

# Test Report

Verified code: 795653

Report No.: E20211216778201-2

Customer: Lumi United Technology Co., Ltd.

Address: 8th Floor, JinQi Wisdom Valley, No.1 Tangling Road, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen, China

Sample Name: Roller Shade Driver E1

Sample Model: RSD-M01

Receive Sample Date: Dec.17,2021

Test Date: Dec.18,2021 ~ Dec.21,2021

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 forBroadband 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)ElectroMagnetic Compatibility (EMC)standard for radio equipment and services;Part 1: Common technical requirements;Harmonised Standard for ElectroMagnetic Compatibility EN55032:2015/A11:2020 Electromagnetic compatibility of multimedia equipment – Emission Requirements EN 55035:2017Electromagnetic compatibility of multimedia equipment - Immunity requirements 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: *Wen Wenwen*

Reviewed by: *Jiang Tao*

Approved by: *Xiao Liang*

GUANGZHOU GRG METROLOGY & TEST CO., LTD

Issued Date: 2022-02-11

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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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**REVISION HISTORY**

Rev.	Report No.	Revisions	Effect Page	Revised By
00	E20210316495901-2-G2	Initial Issue	ALL	Yu Shanshan
01	E20211216778201-2	Update	See below	Yu Shanshan

**Rev.01:**

1. This report replaces the original report E20210316495901-2-G2(issue date: 2021-06-11), which is invalid immediately after this report issued.
2. The EUT were added two IC, the information as below table, after reassessment,all items are re-test.

Original component model	Manufacturer / Producer	Corresponding PCB tag number	Add reporting component model	Manufacturer / Producer	Corresponding PCB tag number
Drive IC (DRV8833)	Dezhou instrument semiconductor technology (Shanghai) Co., Ltd	U1	Drive IC (AT8833)	Hangzhou Zhongke Microelectronics Co., Ltd	U1
Voltage stabilizing IC (SGM2203)	Shengbang Microelectronics (Beijing) Co., Ltd	U3	Voltage stabilizing IC (CW7533)	China Resources Microelectronics Limited	U3

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## Table of Contents

1.	TEST RESULT SUMMARY.....	6
2.	GENERAL DESCRIPTION OF EUT.....	9
2.1.	APPLICANT.....	9
2.2.	MANUFACTURER.....	9
2.3.	FACTORY.....	9
2.4.	BASIC DESCRIPTION OF EQUIPMENT UNDER TEST.....	9
2.5.	TEST MODE.....	10
2.6.	LOCAL SUPPORTIVE INSTRUMENTS.....	10
2.7.	CONFIGURATION OF SYSTEM UNDER TEST.....	11
3.	LABORATORY AND ACCREDITATIONS.....	13
3.1.	LABORATORY.....	13
3.2.	ACCREDITATIONS.....	13
3.3.	MEASUREMENT UNCERTAINTY.....	14
4.	LIST OF USED TEST EQUIPMENT AT GRGT.....	15
4.1.	LIST OF USED TEST EQUIPMENT.....	15
5.	EMISSION TEST.....	19
5.1.	RADIATED EMISSION MEASUREMENT (RE).....	19
5.1.1.	LIMITS.....	19
5.1.2.	TEST PROCEDURE.....	20
5.1.3.	TEST SETUP.....	21
5.1.4.	DATA SAMPLE.....	22
5.1.5.	PHOTOGRAPH OF THE TEST ARRANGEMENT.....	23
5.1.6.	TEST RESULTS.....	27
5.2.	CONDUCTED EMISSION MEASUREMENT (CE).....	52
5.2.1.	LIMITS.....	52
5.2.2.	TEST PROCEDURES.....	52
5.2.3.	TEST SETUP.....	53
5.2.4.	DATE SAMPLE.....	53
5.2.5.	PHOTOGRAPH OF THE TEST ARRANGEMENT.....	54
5.2.6.	TEST RESULTS.....	56
5.3.	VOLTAGE FLUCTUATIONS AND FLICKER.....	64
5.3.1.	LIMITS.....	64
5.3.2.	TEST PROCEDURES.....	64
5.3.3.	TEST SETUP.....	64
5.3.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT.....	65
5.3.5.	TEST RESULTS.....	66
6.	IMMUNITY TEST.....	70
6.1.	GENERAL DESCRIPTION.....	70
6.2.	GENERAL PERFORMANCE CRITERIA DESCRIPTION (ETSI EN 301 489-1/17).....	71
6.2.1.	GENERAL PERFORMANCE CRITERIA.....	71
6.2.2.	MINIMUM PERFORMANCE LEVEL.....	73
6.2.3.	PERFORMANCE CRITERIA FOR CONTINUOUS PHENOMENA.....	74

6.2.4.	PERFORMANCE CRITERIA FOR TRANSIENT PHENOMENA .....	74
6.3.	ELECTROSTATIC DISCHARGE(ESD) .....	75
6.3.1.	TEST SPECIFICATION .....	75
6.3.2.	TEST PROCEDURE.....	75
6.3.3.	TEST SETUP .....	76
6.3.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT .....	77
6.3.5.	TEST RESULTS .....	79
6.4.	RADIATED RADIO-FREQUENCY ELECTROMAGNETIC FIELD (RS) .....	83
6.4.1.	TEST SPECIFICATION .....	83
6.4.2.	TEST PROCEDURE.....	83
6.4.3.	TEST SETUP .....	84
6.4.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT .....	85
6.4.5.	TEST RESULTS .....	89
6.5.	ELECTRICAL FAST TRANSIENTS (EFT).....	95
6.5.1.	TEST SPECIFICATION .....	95
6.5.2.	TEST PROCEDURE.....	95
6.5.3.	TEST SETUP .....	96
6.5.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT .....	97
6.5.5.	TEST RESULTS .....	98
6.6.	SURGES.....	100
6.6.1.	TEST SPECIFICATION .....	100
6.6.2.	TEST PROCEDURE.....	100
6.6.3.	TEST SETUP .....	101
6.6.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT .....	102
6.6.5.	TEST RESULTS .....	103
6.7.	RADIO FREQUENCY CONTINUOUS CONDUCTED (CS) .....	105
6.7.1.	TEST SPECIFICATION .....	105
6.7.2.	TEST PROCEDURE.....	105
6.7.3.	TEST SETUP .....	106
6.7.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT .....	107
6.7.5.	TEST RESULTS .....	108
6.8.	VOLTAGE DIPS & SHORT INTERRUPTIONS .....	110
6.8.1.	TEST SPECIFICATION .....	110
6.8.2.	TEST PROCEDURE.....	110
6.8.3.	TEST SETUP .....	110
6.8.4.	PHOTOGRAPH OF THE TEST ARRANGEMENT .....	111
6.8.5.	TEST RESULTS .....	112
	APPENDIX A. PHOTOGRAPHS OF EUT .....	116

**1. TEST RESULT SUMMARY****Emissions  
Rev.00**

Test Item	Test mode	Equipment test requirement	Test Method	Class / Severity	Test Result
<b>Performance Standard: 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

**Rev.01**

Test Item	Test mode	Equipment test requirement	Test Method	Class / Severity	Test Result
<b>Performance Standard: ETSI EN 301 489-17 V3.2.4 (2020-09))&amp;ETSI EN 301 489-1 V2.2.3 (2019-11)&amp;EN 55032:2015/A11:2020</b>					
Conducted Emission	Mode 1, 2	ETSI EN 301 489-17/7.1.1 ETSI EN 301 489-1/8.4	EN 55032:2015/A11:2020annex 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/A11:2020annex A.3	/	Note <sup>1)</sup>
Radiated Emission	Mode 1, 2	ETSI EN 301 489-17/7.1.1 ETSI EN 301 489-1/8.2	EN 55032:2015/A11:2020Table 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	Class A	Note <sup>2)</sup>
Voltage fluctuations and flicker	Mode 1, 2	ETSI EN 301 489-17/7.1.1 ETSI EN 301 489-1/8.6	EN 61000-3-3:2013/A1:2019	/	PASS

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**Immunity  
Rev.00**

Test Item	Test mode	Equipment test requirement	Test Method	Class / Severity	Test Result
<b>Performance Standard: 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: ±8kV air discharge ±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(400Hz) 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 Performance: Criteria B	PASS
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: ±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	PASS

				cycle. Performance: Criteria B; 2. Voltage interruption: 0% residual voltage during 250 cycles. Performance: Criteria C;	
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**Rev.01**

Test Item	Test mode	Equipment test requirement	Test Method	Class / Severity	Test Result
<b>Performance Standard: ETSI EN 301 489-17 V3.2.4 (2020-09)&amp;ETSI EN 301 489-1 V2.2.3 (2019-11)&amp;EN 55035:2017</b>					
Electrostatic discharge (ESD)	Mode 1,2,3	ETSI EN 301 489-17/7.2.1 ETSI EN 301 489-1/9.3	EN 61000-4-2:2009	Test specification: ±8kV air discharge ±4kV Contact discharge Performance : Criteria B	PASS
RF electromagnetic field (RS)	Mode 1,2,3	ETSI EN 301 489-17/7.2.1 ETSI EN 301 489-1/9.2	EN61000-4-3:2006+A 1: 2008+A2:2010	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)	Mode 1,2	ETSI EN 301 489-17/7.2.1 ETSI EN 301 489-1/9.4 EN 55035:2017 Table 4	EN 61000-4-4:2012	Test specification: AC power port: ±1kV, repetition rate: 5 kHz Performance: Criteria B	PASS
Surges	Mode 1,2	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: ±1 kV; Performance : Criteria B	PASS
Radio frequency continuous conducted(CS)	Mode 1,2	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 0.15~80MHz,3Vrms, 80% AM, 1kHz Performance: Criteria A	PASS
Voltage Dips & Short Interruptions	Mode 1,2	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: 8th Floor, JinQi Wisdom Valley, No.1 Tangling Road, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen, China

### 2.2. MANUFACTURER

Name: Lumi United Technology Co., Ltd.  
Address: 8th Floor, JinQi Wisdom Valley, No.1 Tangling Road, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen, China

### 2.3. FACTORY

Name: Guangdong A-OK Technology Grand Development Co.,Ltd.  
Address: Hexing Road South Side, Sanhe Economic Development Zone, Huiyang,516213Huizhou, Guangdong, PEOPLE'S REPUBLIC OF CHINA.

### 2.4. BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Product Name: Roller Shade Driver E1  
Product Model: RSD-M01  
Adding Model: /  
Trade Name: Aqara  
Power Supply: 5V  $\overline{\text{---}}$  1A power from USB cable or DC 7.4V power from battery  
Battery specification: GLIDA-INP523450-2S1P 7.4V/1000mAh(7.4Wh) , 2INP6/34/50  
Frequency Band: Zigbee:  
2405MHz-2480MHz  
Modulation Type: Zigbee: O-QPSK  
Antenna Type: FPC antenna  
Hardware Version: KC131-01 V1.1  
Software Version: 210115c V1.3  
Sample submitting way:  Provided by customer  Sampling  
Sample No: E20210316495901-0001 for Rev.00  
E20211216778201-0001; E20211216778201-0002 for Rev.01  
Note: /

**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****Rev.00**

Name of Equipment	Manufacturer	Model	Serial Number	Note
Gateway	Lumi United Technology Co., Ltd.	M1S	/	/
AC adapter	Apple	A1443	/	/
<b>Cable</b>				
/	/	/	/	/

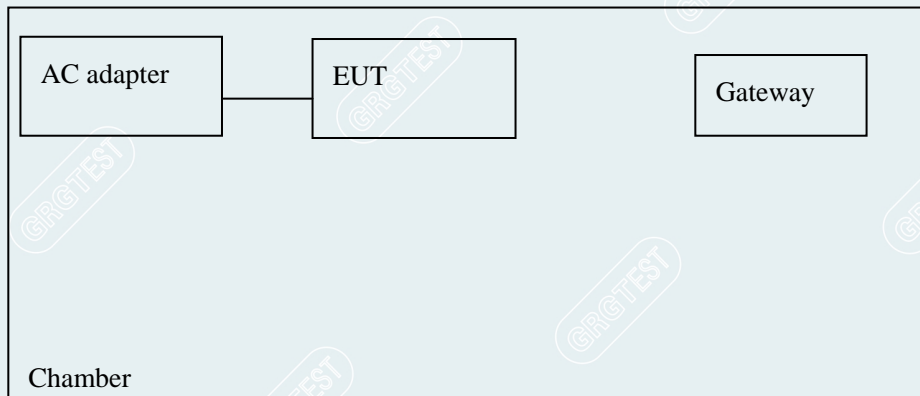
**Rev.01**

Name of Equipment	Manufacturer	Model	Serial Number	Note
Gateway	Lumi United Technology Co., Ltd.	E1	/	/
Mobile Phone	VIVO	VIVO Y79	/	/
TP-LINK Router	TP-LINK	TL-WDR6500	/	/
AC adapter 1	Jiangxi Aohai technology Co.,Ltd.	A70-050200U-E U1	/	/
AC adapter 2	Dongguan Aohai power technology Co.,Ltd.	QC18-US	/	/
<b>Cable</b>				
DC cable	/	/	/	Unshielded 2m (AC adapter 1 to EUT)

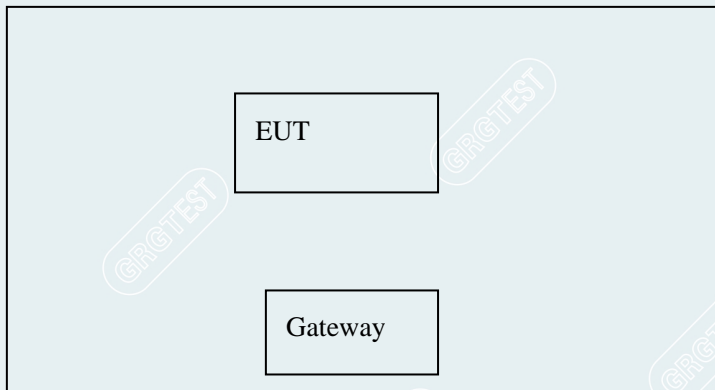
### 2.7. CONFIGURATION OF SYSTEM UNDER TEST

Rev.01

Mode 1, Mode 2

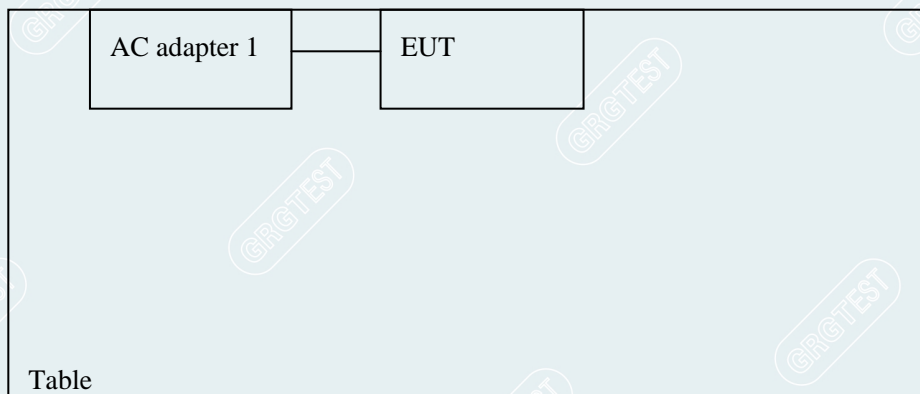


Mode 3

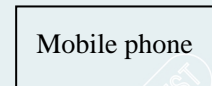
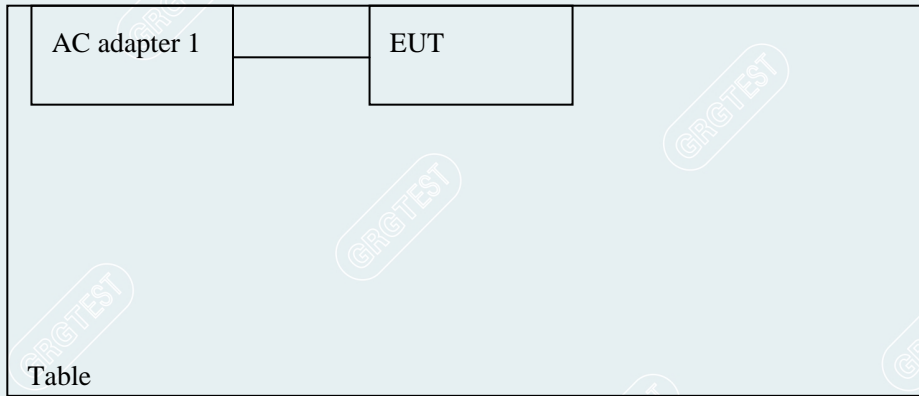


Rev.01

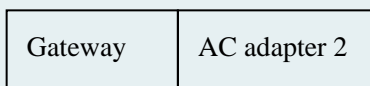
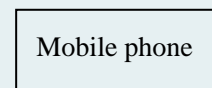
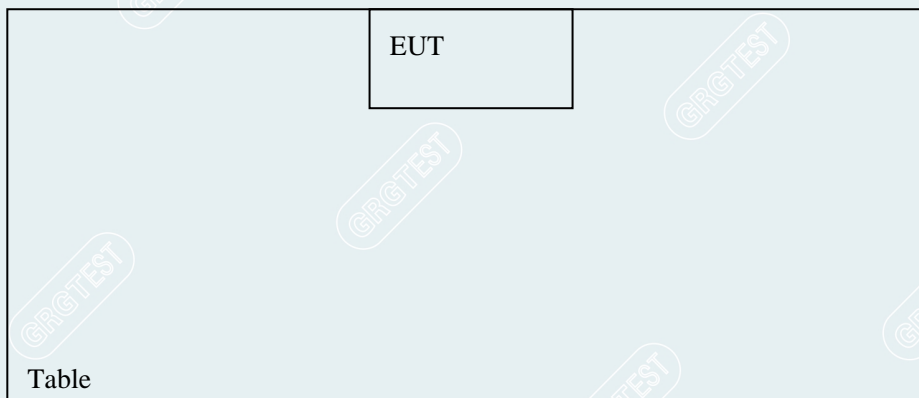
Mode 1



Mode 2



Mode 3



### 3. LABORATORY AND ACCREDITATIONS

#### 3.1. LABORATORY

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

Add.: No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District  
Shenzhen, 518110, People's Republic of China.  
P.C.: 518000  
Tel : 0755-61180008  
Fax: 0755-61180008

#### 3.2. ACCREDITATIONS

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

**USA** A2LA(Certificate#:2861.01)

**China** CNAS(L0446)

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

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

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

Copies of granted accreditation certificates are available for downloading from our web site,

<http://www.grgtest.com>

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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	9 KHz ~ 150 KHz	2.2 dB <sup>1)</sup>
	150 KHz ~ 30 MHz	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  $k=2$ .

<sup>2)</sup>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

Rev.00

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	2021-10-08
LISN(EUT)	R&S	ENV216	101543	2022-02-25
<b>Radiated Emission (Below 1GHz)</b>				
Test S/W	EZ	CCS-2ANT	/	/
Test Receiver	R&S	ESCI	100145	2021-10-07
Preamplifier	EMEC	EM330	/	2022-03-21
Bi-log Antenna	TESEQ	CBL6143A	26039	2021-11-25
<b>Radiated Emission (Above 1GHz)</b>				
Test software	Tonscend	JS32-RE	/	/
Spectrum Analyzer	Agilent	N9010A	MY52221469	2022-04-16
Preamplifiers	Tonscend	TAP01018048	AP20E8060075	2021-06-28
Horn antenna	Schwarzbeck	BBHA 9120D	02143	2021-12-17
<b>Voltage Fluctuation and Flicks</b>				
Test S/W	/	CTS4	/	/
Power Source	SCHAFFNER	NSG1007	54789	2022-03-21
Harmonic & Flicker Tester	SCHAFFNER	CCN1000	72045	2021-11-15
<b>Electrostatic discharge</b>				
Dito ESD Simulator	EM Test	dito	V0809103493	2021-11-18
<b>Radio-Frequency Electromagnetic Field</b>				
Test S/W	Tonscend	JS35-RS	/	/
Signal generator	R&S	SMA100A	100434	2021-10-08
Switch	TOYO	BS5000	/	/
Power Amplifier	SCHAFFNER	CBA9433	3007	2021-12-22
Power Amplifier	TESEQ	CBA 3G-050	T44161	2022-04-16
Power Amplifier	Milmega	AS1860-50	1079232	2021-11-15

Dual directional Coupler	AR	DC 6180A	0328212	2021-10-08
Dual directional Coupler	AR	DC 7144A	327057	2021-10-08
Log-periodic broadband antenna	Schaffner	CBL6143	5082	2021-10-08
Microwave Log.-Per. Antenna	Schwarzbeck	STLP9149	9149-163	2021-10-09
Power Meter	Keysight	N1914A	MY57090009	2021-10-16
Power Probe	Keysight	E9301A	MY57060008	2021-10-08
<b>Electrical fast transient/burst</b>				
Test S/W	/	Win3025 Version 4.00	/	/
Fast Transients/Burst Generator	TESEQ	NSG 3025	26861	2021-10-16
<b>Surge</b>				
Surge simulator	3ctest	CWS 600G	ES0381813	2021-11-15
Lightning surge coupling decoupling network	3ctest	SPN 3618T	ES0941720	2021-11-15
<b>Conducted radio frequency disturbances</b>				
Test S/W	Tonscend	JS35-CS	/	/
Conduction and radiation immunity testing system	TESEQ	NSG4070	25807	2022-04-16
Attenuator	weinschel corp	40-6-34	QQ986	2021-10-08
Coupled decoupled network	Luthi	CDN801-M2	1897	2021-10-08
<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	2022-03-21
current switchgear	TESEQ	NSG2200-1	A17820	2021-10-16



Rev.01

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-2ANT	/	/
Test Receiver	R&S	ESCI	I00266	2022-09-13
Preamplifier	EMEC	EM330	/	2022-03-21
Bi-log Antenna	TESEQ	CBL6143A	26039	2022-11-25
<b>Radiated Emission (Above 1GHz)</b>				
Test software	Tonscend	JS32-RE	/	/
Spectrum Analyzer	Agilent	N9010A	MY52221469	2022-04-16
Preamplifiers	Tonscend	TAP037030	AP20E8060081	2022-06-03
Preamplifiers	Tonscend	TAP01018048	AP20E8060075	2022-06-07
Horn antenna	Schwarzbeck	BBHA 9120D	02143	2022-10-22
<b>Voltage Fluctuation and Flicks</b>				
Test S/W	/	CTS4	/	/
Power Source	SCHAFFNER	NSG1007	54789	2022-03-21
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 Amplifier	SCHAFFNER	CBA9433	3007	2022-03-21
Power Amplifier	TESEQ	CBA 3G-050	T44161	2022-04-16
Power Amplifier	Milmega	AS1860-50	1079232	2022-10-29
Dual directional Coupler	AR	DC 6180A	0328212	2022-09-22
Dual directional Coupler	AR	DC 7144A	327057	2022-09-22
Log-periodic broadband antenna	Schaffner	CBL6143	5082	2022-02-04

Microwave Log.-Per. Antenna	Schwarzbeck	STLP9149	9149-163	2022-09-18
Power Meter	Keysight	N1914A	MY57090009	2022-10-11
Power Probe	Keysight	E9301A	MY57060008	2022-09-04
<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>				
Combined wave lightning 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	2022-04-16
Attenuator	weinschelcorp	40-6-34	QQ986	2022-09-08
CDN	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	2022-03-21
current switchgear	TESEQ	NSG2200-1	A17820	2022-09-24
Harmonic & Flicker Tester	SCHAFFNER	CCN1000	72045	2022-09-24

## 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 dB(uV/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 dB(uV/m)		
			Peak (PK)	Quasi-peak (QP)	Average (Avg)
1000~3000	3	1MHz	70	/	50
3000~6000	3	1MHz	74	/	54

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

### 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.

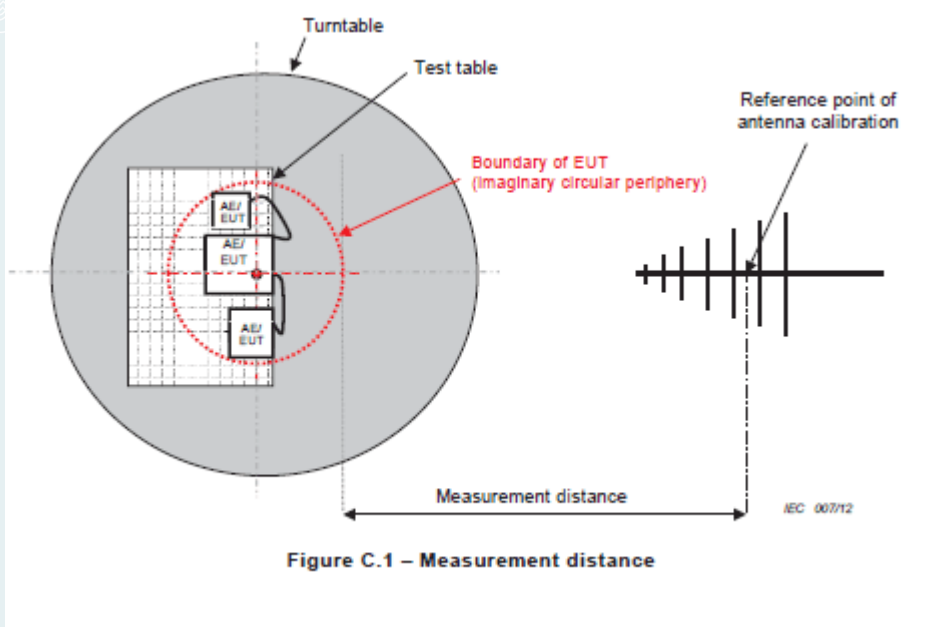
Interface cables, loads, and devices should be connected to at least one of each type of the interface ports of the EUT and, where practical, each cable shall be terminated in a device typical for its actual use. Where there are multiple interface ports of the same type, a typical number of these devices 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.

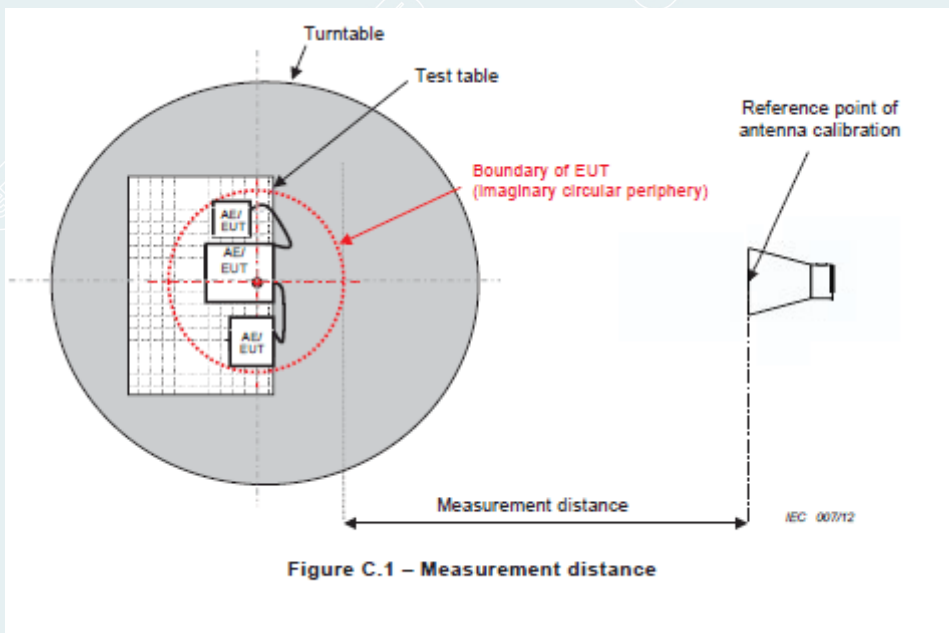
#### (2) Procedure of Final Test

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

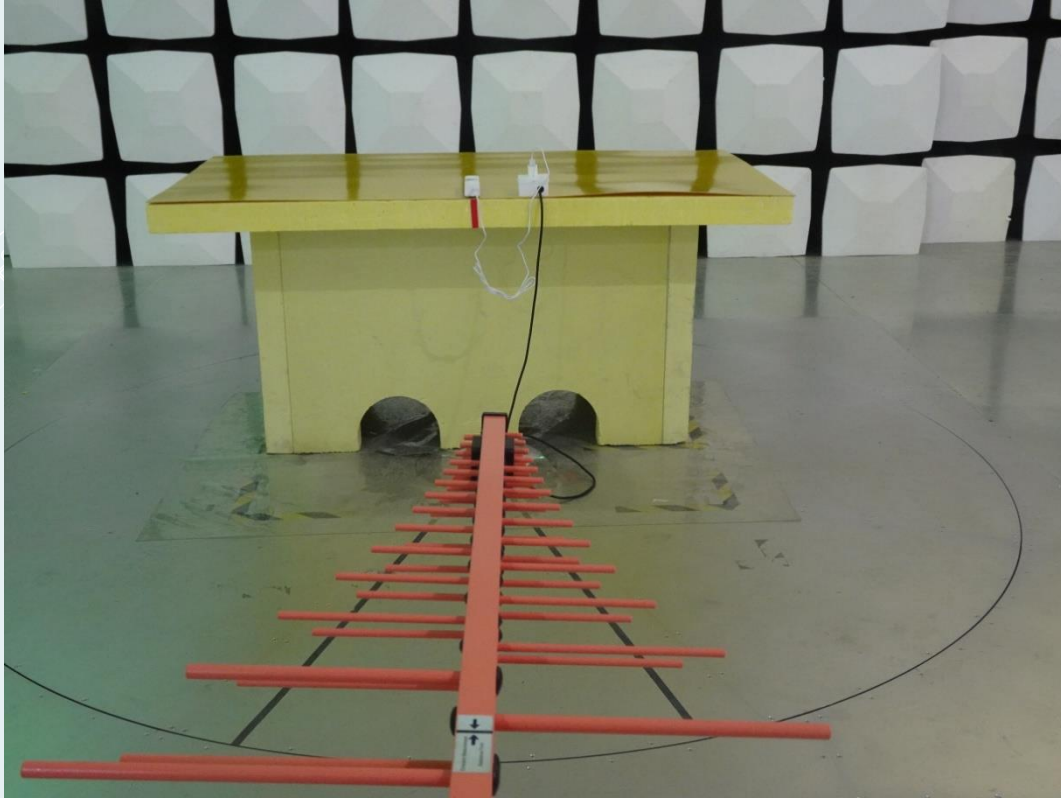
**Above 1GHz**

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

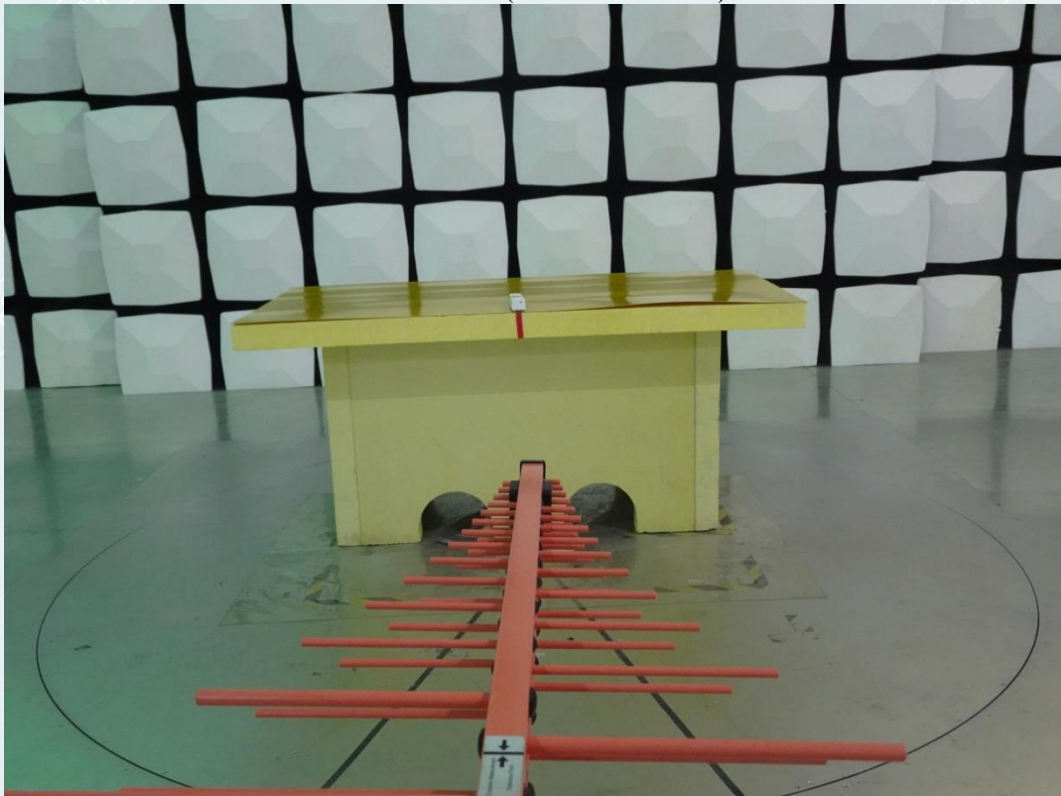
- Frequency (MHz) = Emission frequency in MHz
- Reading (dBuV) = Uncorrected Analyzer / Receiver reading
- Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
- Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)
- Limit (dBuV/m) = Limit stated in standard
- Margin (dB) =Limit(dBuV/m)-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

