TEST REPORT

Application No.:	GZEM2103001832LM
Applicant:	Blueview Elec-optic Tech Co., Ltd
Address of Applicant:	No.1000, Section 2, 2nd Konggang Road, Southwest Aviation Industrial Development Zone, Chengdu, Sichuan, China
Manufacturer:	Blueview Elec-optic Tech Co., Ltd
Address of Manufacturer:	No.1000, Section 2, 2nd Konggang Road, Southwest Aviation Industrial Development Zone, Chengdu, Sichuan, China
Factory:	Blueview Elec-optic Tech Co., Ltd
Address of Factory:	No.1000, Section 2, 2nd Konggang Road, Southwest Aviation Industrial Development Zone, Chengdu, Sichuan, China
Equipment Under Test (EUT):	
EUT Name:	LED rigid bar
Model No.:	ABS300-0610, ABS300-0915 ♣
♣	Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.
Standard(s) :	EN 61000-3-3: 2013+A1: 2019
	EN IEC 55015: 2019+A11:2020
	EN IEC 61000-3-2: 2019
	EN 61547: 2009
Date of Receipt:	2021-03-31
Date of Test:	2021-04-12 to 2021-04-08
Date of Issue:	2021-04-20
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

CE

Kobe Jian
EMC Laboratory Manager

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		*2021-04-20*		*Original*

Authorized for issue by:				
Tested By		Cong. Chen **Cong Chen/Project Engineer**		
Reviewed By		Terry Lai **Terry Lai/Reviewer**		

2 Test Summary

Emission Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Voltage Fluctuations and Flicker	EN 61000-3-3: 2013+A1: 2019	EN 61000-3-3: 2013+A1: 2019	Clause 5 of EN 61000-3-3	Pass
Conducted Emissions at Mains Terminals (9kHz-30MHz)	EN IEC 55015: 2019+A11:2020	CISPR 16-2-1	Table 1	Pass
Radiated Emissions (Magnetic field Induced Current) (9kHz-30MHz)	EN IEC 55015: 2019+A11:2020	CISPR 16-2-3 and clause 9.3.2 of EN IEC 55015	Table 8/Table 9	Pass
Radiated disturbance Test for CDNE method (30MHz-300MHz)	EN IEC 55015: 2019+A11:2020	CISPR 16-2-1	Table 10	Pass
Harmonic Current Emission	EN IEC 61000-3-2: 2019	EN IEC 61000-3-2: 2019	Class C	Pass

Immunity Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Electrostatic Discharge	EN 61547: 2009	EN 61000-4-2:2009	4kV Contact Discharge, 8kV Air Discharge	Pass
Radiated Immunity (80MHz-1GHz)	EN 61547: 2009	EN 61000-4-3:2006 +A1:2008+A2:2010	3V/m, 80%, 1kHz Amp. Mod,1% increment	Pass
Electrical Fast Transients Burst at AC Mains Power Port	EN 61547: 2009	EN 61000-4-4:2012	1kV, 5/50ns Tr/Td, 5kHz Repetition Frequency	Pass
Surge at Power Port	EN 61547: 2009	EN 61000-4-5:2014	1.2/50μs Tr/Td, 1.0kV Line to Line, 2.0kV Line to Ground	Pass
Conducted Immunity at AC Mains Power Port (150kHz-80MHz)	EN 61547: 2009	EN 61000-4-6:2014	3Vrms (emf),80%,1kHz Amp. Mod.	Pass
Voltage Dips and Interruptions	EN 61547: 2009	EN 61000-4-11:2004	0 % UT for 0.5cycle, 70 % UT for 10cycles, UT is Supply Voltage	Pass

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

¤ Declaration of EUT Family Grouping:

Model No.: ABS300-0610, ABS300-0915

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference on rated power.

ABS300-0610: 25.5W

ABS300-0915: 33W

Therefore, only one model ABS300-0915 was tested in this report.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply: AC 220V 50Hz 33W.
Test voltage: AC 220V
Cable(s): About 1.2m x 3 wires unscreened AC mains cable supplied by lab.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
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The EUT has been tested as an independent unit.			

