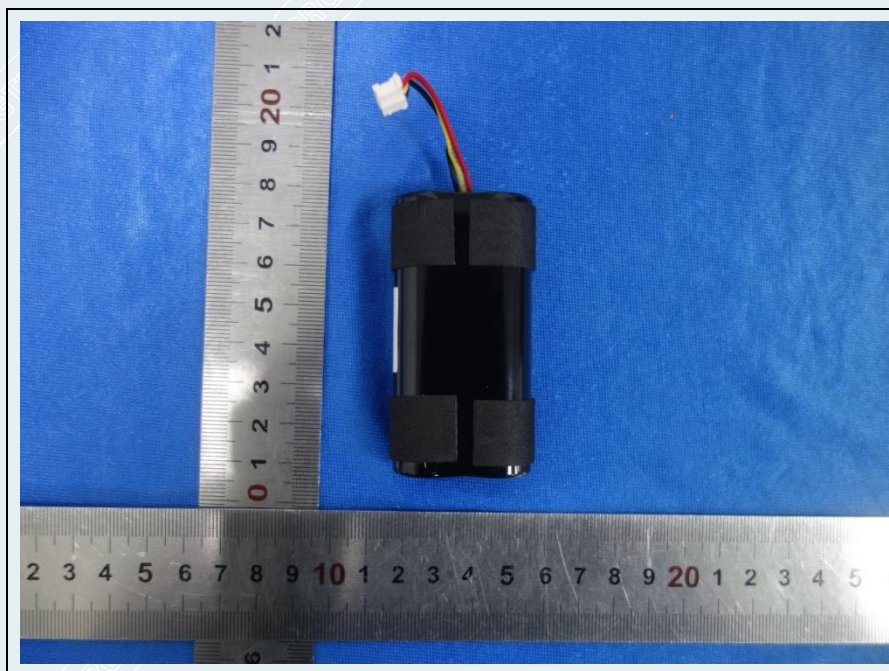




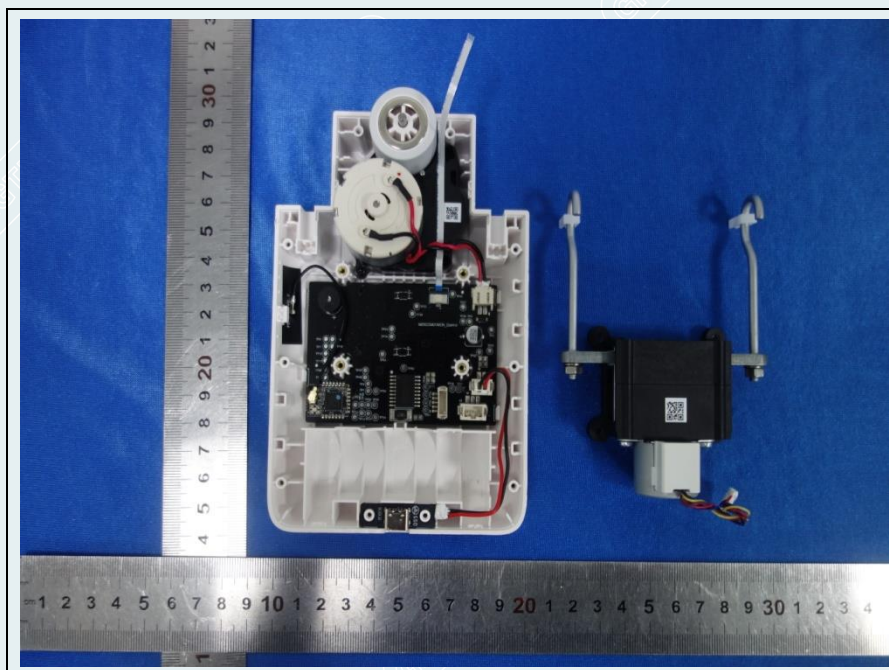
EUT-2



EUT-3

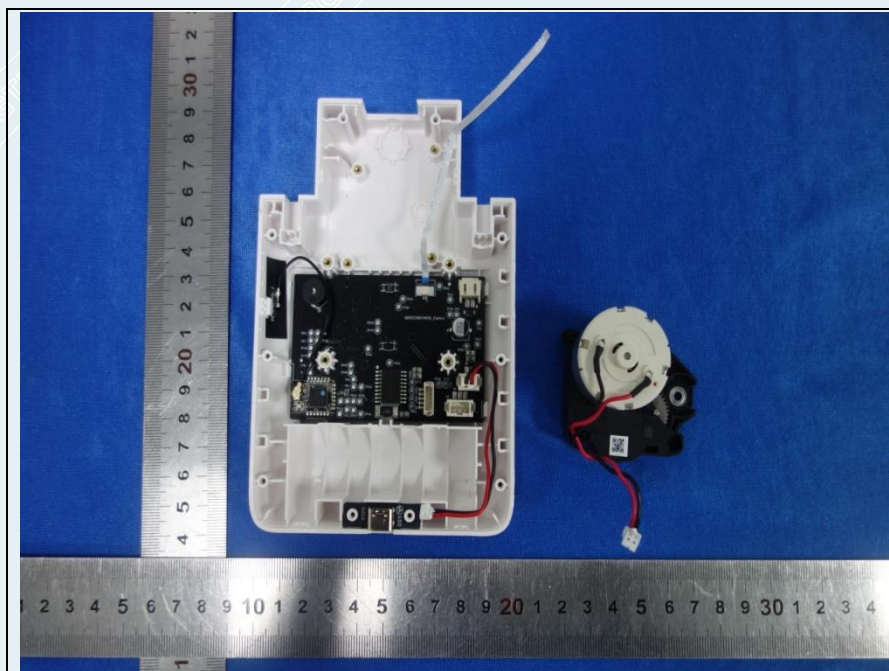


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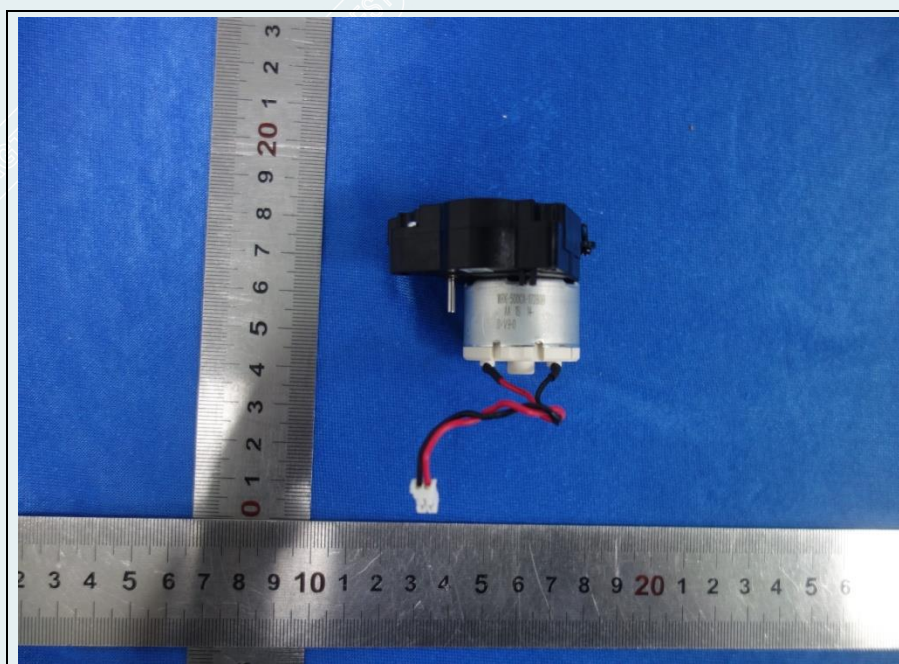