**5.1.5. PHOTOGRAPH OF THE TEST ARRANGEMENT**

**Rev.00**

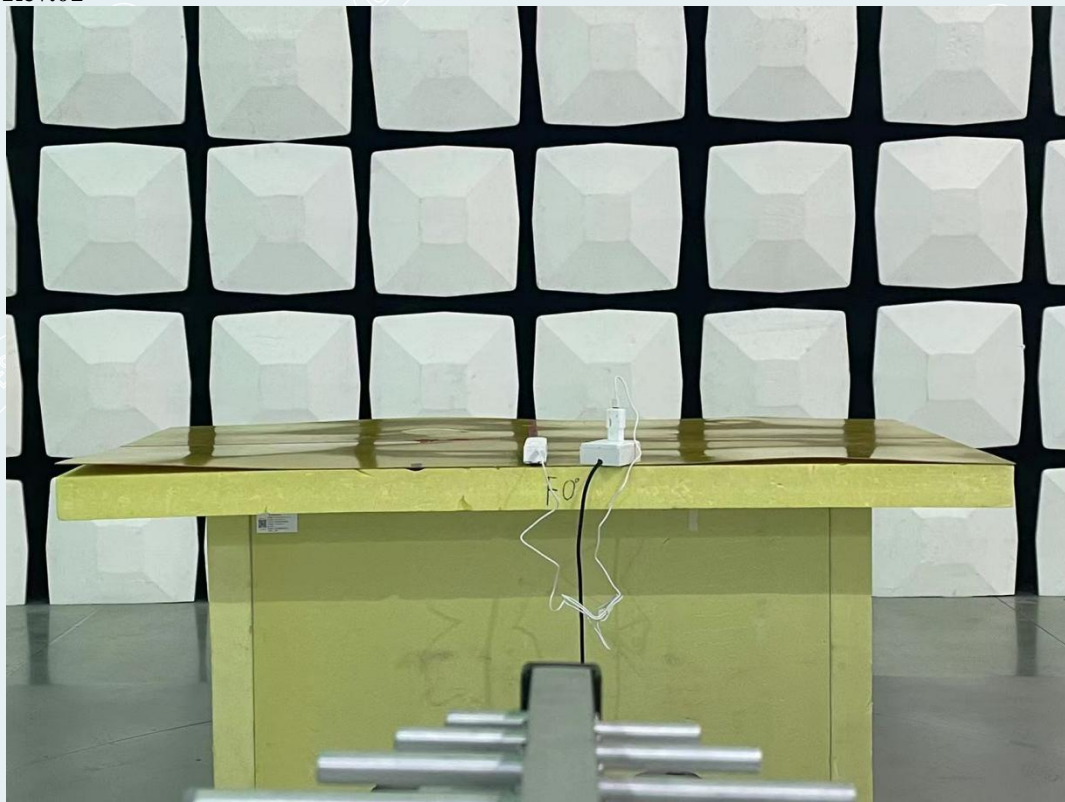


Below 1GHz (Mode 1&Mode 2)

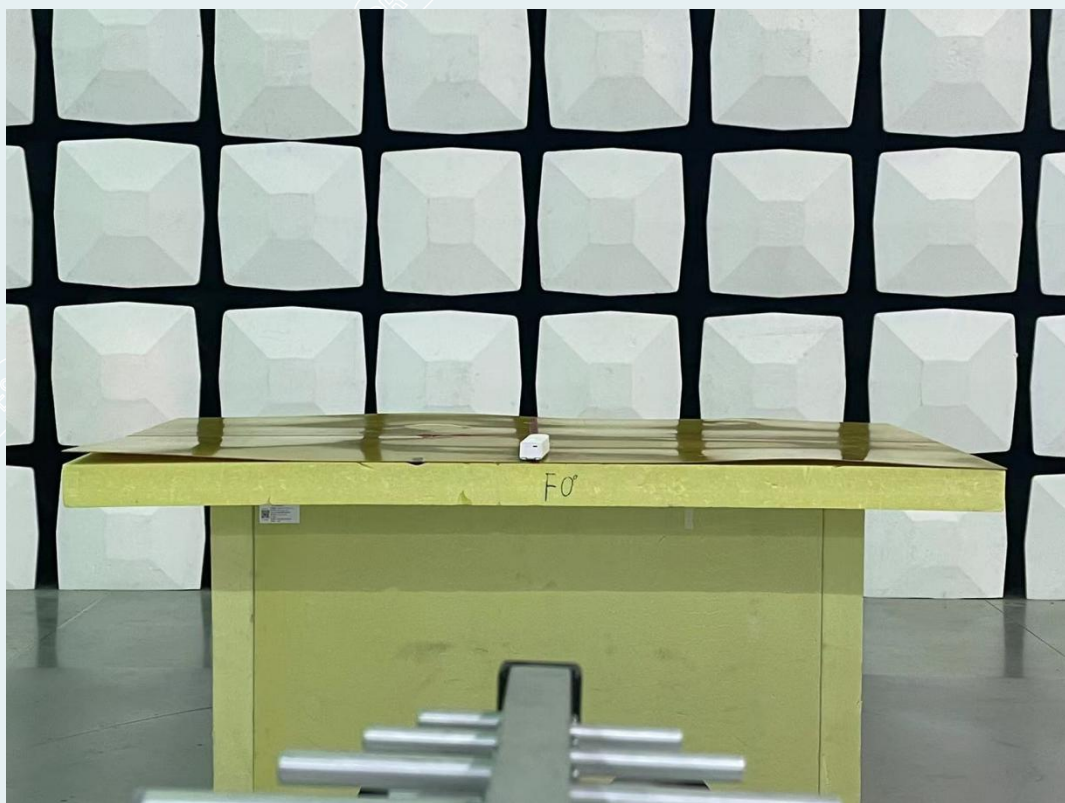


Below 1GHz (Mode 3)

Rev.01



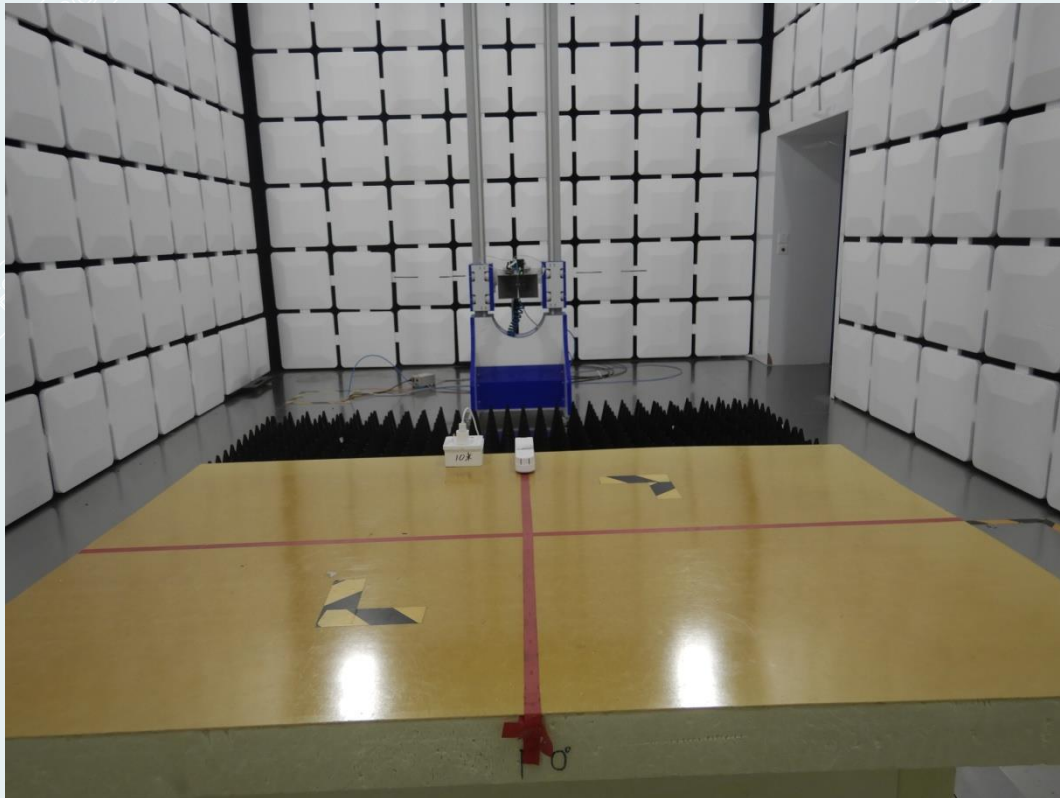
Below 1GHz (Mode1 & Mode2)



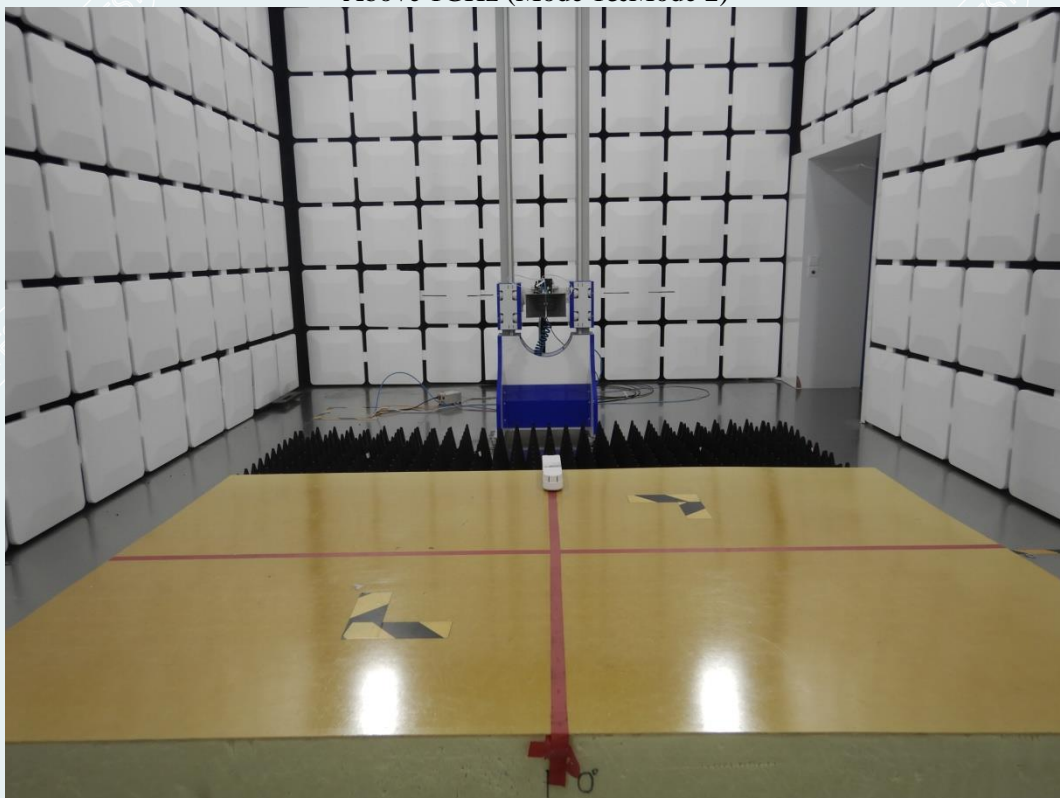
Below 1GHz (Mode3)



Rev.00

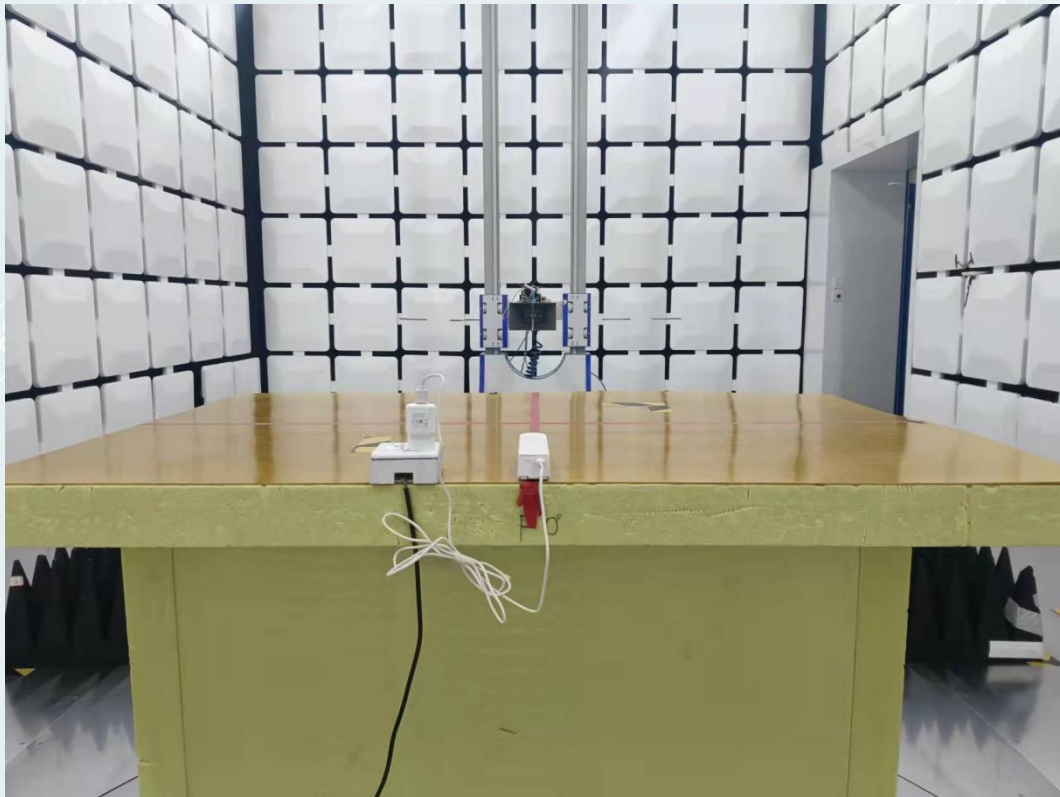


Above 1GHz (Mode 1&Mode 2)

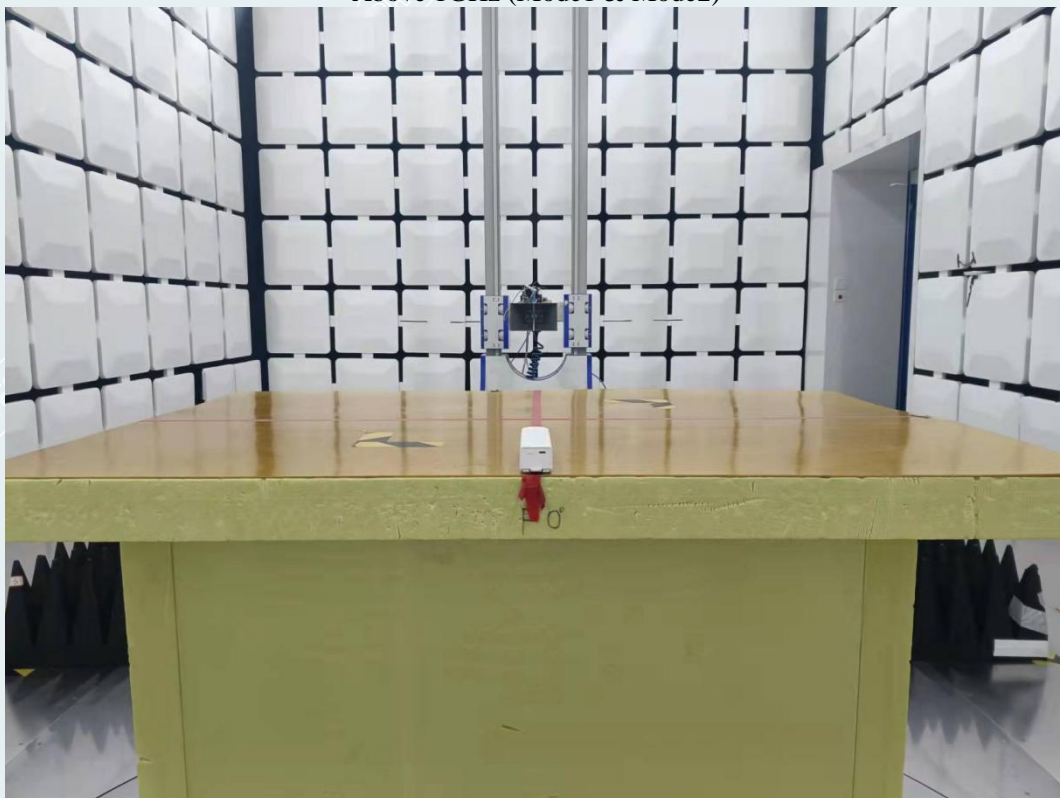


Above 1GHz (Mode 3)

Rev.01



Above 1GHz (Mode1 & Mode2)



Above 1GHz (Mode3)

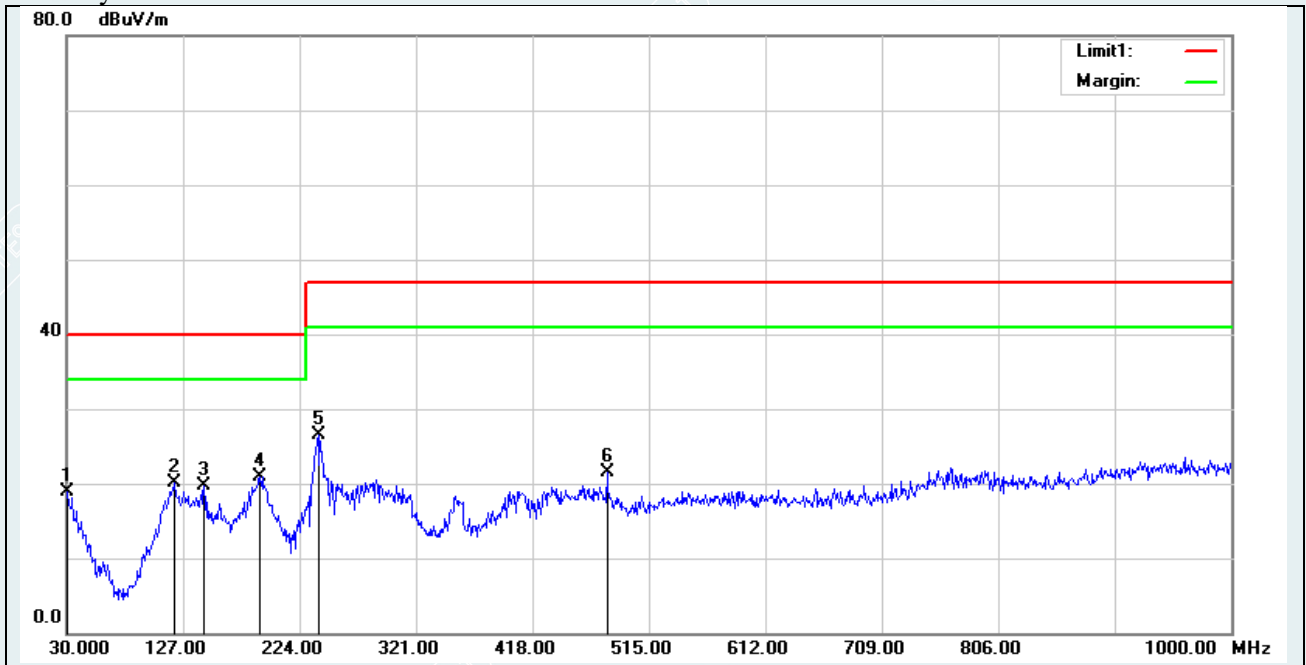
5.1.6. TEST RESULTS

Below 1GHz

Rev.00

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	23.1°C/41%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-04-15	Sample No.	E20210316495901-0001

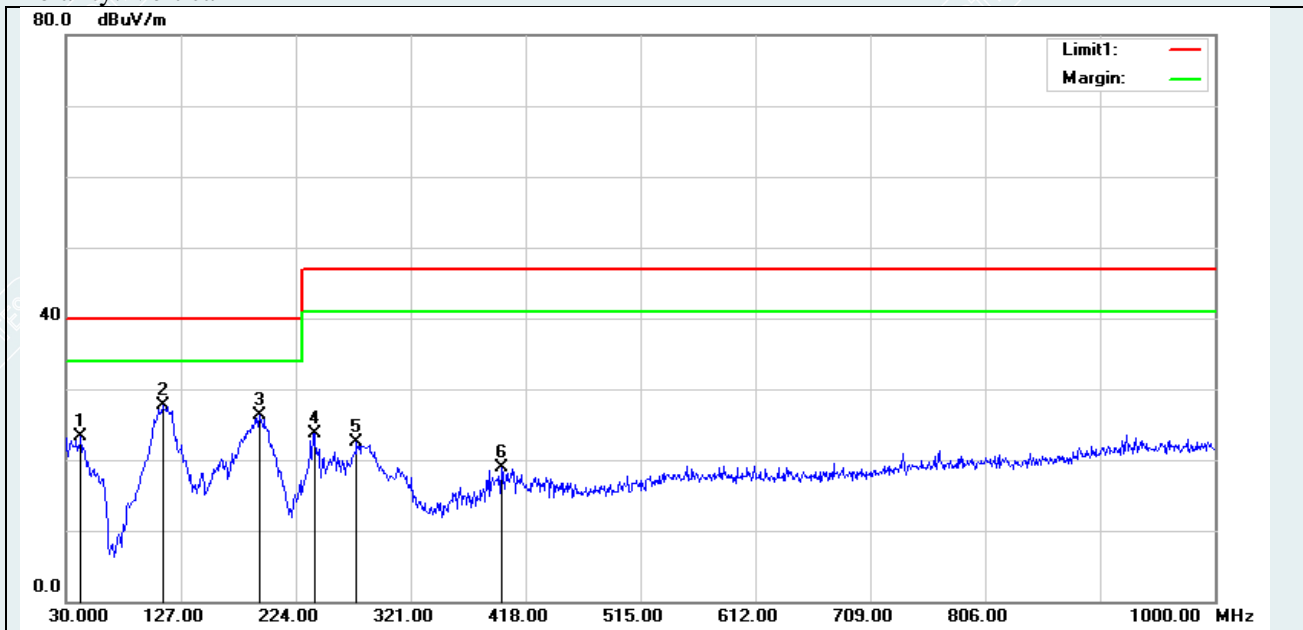
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Remark
1	30.9700	36.41	-17.52	18.89	40.00	-21.11	100	144	QP
2	120.2100	46.50	-26.46	20.04	40.00	-19.96	200	185	QP
3	144.4600	46.72	-27.02	19.70	40.00	-20.30	162	0	QP
4*	191.0200	49.09	-28.18	20.91	40.00	-19.09	200	256	QP
5	239.5200	52.77	-26.29	26.48	47.00	-20.52	100	147	QP
6	480.0800	41.68	-20.11	21.57	47.00	-25.43	100	191	QP

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	23.1 °C/41%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-04-15	Sample No.	E20210316495901-0001

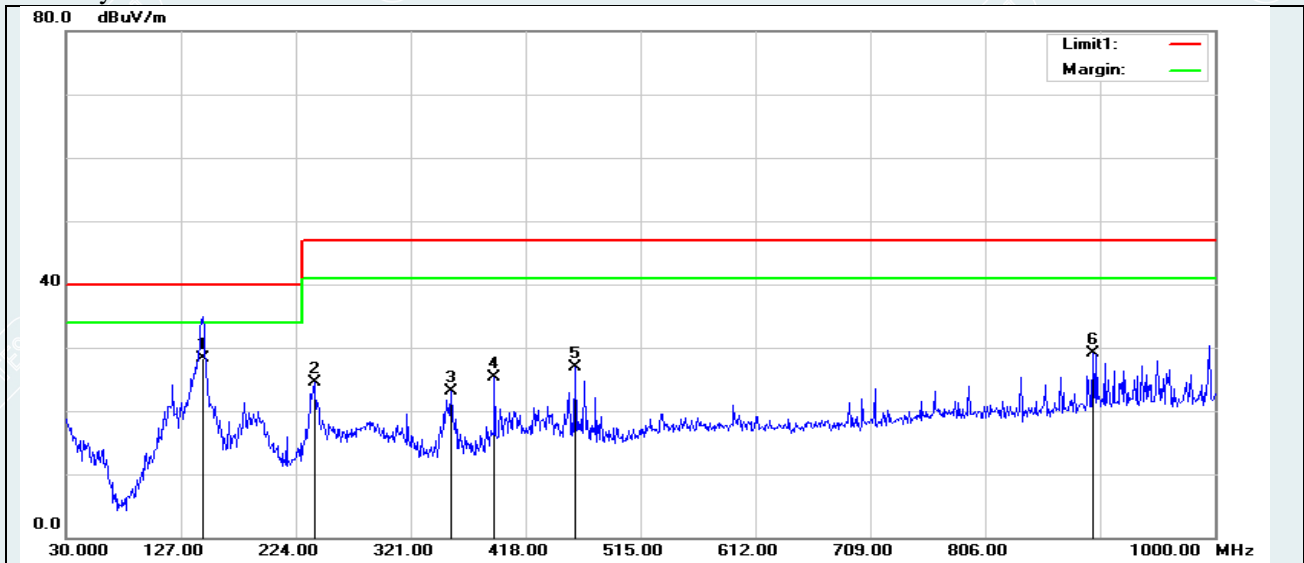
Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Remark
1	42.6100	46.45	-23.19	23.26	40.00	-16.74	100	173	QP
2*	111.4800	54.92	-27.18	27.74	40.00	-12.26	100	131	QP
3	192.9600	54.23	-28.02	26.21	40.00	-13.79	100	9	QP
4	239.5200	49.98	-26.29	23.69	47.00	-23.31	100	250	QP
5	275.4100	47.94	-25.35	22.59	47.00	-24.41	200	220	QP
6	397.6300	40.26	-21.41	18.85	47.00	-28.15	200	204	QP

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	23.1°C/41%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-04-15	Sample No.	E20210316495901-0001

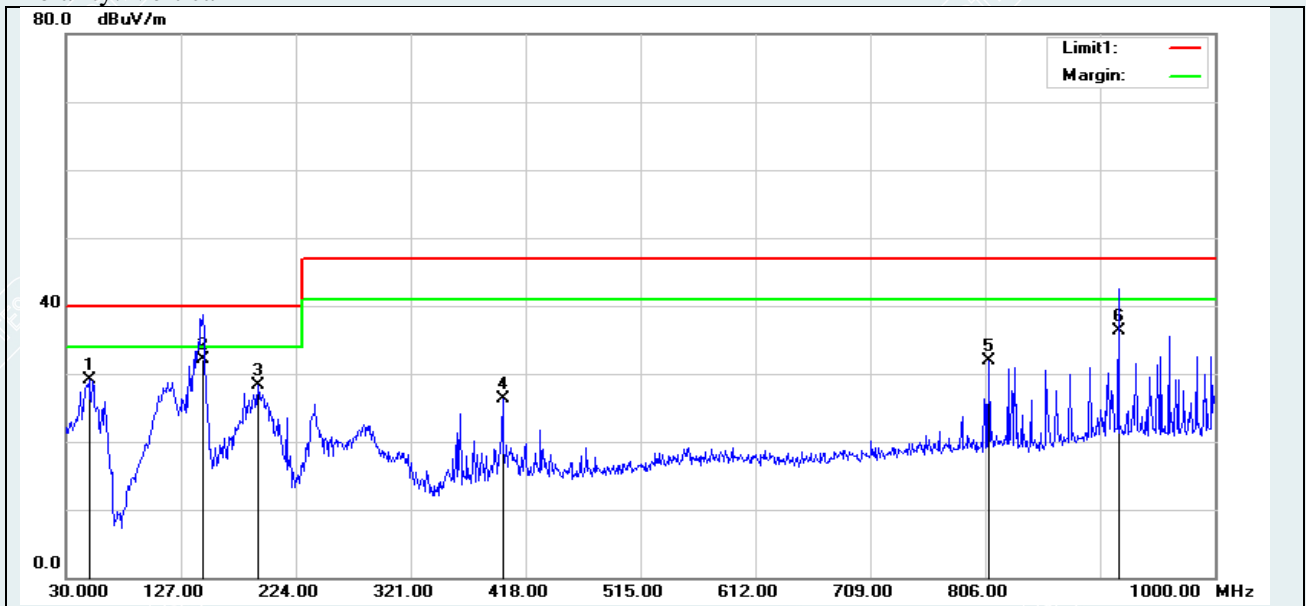
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Remark
1*	145.4300	55.38	-27.08	28.30	40.00	-11.70	200	331	QP
2	239.5200	50.81	-26.29	24.52	47.00	-22.48	100	133	QP
3	354.9500	46.38	-23.22	23.16	47.00	-23.84	100	204	QP
4	391.8100	47.07	-21.80	25.27	47.00	-21.73	100	16	QP
5	459.7100	47.40	-20.53	26.87	47.00	-20.13	400	153	QP
6	897.1800	43.99	-14.92	29.07	47.00	-17.93	100	225	QP

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	23.1 °C/41%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-04-15	Sample No.	E20210316495901-0001

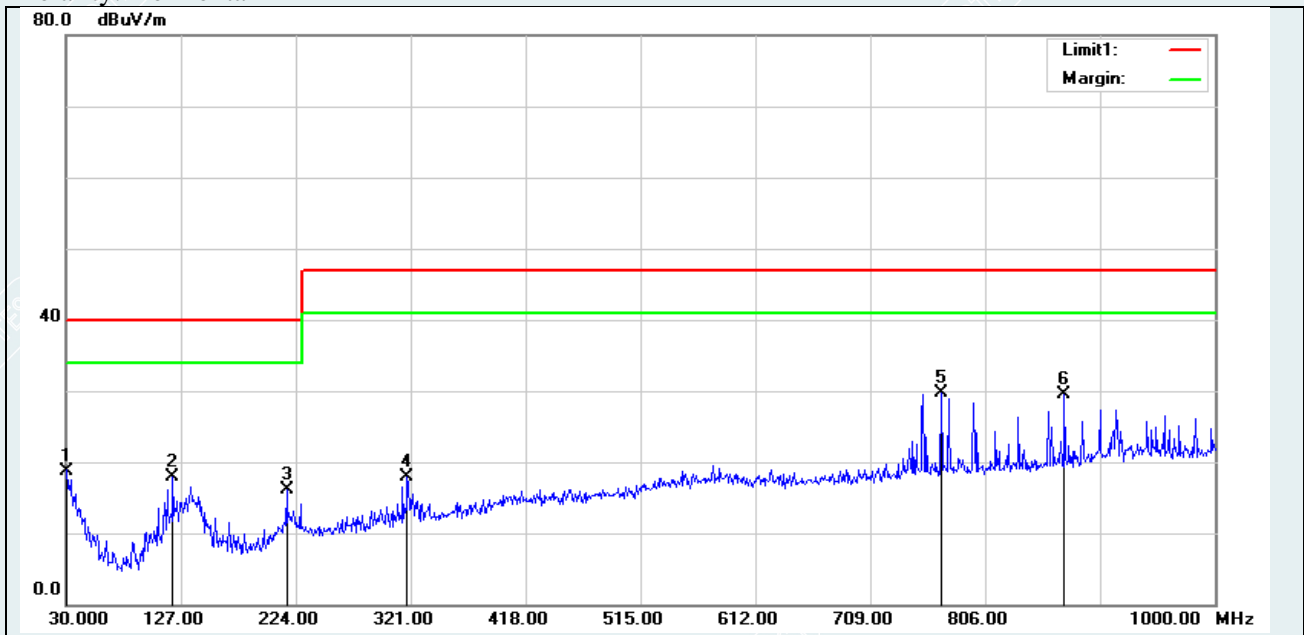
Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Remark
1	49.4000	55.57	-26.41	29.16	40.00	-10.84	100	128	QP
2*	145.4300	59.28	-27.08	32.20	40.00	-7.80	100	304	QP
3	191.9900	56.31	-28.10	28.21	40.00	-11.79	100	360	QP
4	398.6000	47.64	-21.35	26.29	47.00	-20.71	205	0	QP
5	808.9100	47.49	-15.62	31.87	47.00	-15.13	106	360	QP
6	918.5200	51.12	-14.82	36.30	47.00	-10.70	162	360	QP

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	23.1 °C/41%RH/101.0kPa	Test Mode	Mode 3
Power supply	DC 7.4V	Tested By	Tang Shenghui
Test Date	2021-04-15	Sample No.	E20210316495901-0001