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at Mains Terminals (9kHz-30MHz)	3.18dB(9kHz to 150kHz); 3.12dB(150kHz to 30MHz)
Radiated Emissions (Magnetic field Induced Current)(9kHz-30MHz)	3.08dB(9kHz to 150kHz); 3.12dB(150kHz to 30MHz)
Radiated disturbance Test for CDNE method (30MHz-300MHz)	3.72dB

Remark:

The U_{lab} (lab Uncertainty) is less than U_{cispr} (CISPR Uncertainty), so the test results

– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;

– non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 EMS Monitor

Visual: LED lighting.

5 Equipment List

Voltage Fluctuations and Flicker					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
AC Power Source	California	50001iX	EMC0608	2021-03-27	2022-03-26
Power Analyzer	California	PACS	EMC0607	2021-03-27	2022-03-26
Test Software CTS4	California	Ver 4.14.0	GZE100-66	N/A	N/A

Conducted Emissions at Mains Terminals (9kHz-30MHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	Rohde & Schwarz	ESCS30	EMC0506	2020-11-13	2021-11-12
Shielding Room	ChangZhou ZhongYu	8m x 3m x 3.8m	EMC0306	N/A	N/A
LISN	Rohde & Schwarz	ENV216	EMC2135	2020-09-25	2021-09-24
Coaxial Cable	HangTianXing	2m	EMC0107	2020-09-09	2022-09-08
Test Software E3c	Audix	Ver. 5.4.1221b	GZE100-62	N/A	N/A

Radiated Emissions (Magnetic field Induced Current)(9kHz-30MHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Loop Antenna	ZHINAN	ZN3040	EMC2187	2020-03-27	2022-03-26
Coaxial Cable	INFINITE	CC223N-10	EMC0703	2019-06-28	2021-06-27
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2021-01-08	2022-01-07
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

Radiated disturbance Test for CDNE method (30MHz-300MHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	Rohde & Schwarz	ESCS30	EMC0506	2020-11-13	2021-11-12
Shielding Room	ChangZhou ZhongYu	8m x 3m x 3.8m	EMC0306	N/A	N/A
Coaxial Cable	HangTianXing	2m	EMC0107	2020-09-09	2022-09-08
CDN	Elektronik-Feinmechanik	L-801:AF2	EMC2047	2020-08-21	2022-08-20
CDN	Elektronik-Feinmechanik	L-801:M2/M3	EMC2048	2020-08-21	2022-08-20
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
Test Software E3c	Audix	Ver. 5.4.1221b	GZE100-62	N/A	N/A

Harmonic Current Emission					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
AC Power Source	California	50001iX	EMC0608	2021-03-27	2022-03-26
Power Analyzer	California	PACS	EMC0607	2021-03-27	2022-03-26
Test Software CTS4	California	Ver 4.14.0	GZE100-66	N/A	N/A

Electrostatic Discharge					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
ESD Simulator	EMTEST	NX30	EMC2186	2021-02-27	2022-02-26
ESD Ground Plane	SGS-EMC	3m x 3m	EMC0804	N/A	N/A
Aneroid Barometer	Shanghai Meteorological Instrument Factory Co., Ltd.	YM3	EMC2181	2020-12-03	2021-12-02
Temperature & Humidity	Shanghai Meteorological Instrument Factory Co., Ltd.	ZJ1-2B	EMC0078	2020-07-04	2021-07-03

Radiated Immunity (80MHz-1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Compact 3m Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	EMC0525	2019-10-20	2022-10-19
Laser Probe Interface	RF Microwave Instrumentation	FI7000	EMC2089	N/A	N/A
Open Switch And Control Unit	Rohde & Schwarz	OSP130	EMC2090	N/A	N/A
Broadband Amplifier (80MHz~1GHz/250W)	Rohde & Schwarz	BBA150	EMC2091	2021-01-09	2022-01-08
Signal Generator	Rohde & Schwarz	SMB100A	EMC2093	2021-01-09	2022-01-08
Laser Probe	RF Microwave Instrumentation	FL7006	EMC2094	2021-03-02	2022-03-01
NRP-Z91 Power Sensor 6GHz	Rohde & Schwarz	NPR-Z91	EMC2095	2021-01-09	2022-01-08
NRP-Z91 Power Sensor 6GHz	Rohde & Schwarz	NPR-Z91	EMC2096	2021-01-09	2022-01-08
RI Cable	Rohde & Schwarz	7m	EMC2098	2020-05-24	2021-05-23
Oscilloscope	Tektronix	TDS3052C	EMC2055	2020-12-10	2021-12-09
Audio Analyzer	Keysight	U8903B	EMC2180	2020-09-18	2021-09-17
Monitor System	Mitsubish Corp.	M-0552AB	EMC0909	N/A	N/A
Test Software EMC32	Rohde & Schwarz	Ver. 9.26.00	GZE100-63	N/A	N/A