**EUT-5**

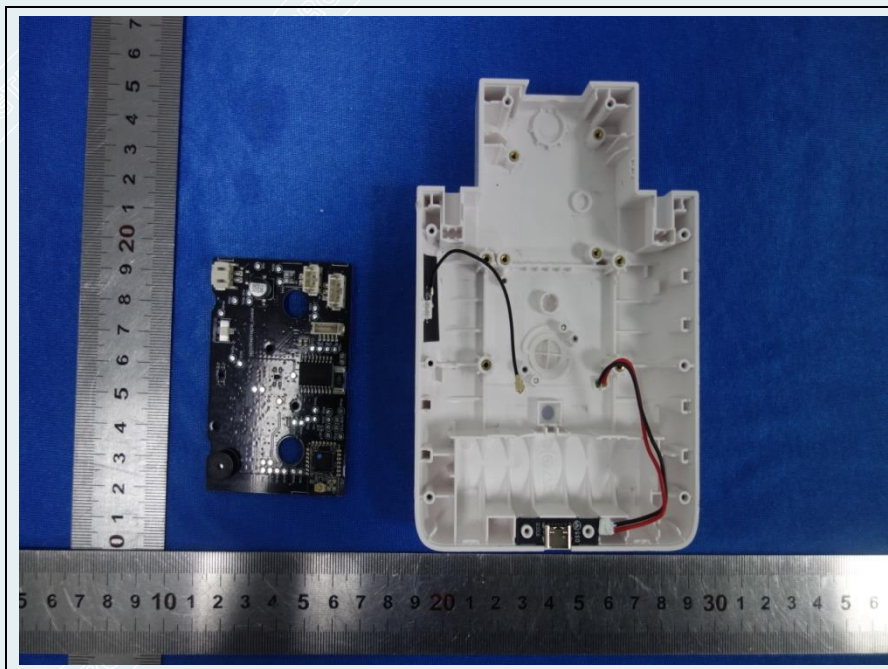




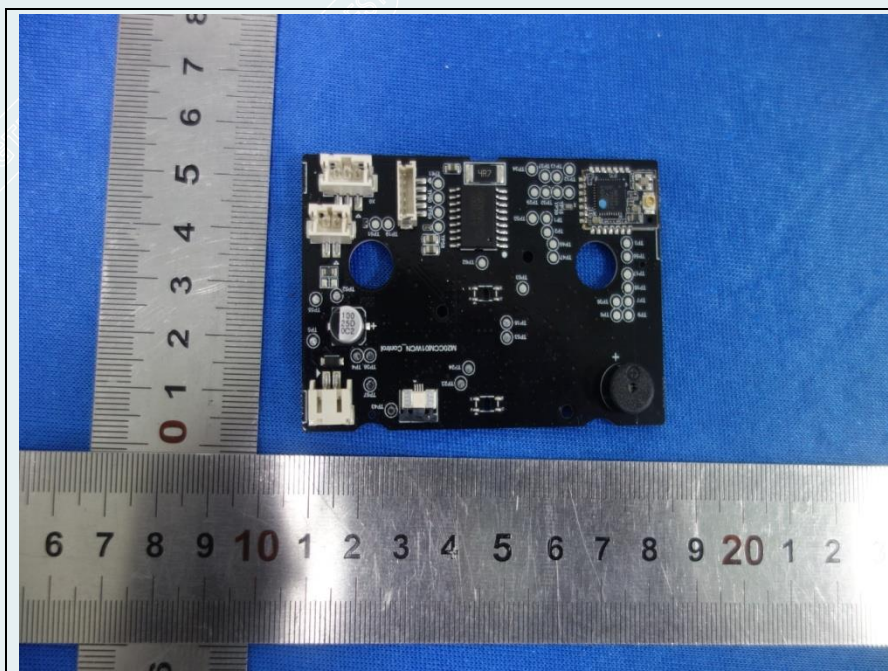
**EUT-6**



**EUT-7**

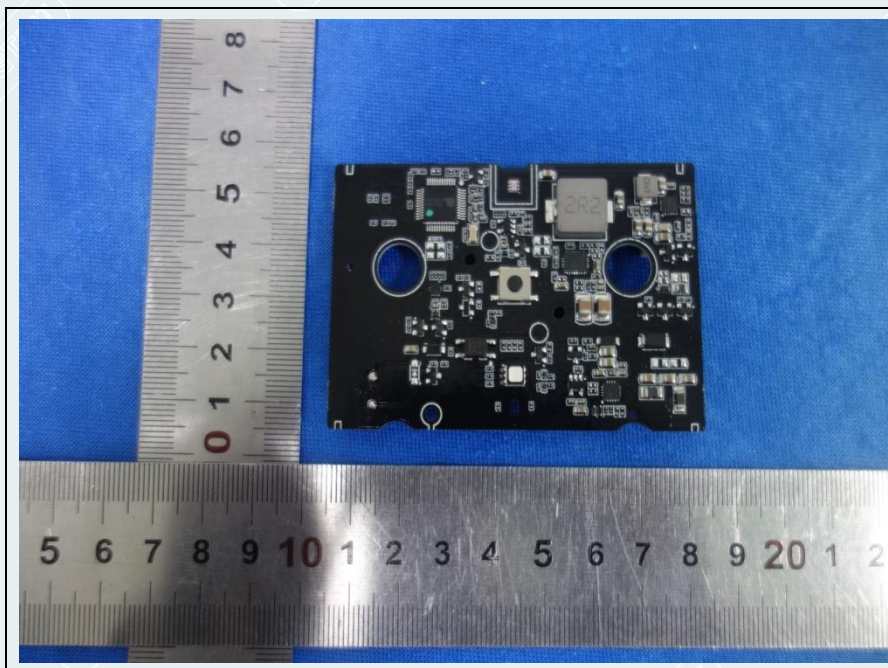


**EUT-8**

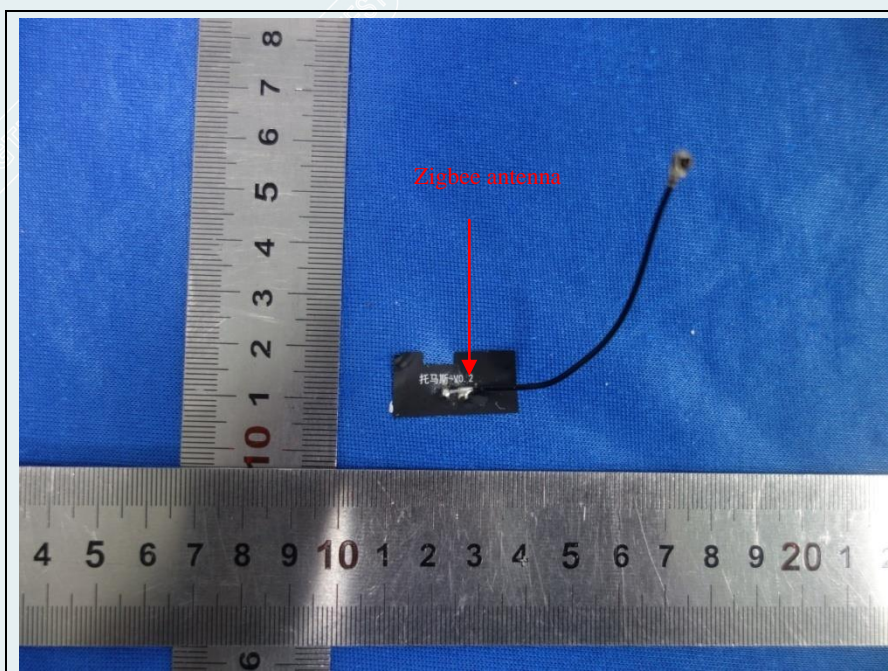