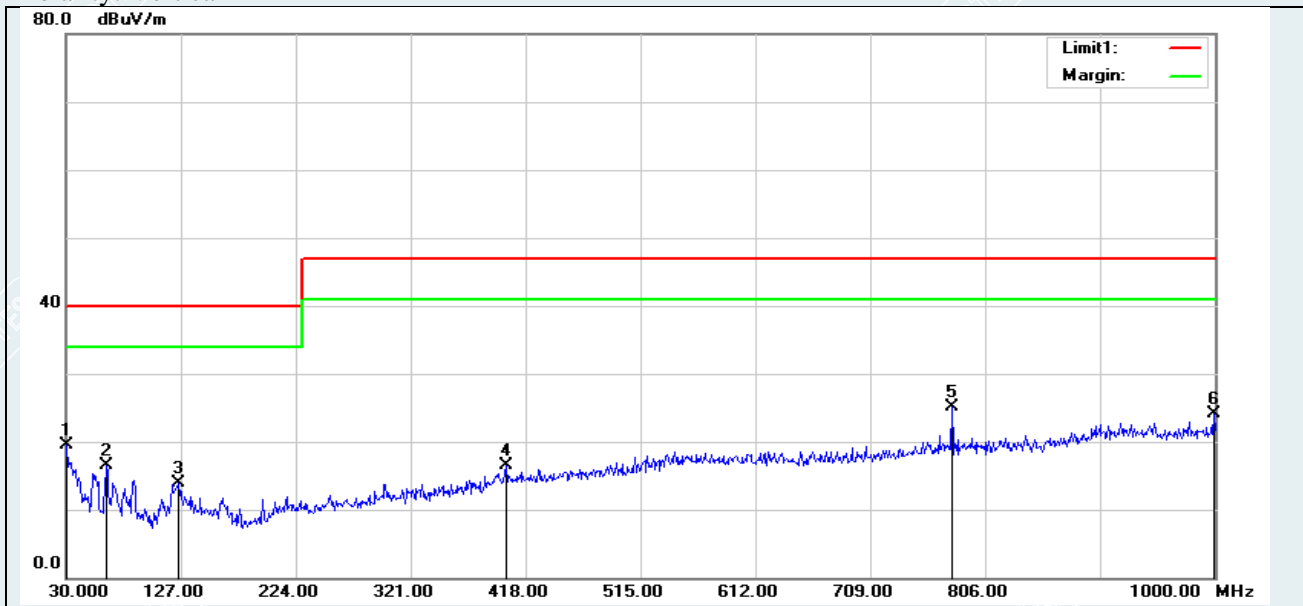
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Remark
1	30.9700	36.32	-17.52	18.80	40.00	-21.20	390	360	QP
2	120.2100	44.31	-26.46	17.85	40.00	-22.15	300	301	QP
3	216.2400	42.26	-26.22	16.04	40.00	-23.96	100	268	QP
4	318.0900	41.97	-24.05	17.92	47.00	-29.08	100	62	QP
5*	769.1400	45.64	-15.88	29.76	47.00	-17.24	200	287	QP
6	872.9300	44.89	-15.30	29.59	47.00	-17.41	100	110	QP

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	23.1 °C/41%RH/101.0kPa	Test Mode	Mode 3
Power supply	DC 7.4V	Tested By	Tang Shenghui
Test Date	2021-04-15	Sample No.	E20210316495901-0001

Polarity: Vertical

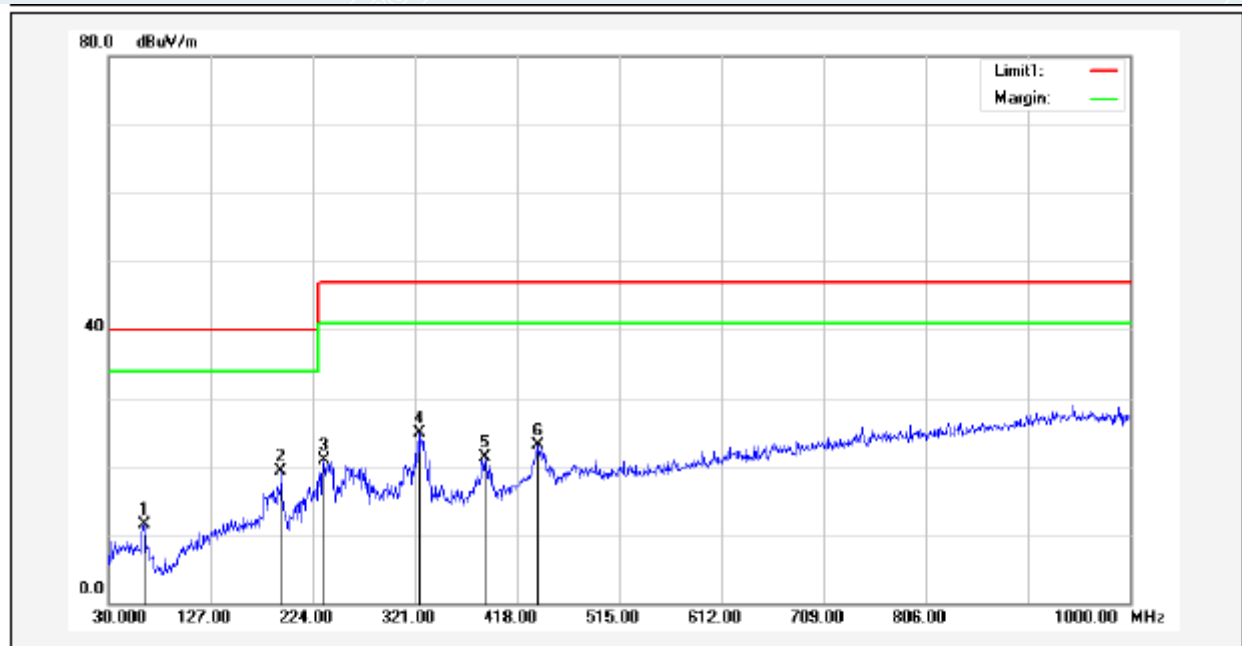


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Remark
1*	30.9700	37.05	-17.52	19.53	40.00	-20.47	100	358	QP
2	63.9500	46.82	-30.38	16.44	40.00	-23.56	100	72	QP
3	125.0600	40.43	-26.44	13.99	40.00	-26.01	100	356	QP
4	401.5100	37.65	-21.24	16.41	47.00	-30.59	300	192	QP
5	777.8700	40.91	-15.79	25.12	47.00	-21.88	200	162	QP
6	999.0300	38.22	-14.04	24.18	47.00	-22.82	400	210	QP



EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.9°C/47%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC 230V/50Hz	Tested By	Wang Xinyuan
Test Date	2021-12-18	Sample No.	E20211216778201-0001

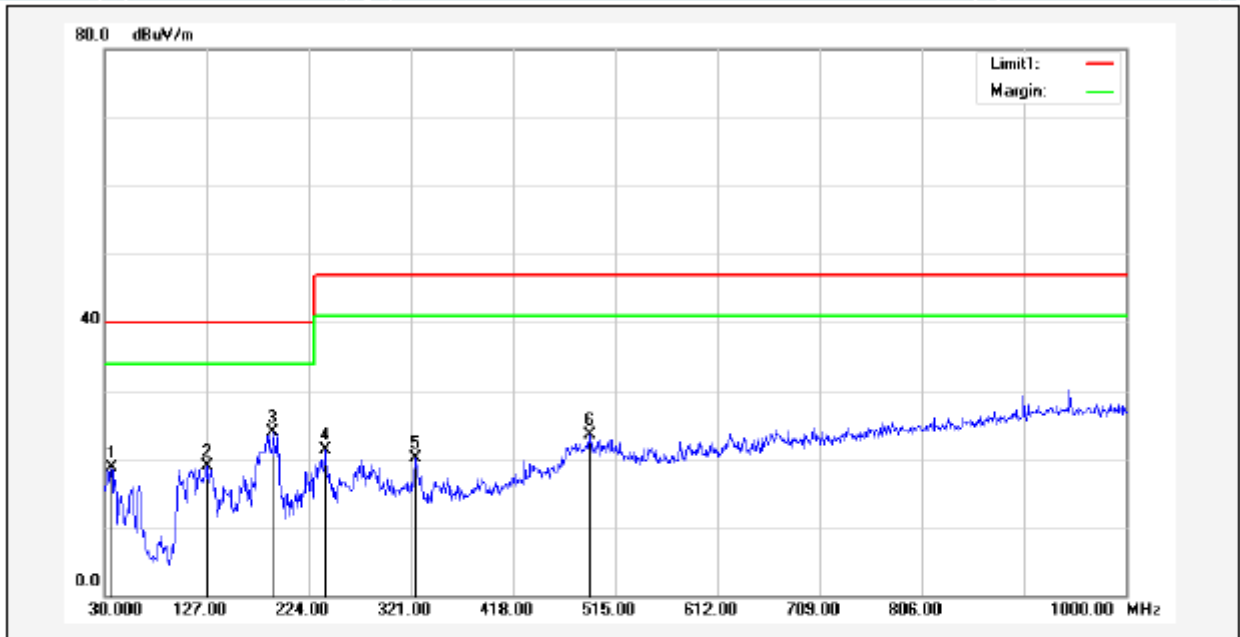
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	63.9500	39.40	-27.81	11.59	40.00	-28.41	358	300	QP
2*	193.9300	46.17	-26.84	19.33	40.00	-20.67	133	100	QP
3	234.6700	46.51	-25.67	20.84	47.00	-26.16	74	100	QP
4	324.8800	47.32	-22.46	24.86	47.00	-22.14	321	100	QP
5	387.9300	41.80	-20.42	21.38	47.00	-25.62	133	100	QP
6	437.4000	41.65	-18.62	23.03	47.00	-23.97	305	100	QP

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.9°C/47%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC 230V/50Hz	Tested By	Wang Xinyuan
Test Date	2021-12-18	Sample No.	E20211216778201-0001

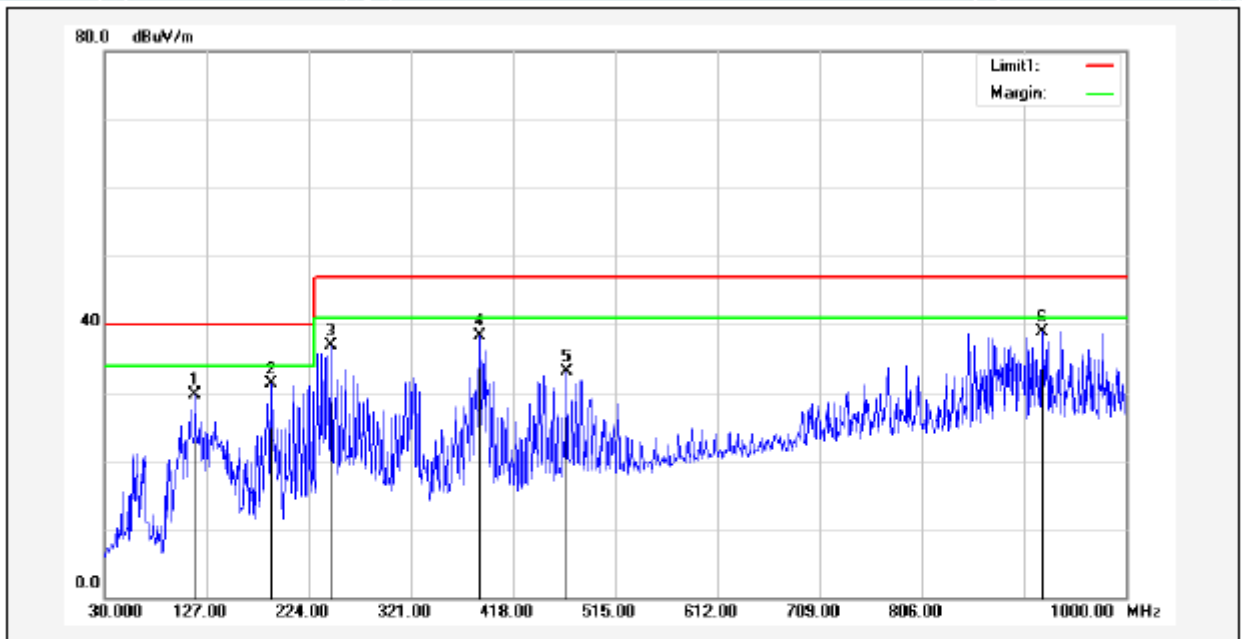
Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	36.7900	45.98	-27.26	18.72	40.00	-21.28	152	100	QP
2	127.0000	44.82	-25.99	18.83	40.00	-21.17	228	100	QP
3*	190.0500	50.48	-26.52	23.96	40.00	-16.04	187	100	QP
4	239.5200	46.82	-25.44	21.38	47.00	-25.62	148	100	QP
5	324.8800	42.62	-22.46	20.16	47.00	-26.84	133	100	QP
6	490.7500	40.90	-17.47	23.43	47.00	-23.57	185	100	QP

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.9°C/47%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC 230V/50Hz	Tested By	Wang Xinyuan
Test Date	2021-12-18	Sample No.	E20211216778201-0001

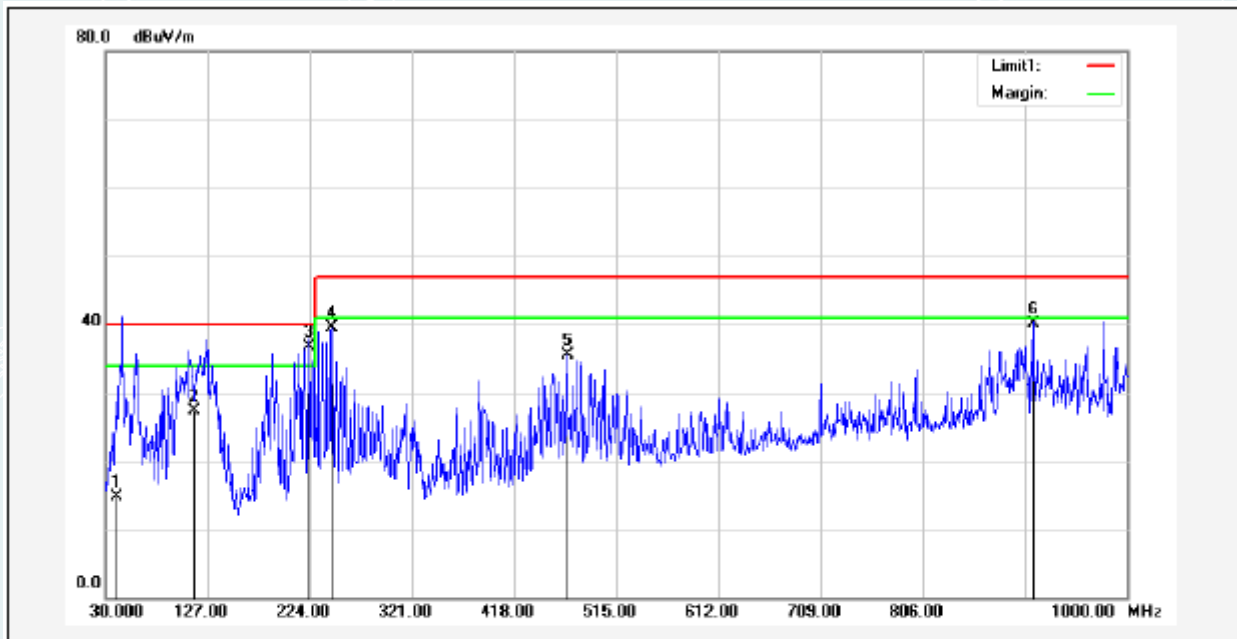
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	116.3300	56.60	-26.97	29.63	40.00	-10.37	360	155	QP
2	188.1100	57.67	-26.35	31.32	40.00	-8.68	36	100	QP
3	245.3400	62.00	-25.16	36.84	47.00	-10.16	125	100	QP
4	385.9900	58.75	-20.49	38.26	47.00	-8.74	89	100	QP
5	469.4100	50.89	-17.84	33.05	47.00	-13.95	98	100	QP
6*	920.4600	48.04	-9.16	38.88	47.00	-8.12	263	100	QP

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.9°C/47%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC 230V/50Hz	Tested By	Wang Xinyuan
Test Date	2021-12-18	Sample No.	E20211216778201-0001

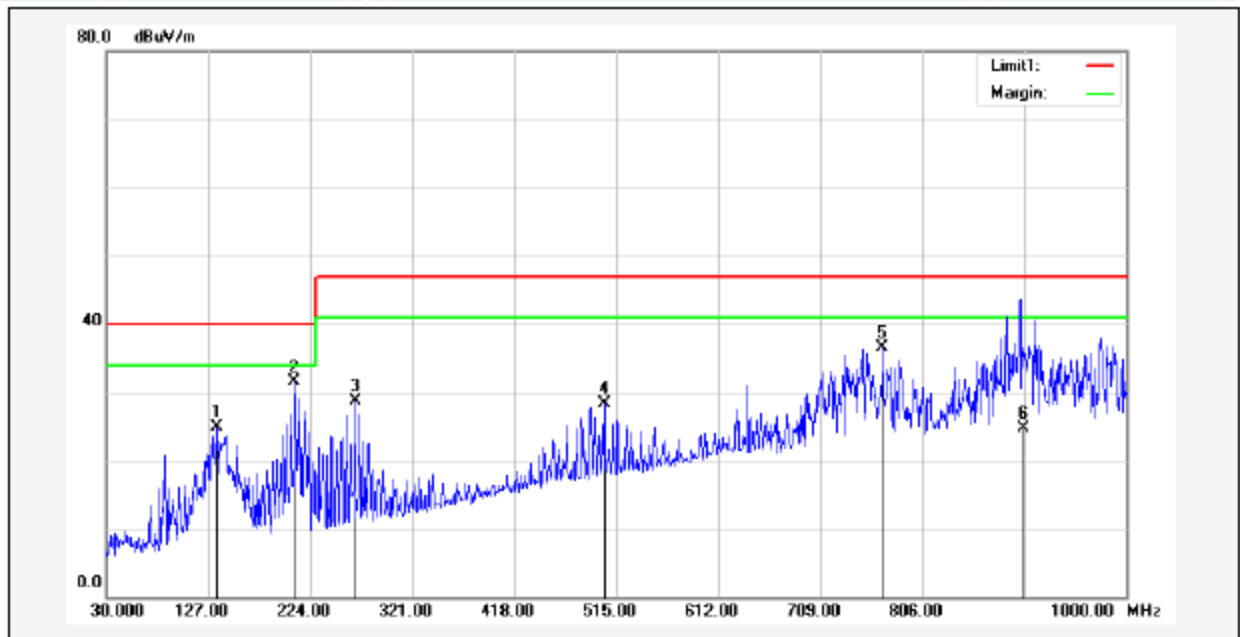
Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	40.8092	41.51	-26.86	14.65	40.00	-25.35	210	200	QP
2	115.0700	54.36	-27.06	27.30	40.00	-12.70	208	100	QP
3*	223.5100	62.86	-26.21	36.65	40.00	-3.35	173	100	QP
4	245.3400	64.72	-25.16	39.56	47.00	-7.44	144	100	QP
5	468.4400	53.39	-17.86	35.53	47.00	-11.47	146	100	QP
6	910.7600	49.49	-9.29	40.20	47.00	-6.80	1	300	QP

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.9°C/47%RH/101.0kPa	Test Mode	Mode 3
Power supply	AC 230V/50Hz	Tested By	Wang Xinyuan
Test Date	2021-12-18	Sample No.	E20211216778201-0001

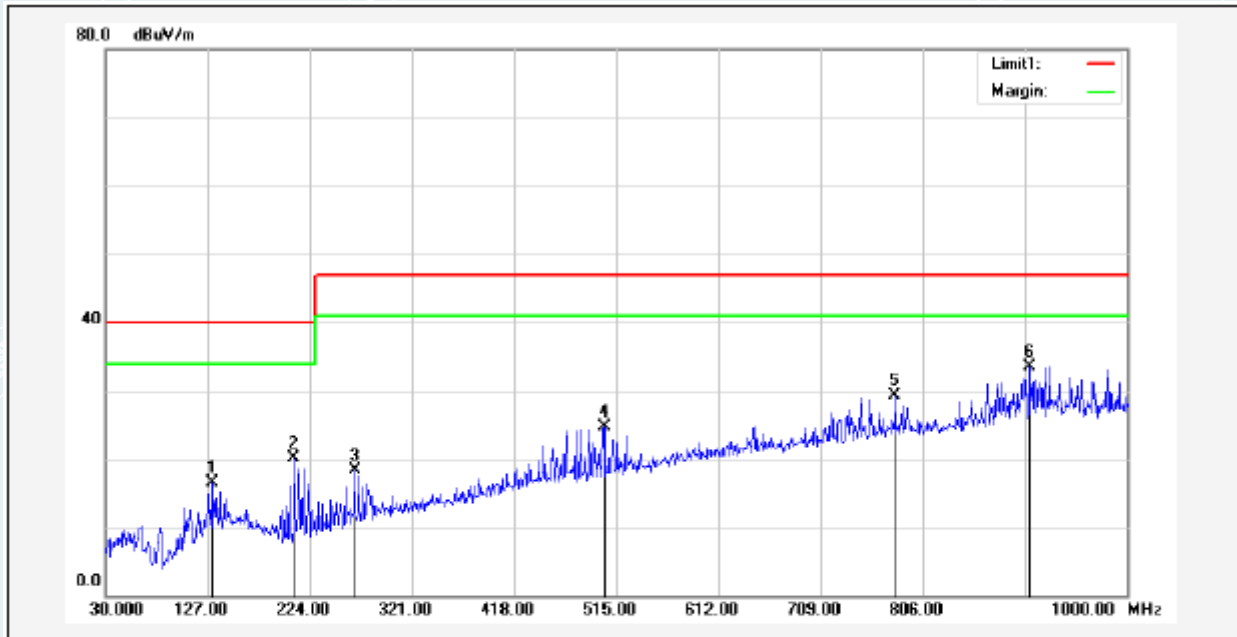
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	135.7300	50.22	-25.22	25.00	40.00	-15.00	54	200	QP
2*	209.4500	58.48	-26.88	31.60	40.00	-8.40	95	100	QP
3	266.6800	52.92	-24.31	28.61	47.00	-18.39	74	100	QP
4	503.3600	45.56	-17.22	28.34	47.00	-18.66	43	200	QP
5	768.1700	47.84	-11.39	36.45	47.00	-10.55	259	400	QP
6	902.4391	34.03	-9.42	24.61	47.00	-22.39	292	100	QP

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.9°C/47%RH/101.0kPa	Test Mode	Mode 3
Power supply	AC 230V/50Hz	Tested By	Wang Xinyuan
Test Date	2021-12-18	Sample No.	E20211216778201-0001

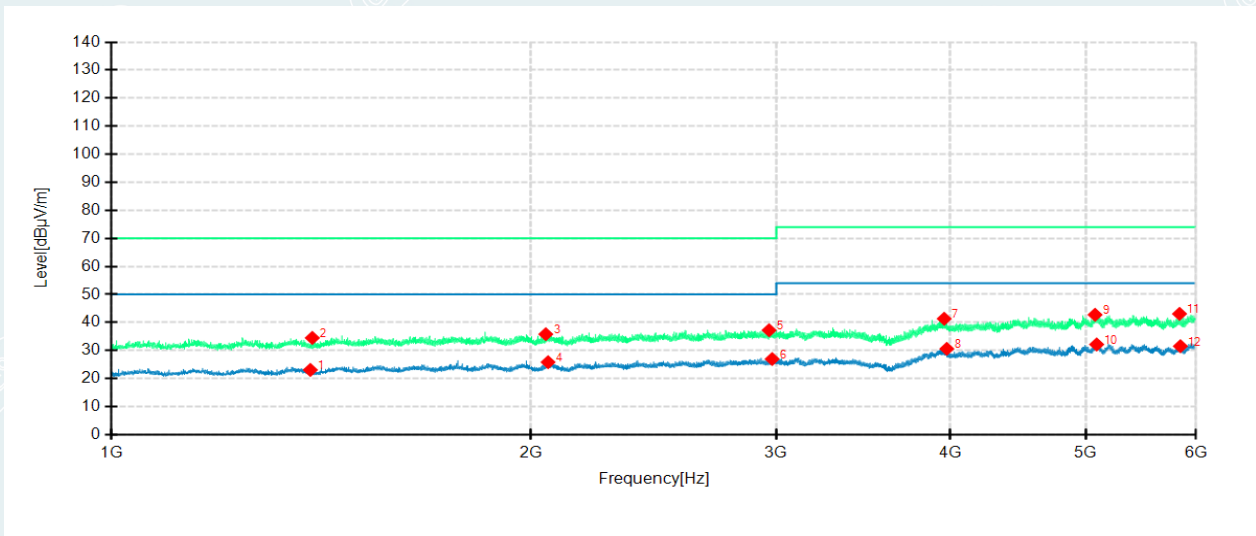
Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	131.8500	42.00	-25.54	16.46	40.00	-23.54	148	200	QP
2	209.4500	46.90	-26.88	20.02	40.00	-19.98	360	259	QP
3	266.6800	42.54	-24.31	18.23	47.00	-28.77	0	148	QP
4	503.3600	41.87	-17.22	24.65	47.00	-22.35	358	100	QP
5	779.8100	40.55	-11.22	29.33	47.00	-17.67	217	200	QP
6*	907.8500	42.91	-9.34	33.57	47.00	-13.43	267	200	QP

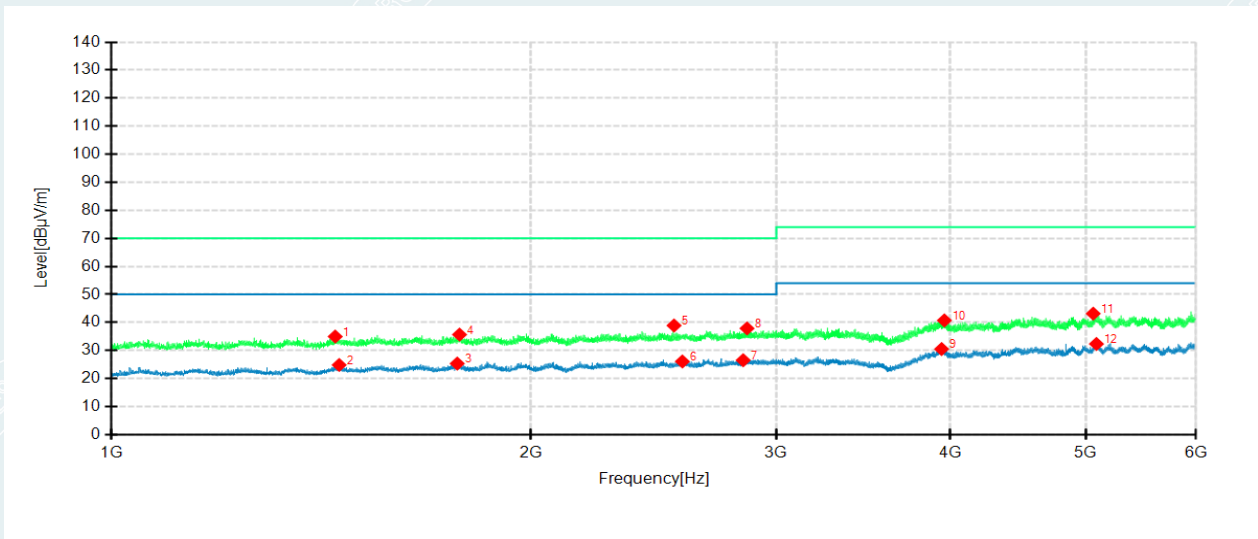
Above 1GHz  
Rev.00

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	23.1 °C/41%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Luo Ping
Test Date	2021-04-17	Sample No.	E20210316495901-0001



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1389.2695	46.78	23.08	-23.70	50.00	26.92	200	252	Horizontal
2	1393.7697	58.18	34.50	-23.68	70.00	35.50	100	134	Horizontal
3	2049.8025	57.36	35.81	-21.55	70.00	34.19	200	312	Horizontal
4	2057.5529	47.40	25.84	-21.56	50.00	24.16	200	303	Horizontal
5	2964.3482	55.96	37.24	-18.72	70.00	32.76	200	278	Horizontal
6	2979.3490	45.61	26.96	-18.65	50.00	23.04	100	31	Horizontal
7	3958.8979	55.35	41.32	-14.03	74.00	32.68	100	142	Horizontal
8	3975.8988	45.12	30.61	-14.51	54.00	23.39	200	114	Horizontal
9	5079.4540	53.01	42.76	-10.25	74.00	31.24	200	123	Horizontal
10	5092.9546	42.22	32.17	-10.05	54.00	21.83	100	330	Horizontal
11	5839.9920	52.67	43.08	-9.59	74.00	30.92	100	279	Horizontal
12	5848.2424	41.04	31.54	-9.50	54.00	22.46	100	287	Horizontal

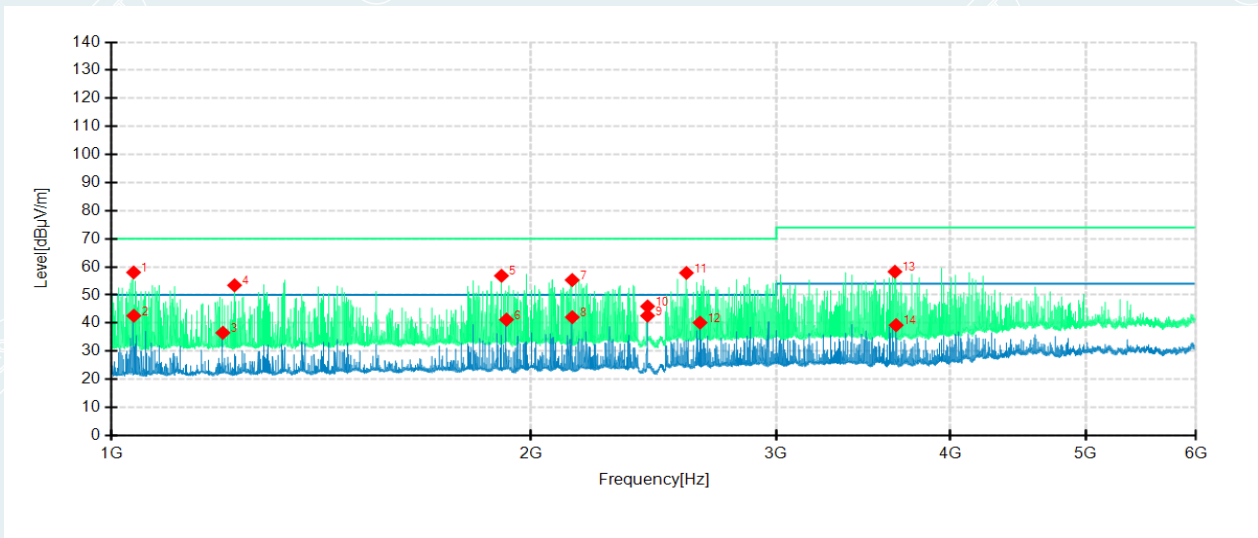
EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	23.1°C/41%RH/101.0kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Luo Ping
Test Date	2021-04-17	Sample No.	E20210316495901-0001



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1447.5224	58.34	34.98	-23.36	70.00	35.02	200	122	Vertical
2	1457.0229	48.14	24.84	-23.30	50.00	25.16	100	338	Vertical
3	1770.7885	47.72	25.35	-22.37	50.00	24.65	100	278	Vertical
4	1777.5389	58.00	35.68	-22.32	70.00	34.32	100	261	Vertical
5	2533.5767	58.75	38.92	-19.83	70.00	31.08	200	251	Vertical
6	2568.5784	45.87	26.10	-19.77	50.00	23.90	100	169	Vertical
7	2840.3420	45.64	26.54	-19.10	50.00	23.46	100	202	Vertical
8	2858.0929	56.86	37.89	-18.97	70.00	32.11	100	270	Vertical
9	3941.8971	44.36	30.53	-13.83	54.00	23.47	200	269	Vertical
10	3959.8980	54.80	40.74	-14.06	74.00	33.26	100	6	Vertical
11	5063.9532	53.62	43.15	-10.47	74.00	30.85	100	91	Vertical
12	5091.2046	42.42	32.34	-10.08	54.00	21.66	200	55	Vertical

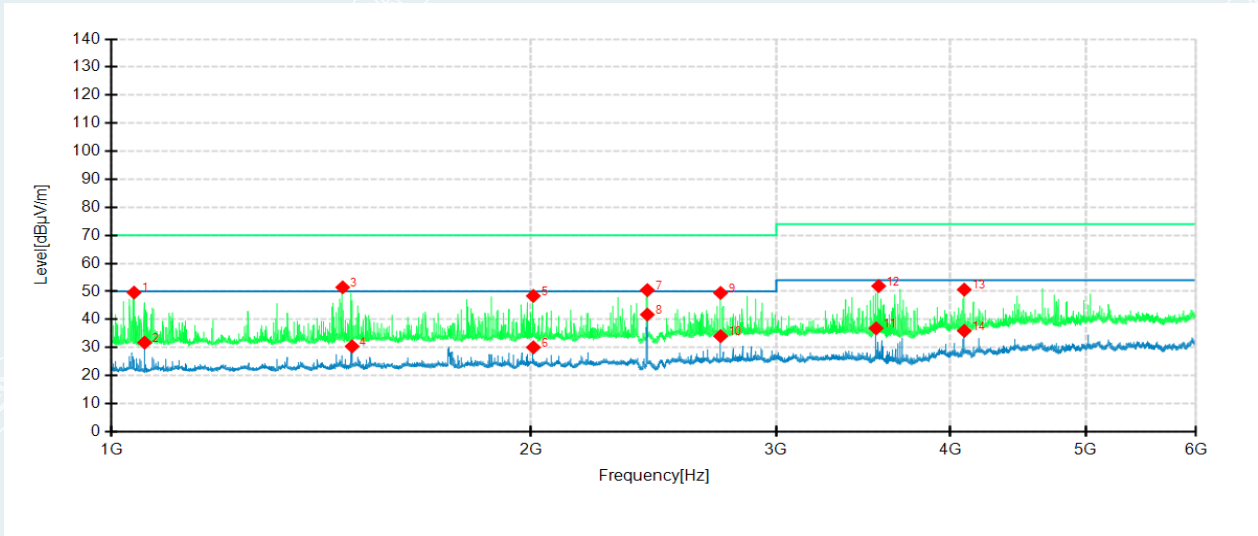


EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	23.1 °C/41%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Luo Ping
Test Date	2021-04-17	Sample No.	E20210316495901-0001