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Electrical Fast Transients Burst at AC Mains Power Port					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMC Immunity Test System	TESEQ AG	NSG 3060 CDN3061 INA 6502 CIB CND3425	EMC2072	2021-01-08	2022-01-07
Oscilloscope	Tektronix	TDS3052C	EMC2055	2020-12-10	2021-12-09
Test Software WIN 3000	TESEQ AG	Ver 1.3.2	GZE100-68	N/A	N/A
Surge at Power Port					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMC Immunity Test System	TESEQ AG	NSG 3060 CDN3061 INA 6502 CIB CND3425	EMC2072	2021-01-08	2022-01-07
Oscilloscope	Tektronix	TDS3052C	EMC2055	2020-12-10	2021-12-09
Test Software WIN 3000	TESEQ AG	Ver 1.3.2	GZE100-68	N/A	N/A

Conducted Immunity at AC Mains Power Port (150kHz-80MHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Test System for Conducted and Radiated Immunity	TESEQ AG	NSG 4070B-80	EMC2115	2020-11-30	2021-11-29
Test Software NSG4070_Ctrl1	TESEQ AG	Ver.1.3.0.1	GZE100-72	N/A	N/A
Dual Directional coupler	Werlatone Inc.	C1795	EMC1105	2020-05-26	2021-05-25
Oscilloscope	Tektronix	TDS3052C	EMC2055	2020-12-10	2021-12-09
CDN	Elektronik-Feinmechanik	L-801:M2/M3	EMC2048	2020-08-21	2022-08-20
CDN M2	Schaffner Chase	CDN-M2-16	EMC1107	2020-10-23	2023-10-22
Audio Analyzer	Keysight	U8903B	EMC2180	2020-09-18	2021-09-17

Voltage Dips and Interruptions					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMC Immunity Test System	TESEQ AG	NSG 3060 CDN3061 INA 6502 CIB CND3425	EMC2072	2021-01-08	2022-01-07
Oscilloscope	Tektronix	TDS3052C	EMC2055	2020-12-10	2021-12-09
Test Software WIN 3000	TESEQ AG	Ver 1.3.2	GZE100-68	N/A	N/A

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
DMM	Fluke	73	EMC0006	2020-07-09	2021-07-08
DMM	Fluke	73	EMC0007	2020-07-09	2021-07-08

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6 Emission Test Results

6.1 Voltage Fluctuations and Flicker

Test Requirement: EN 61000-3-3: 2013+A1: 2019

Test Method: EN 61000-3-3: 2013+A1: 2019

6.1.1 E.U.T. Operation

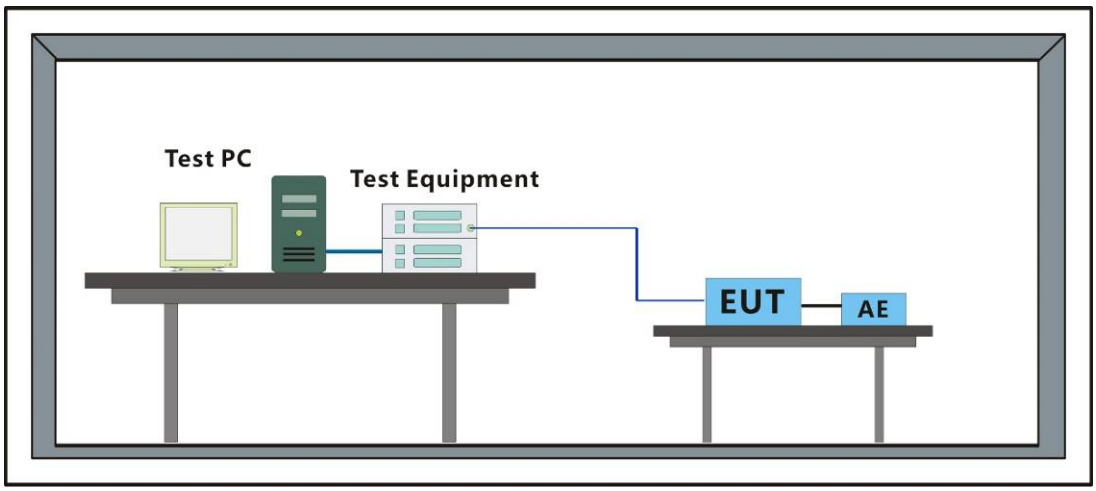
Operating Environment:

Temperature: 21 °C Humidity: 52 % RH Atmospheric Pressure: 1010 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in lighting mode.

6.1.3 Test Setup Diagram



6.1.4 Measurement Procedure and Data

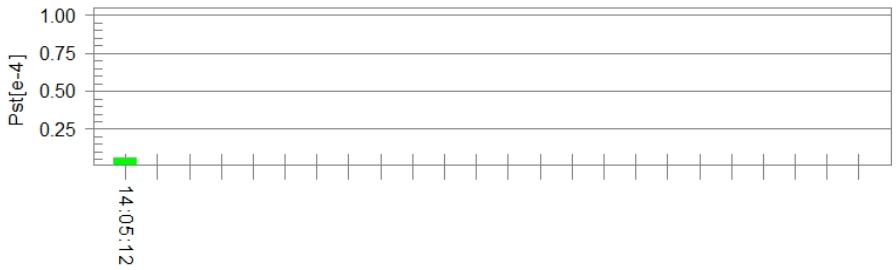
Test Mode: 00

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

Test category: dt,dmax,dc and Pst (European limits) **Test Margin: 100**
Test duration (min): 10

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

Pst and limit line **European Limits**



Parameter values recorded during the test:

Vrms at the end of test (Volt):	**230.01**			
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**

6.2 Conducted Emissions at Mains Terminals (9kHz-30MHz)

Test Requirement: EN IEC 55015: 2019+A11:2020

Test Method: CISPR 16-2-1

Limit:

0.009MHz – 0.05MHz	110dB(μV) quasi-peak
0.05MHz – 0.15MHz	90dB(μV)-80dB(μV) quasi-peak
0.15MHz – 0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5MHz – 5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5MHz – 30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (200Hz resolution bandwidth) 0.009MHz to 0.15MHz
	Peak for pre-scan (9kHz resolution bandwidth) 0.15MHz to 30MHz

6.2.1 E.U.T. Operation

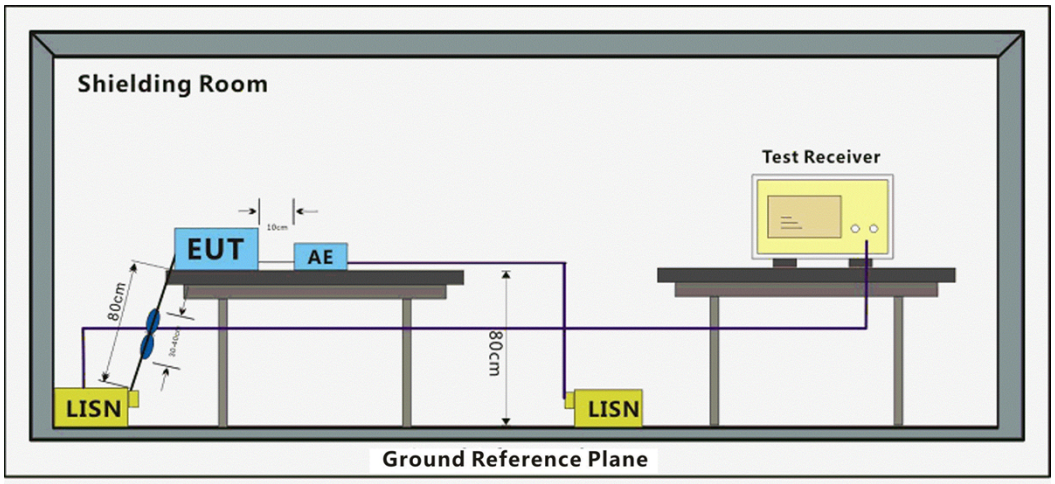
Operating Environment:

Temperature: 25.6 °C Humidity: 52 % RH Atmospheric Pressure: 1010 mbar

6.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in lighting mode.