**EUT-9**



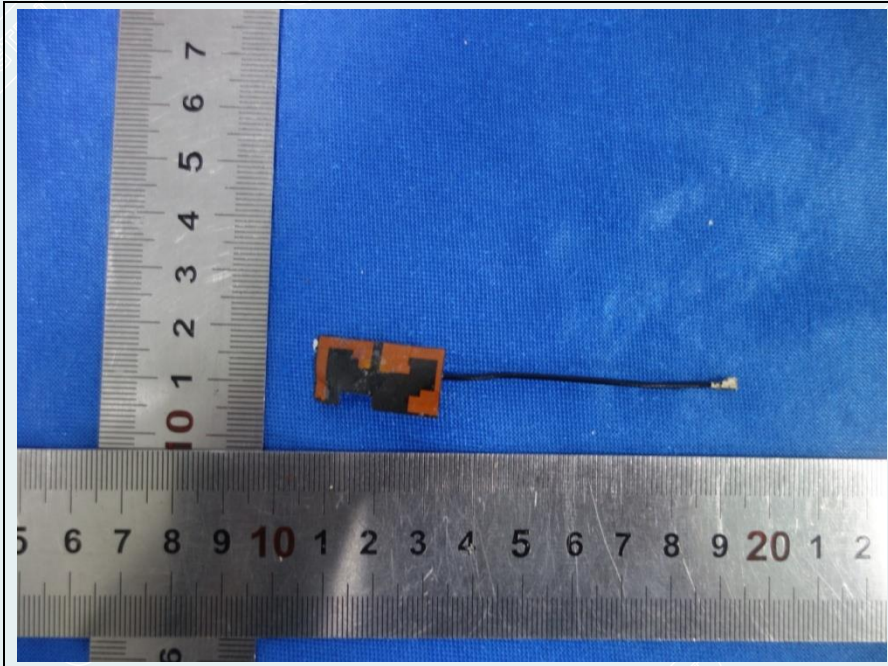


EUT-10

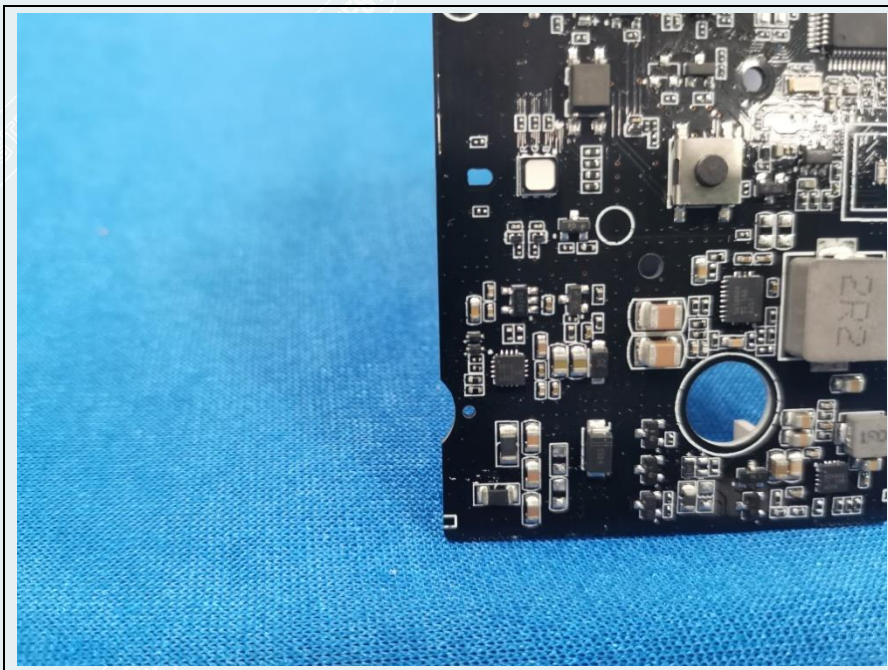


EUT-11

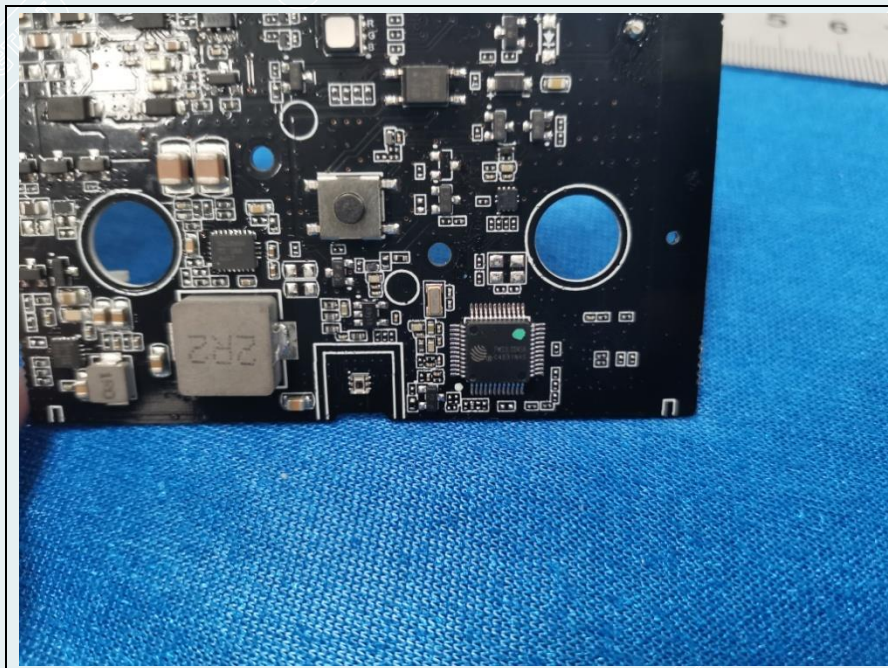




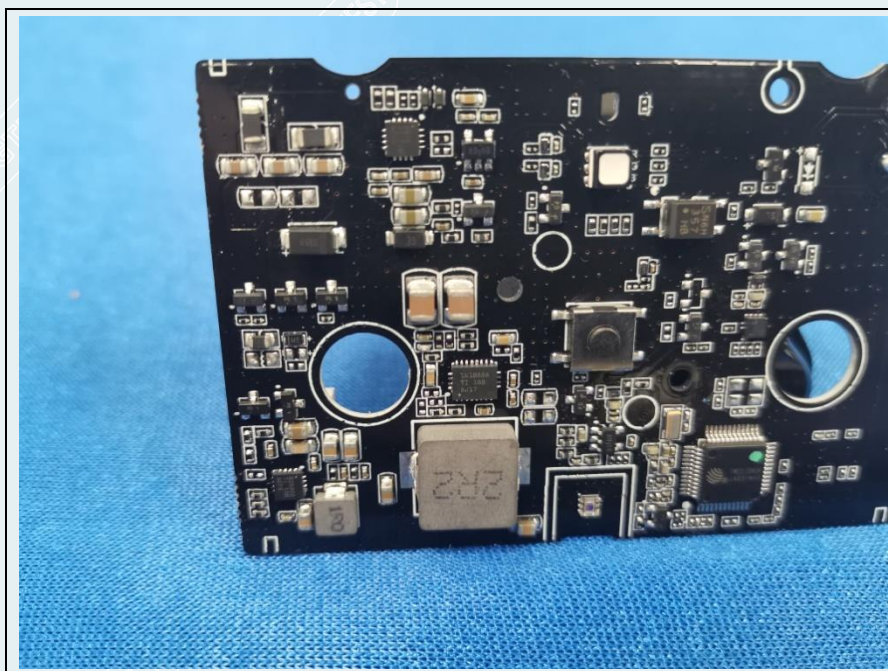