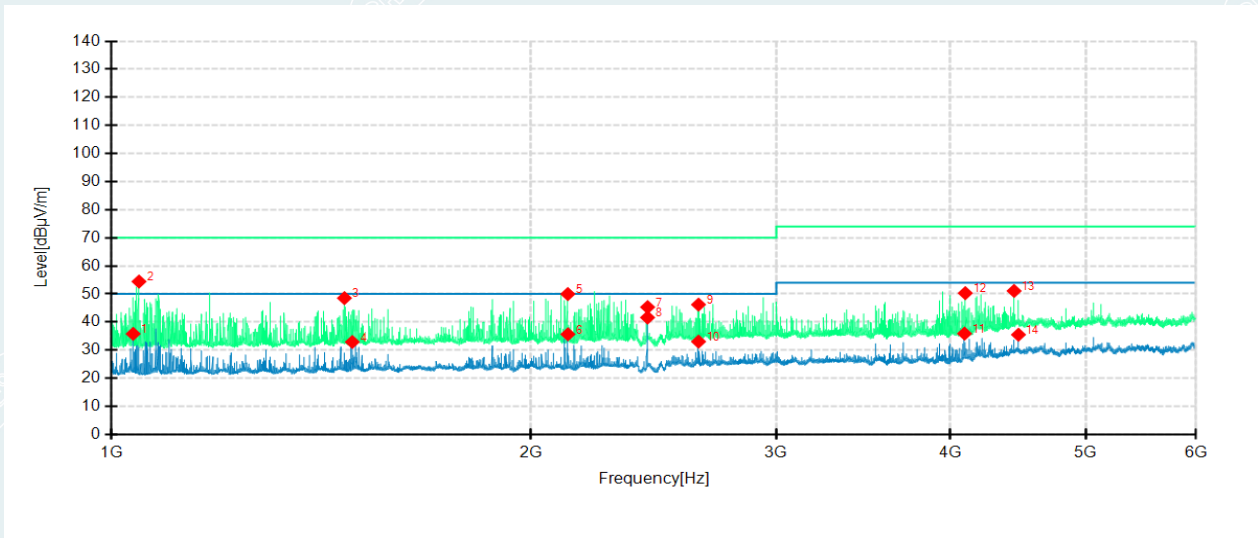
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1037.5019	83.15	58.04	-25.11	70.00	11.96	100	51	Horizontal
2	1037.7519	67.73	42.62	-25.11	50.00	7.38	100	51	Horizontal
3	1202.2601	61.14	36.55	-24.59	50.00	13.45	100	240	Horizontal
4	1225.7613	77.88	53.45	-24.43	70.00	16.55	100	101	Horizontal
5	1905.0453	78.76	56.84	-21.92	70.00	13.16	100	215	Horizontal
6	1921.0461	63.17	41.23	-21.94	50.00	8.77	100	38	Horizontal
7	2141.3071	77.01	55.32	-21.69	70.00	14.68	100	177	Horizontal
8	2141.5571	63.79	42.10	-21.69	50.00	7.90	100	177	Horizontal
9	2425.0713	63.06	42.61	-20.45	50.00	7.39	200	332	Horizontal
10	2425.3213	66.39	45.94	-20.45	70.00	24.06	200	332	Horizontal
11	2586.0793	77.81	57.84	-19.97	70.00	12.16	100	158	Horizontal
12	2644.8322	59.59	40.14	-19.45	50.00	9.86	100	31	Horizontal
13	3649.6325	74.62	58.28	-16.34	74.00	15.72	100	101	Horizontal
14	3656.3828	55.51	39.26	-16.25	54.00	14.74	100	114	Horizontal

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	23.1°C/41%RH/101.0kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Luo Ping
Test Date	2021-04-17	Sample No.	E20210316495901-0001



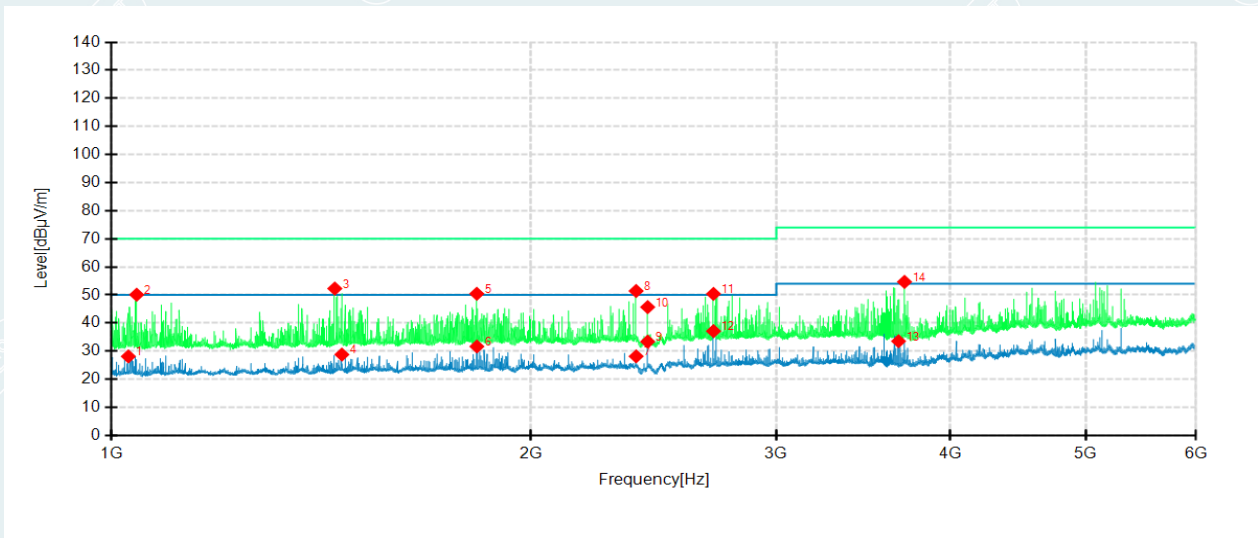
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1038.2519	74.71	49.60	-25.11	70.00	20.40	100	51	Vertical
2	1056.5028	56.81	31.74	-25.07	50.00	18.26	100	215	Vertical
3	1465.5233	74.72	51.46	-23.26	70.00	18.54	200	1	Vertical
4	1488.5244	53.57	30.42	-23.15	50.00	19.58	100	334	Vertical
5	2008.0504	69.95	48.40	-21.55	70.00	21.60	100	127	Vertical
6	2008.3004	51.62	30.07	-21.55	50.00	19.93	100	127	Vertical
7	2424.3212	70.92	50.47	-20.45	70.00	19.53	100	186	Vertical
8	2424.3212	62.20	41.75	-20.45	50.00	8.25	100	190	Vertical
9	2736.0868	68.82	49.47	-19.35	70.00	20.53	100	169	Vertical
10	2736.3368	53.39	34.04	-19.35	50.00	15.96	100	169	Vertical
11	3538.1269	54.09	36.84	-17.25	54.00	17.16	100	165	Vertical
12	3552.6276	68.98	51.93	-17.05	74.00	22.07	100	169	Vertical
13	4092.4046	64.48	50.66	-13.82	74.00	23.34	100	1	Vertical
14	4092.6546	49.75	35.93	-13.82	54.00	18.07	100	1	Vertical

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	23.1 °C/41%RH/101.0kPa	Test Mode	Mode 3
Power supply	AC230V/50Hz	Tested By	Luo Ping
Test Date	2021-04-17	Sample No.	E20210316495901-0001



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1036.7518	60.92	35.81	-25.11	50.00	14.19	200	100	Horizontal
2	1046.7523	79.52	54.43	-25.09	70.00	15.57	200	260	Horizontal
3	1469.7735	71.78	48.54	-23.24	70.00	21.46	200	256	Horizontal
4	1489.0245	56.07	32.93	-23.14	50.00	17.07	200	260	Horizontal
5	2125.8063	71.63	49.98	-21.65	70.00	20.02	200	205	Horizontal
6	2126.0563	57.31	35.66	-21.65	50.00	14.34	200	205	Horizontal
7	2425.3213	65.77	45.32	-20.45	70.00	24.68	100	15	Horizontal
8	2425.3213	62.07	41.62	-20.45	50.00	8.38	100	15	Horizontal
9	2638.0819	65.77	46.22	-19.55	70.00	23.78	200	333	Horizontal
10	2638.3319	52.60	33.05	-19.55	50.00	16.95	200	328	Horizontal
11	4094.1547	49.69	35.90	-13.79	54.00	18.10	200	95	Horizontal
12	4099.1550	63.98	50.29	-13.69	74.00	23.71	200	205	Horizontal
13	4443.4222	63.25	51.08	-12.17	74.00	22.92	200	170	Horizontal
14	4475.6738	47.44	35.50	-11.94	54.00	18.50	200	183	Horizontal

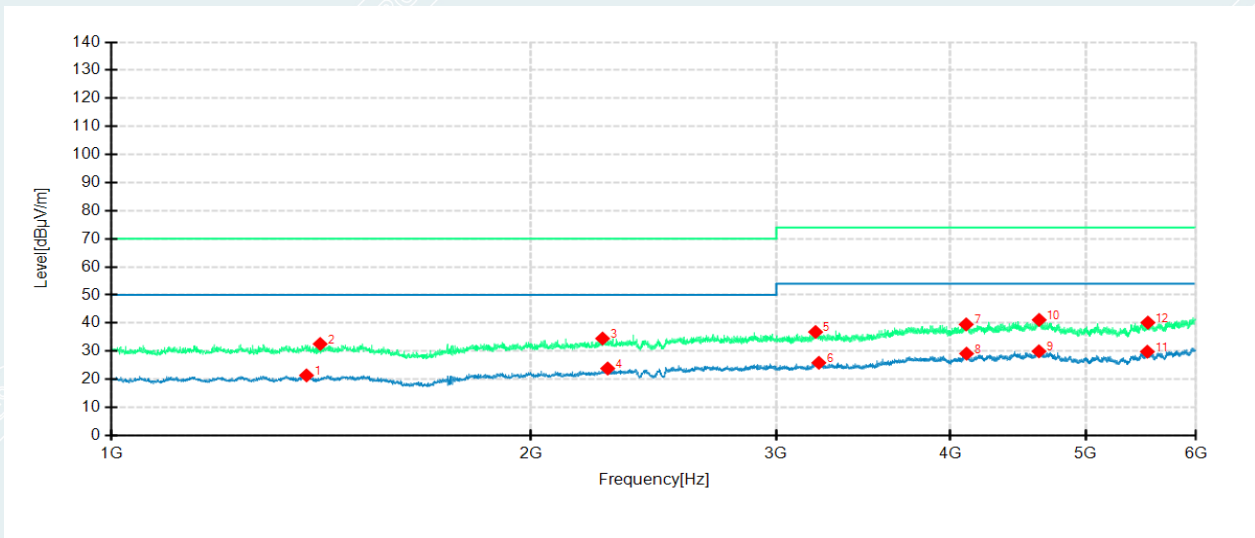
EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	23.1 °C/41%RH/101.0kPa	Test Mode	Mode 3
Power supply	AC230V/50Hz	Tested By	Luo Ping
Test Date	2021-04-17	Sample No.	E20210316495901-0001



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1028.5014	53.25	28.13	-25.12	50.00	21.87	100	117	Vertical
2	1042.7521	75.21	50.11	-25.10	70.00	19.89	100	53	Vertical
3	1446.5223	75.64	52.28	-23.36	70.00	17.72	100	201	Vertical
4	1463.5232	52.07	28.80	-23.27	50.00	21.20	100	113	Vertical
5	1829.0415	72.45	50.43	-22.02	70.00	19.57	100	333	Vertical
6	1829.2915	53.69	31.67	-22.02	50.00	18.33	100	333	Vertical
7	2379.8190	48.92	28.17	-20.75	50.00	21.83	100	163	Vertical
8	2379.8190	72.17	51.42	-20.75	70.00	18.58	100	163	Vertical
9	2425.5713	53.84	33.39	-20.45	50.00	16.61	100	269	Vertical
10	2425.8213	66.14	45.69	-20.45	70.00	24.31	100	359	Vertical
11	2704.0852	69.64	50.40	-19.24	70.00	19.60	100	155	Vertical
12	2704.3352	56.37	37.13	-19.24	50.00	12.87	100	155	Vertical
13	3671.3836	49.60	33.55	-16.05	54.00	20.45	100	355	Vertical
14	3707.6354	70.29	54.66	-15.63	74.00	19.34	100	359	Vertical

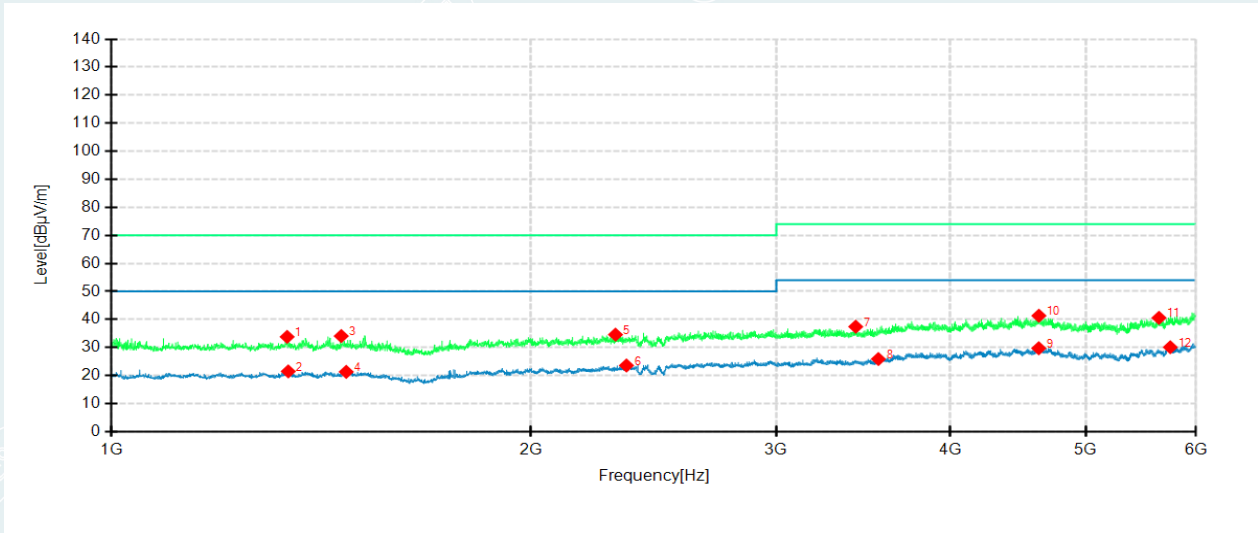
**Rev.01**

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25°C/60%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Chen XiaoCong
Test Date	2021-12-20	Sample No.	E20211216778201-0001



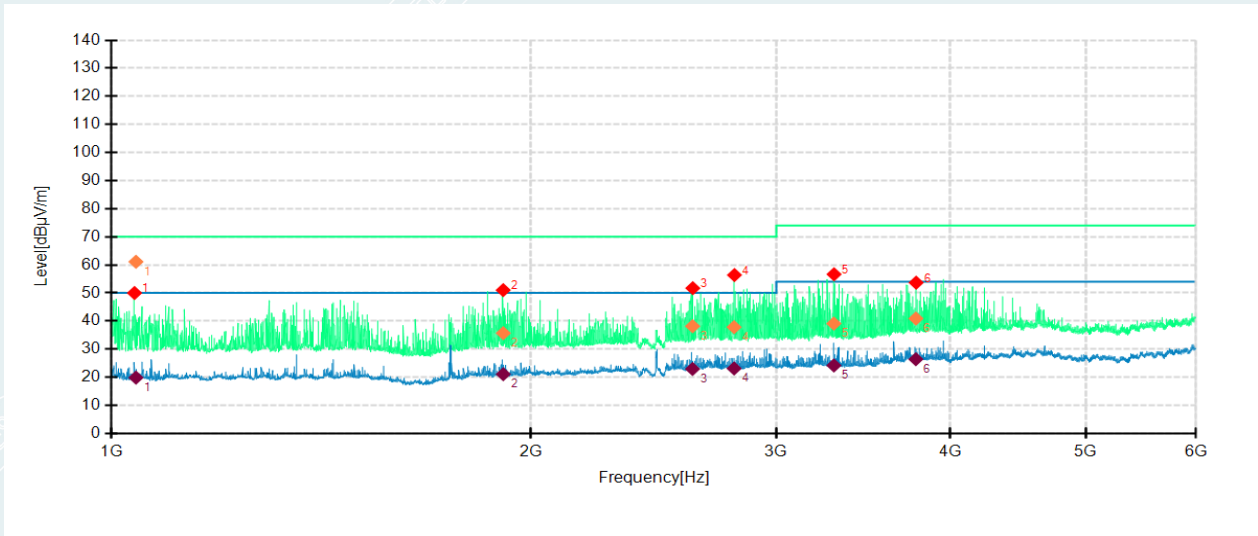
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1380.5000	44.97	21.38	-23.59	50.00	28.62	200	180	Horizontal
2	1412.0000	55.98	32.57	-23.41	70.00	37.43	100	229	Horizontal
3	2251.5000	55.00	34.51	-20.49	70.00	35.49	200	180	Horizontal
4	2270.5000	44.17	23.84	-20.33	50.00	26.16	200	180	Horizontal
5	3201.0000	53.50	36.83	-16.67	74.00	37.17	100	180	Horizontal
6	3218.5000	42.69	25.86	-16.83	54.00	28.14	100	180	Horizontal
7	4105.5000	52.22	39.53	-12.69	74.00	34.47	100	180	Horizontal
8	4108.0000	41.82	29.12	-12.70	54.00	24.88	100	252	Horizontal
9	4630.0000	39.50	29.95	-9.55	54.00	24.05	100	180	Horizontal
10	4631.5000	50.66	41.14	-9.52	74.00	32.86	100	180	Horizontal
11	5538.0000	38.88	29.81	-9.07	54.00	24.19	200	180	Horizontal
12	5543.0000	49.22	40.17	-9.05	74.00	33.83	200	100	Horizontal

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25°C/60%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Chen XiaoCong
Test Date	2021-12-20	Sample No.	E20211216778201-0001



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1337.0000	57.60	33.81	-23.79	70.00	36.19	100	180	Vertical
2	1339.5000	45.26	21.48	-23.78	50.00	28.52	100	180	Vertical
3	1462.0000	57.19	34.09	-23.10	70.00	35.91	100	173	Vertical
4	1474.0000	44.35	21.32	-23.03	50.00	28.68	100	180	Vertical
5	2300.0000	54.68	34.60	-20.08	70.00	35.40	200	180	Vertical
6	2342.0000	44.01	23.59	-20.42	50.00	26.41	200	180	Vertical
7	3420.5000	54.10	37.43	-16.67	74.00	36.57	100	180	Vertical
8	3551.0000	42.05	25.90	-16.15	54.00	28.10	200	309	Vertical
9	4628.5000	39.31	29.74	-9.57	54.00	24.26	200	349	Vertical
10	4629.5000	50.90	41.34	-9.56	74.00	32.66	100	164	Vertical
11	5645.5000	49.45	40.58	-8.87	74.00	33.42	200	284	Vertical
12	5751.5000	38.63	30.11	-8.52	54.00	23.89	100	180	Vertical

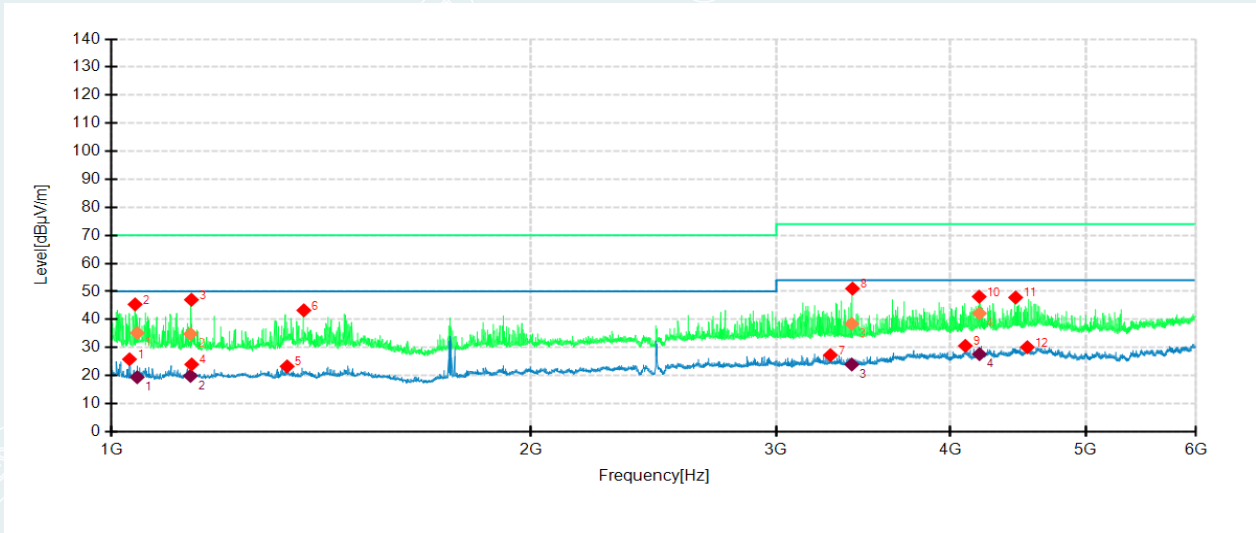
EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25°C/60%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Chen XiaoCong
Test Date	2021-12-20	Sample No.	E20211216778201-0001



PK Final Data List									
NO.	Freq. [MHz]	Factor [dB]	PK Reading [dBµV/m]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1041.4600	-25.09	86.20	61.11	70.00	8.89	200	82	Horizontal
2	1910.8000	-21.90	57.60	35.70	70.00	34.30	200	52	Horizontal
3	2612.2100	-19.10	57.28	38.18	70.00	31.82	200	231	Horizontal
4	2797.7500	-18.46	56.30	37.84	70.00	32.16	200	190	Horizontal
5	3299.3700	-16.84	55.95	39.11	74.00	34.89	200	14	Horizontal
6	3777.8000	-13.97	54.88	40.91	74.00	33.09	200	193	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBµV/m]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1041.4600	-25.09	44.96	19.87	50.00	30.13	200	82	Horizontal
2	1910.8000	-21.90	43.00	21.10	50.00	28.90	200	52	Horizontal
3	2612.2100	-19.10	42.05	22.95	50.00	27.05	200	231	Horizontal
4	2797.7500	-18.46	41.61	23.15	50.00	26.85	200	190	Horizontal
5	3299.3700	-16.84	41.05	24.21	54.00	29.79	200	14	Horizontal
6	3777.8000	-13.97	40.39	26.42	54.00	27.58	200	193	Horizontal

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25°C/60%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Chen XiaoCong
Test Date	2021-12-20	Sample No.	E20211216778201-0001



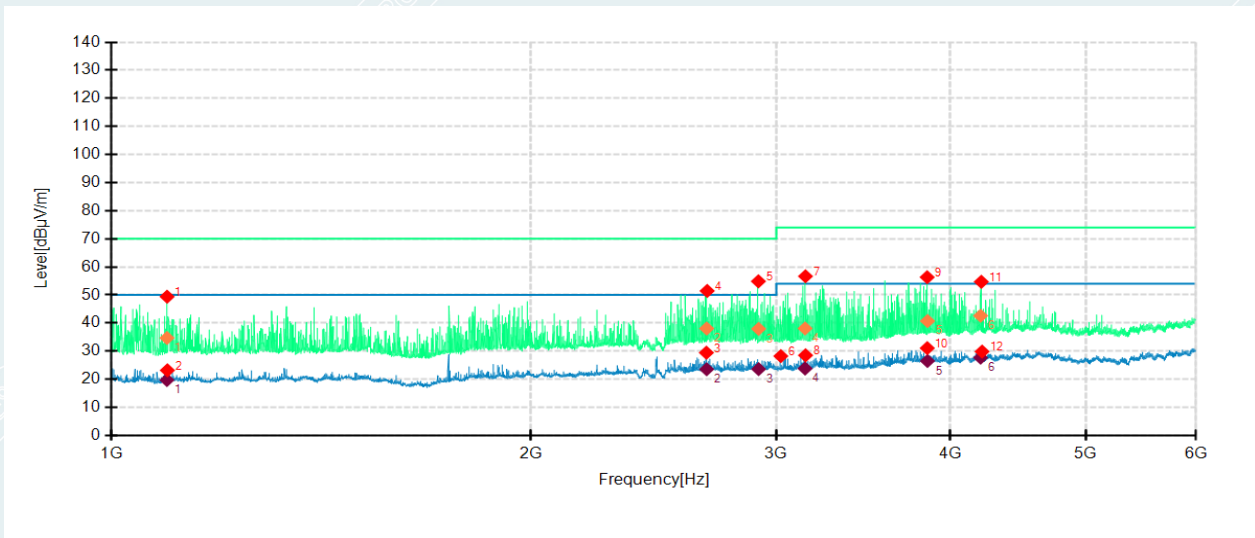
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1030.5000	50.93	25.82	-25.11	50.00	24.18	100	180	Vertical
2	1040.0000	70.48	45.39	-25.09	70.00	24.61	100	173	Vertical
3	1141.5000	71.66	47.02	-24.64	70.00	22.98	200	180	Vertical
4	1142.0000	48.63	23.99	-24.64	50.00	26.01	200	180	Vertical
5	1337.0000	47.07	23.28	-23.79	50.00	26.72	100	19	Vertical
6	1374.5000	66.88	43.26	-23.62	70.00	26.74	200	349	Vertical
7	3280.5000	44.24	27.29	-16.95	54.00	26.71	100	76	Vertical
8	3402.5000	67.75	51.01	-16.74	74.00	22.99	100	164	Vertical
9	4100.0000	43.26	30.59	-12.67	54.00	23.41	100	180	Vertical
10	4194.5000	60.55	48.14	-12.41	74.00	25.86	100	180	Vertical
11	4454.5000	58.83	47.84	-10.99	74.00	26.16	100	180	Vertical
12	4541.5000	40.62	30.10	-10.52	54.00	23.90	200	180	Vertical



PK Final Data List									
NO.	Freq. [MHz]	Factor [dB]	PK Reading [dB $\mu$ V/m]	PK Value [dB $\mu$ V/m]	PK Limit [dB $\mu$ V/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1043.7300	-25.08	60.29	35.21	70.00	34.79	200	73	Vertical
2	1139.7900	-24.64	59.49	34.85	70.00	35.15	100	117	Vertical
3	3398.4400	-16.74	55.18	38.44	74.00	35.56	200	271	Vertical
4	4196.5800	-12.41	54.61	42.20	74.00	31.80	200	63	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1043.7300	-25.08	44.50	19.42	50.00	30.58	200	73	Vertical
2	1139.7900	-24.64	44.53	19.89	50.00	30.11	100	117	Vertical
3	3398.4400	-16.74	40.69	23.95	54.00	30.05	200	271	Vertical
4	4196.5800	-12.41	40.05	27.64	54.00	26.36	200	63	Vertical

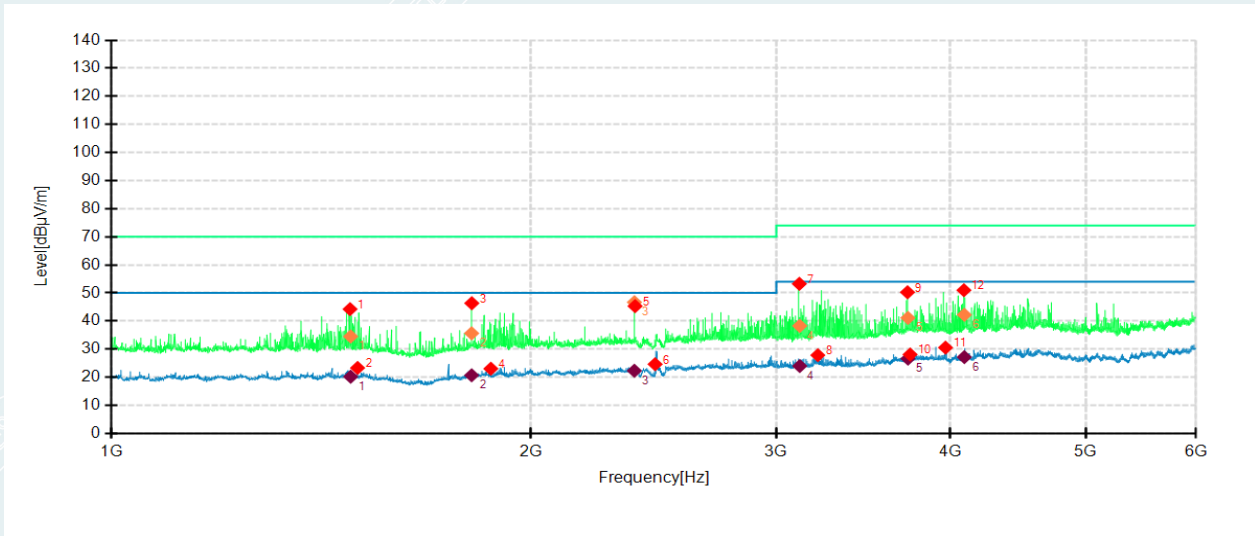
EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25°C/60%RH/101kPa	Test Mode	Mode 3
Power supply	AC230V/50Hz	Tested By	Chen XiaoCong
Test Date	2021-12-20	Sample No.	E20211216778201-0001



PK Final Data List									
NO.	Freq. [MHz]	Factor [dB]	PK Reading [dBµV/m]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1096.2400	-24.89	59.59	34.70	70.00	35.30	200	360	Horizontal
2	2673.7500	-18.46	56.53	38.07	70.00	31.93	100	124	Horizontal
3	2913.4900	-17.71	55.65	37.94	70.00	32.06	200	173	Horizontal
4	3145.9400	-17.69	55.79	38.10	74.00	35.90	200	312	Horizontal
5	3851.1200	-13.14	53.87	40.73	74.00	33.27	200	115	Horizontal
6	4204.1900	-12.30	54.92	42.62	74.00	31.38	200	174	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBµV/m]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1096.2400	-24.89	44.62	19.73	50.00	30.27	200	360	Horizontal
2	2673.7500	-18.46	42.01	23.55	50.00	26.45	100	124	Horizontal
3	2913.4900	-17.71	41.33	23.62	50.00	26.38	200	173	Horizontal
4	3145.9400	-17.69	41.52	23.83	54.00	30.17	200	312	Horizontal
5	3851.1200	-13.14	39.65	26.51	54.00	27.49	200	115	Horizontal
6	4204.1900	-12.30	39.99	27.69	54.00	26.31	200	174	Horizontal

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25°C/60%RH/101kPa	Test Mode	Mode 3
Power supply	AC230V/50Hz	Tested By	Chen XiaoCong
Test Date	2021-12-20	Sample No.	E20211216778201-0001



PK Final Data List									
NO.	Freq. [MHz]	Factor [dB]	PK Reading [dBµV/m]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1484.9400	-22.98	57.50	34.52	70.00	35.48	200	225	Vertical
2	1813.4600	-22.00	57.65	35.65	70.00	34.35	200	250	Vertical
3	2372.9600	-20.20	66.90	46.70	70.00	23.30	100	282	Vertical
4	3118.5100	-17.39	55.68	38.29	74.00	35.71	200	106	Vertical
5	3728.5400	-14.60	55.73	41.13	74.00	32.87	200	323	Vertical
6	4092.7100	-12.87	55.11	42.24	74.00	31.76	200	247	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBµV/m]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1484.9400	-22.98	43.17	20.19	50.00	29.81	200	225	Vertical
2	1813.4600	-22.00	42.70	20.70	50.00	29.30	200	250	Vertical
3	2372.9600	-20.20	42.52	22.32	50.00	27.68	100	282	Vertical
4	3118.5100	-17.39	41.39	24.00	54.00	30.00	200	106	Vertical
5	3728.5400	-14.60	41.23	26.63	54.00	27.37	200	323	Vertical
6	4092.7100	-12.87	40.04	27.17	54.00	26.83	200	247	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**