6.2.3 Test Setup Diagram

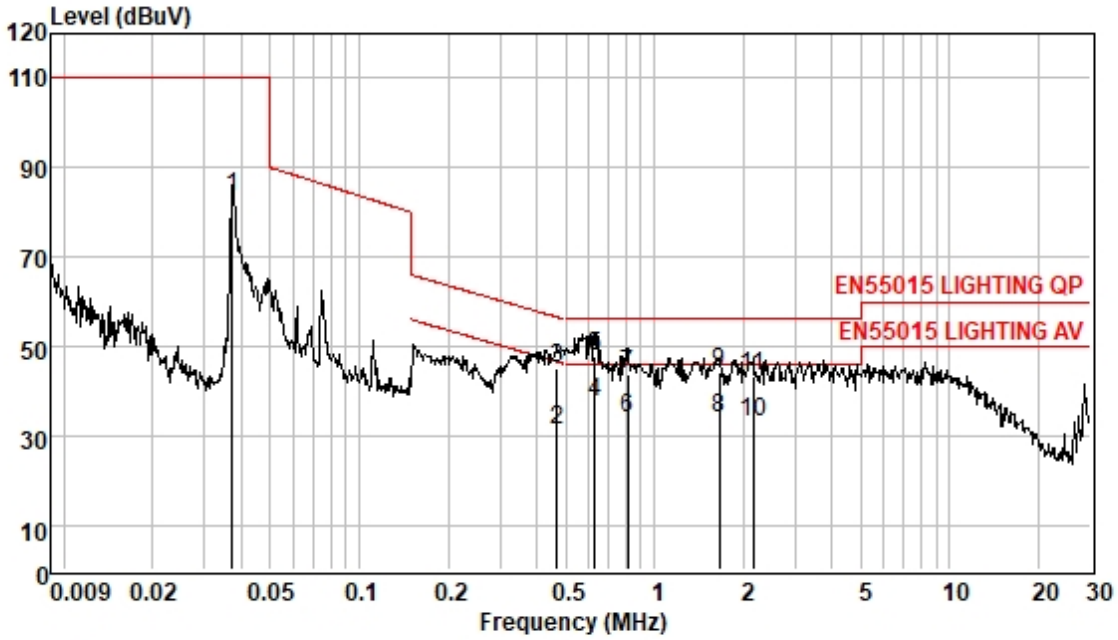


6.2.4 Measurement Procedure and Data

An initial pre-scan was performed with peak detector.Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