**EUT-12**



**EUT-13**

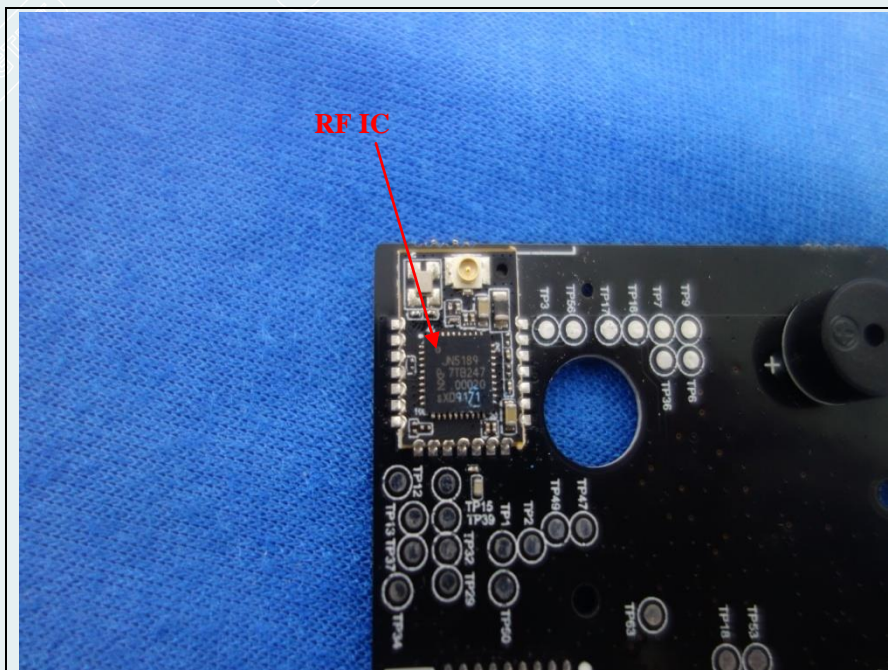


**EUT-14**

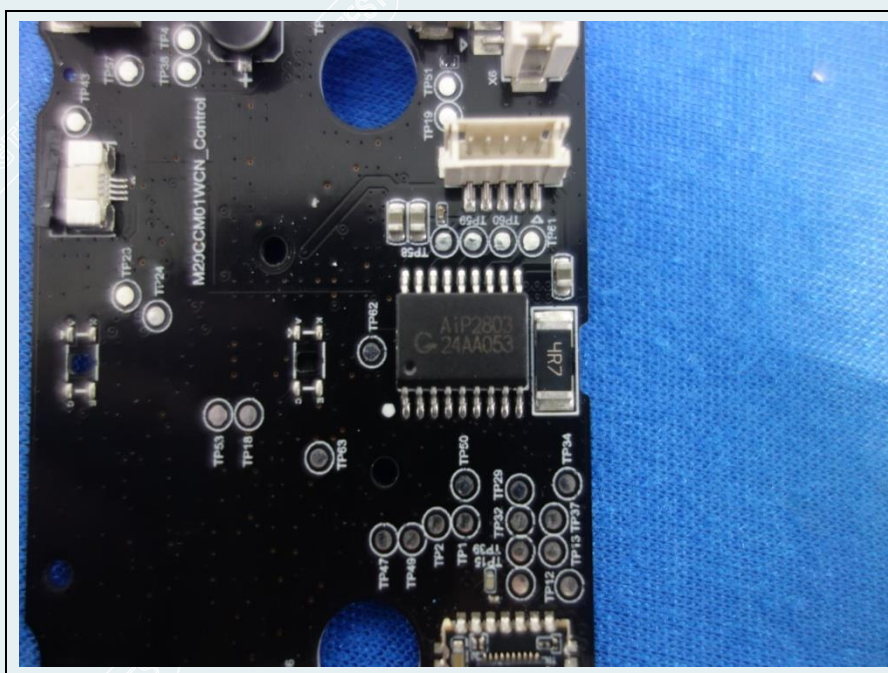


**EUT-15**





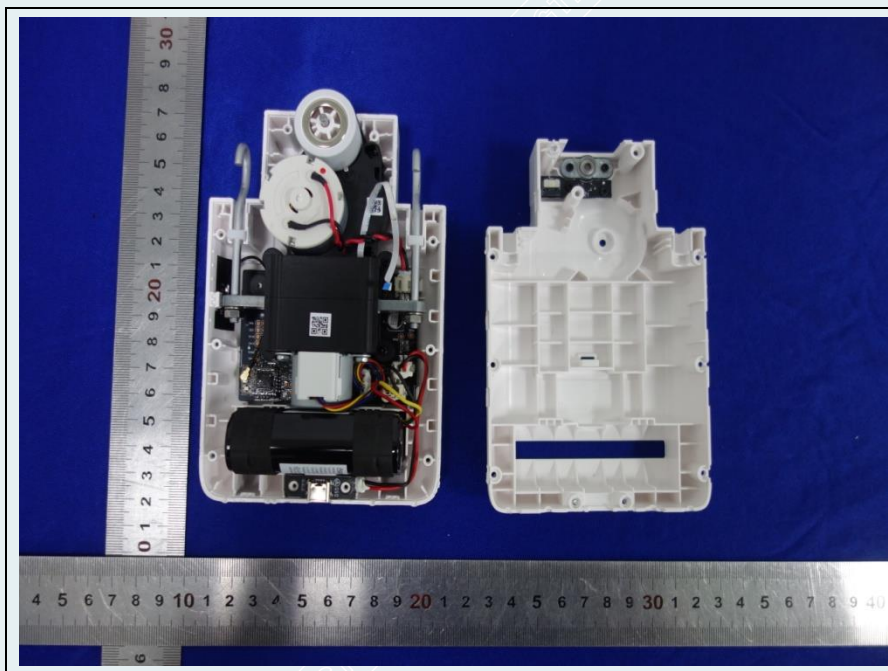
EUT-16