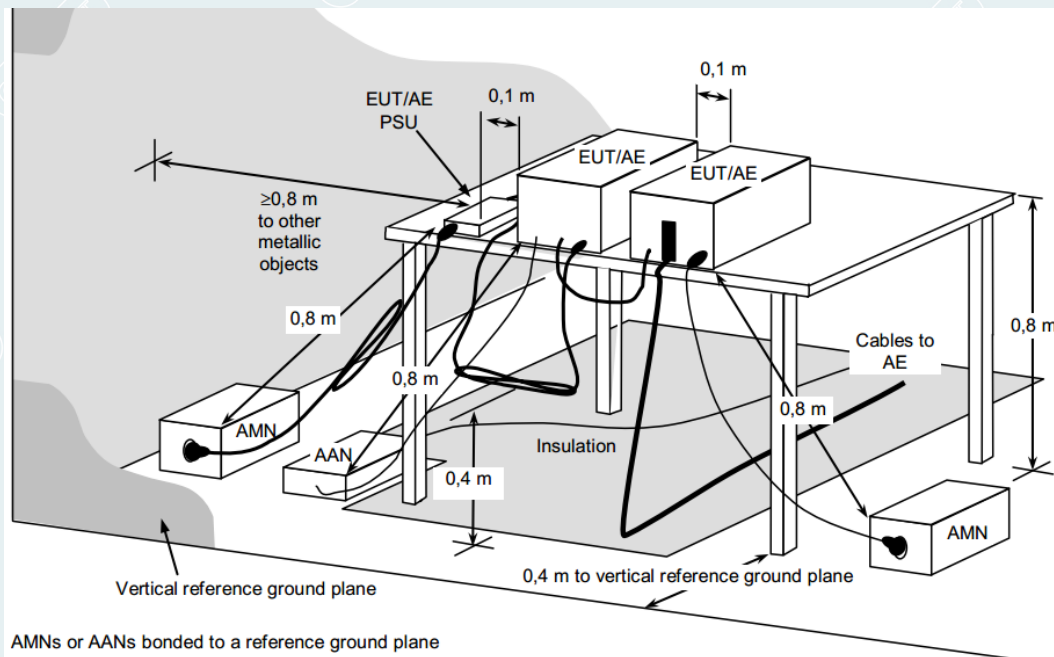


Figure 7.2-1: Test arrangement for Conducted emission measurement

**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**

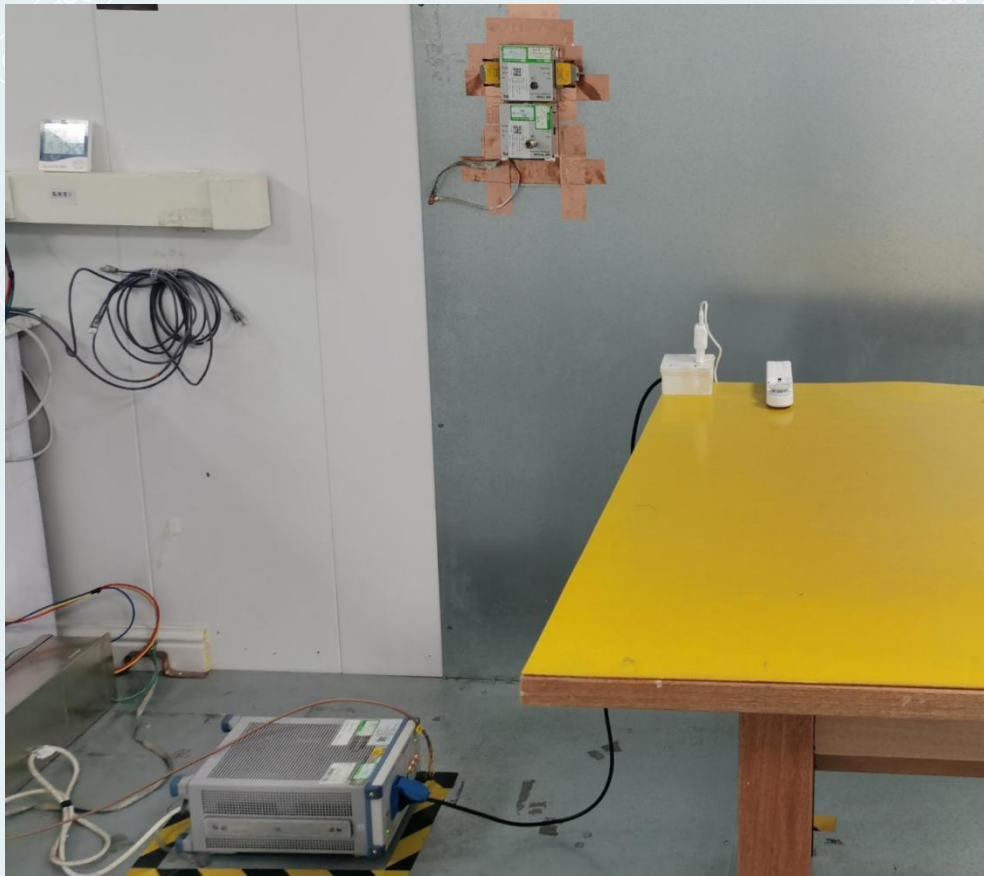
**Rev.00**



Mode 1& Mode 2

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

Rev.01



Mode 1



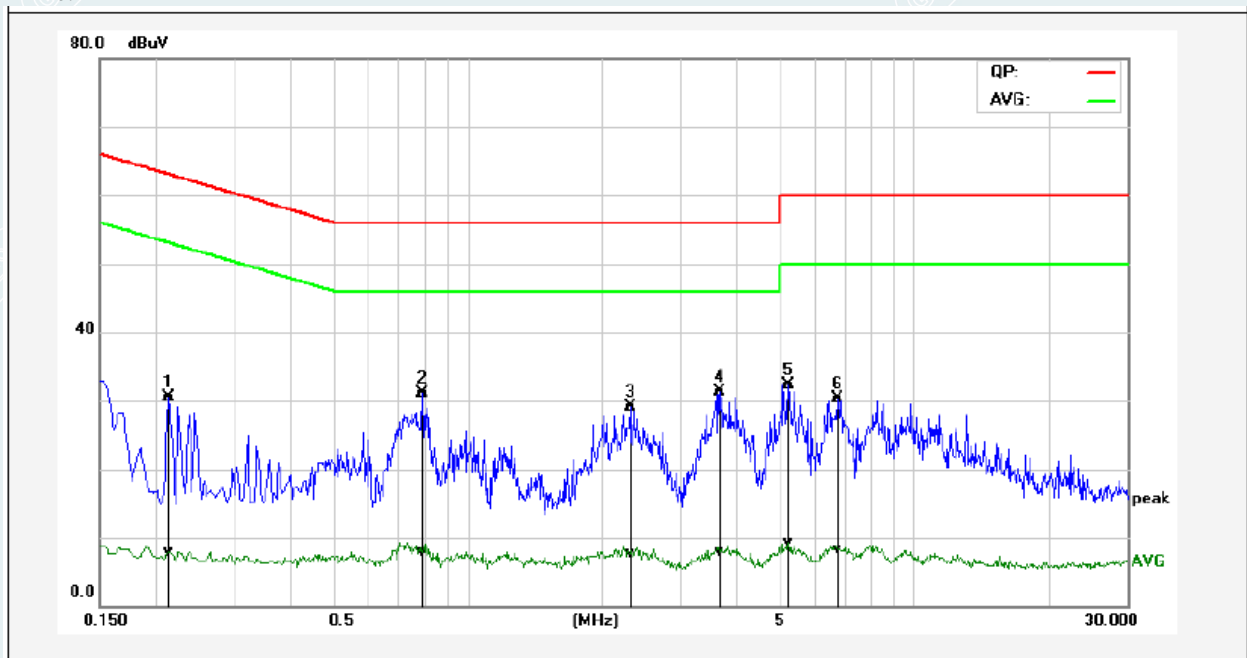
Mode 2

5.2.6. TEST RESULTS

Rev.00

EUT Name	Roller Shade Driver E1	Model:	RSD-M01
Environmental Conditions	21.1 °C/49%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Zhong Fuping
Test Date	2021-04-22	Sample No.	E20210316495901-0001

Line: L1

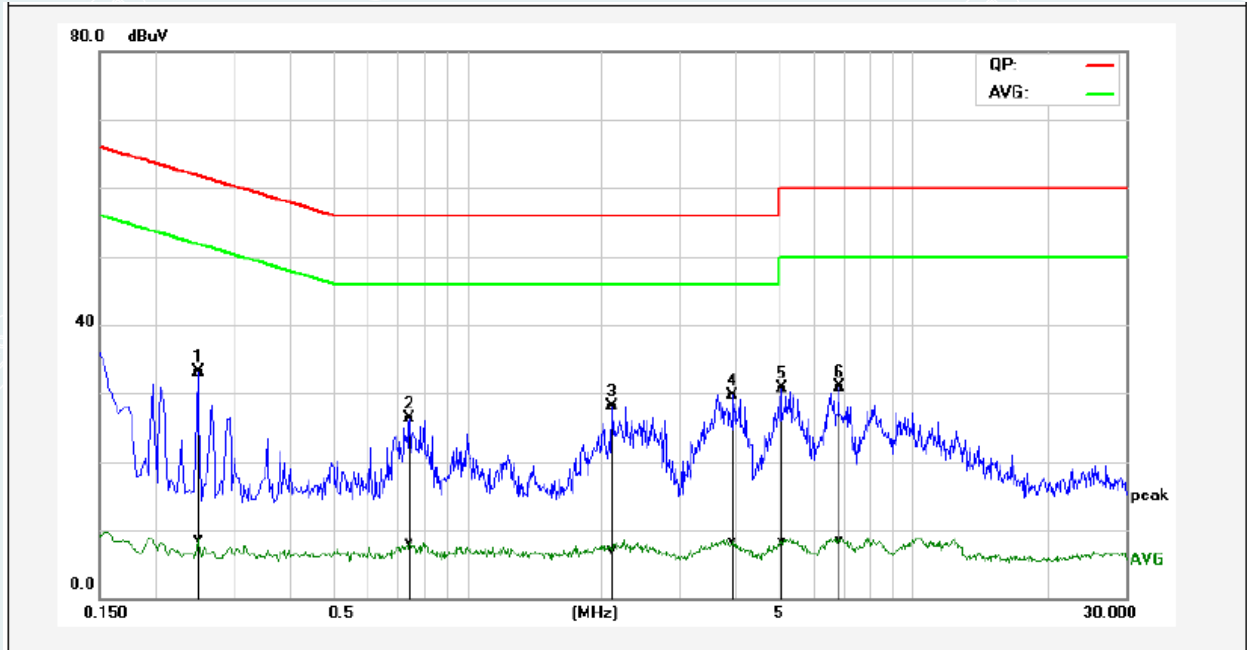


No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.2140	20.98	-1.66	9.61	30.59	7.95	63.04	53.05	-32.45	-45.10	Pass
2	0.7940	21.53	-1.71	9.61	31.14	7.90	56.00	46.00	-24.86	-38.10	Pass
3	2.3179	19.43	-1.86	9.62	29.05	7.76	56.00	46.00	-26.95	-38.24	Pass
4*	3.6780	21.76	-1.74	9.64	31.40	7.90	56.00	46.00	-24.60	-38.10	Pass
5	5.2220	22.66	-0.31	9.66	32.32	9.35	60.00	50.00	-27.68	-40.65	Pass
6	6.7620	20.69	-1.34	9.69	30.38	8.35	60.00	50.00	-29.62	-41.65	Pass



EUT Name	Roller Shade Driver E1	Model:	RSD-M01
Environmental Conditions	21.1°C/49%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Zhong Fuping
Test Date	2021-04-22	Sample No.	E20210316495901-0001

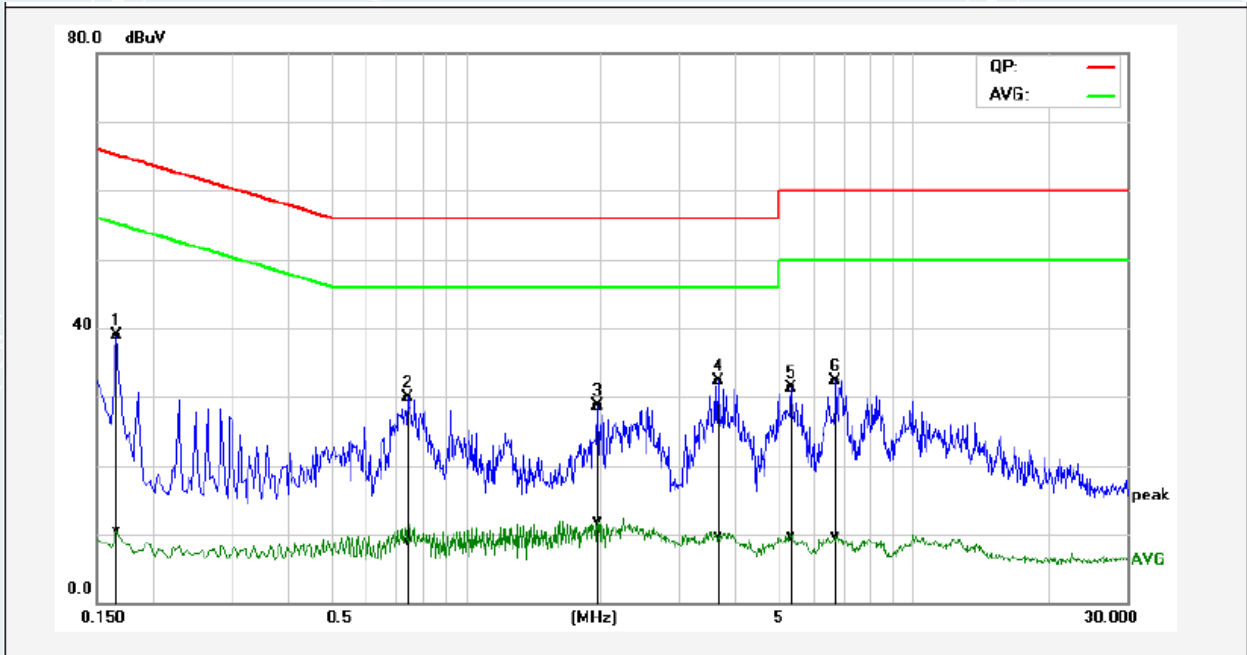
Line: N



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	0.2500	23.58	-0.91	9.60	33.18	8.69	61.75	51.76	-28.57	-43.07	Pass
2	0.7460	16.79	-1.50	9.61	26.40	8.11	56.00	46.00	-29.60	-37.89	Pass
3	2.1140	18.48	-2.56	9.62	28.10	7.06	56.00	46.00	-27.90	-38.94	Pass
4*	3.9580	20.04	-1.42	9.64	29.68	8.22	56.00	46.00	-26.32	-37.78	Pass
5	5.0700	20.99	-1.39	9.66	30.65	8.27	60.00	50.00	-29.35	-41.73	Pass
6	6.8340	21.22	-1.19	9.69	30.91	8.50	60.00	50.00	-29.09	-41.50	Pass

EUT Name	Roller Shade Driver E1	Model:	RSD-M01
Environmental Conditions	21.1°C/49%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Zhong Fuping
Test Date	2021-04-22	Sample No.	E20210316495901-0001

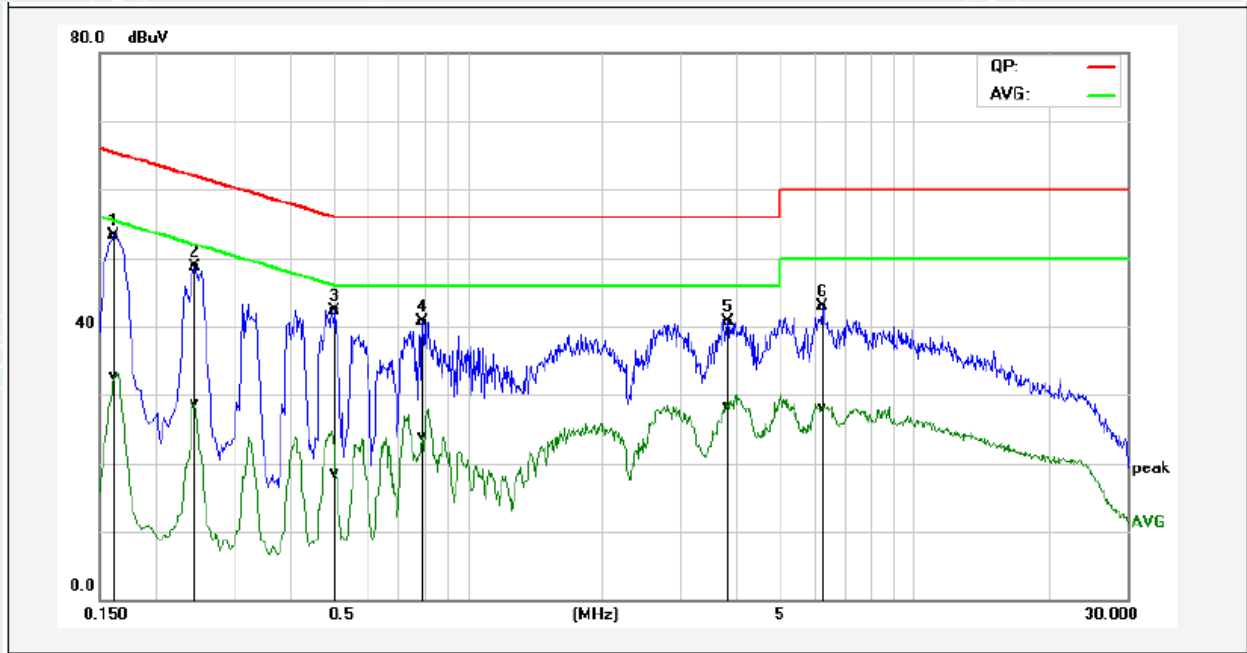
Line: L1



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	0.1660	29.25	0.83	9.61	38.86	10.44	65.15	55.16	-26.29	-44.72	Pass
2	0.7460	20.27	-0.71	9.61	29.88	8.90	56.00	46.00	-26.12	-37.10	Pass
3	1.9700	19.17	2.27	9.62	28.79	11.89	56.00	46.00	-27.21	-34.11	Pass
4*	3.6700	22.58	0.07	9.64	32.22	9.71	56.00	46.00	-23.78	-36.29	Pass
5	5.3380	21.66	0.07	9.66	31.32	9.73	60.00	50.00	-28.68	-40.27	Pass
6	6.7300	22.68	0.08	9.69	32.37	9.77	60.00	50.00	-27.63	-40.23	Pass

EUT Name	Roller Shade Driver E1	Model:	RSD-M01
Environmental Conditions	21.1°C/49%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Zhong Fuping
Test Date	2021-04-22	Sample No.	E20210316495901-0001

Line: N

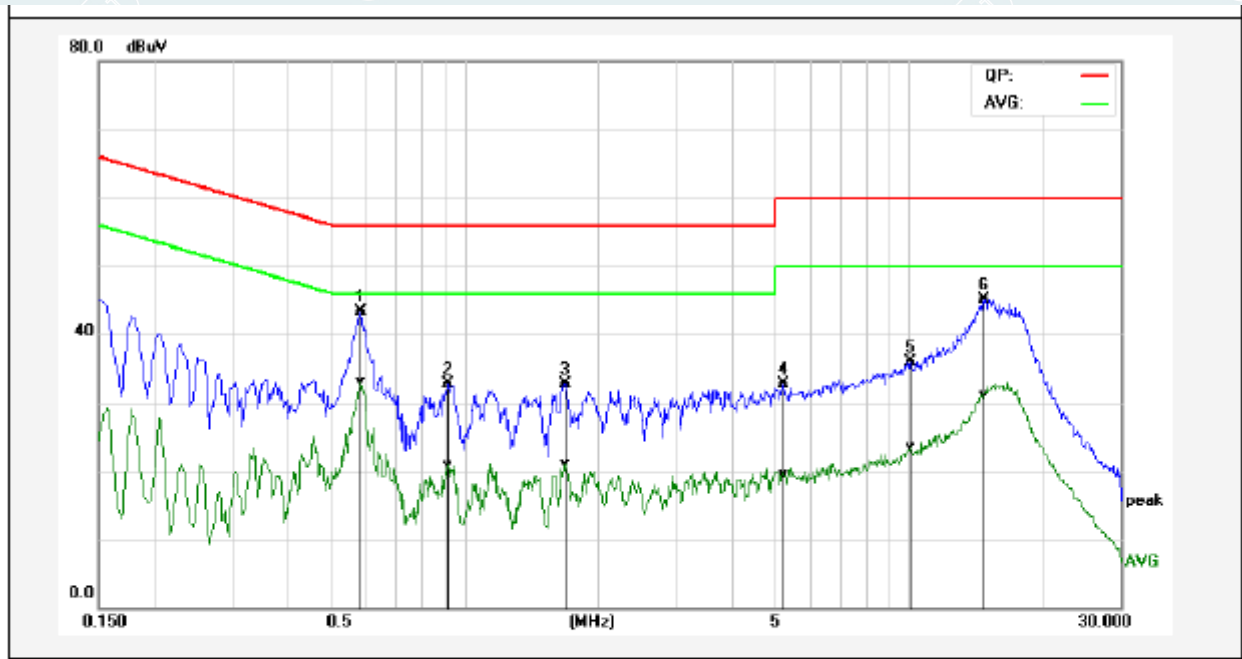


No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.1620	43.78	23.19	9.60	53.38	32.79	65.36	55.36	-11.98	-22.57	Pass
2	0.2460	39.03	19.15	9.60	48.63	28.75	61.89	51.89	-13.26	-23.14	Pass
3	0.5060	32.75	8.82	9.62	42.37	18.44	56.00	46.00	-13.63	-27.56	Pass
4	0.7940	31.09	14.24	9.61	40.70	23.85	56.00	46.00	-15.30	-22.15	Pass
5	3.8260	31.13	18.69	9.64	40.77	28.33	56.00	46.00	-15.23	-17.67	Pass
6	6.2220	33.30	18.52	9.68	42.98	28.20	60.00	50.00	-17.02	-21.80	Pass

Rev.01

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

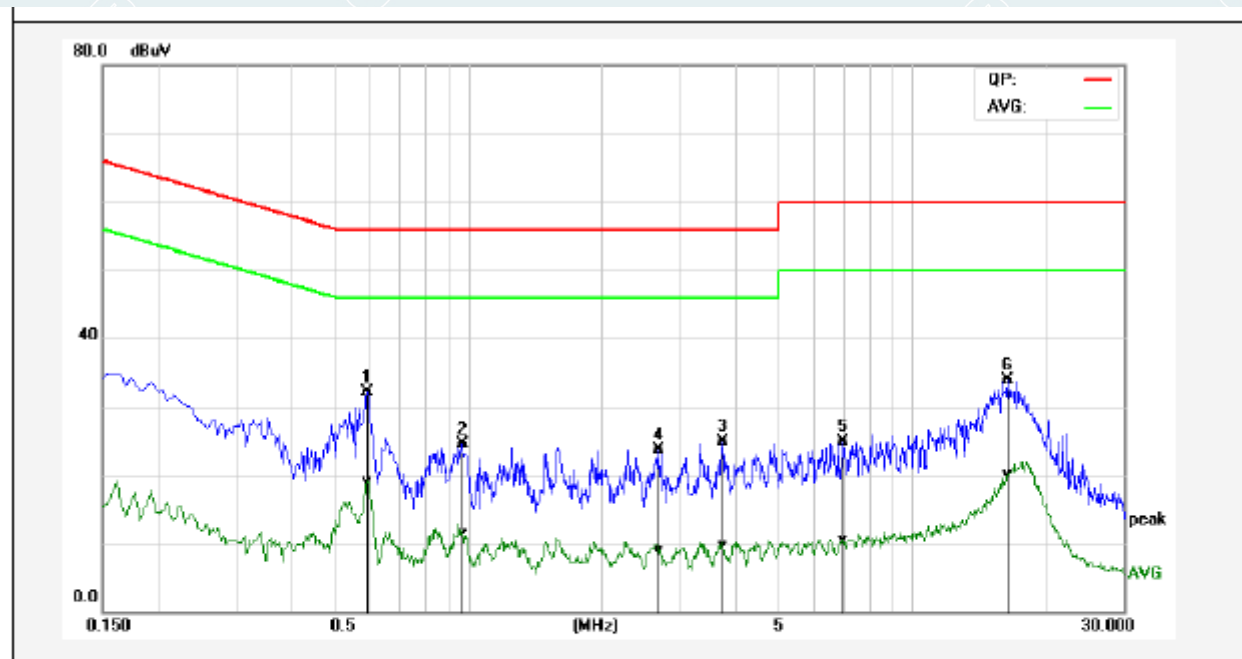
Line: L1



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*	0.5860	33.75	23.47	9.57	43.32	33.04	56.00	46.00	-12.68	-12.96	Pass
2	0.9220	23.14	11.31	9.59	32.73	20.90	56.00	46.00	-23.27	-25.10	Pass
3	1.6820	23.11	11.49	9.60	32.71	21.09	56.00	46.00	-23.29	-24.91	Pass
4	5.2460	22.96	9.87	9.68	32.64	19.55	60.00	50.00	-27.36	-30.45	Pass
5	10.0980	26.05	13.77	9.79	35.84	23.56	60.00	50.00	-24.16	-26.44	Pass
6	14.7780	35.25	21.17	9.84	45.09	31.01	60.00	50.00	-14.91	-18.99	Pass

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

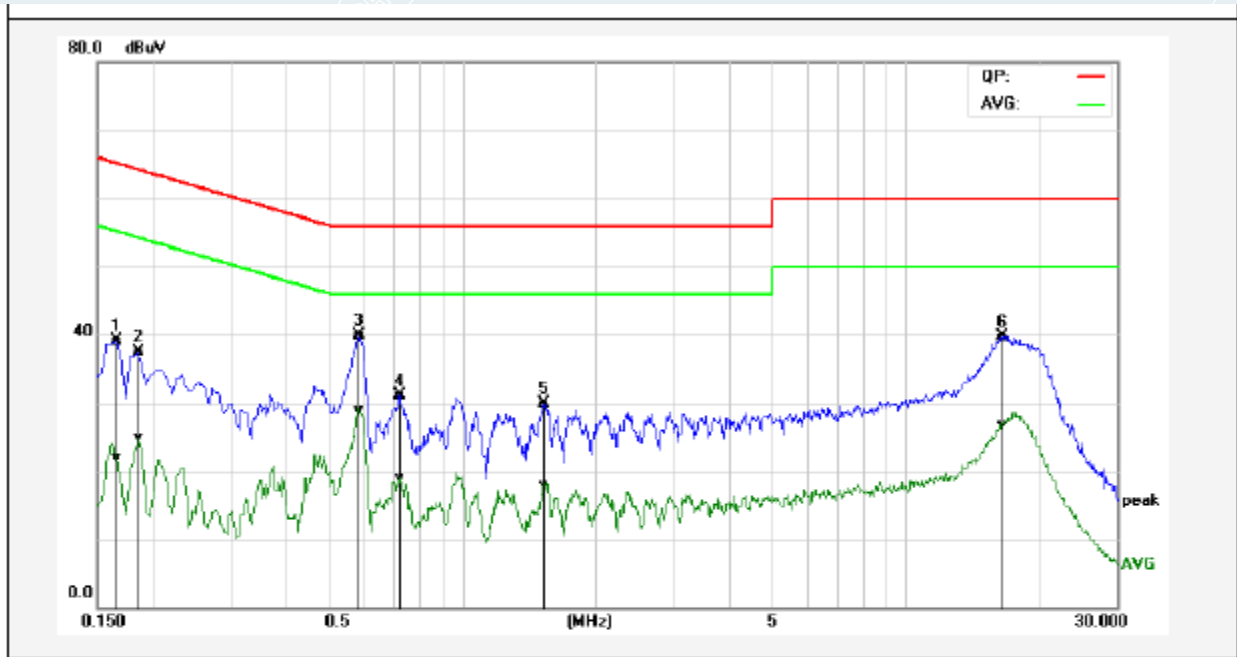
Line: N



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*	0.5940	22.55	9.54	9.57	32.12	19.11	56.00	46.00	-23.88	-26.89	Pass
2	0.9700	14.96	1.92	9.59	24.55	11.51	56.00	46.00	-31.45	-34.49	Pass
3	3.7500	15.19	0.02	9.64	24.83	9.66	56.00	46.00	-31.17	-36.34	Pass
4	2.6860	14.07	-0.70	9.61	23.68	8.91	56.00	46.00	-32.32	-37.09	Pass
5	6.9980	15.20	0.77	9.73	24.93	10.50	60.00	50.00	-35.07	-39.50	Pass
6	16.4500	24.02	10.23	9.87	33.89	20.10	60.00	50.00	-26.11	-29.90	Pass

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

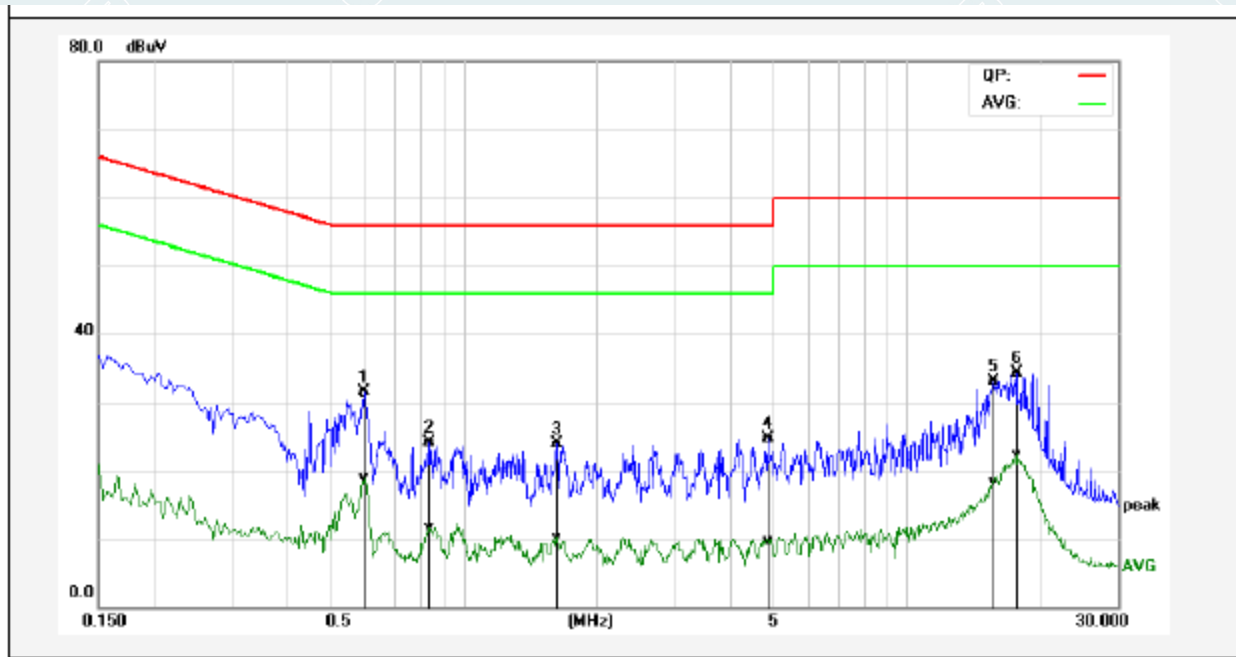
Line: **L1**



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	0.1660	29.56	12.34	9.53	39.09	21.87	65.15	55.16	-26.06	-33.29	Pass
2	0.1860	27.88	15.27	9.54	37.42	24.81	64.21	54.21	-26.79	-29.40	Pass
3*	0.5860	30.31	19.43	9.57	39.88	29.00	56.00	46.00	-16.12	-17.00	Pass
4	0.7220	21.44	9.36	9.57	31.01	18.93	56.00	46.00	-24.99	-27.07	Pass
5	1.5339	20.32	8.35	9.60	29.92	17.95	56.00	46.00	-26.08	-28.05	Pass
6	16.5540	29.92	16.91	9.87	39.79	26.78	60.00	50.00	-20.21	-23.22	Pass

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

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*	0.5980	21.83	9.30	9.57	31.40	18.87	56.00	46.00	-24.60	-27.13	Pass
2	0.8420	14.62	2.14	9.57	24.19	11.71	56.00	46.00	-31.81	-34.29	Pass
3	1.6300	14.33	0.59	9.60	23.93	10.19	56.00	46.00	-32.07	-35.81	Pass
4	4.8659	15.04	0.04	9.67	24.71	9.71	56.00	46.00	-31.29	-36.29	Pass
5	15.7180	23.33	8.52	9.85	33.18	18.37	60.00	50.00	-26.82	-31.63	Pass
6	17.6900	24.49	12.34	9.88	34.37	22.22	60.00	50.00	-25.63	-27.78	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

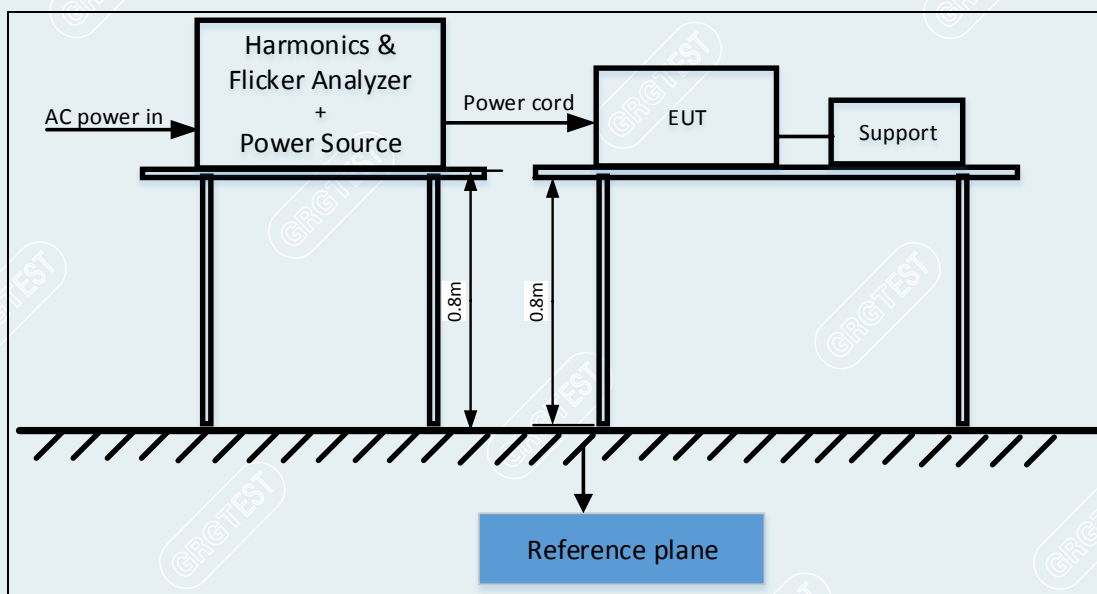


Figure 7.4-1: Test arrangement for Voltage fluctuations and flicker measurement.