Measured Level = Read level + Cable Loss + LISN Factor

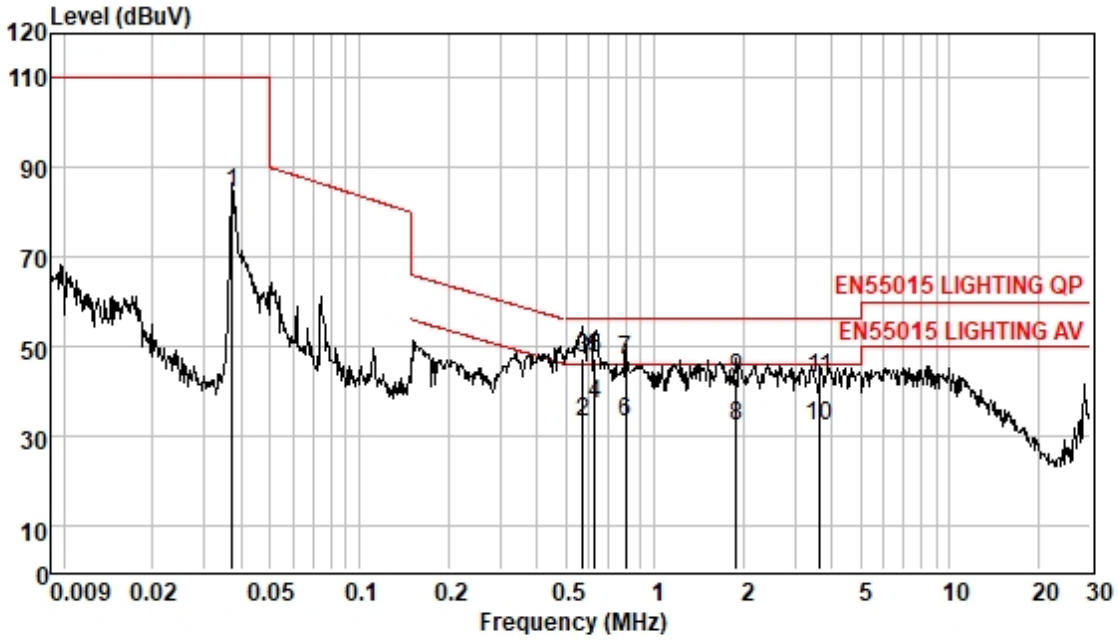
Test Mode: 00; Line: Live line



Pol :LINE
Mode :
Model :

Frequenc MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
0.04	73.86	0.05	9.72	83.63	110.00	-26.37	QP
0.47	21.60	0.07	9.63	31.30	46.54	-15.24	Average
0.47	35.15	0.07	9.63	44.85	56.54	-11.69	QP
0.63	27.86	0.07	9.63	37.56	46.00	-8.44	Average
0.63	38.04	0.07	9.63	47.74	56.00	-8.26	QP
0.81	24.04	0.07	9.63	33.74	46.00	-12.26	Average
0.81	33.84	0.07	9.63	43.54	56.00	-12.46	QP
1.66	24.11	0.11	9.61	33.83	46.00	-12.17	Average
1.66	34.38	0.11	9.61	44.10	56.00	-11.90	QP
2.16	23.15	0.12	9.62	32.89	46.00	-13.11	Average
2.16	33.32	0.12	9.62	43.06	56.00	-12.94	QP

Test Mode: 00; Line: Neutral Line



Pol :NEUTRAL
Mode :
Model :

Frequenc MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
0.04	74.41	0.05	9.65	84.11	110.00	-25.89	QP
0.57	23.22	0.07	9.54	32.83	46.00	-13.17	Average
0.57	37.48	0.07	9.54	47.09	56.00	-8.91	QP
0.63	27.25	0.07	9.54	36.86	46.00	-9.14	Average
0.63	37.88	0.07	9.54	47.49	56.00	-8.51	QP
0.80	23.38	0.07	9.55	33.00	46.00	-13.00	Average
0.80	37.00	0.07	9.55	46.62	56.00	-9.38	QP
1.89	22.42	0.11	9.54	32.07	46.00	-13.93	Average
1.89	33.21	0.11	9.54	42.86	56.00	-13.14	QP
3.64	22.33	0.16	9.56	32.05	46.00	-13.95	Average
3.64	33.02	0.16	9.56	42.74	56.00	-13.26	QP

6.3 Radiated Emissions (Magnetic field Induced Current)(9kHz-30MHz)

Test Requirement: EN IEC 55015: 2019+A11:2020

Test Method: CISPR 16-2-3 and clause 9.3.2 of EN IEC 55015

Limit:

0.009MHz-0.07MHz	88dB(μA) quasi-peak
0.07MHz-0.15MHz	88dB(μA)-58dB(μA) quasi-peak
0.15MHz-3MHz	58dB(μA)-22dB(μA) quasi-peak
3MHz-30MHz	22dB(μA) quasi-peak

Detector: Peak for pre-scan (200Hz resolution bandwidth) 0.009MHz to 0.15MHz
Peak for pre-scan (9kHz resolution bandwidth) 0.15MHz to 30MHz