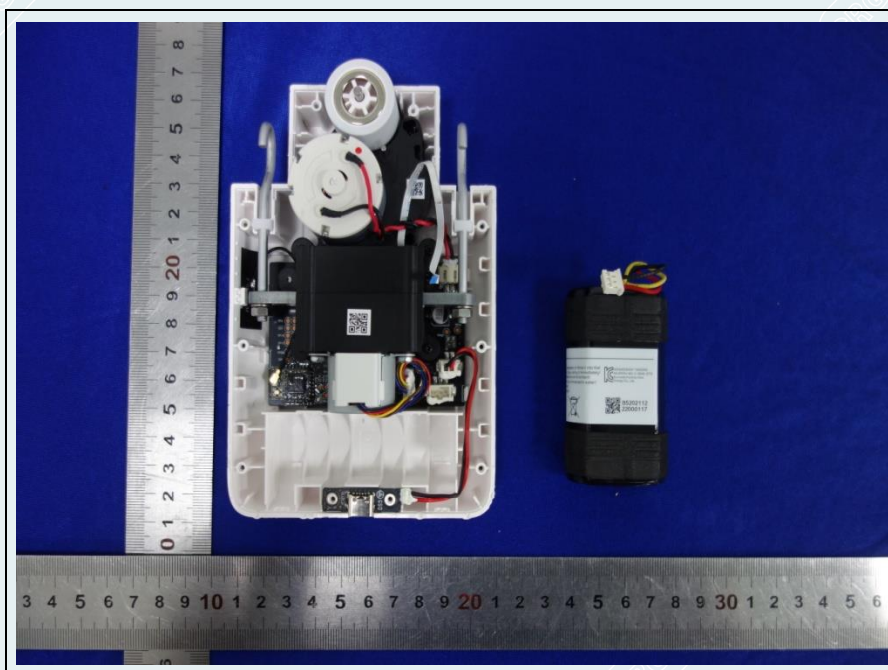
EUT-17

**Internal Photos of EUT**

**Motor 2:**



**EUT-18**

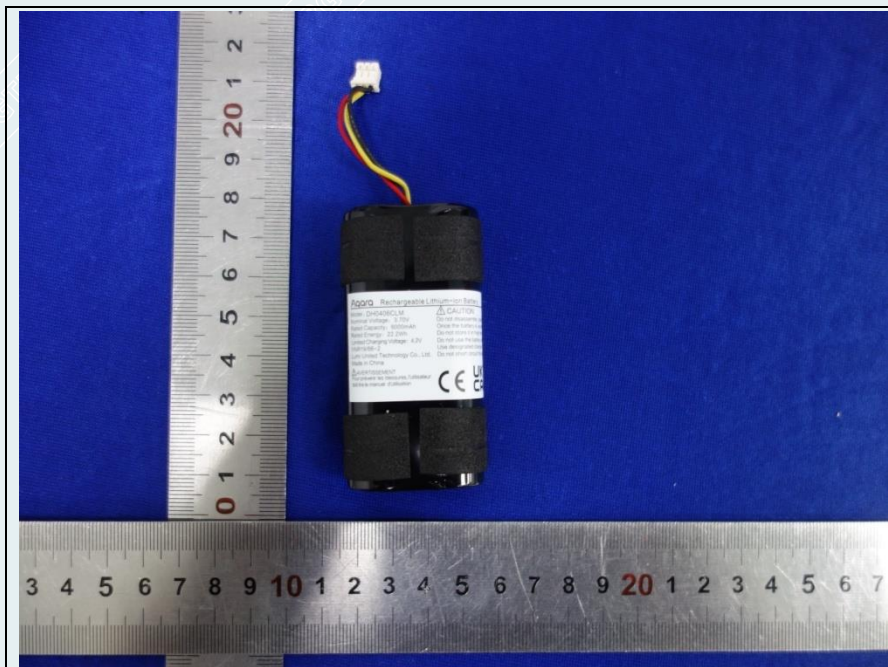


**EUT-19**



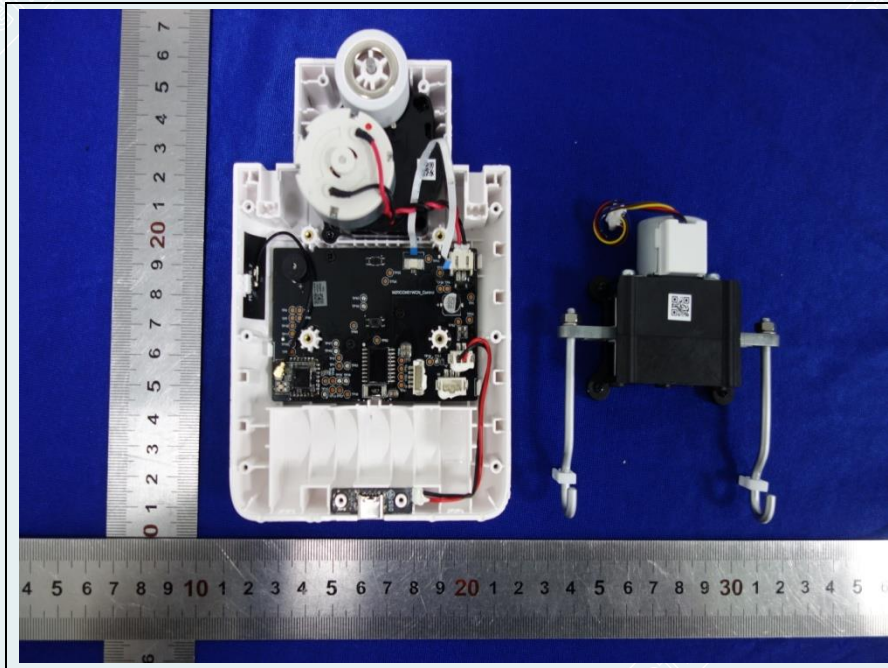