### 5.3.4. PHOTOGRAPH OF THE TEST ARRANGEMENT

Rev.00



Mode 1 & Mode 2

Rev.01



Mode 1 & Mode 2

**5.3.5. TEST RESULTS**

Rev.00

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25.8°C/34%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-04-19	Sample No.	E20210316495901-0001

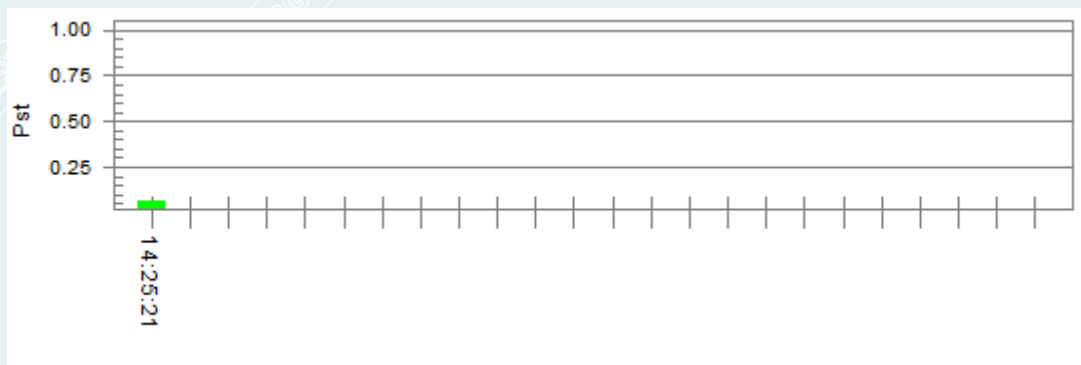
Test category: All parameters (European limits) Test Margin: 100

Test date: 2021/4/19 Start time: 14:15:00End time: 14:25:27

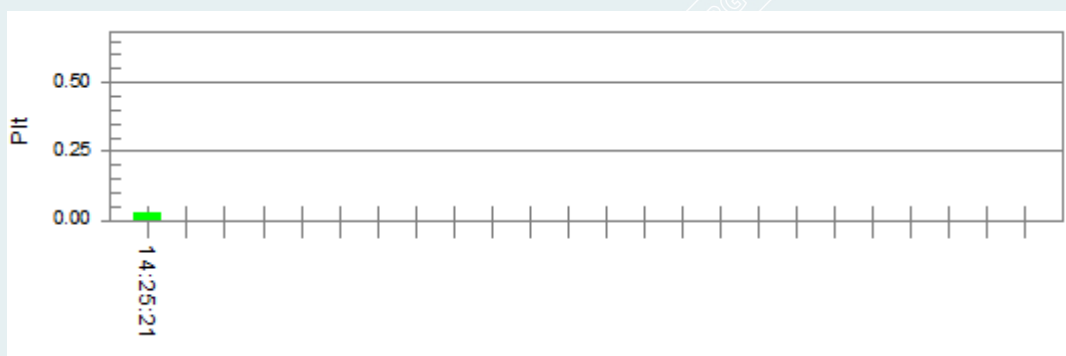
Test duration (min): 10 Data file name: F-000561.cts\_data

Test Result: Pass Status: Test Completed

Pst<sub>t</sub> and limit line European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):230.10

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):0.064 Test limit: 1.000 Pass

Highest Plt (2 hr. period): 0.028 Test limit: 0.650 Pass

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25.8°C/34%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-04-19	Sample No.	E20210316495901-0001

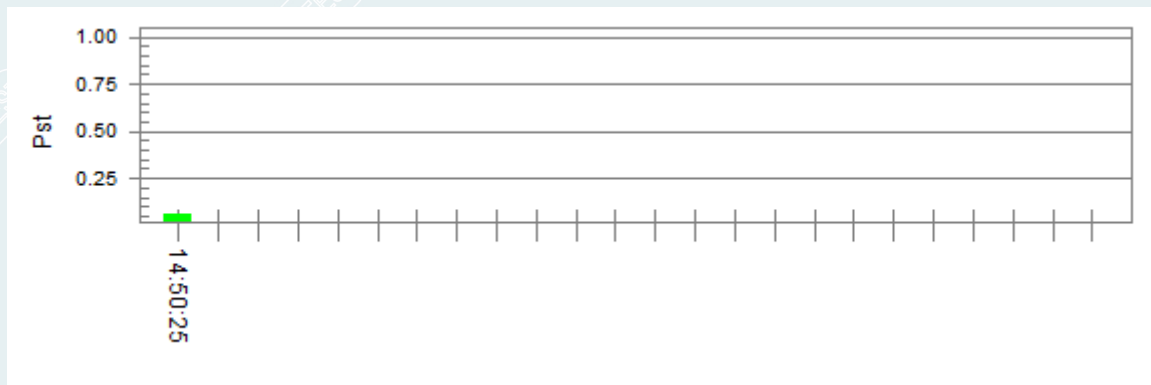
Test category: All parameters (European limits) Test Margin: 100

Test date: 2021/4/19 Start time: 14:40:04End time: 14:50:31

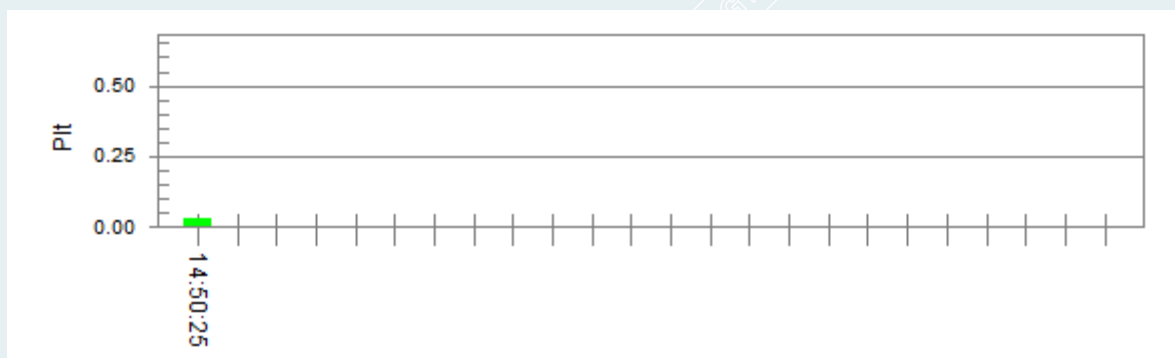
Test duration (min): 10 Data file name: F-000562.cts\_data

Test Result: Pass Status: Test Completed

Pst<sub>t</sub> and limit line European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):230.06

T-max (mS): 0Test 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): 0.064 Test limit: 1.000 Pass

Highest Plt (2 hr. period): 0.028 Test limit: 0.650 Pass

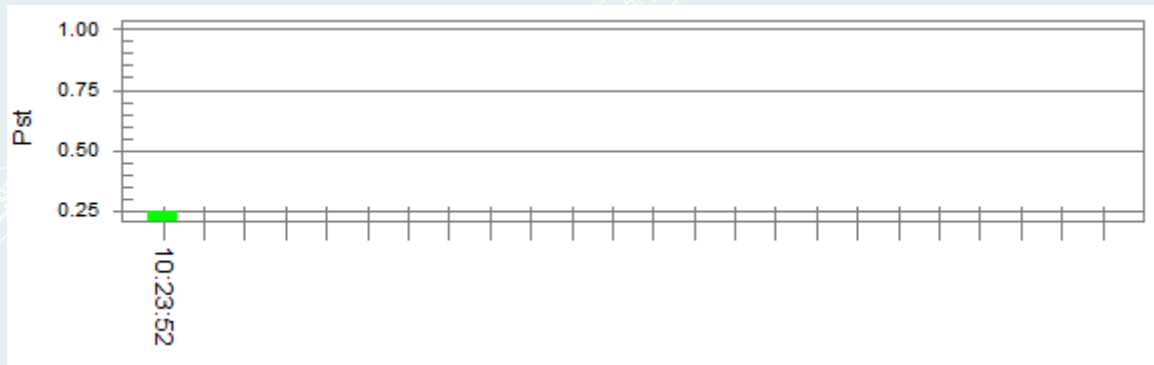
**Rev.01**

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang shenghui
Test Date	2021-12-19	Sample No.	E20211216778201-0001

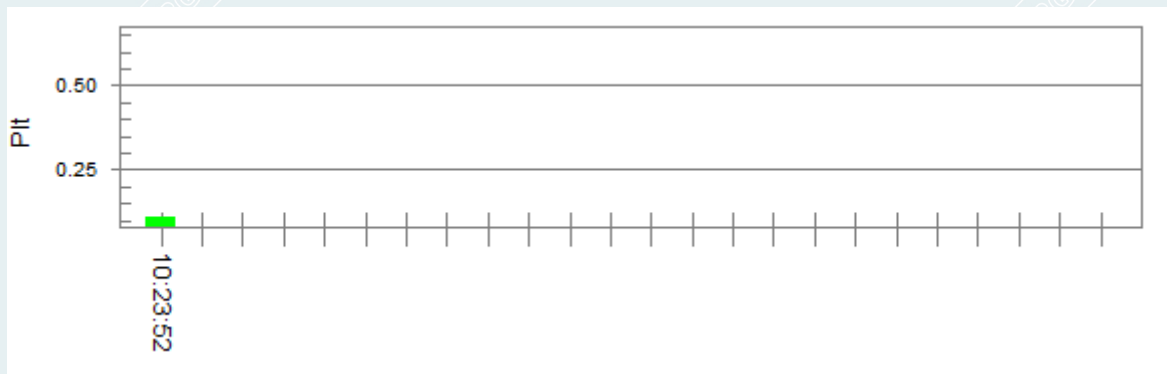
Test category: All parameters (European limits)      Test Margin: 100  
 Test date: 2021/12/19      Start time: 10:13:31      End time: 10:23:58  
 Test duration (min): 10      Data file name: F-000058.cts\_data  
 Test Result: Pass      Status: Test Completed

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

European Limits  
 European Limits



Plt and limit line



Parameter values recorded during the test:

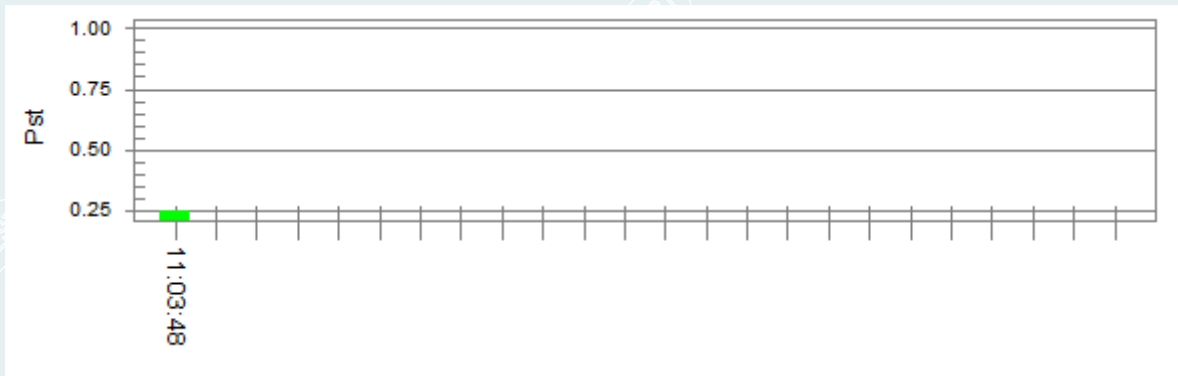
Vrms at the end of test (Volt):	229.96		
Highest dt (%):		Test limit (%):	
T-max (mS):	0	Test limit (mS):	500.0      Pass
Highest dc (%):	0.00	Test limit (%):	3.30      Pass
Highest dmax (%):	0.00	Test limit (%):	4.00      Pass
Highest Pst (10 min. period):	0.248	Test limit:	1.000      Pass
Highest Plt (2 hr. period):	0.108	Test limit:	0.650      Pass

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang shenghui
Test Date	2021-12-19	Sample No.	E20211216778201-0001

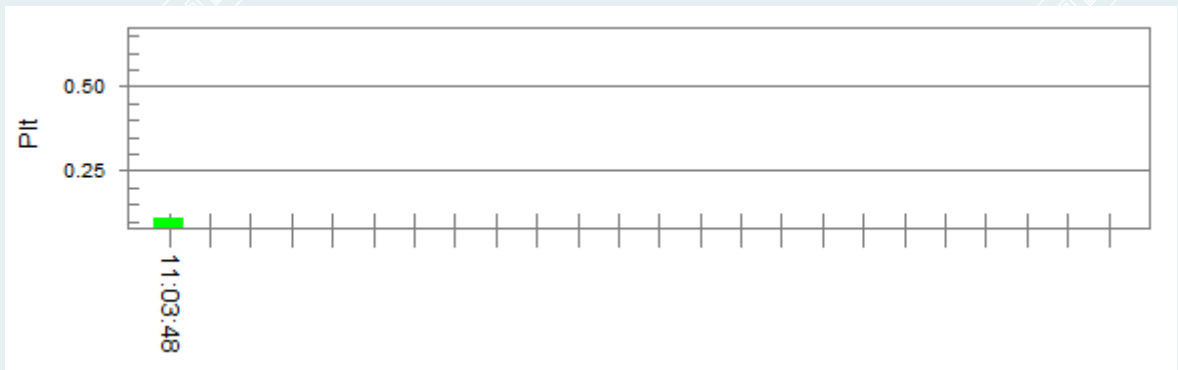
Test category: All parameters (European limits)      Test Margin: 100  
 Test date: 2021/12/19      Start time: 10:53:27      End time: 11:03:55  
 Test duration (min): 10      Data file name: F-000059.cts\_data  
 Test Result: Pass      Status: Test Completed

Pst and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.98		
Highest dt (%):		Test limit (%):	
T-max (mS):	0	Test limit (mS):	500.0      Pass
Highest dc (%):	0.00	Test limit (%):	3.30      Pass
Highest dmax (%):	0.00	Test limit (%):	4.00      Pass
Highest Pst (10 min. period):	0.248	Test limit:	1.000      Pass
Highest Plt (2 hr. period):	0.108	Test limit:	0.650      Pass

## 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: ±8kV air discharge ±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: ±1 kV; 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>
<p>Performance criteria for equipment which does not provide a continuous communication link</p>	<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>
<p>Performance criteria for ancillary equipment tested on a stand alone basis</p>	<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 : $\pm 2$ kV, $\pm 4$ kV , $\pm 8$ kV; Contact Discharge: $\pm 2$ kV, $\pm 4$ 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.

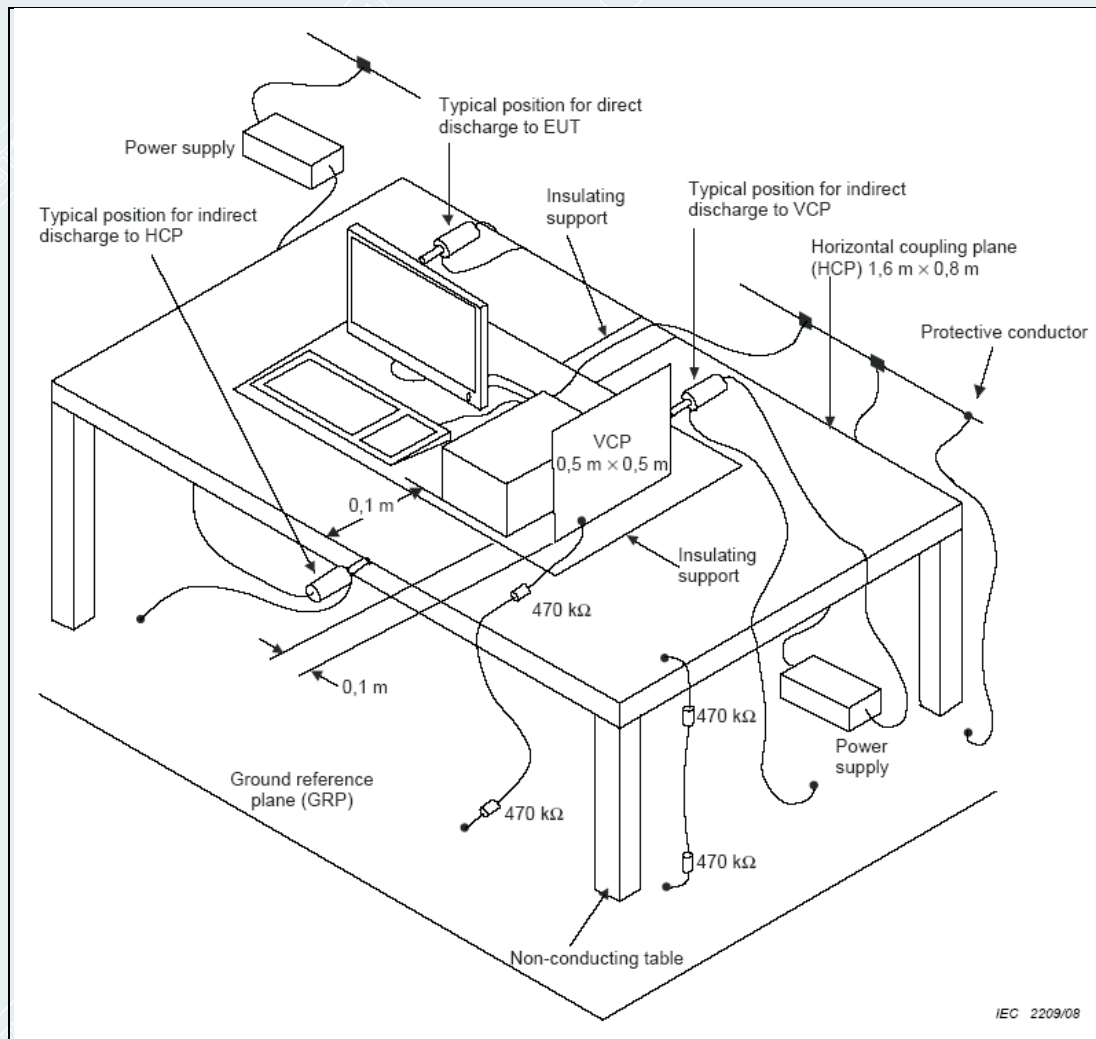
It was at least ten single discharges with positive and negative at the same selected point.

- (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**

**Rev.00**



**Mode 1 & Mode 2**



**Mode 3**

Rev.01



Mode 1 & Mode 2



Mode 3

**6.3.5. TEST RESULTS****Rev.00**

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.2°C/52%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-04-21	Sample No.	E20210316495901-0001

Discharge point	Discharge voltage	C-Conduct A-Air	Required Performance	Actual performance	Result
Vertical coupling plane	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Horizontal coupling plane	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Screw	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Indicator light	±8 kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
Gaps	±8 kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
USB port	±8 kV	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.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.2°C/52%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-04-21	Sample No.	E20210316495901-0001

Discharge point	Discharge voltage	C-Conduct A-Air	Required Performance	Actual performance	Result
Vertical coupling plane	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Horizontal coupling plane	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Screw	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Indicator light	±8 kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
Gaps	±8 kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
USB port	±8 kV	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.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.2°C/52%RH/101kPa	Test Mode	Mode 3
Power supply	DC7.4V	Tested By	Wu Haoting
Test Date	2021-04-21	Sample No.	E20210316495901-0001

Discharge point	Discharge voltage	C-Conduct A-Air	Required Performance	Actual performance	Result
Vertical coupling plane	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Horizontal coupling plane	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Screw	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Indicator light	±8 kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
Gaps	±8 kV	A	Criterion B	Criterion A <sup>1)</sup>	PASS
USB port	±8 kV	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.

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



**Rev.01**

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

Discharge point	Discharge voltage	C-Conduct A-Air	Required Performance	Actual performance	Result
Vertical coupling plane	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Horizontal coupling plane	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
USB port	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Gaps	±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.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

Discharge point	Discharge voltage	C-Conduct A-Air	Required Performance	Actual performance	Result
Vertical coupling plane	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Horizontal coupling plane	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
USB port	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Gaps	±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.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 3
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

Discharge point	Discharge voltage	C-Conduct A-Air	Required Performance	Actual performance	Result
Vertical coupling plane	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Horizontal coupling plane	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
USB port	±4kV	C	Criterion B	Criterion A <sup>1)</sup>	PASS
Gaps	±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.

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

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

### 6.4.1. TEST SPECIFICATION

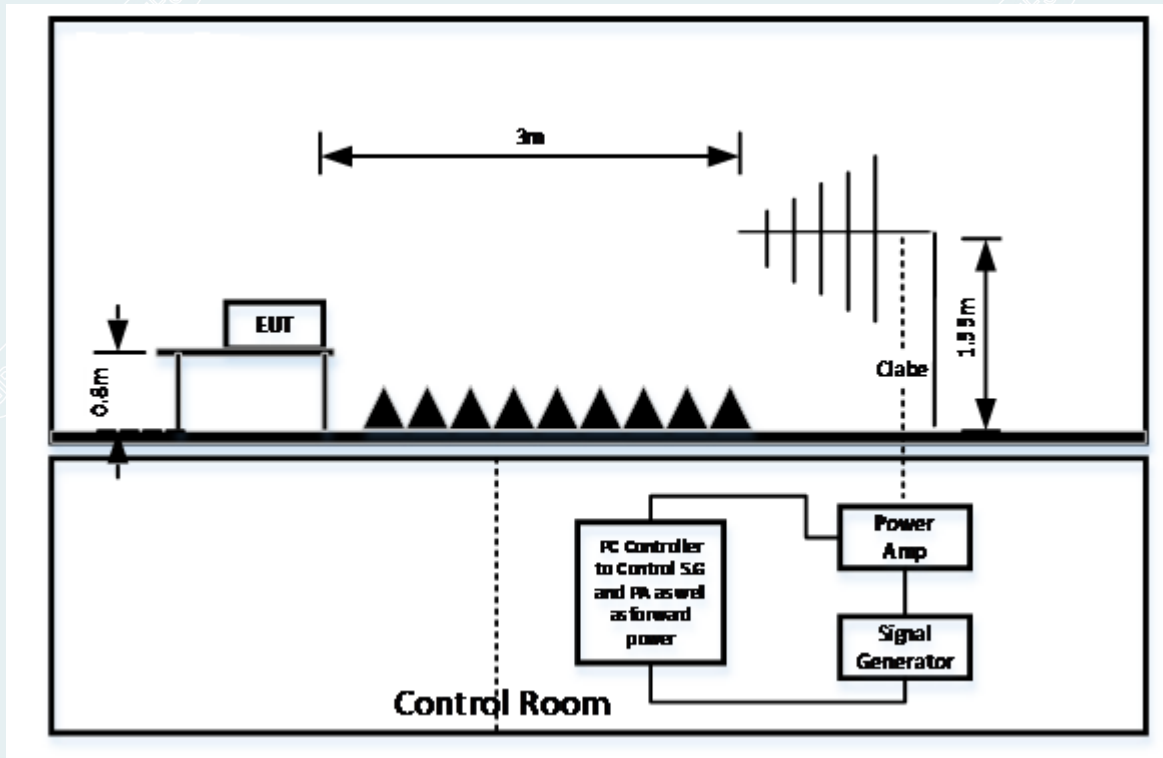
Test Requirement:	ETSI EN 301 489-17 V3.2.4 /7.2.1 ETSI EN 301 489-1 V2.2.3/9.2
Test Method:	EN 61000-4-3:2006+A1:2008+A2:2010
Frequency Range:	80MHz ~ 6000MHz
Field Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna 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 IEC 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

##### (2) Floor-standing equipment

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

Note: the EUT is a Table-top equipment.

**Note: the EUT is a table-top equipment.**

#### 6.4.4. PHOTOGRAPH OF THE TEST ARRANGEMENT

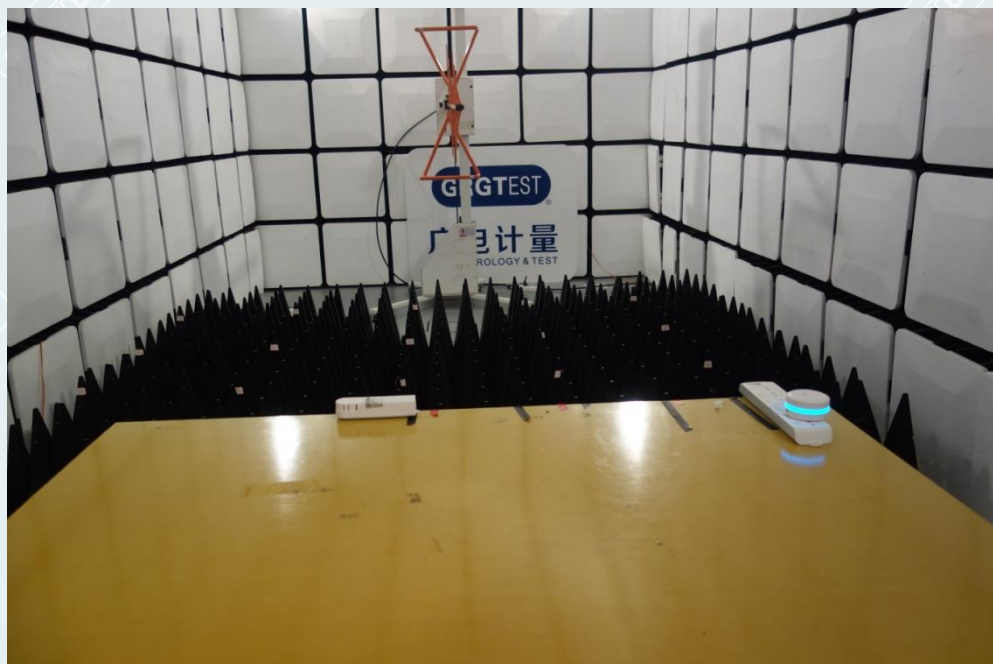
Rev.00



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



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

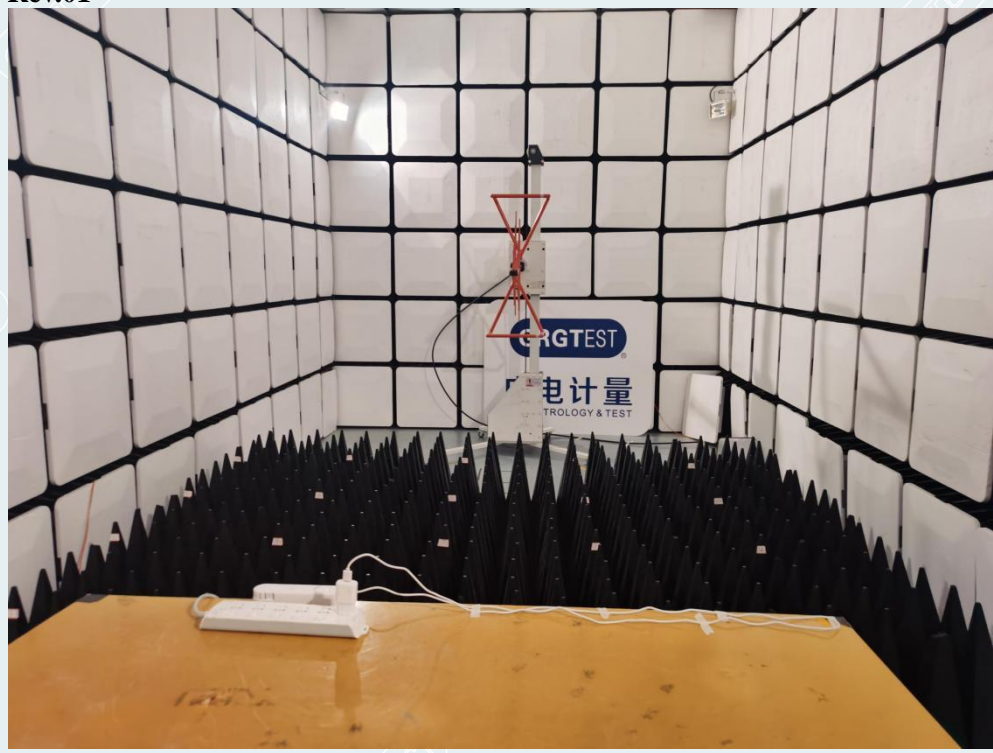


80MHz~1000MHz (Mode 3)

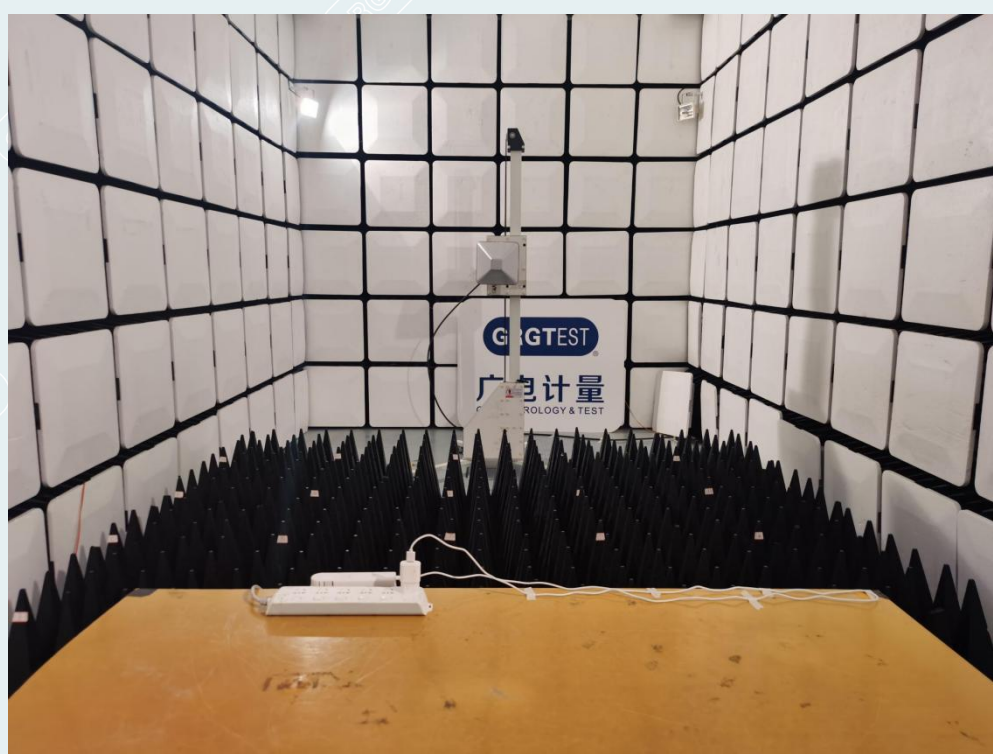


1000MHz~6000MHz(Mode 3)

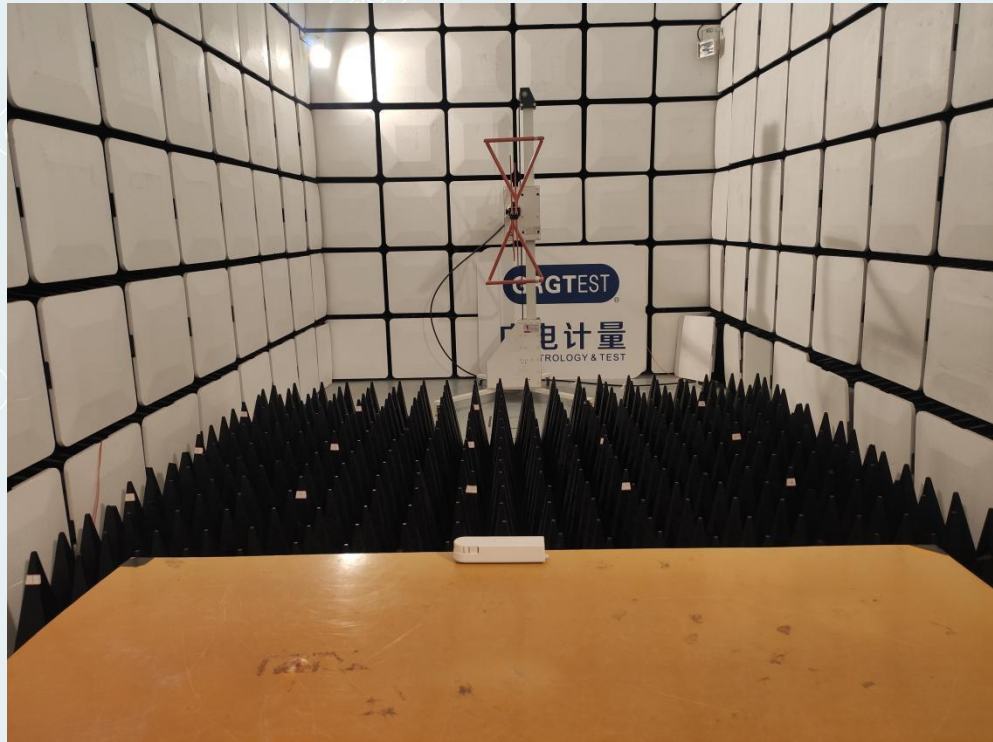
Rev.01



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**

Rev.00

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25°C/51%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-04-21	Sample No.	E20210316495901-0001

Frequency (MHz)	Field strength (V/m)	EUT orientation	Antenna polarization	Required criterion	Actual performance	Result
80MHz~1000MHz	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
1000MHz~2700M Hz	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
2700MHz~6000M Hz	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. The RF frequency 2280~2603.5MHz and 4830~6000MHz is exempted as required by the standards. When the test frequency 2405MHz, the Per is 0 %.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25°C/51%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-04-21	Sample No.	E20210316495901-0001

Frequency (MHz)	Field strength (V/m)	EUT orientation	Antenna polarization	Required criterion	Actual performance	Result
80MHz~1000MHz	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
1000MHz~2700M Hz	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
2700MHz~6000M Hz	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. The RF frequency 2280~2603.5MHz and 4830~6000MHz is exempted as required by the standards. When the test frequency 2405MHz, the Per is 0 %.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25°C/51%RH/101kPa	Test Mode	Mode 3
Power supply	DC7.4V	Tested By	Wu Haoting
Test Date	2021-04-21	Sample No.	E20210316495901-0001

Frequency (MHz)	Field strength (V/m)	EUT orientation	Antenna polarization	Required criterion	Actual performance	Result
80MHz~1000MHz	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
1000MHz~2700M Hz	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
2700MHz~6000M Hz	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. The RF frequency 2280~2603.5MHz and 4830~6000MHz is exempted as required by the standards. When the test frequency 2405MHz, the Per is 0 %.

Rev.01

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-19	Sample No.	E20211216778201-0001

Frequency (MHz)	Field strength (V/m)	EUT orientation	Antenna polarization	Required criterion	Actual performance	Result
80MHz~1000MHz	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		
1000MHz~2700M Hz	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		
2700MHz~6000M Hz	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. The RF frequency 2280~2603.5MHz and 4830~6000MHz is exempted as required by the standards. When the test frequency 2405MHz, the Per is 0 %.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-19	Sample No.	E20211216778201-0001

Frequency (MHz)	Field strength (V/m)	EUT orientation	Antenna polarization	Required criterion	Actual performance	Result
80MHz~1000MHz	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		
1000MHz~2700M Hz	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		
2700MHz~6000M Hz	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. The RF frequency 2280~2603.5MHz and 4830~6000MHz is exempted as required by the standards. When the test frequency 2405MHz, the Per is 0 %.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 3
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-19	Sample No.	E20211216778201-0001

Frequency (MHz)	Field strength (V/m)	EUT orientation	Antenna polarization	Required criterion	Actual performance	Result
80MHz~1000MHz	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
1000MHz~2700M Hz	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
2700MHz~6000M Hz	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. The RF frequency 2280~2603.5MHz and 4830~6000MHz is exempted as required by the standards. When the test frequency 2405MHz, the Per is 0 %.

## 6.5. ELECTRICAL FAST TRANSIENTS (EFT)

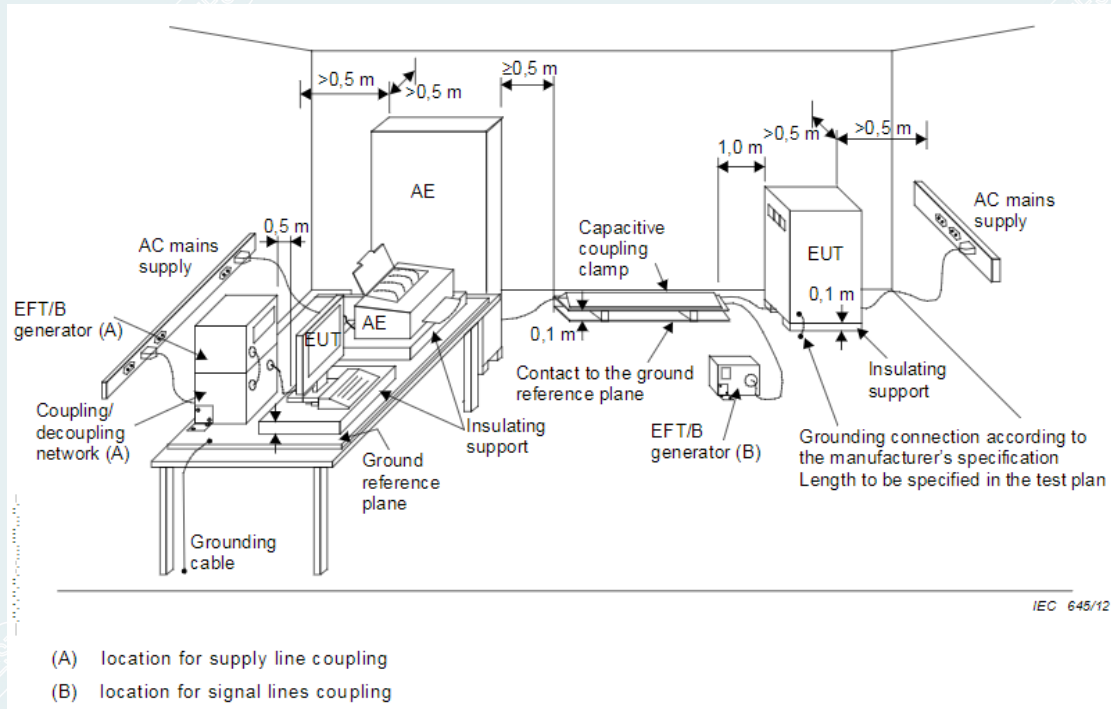
### 6.5.1. TEST SPECIFICATION

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



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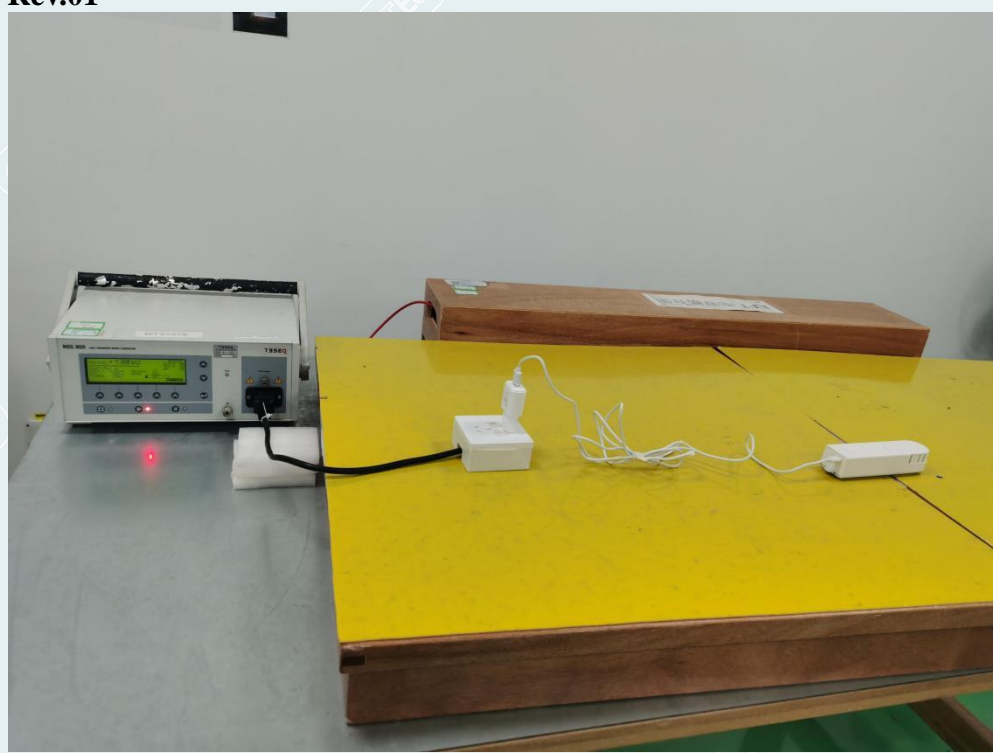
**6.5.4. PHOTOGRAPH OF THE TEST ARRANGEMENT**

**Rev.00**



Mode 1&Mode 2

**Rev.01**



Mode 1 & Mode 2

**6.5.5. TEST RESULTS**

**Rev.00**

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25.3°C/44%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-04.20	Sample No.	E20210316495901-0001

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.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25.3°C/44%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-04.20	Sample No.	E20210316495901-0001

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.

**Rev.01**

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

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.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

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.

## 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

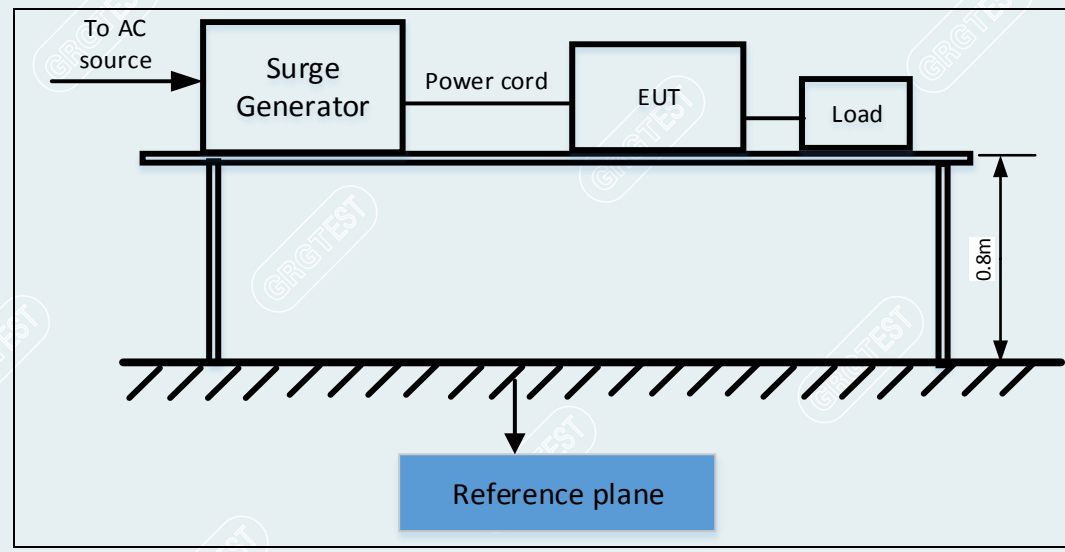
(1) For EUT power supply:

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**



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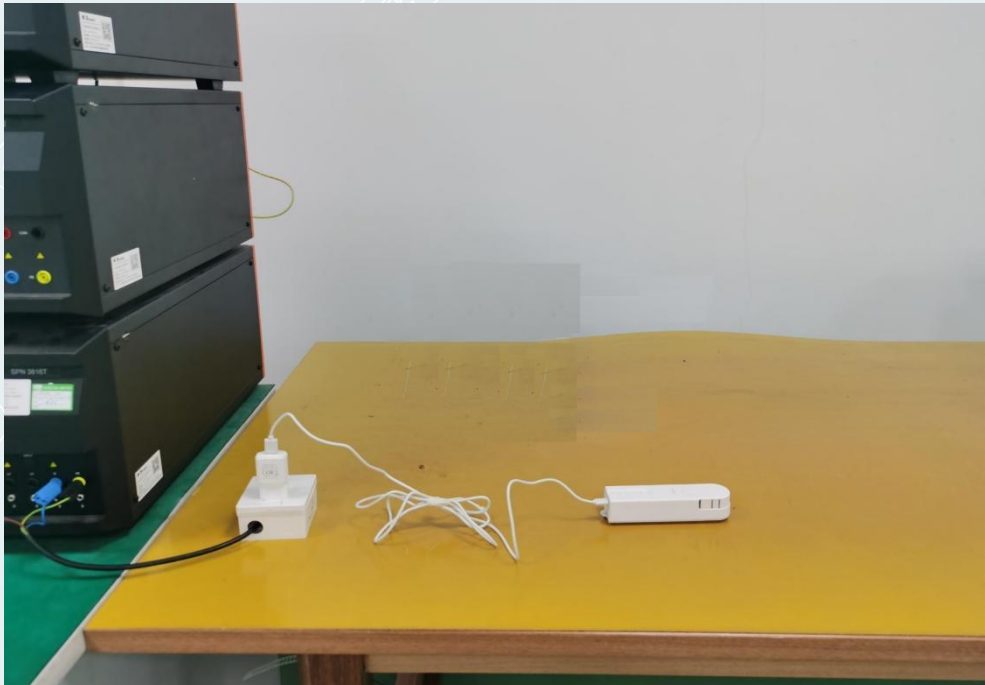
### 6.6.4. PHOTOGRAPH OF THE TEST ARRANGEMENT

Rev.00



Mode 1&Mode 2

Rev.01



Mode 1 & Mode 2

**6.6.5. TEST RESULTS****Rev.00**

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.9°C/42%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-04-21	Sample No.	E20210316495901-0001

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.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.9°C/42%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-04-21	Sample No.	E20210316495901-0001

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.

**Rev.01**

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

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.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.7°C/44%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

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.



## 6.7. RADIO FREQUENCY CONTINUOUS CONDUCTED (CS)

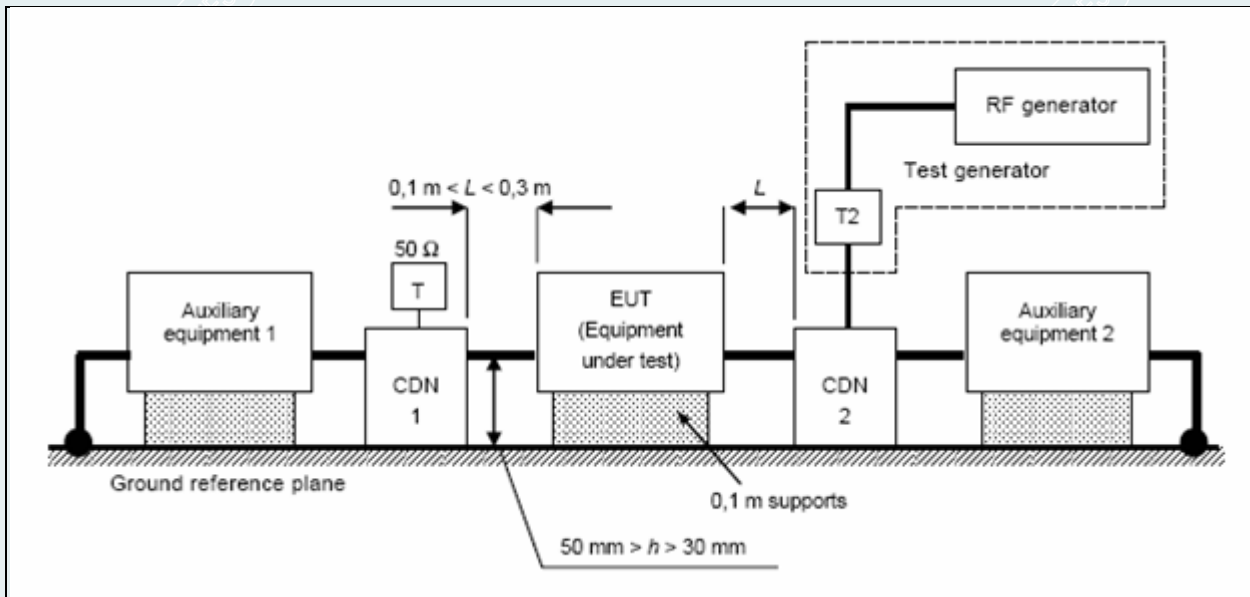
### 6.7.1. TEST SPECIFICATION

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 8.5.3
- (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



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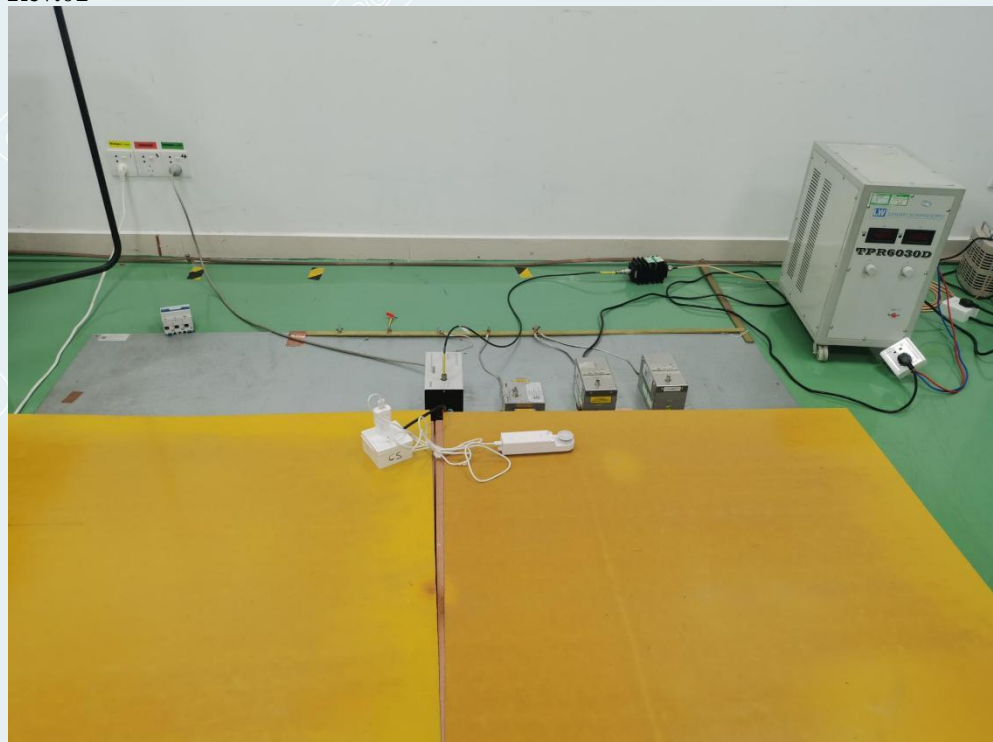
**6.7.4. PHOTOGRAPH OF THE TEST ARRANGEMENT**

**Rev.00**



Mode 1 & Mode 2

**Rev.01**



Mode 1 & Mode 2

**6.7.5. TEST RESULTS****Rev.00**

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25.6°C/44%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-04-20	Sample No.	E20210316495901-0001

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.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25.6°C/44%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-04-20	Sample No.	E20210316495901-0001

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.

**Rev.01**

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.5°C/57%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

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.

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.5°C/57%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

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.

**6.8. VOLTAGE DIPS & SHORT INTERRUPTIONS**

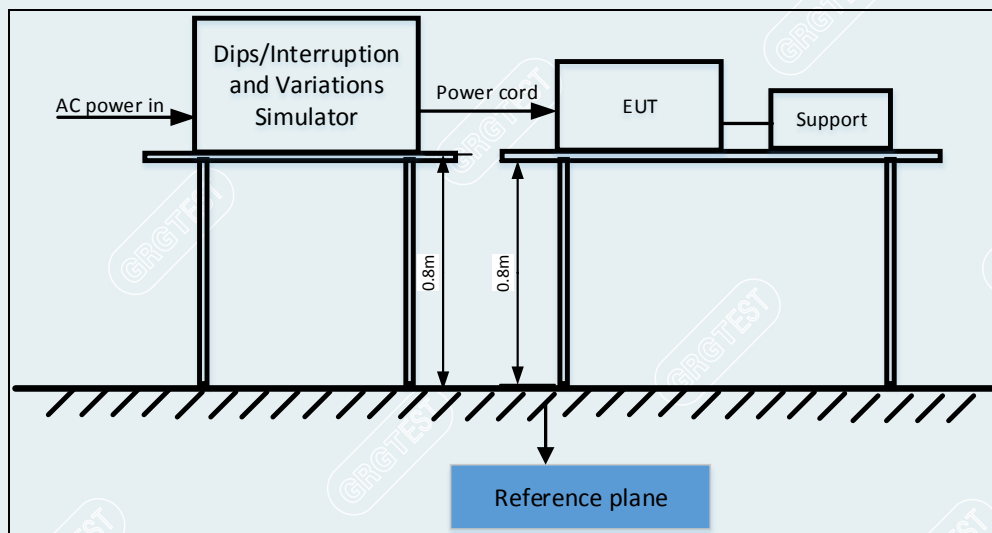
**6.8.1. TEST SPECIFICATION**

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**



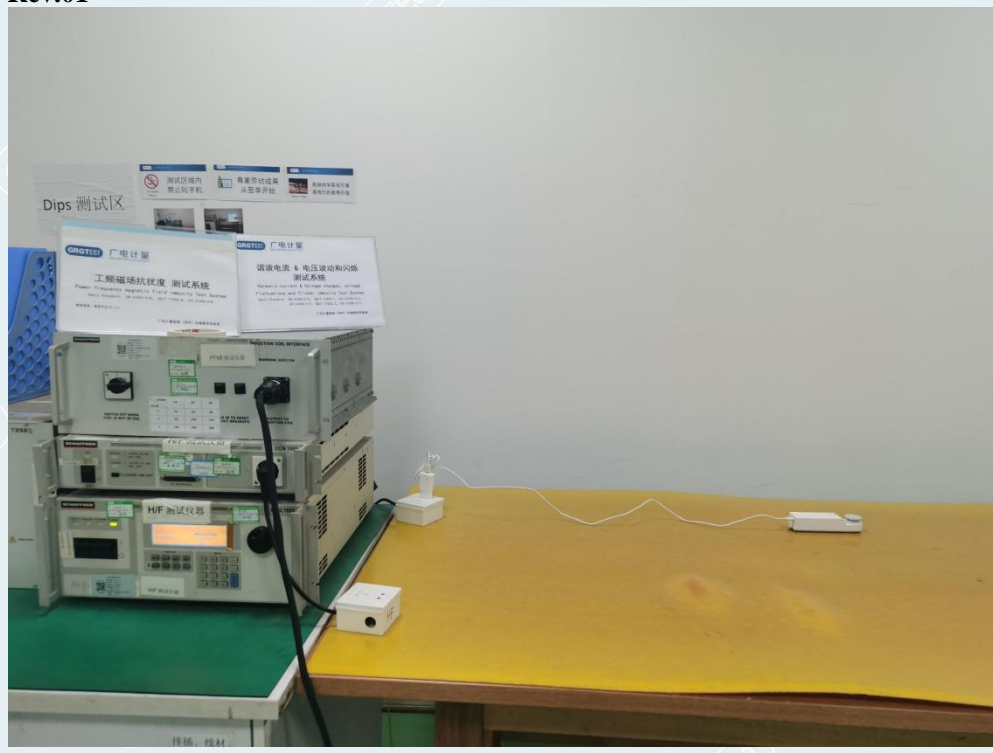
### 6.8.4. PHOTOGRAPH OF THE TEST ARRANGEMENT

Rev.00



Mode 1 & Mode 2

Rev.01



Mode 1 & Mode 2

**6.8.5. TEST RESULTS****Rev.00**

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25°C/62%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-03-12	Sample No.	E20210316495901-0001

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	1	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.  
<sup>2)</sup> The EUT can work normally before the test, signal interruption during test and the EUT can be recoverable by operator.

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EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	25°C/62%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Wu Haoting
Test Date	2021-03-12	Sample No.	E20210316495901-0001

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

<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 -----

**Rev.01**

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.1 °C/51%RH/101kPa	Test Mode	Mode 1
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

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	1	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.

<sup>2)</sup>The EUT can work normally before the test, Power failure during test and the EUT can automatic restores normally.

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

EUT Name	Roller Shade Driver E1	Model	RSD-M01
Environmental Conditions	24.1 °C/51%RH/101kPa	Test Mode	Mode 2
Power supply	AC230V/50Hz	Tested By	Tang Shenghui
Test Date	2021-12-21	Sample No.	E20211216778201-0001

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	1	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.

<sup>2)</sup>The EUT can work normally before the test, Power failure during test and the EUT can automatic restores normally.

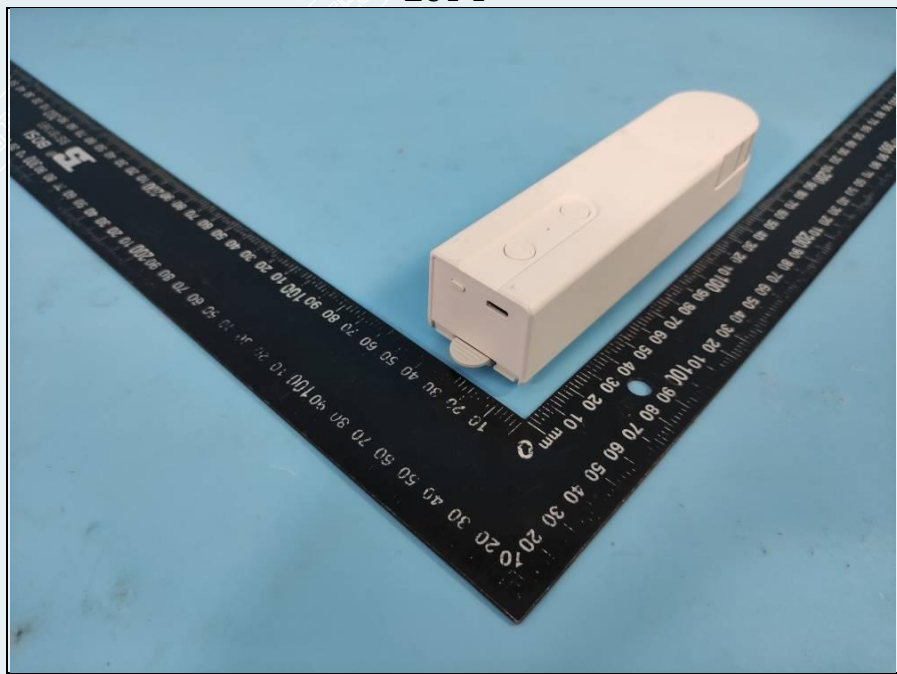
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**APPENDIX A. PHOTOGRAPHS OF EUT**

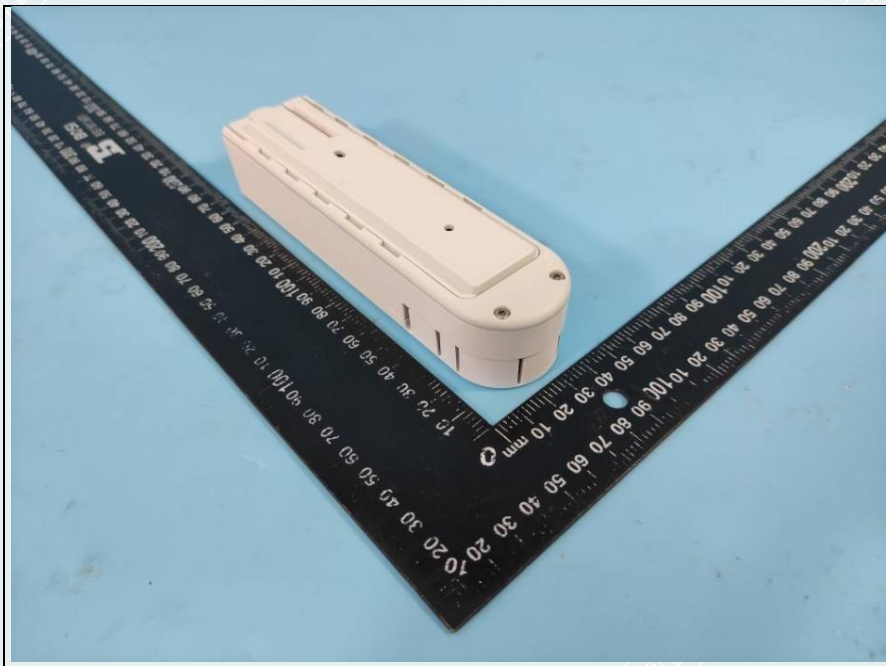
**External Photos of EUT  
Rev.01**



**EUT-1**



**EUT-2**



**EUT-3**



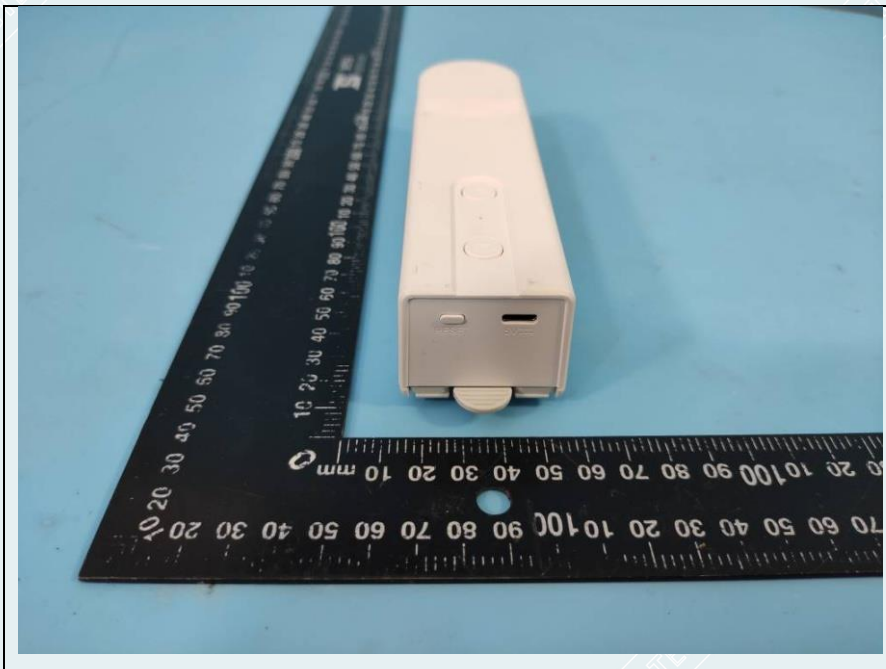
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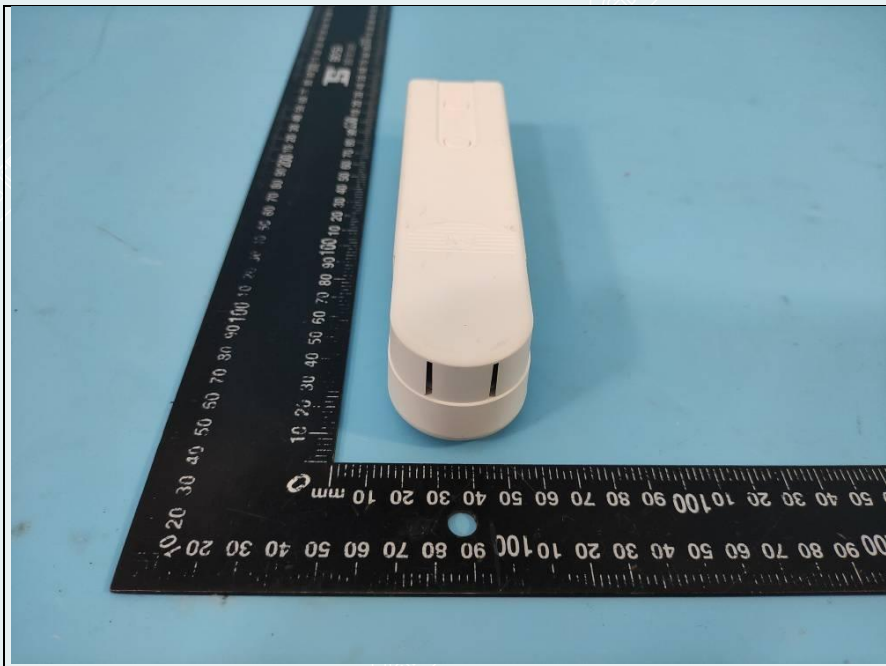
**EUT-5**