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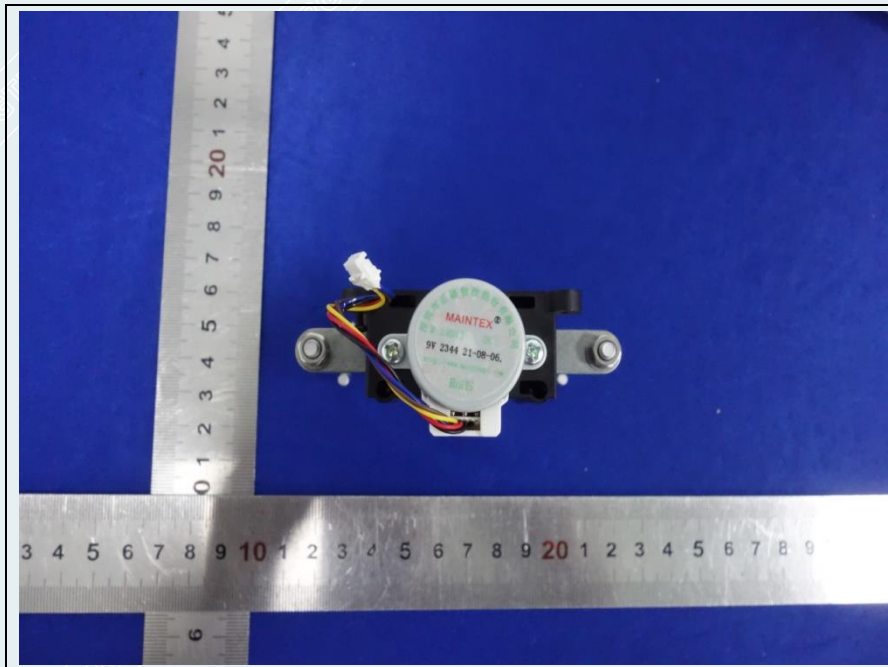


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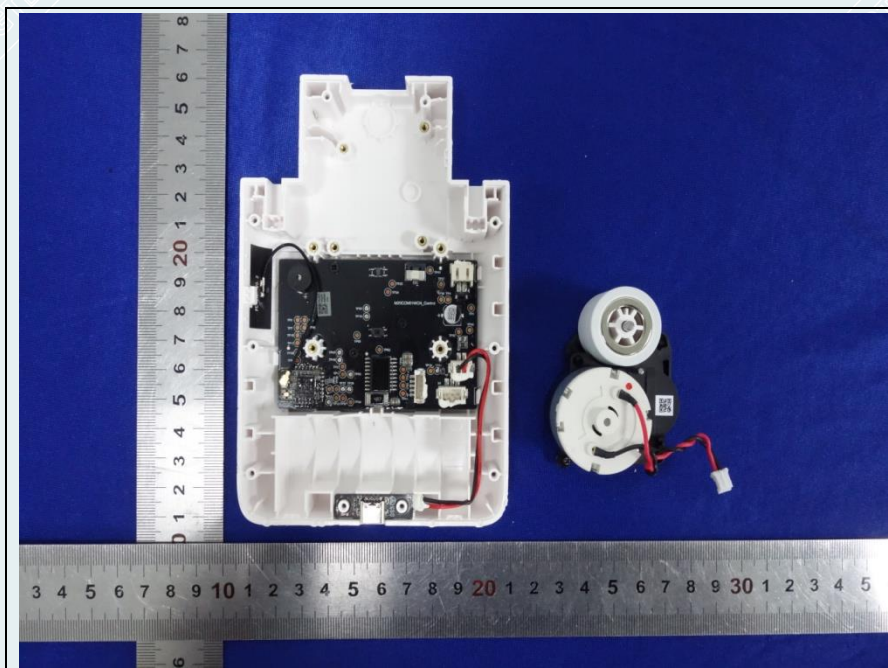