**EUT-6**



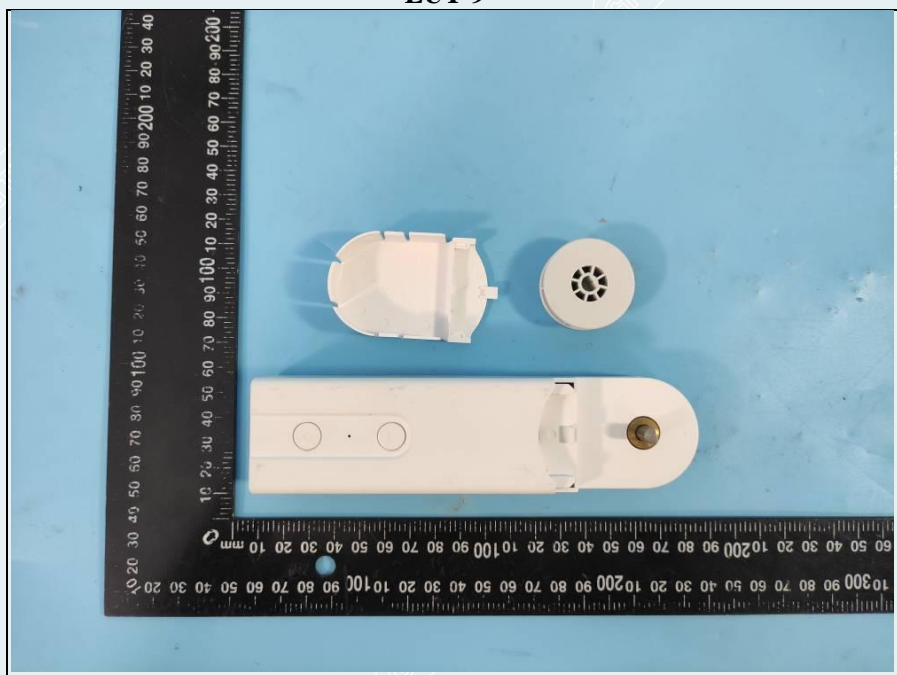
**EUT-7**



**EUT-8**



EUT-9



EUT-10



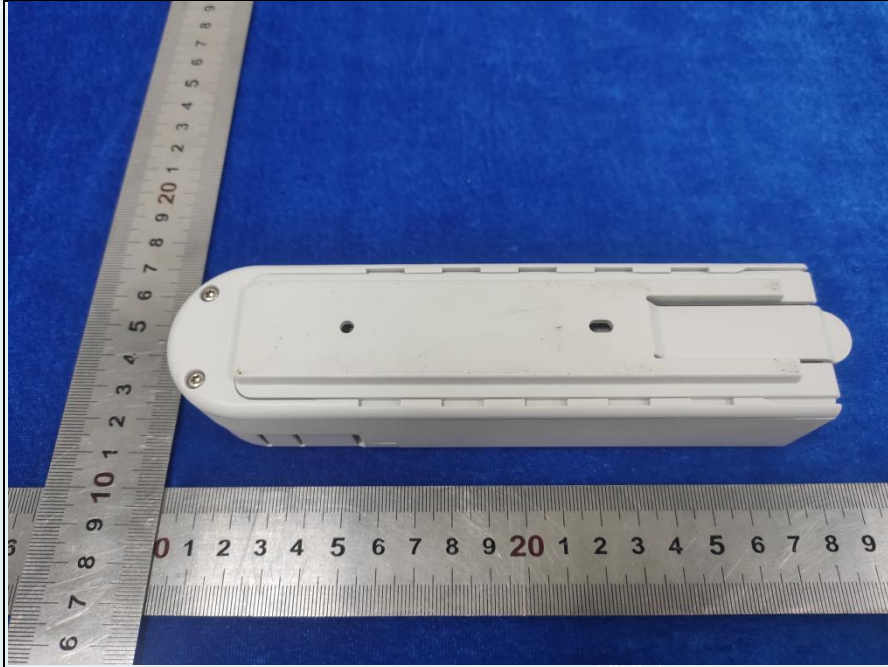
Rev.01



EUT-1



EUT-2



**EUT-3**



**EUT-4**



**EUT-5**



**EUT-6**



**EUT-7**



**EUT-8**



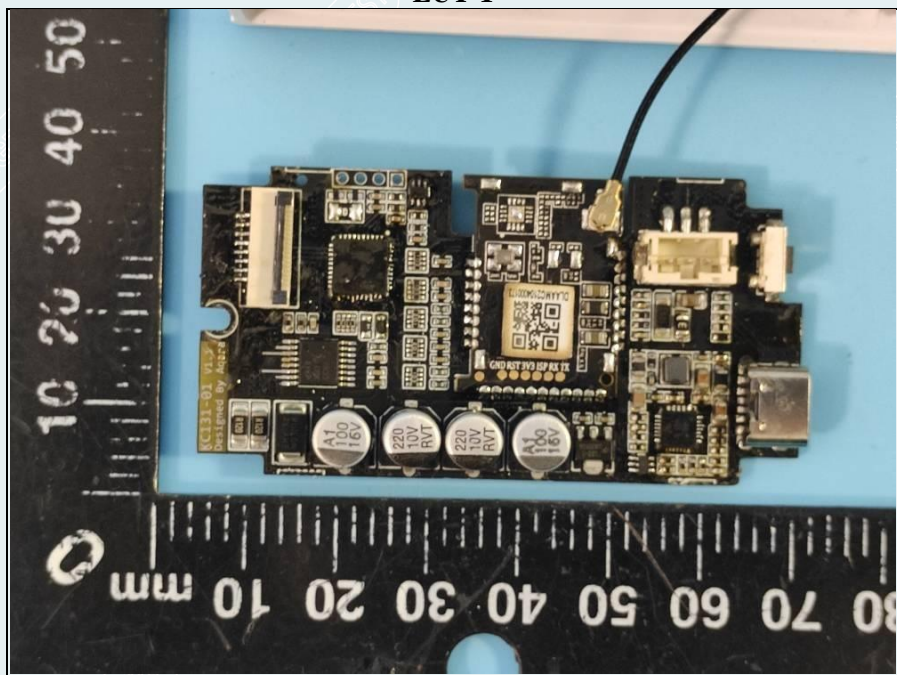
EUT-9

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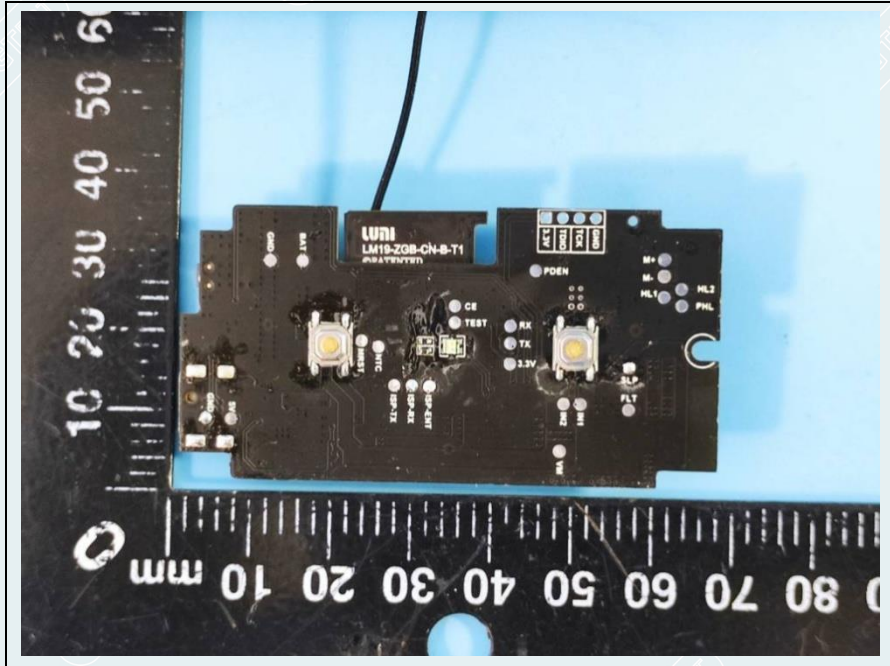
**Internal Photos of EUT**  
**Rev.00**



**EUT-1**



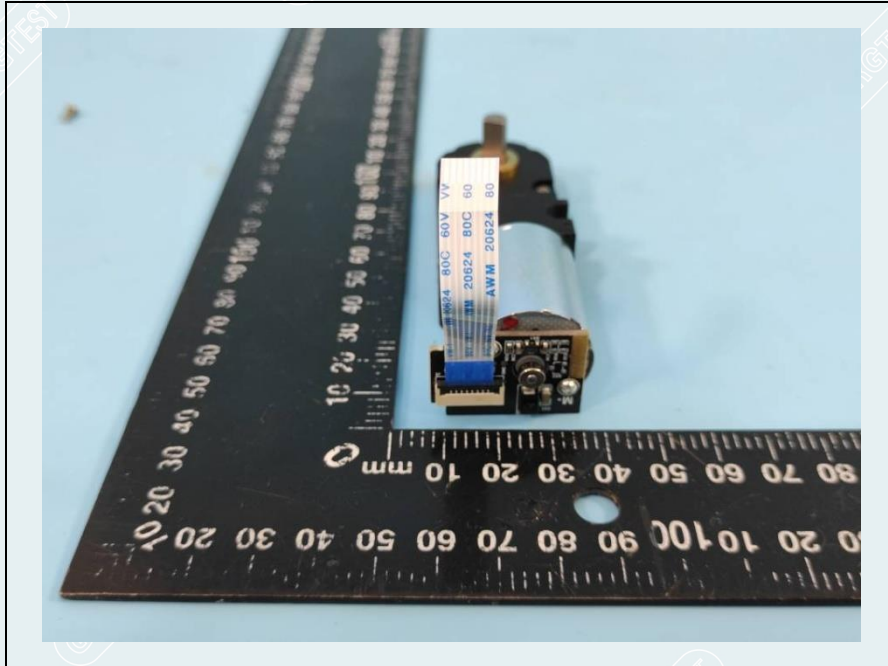
**EUT-2**



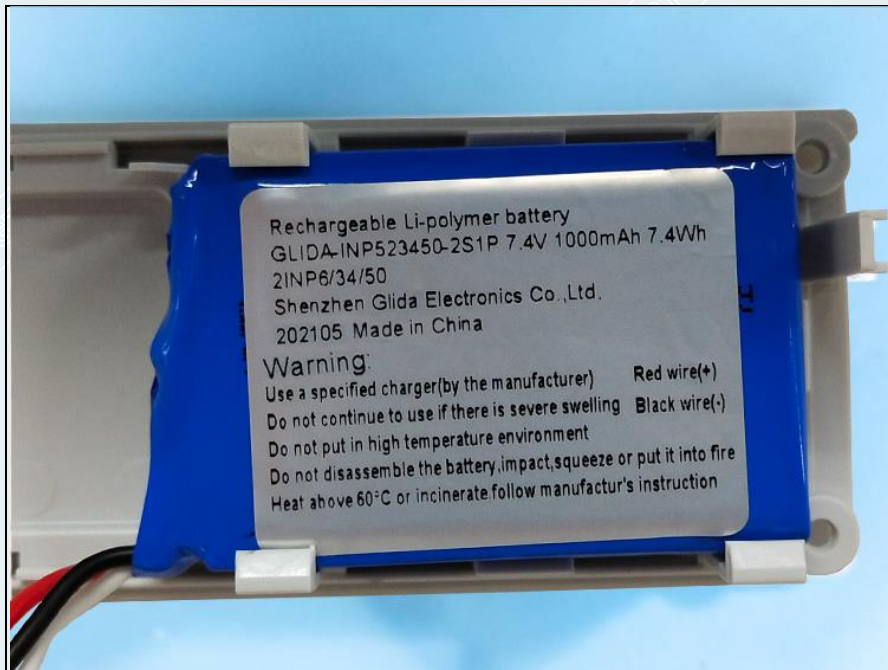
EUT-3



EUT-4

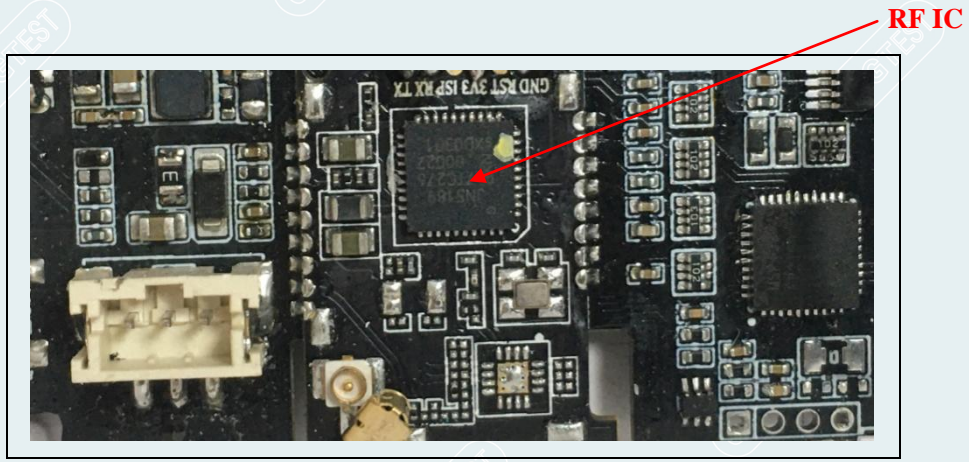


EUT-5

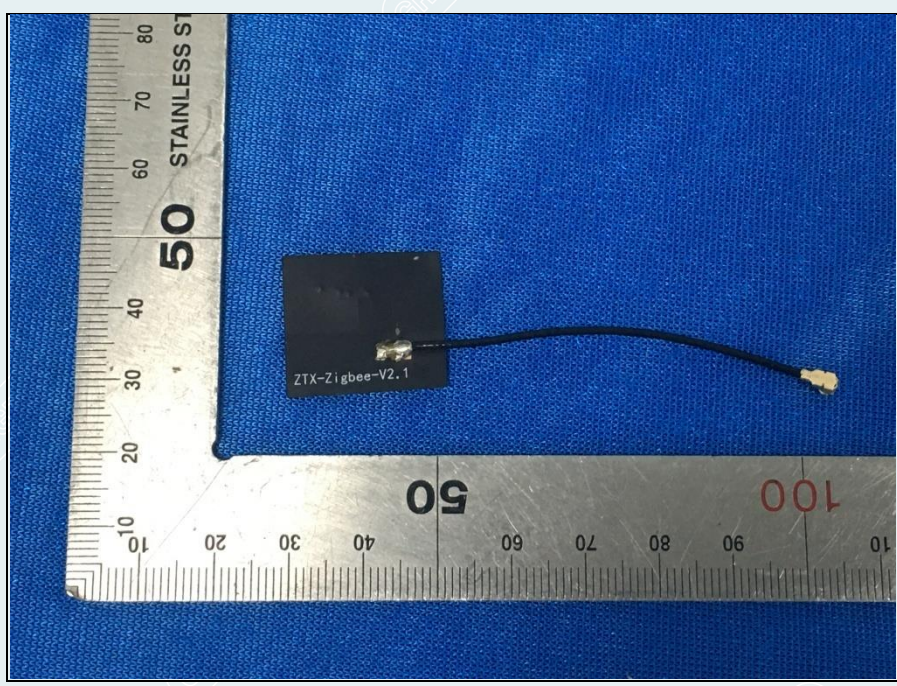


EUT-6



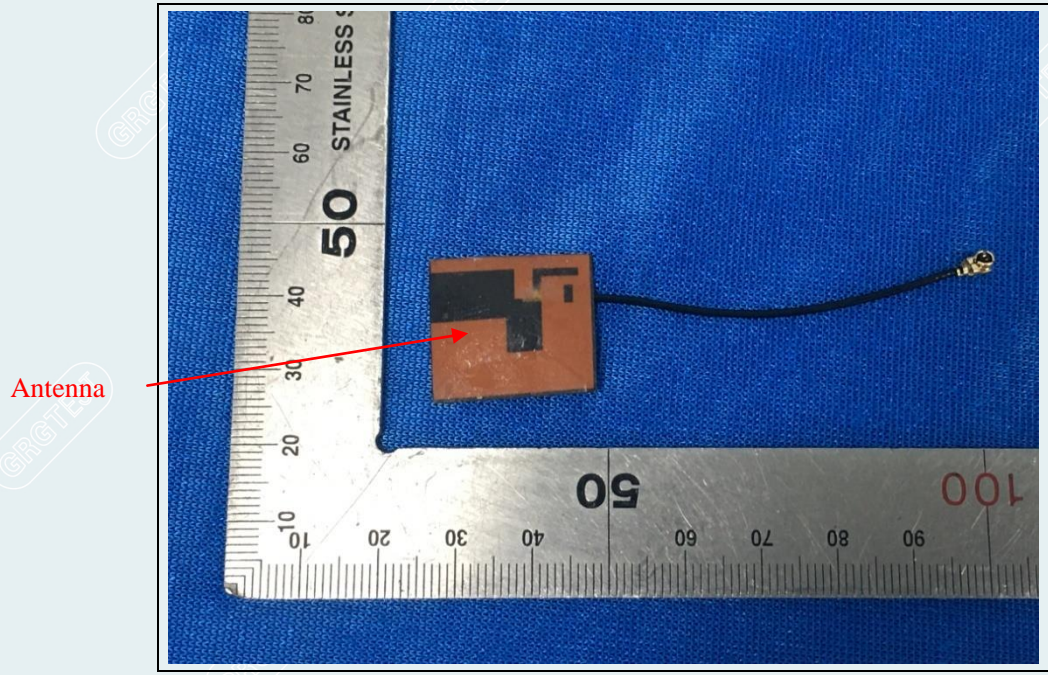


EUT-7



EUT-8

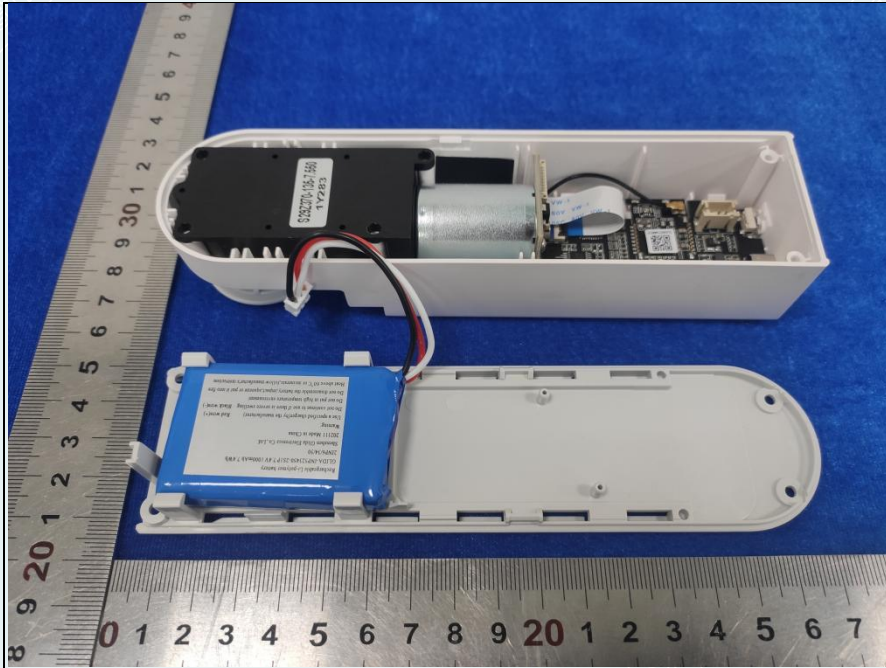
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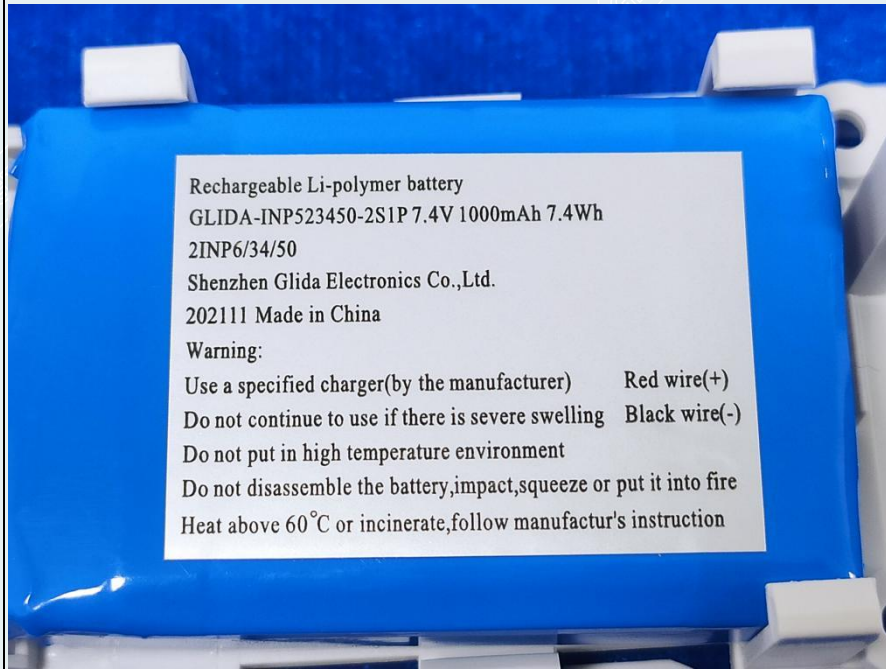
**EUT-9**

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Rev.01

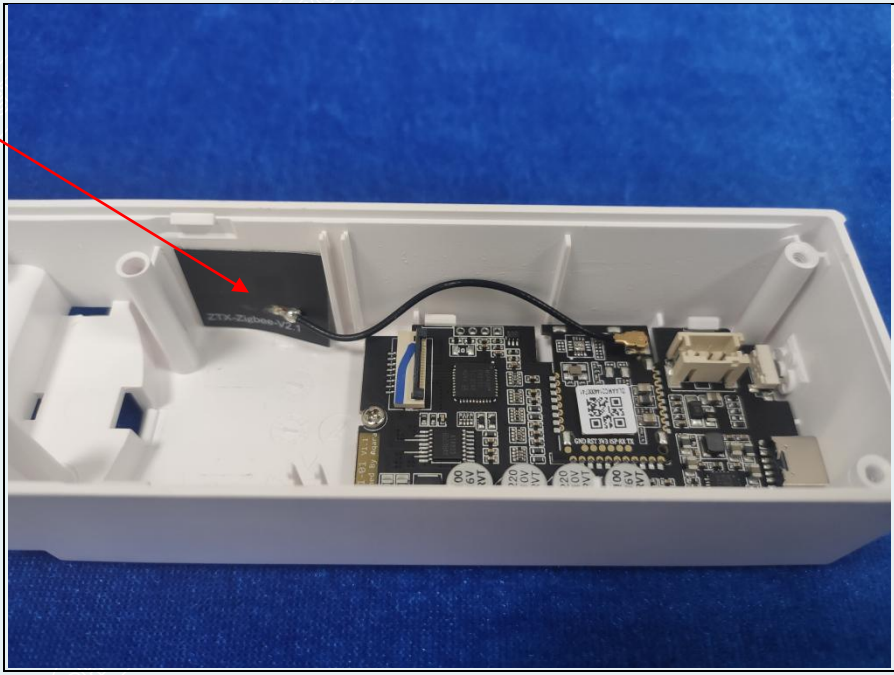


EUT-1

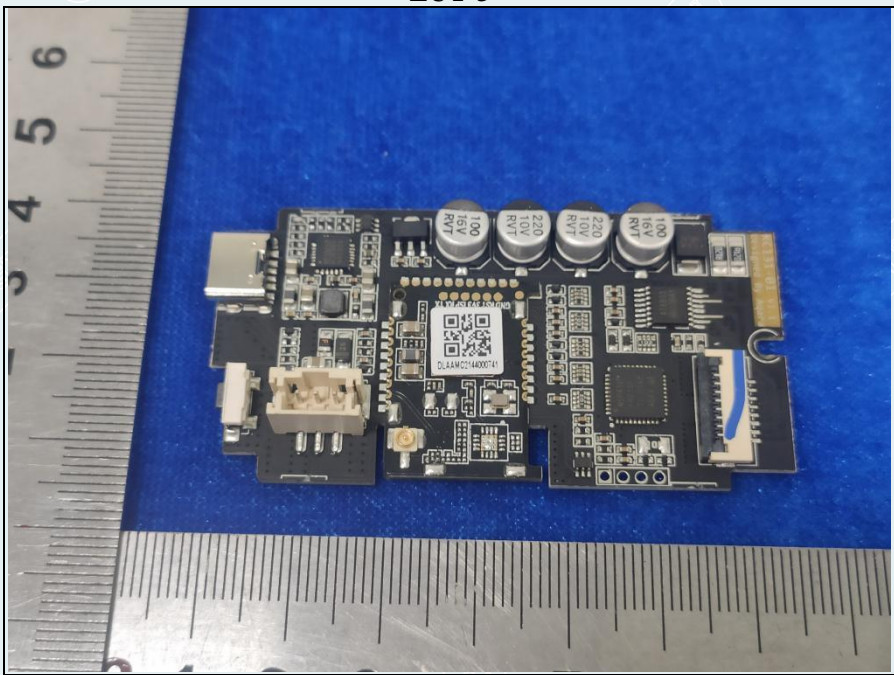


EUT-2

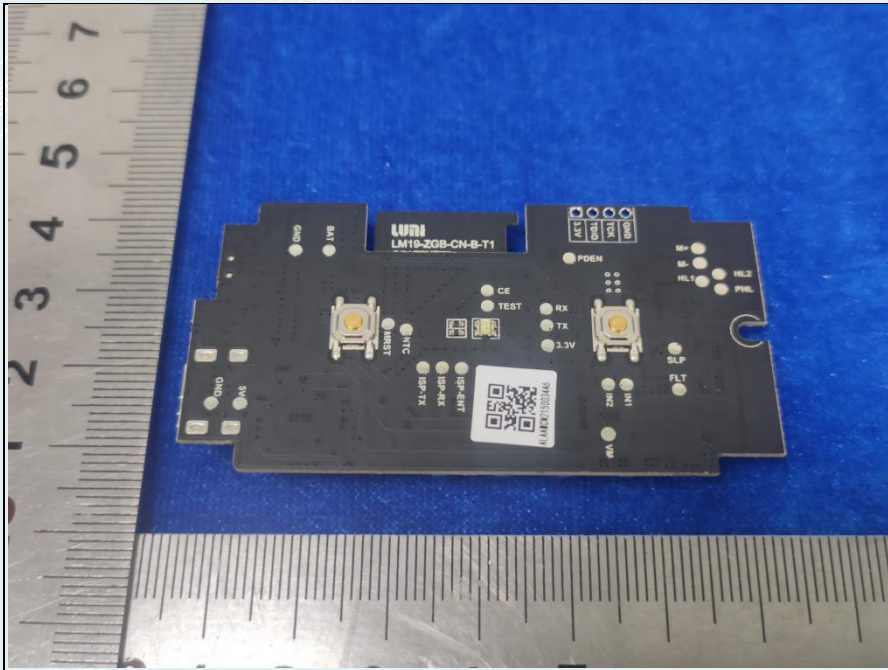
Zigbee antenna



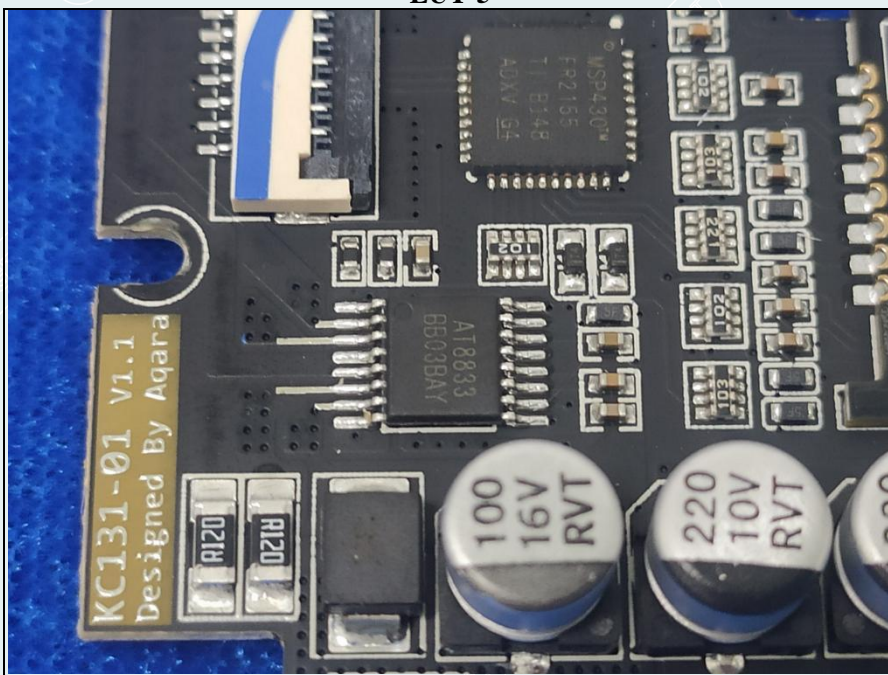
**EUT-3**



**EUT-4**

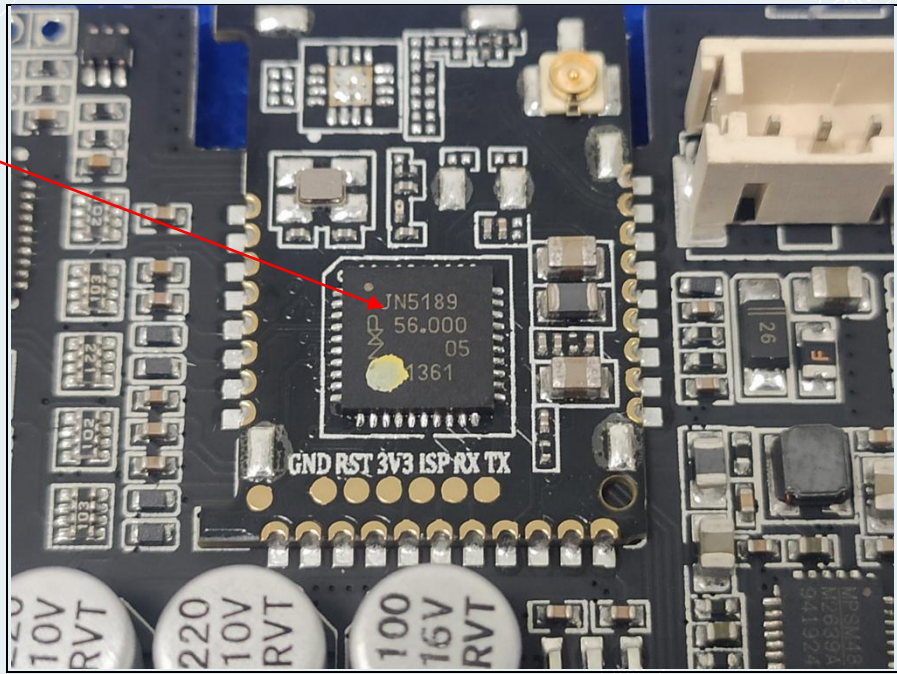


EUT-5

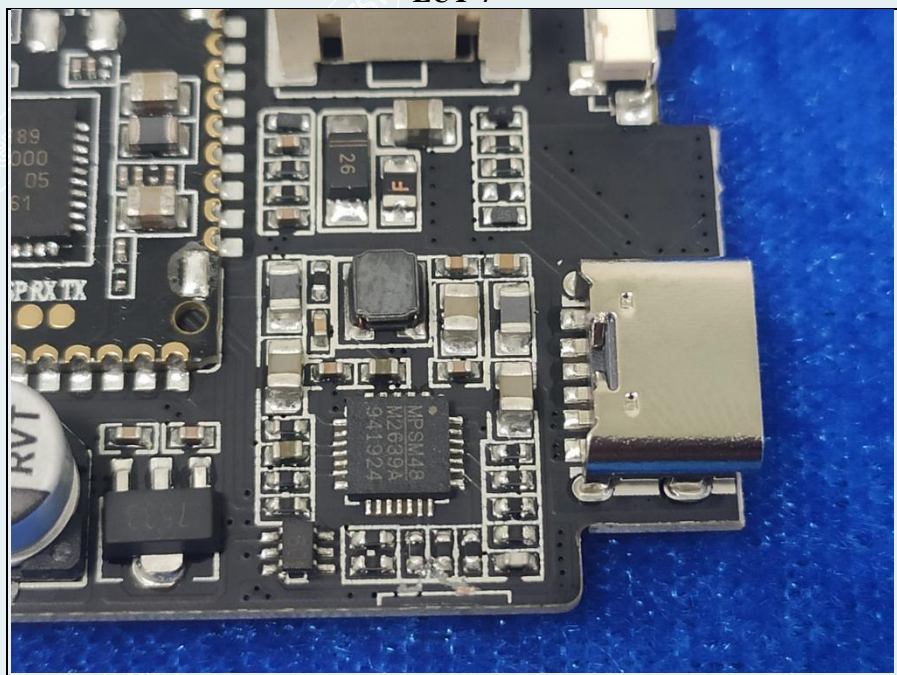


EUT-6

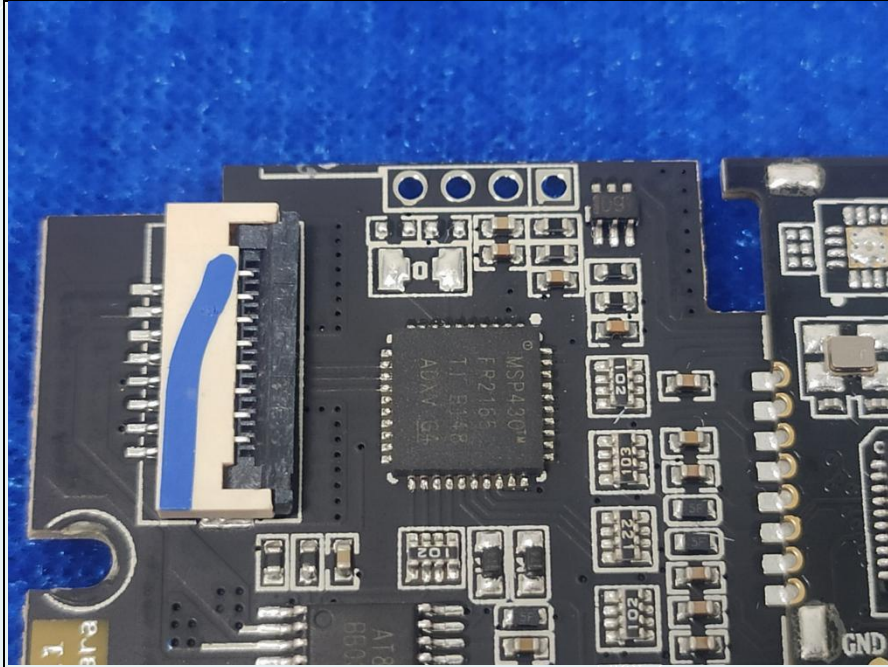
RF IC



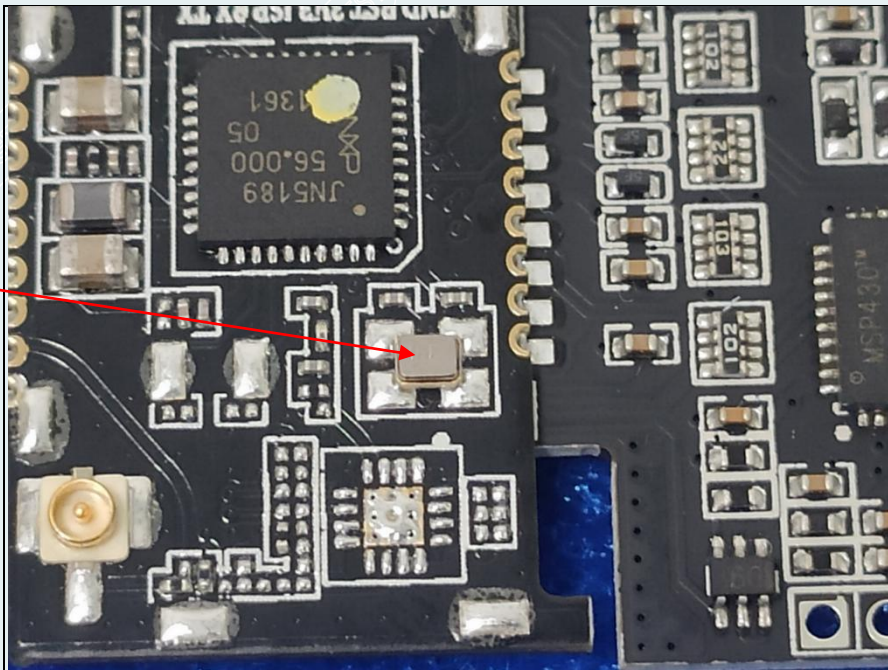
EUT-7



EUT-8



EUT-9



EUT-10

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