EUT-22



EUT-23

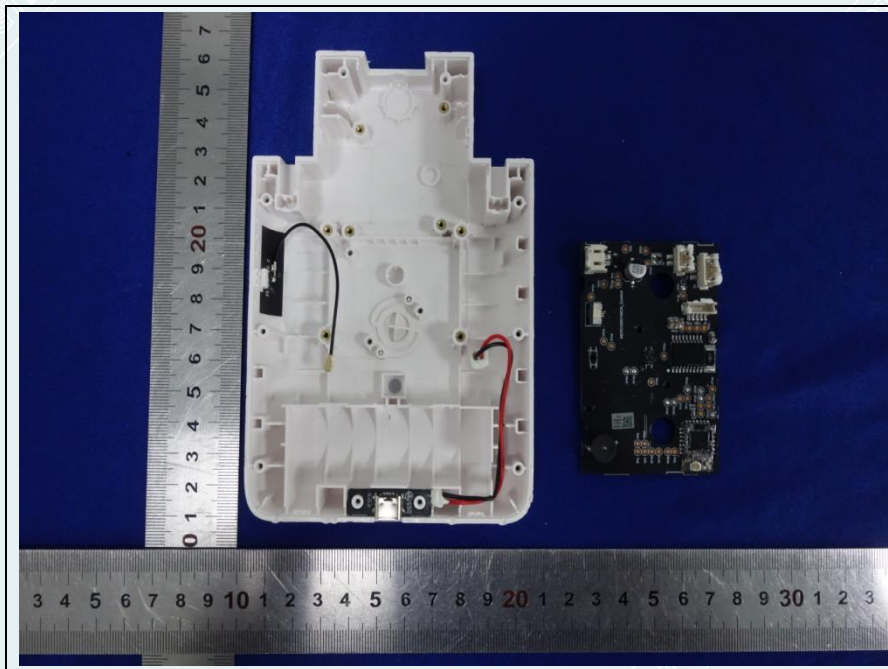


EUT-24

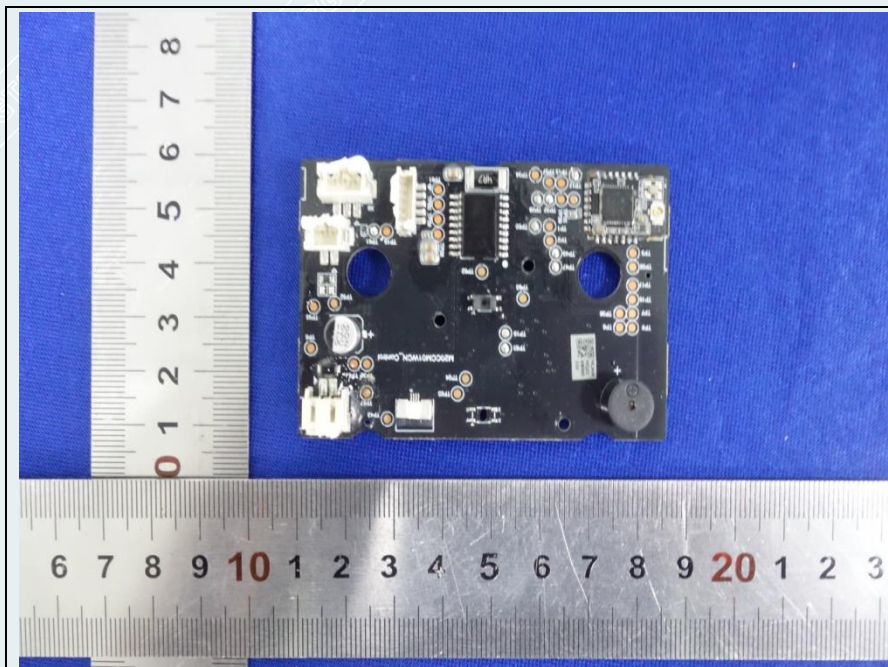


EUT-25

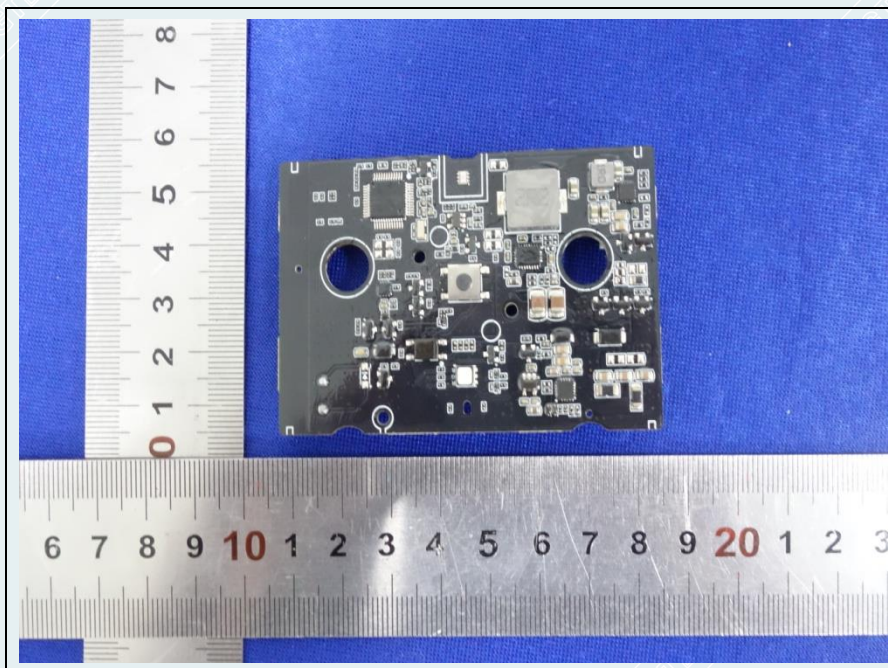




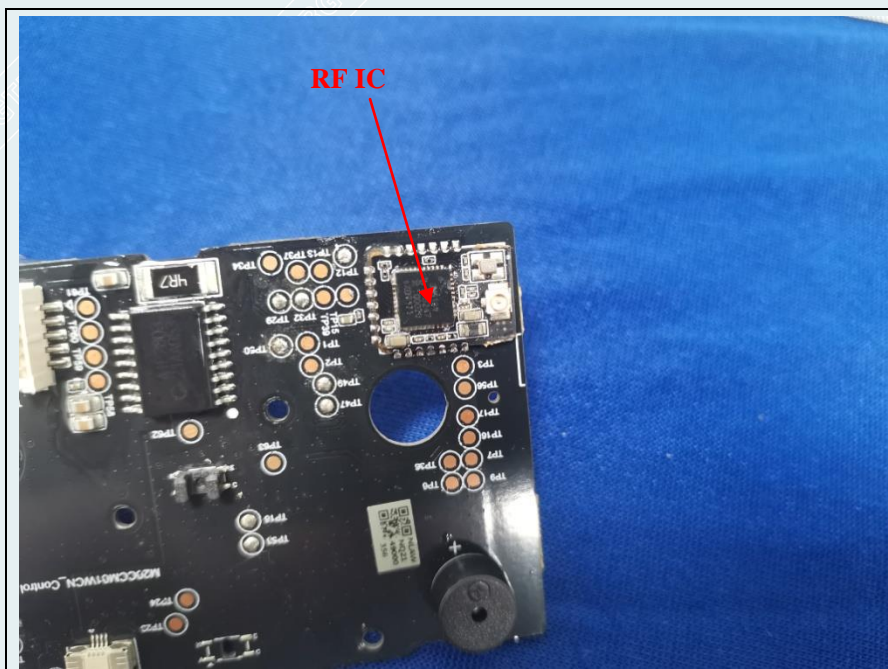
EUT-26



EUT-27

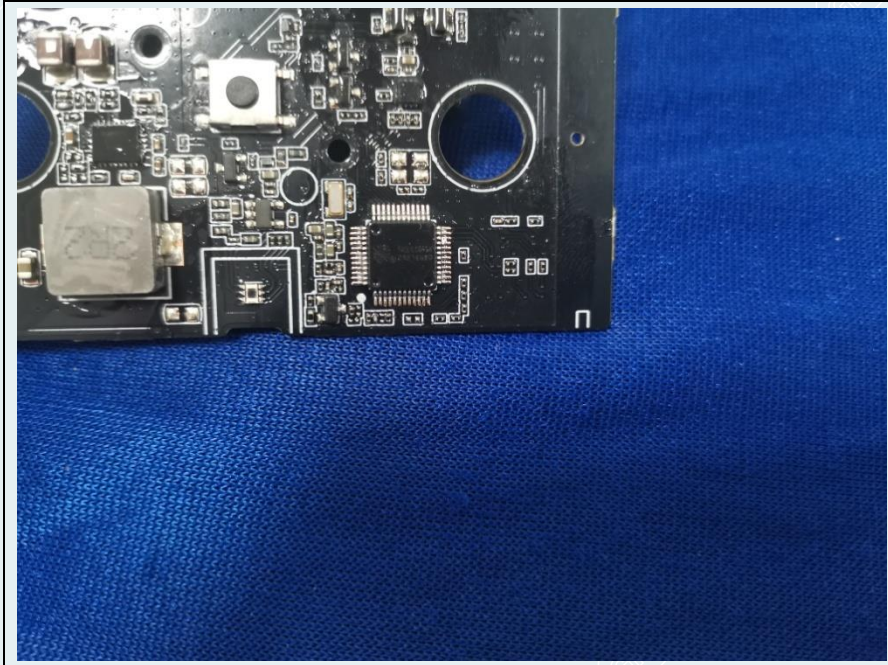


EUT-28

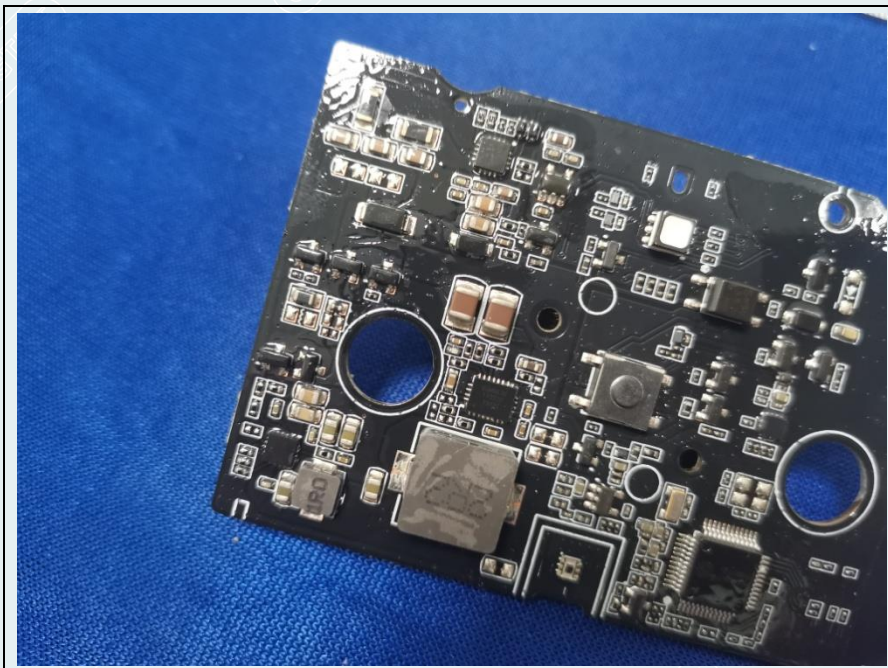


EUT-29

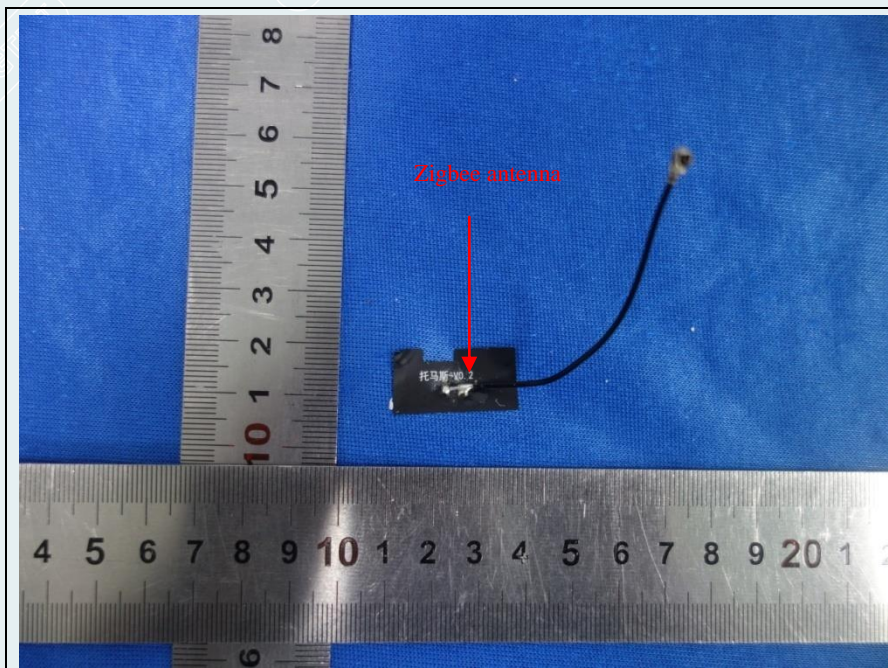




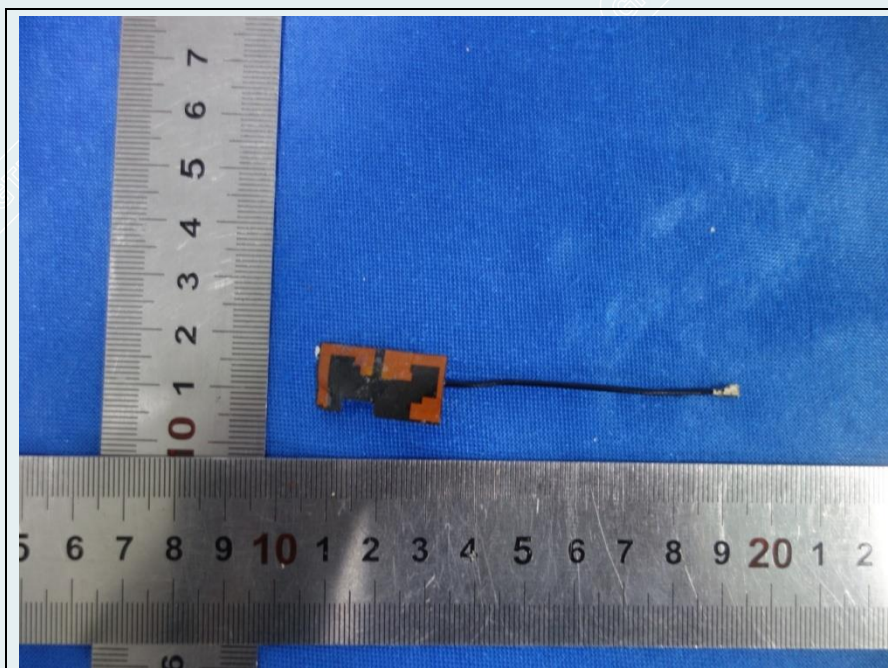
**EUT-30**



**EUT-31**



EUT-32



EUT-33

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