6.3.1 E.U.T. Operation

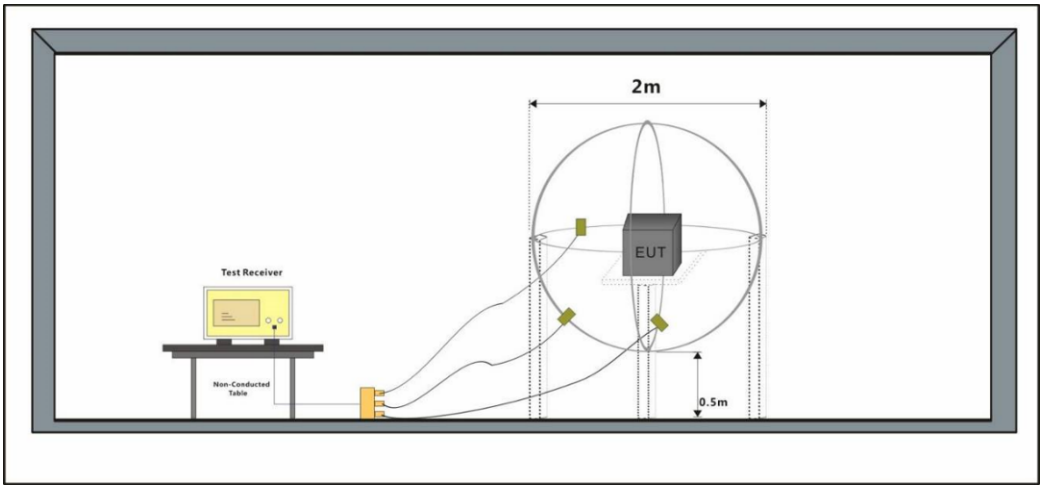
Operating Environment:

Temperature: 24.6 °C Humidity: 59.8 % RH Atmospheric Pressure: 1010 mbar

6.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in lighting mode.

6.3.3 Test Setup Diagram

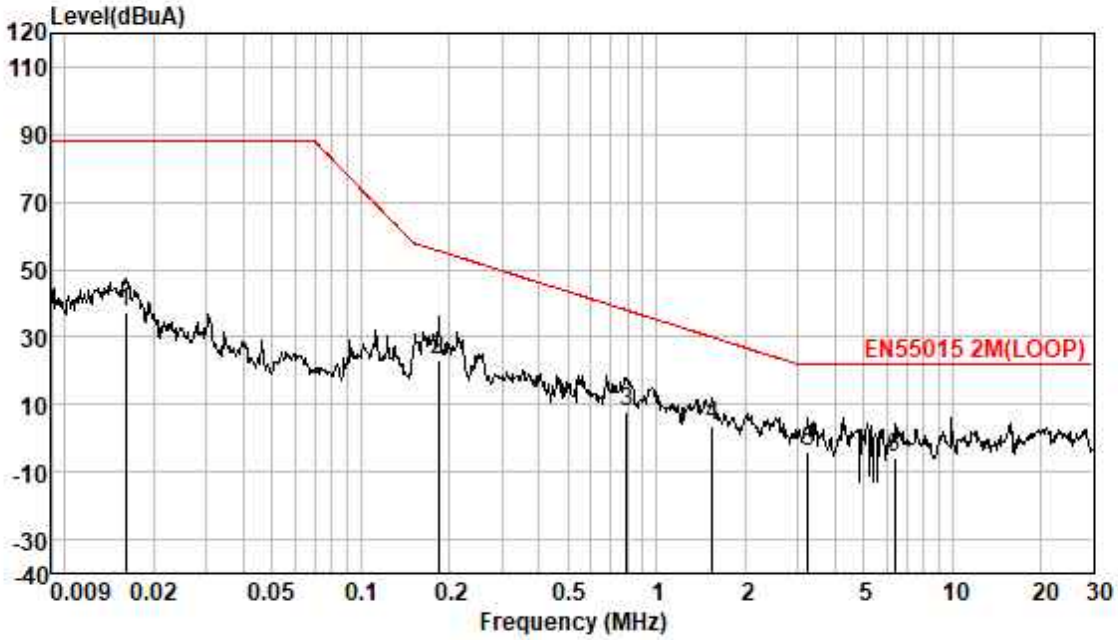


6.3.4 Measurement Procedure and Data

An initial pre-scan was performed in the 2m loop antenna using the spectrum analyser in peak detection mode. The EUT was measured for X(A), Y(B), Z(C) polarities.

Measured Level = Read Level + Antenna Factor + Cable Loss

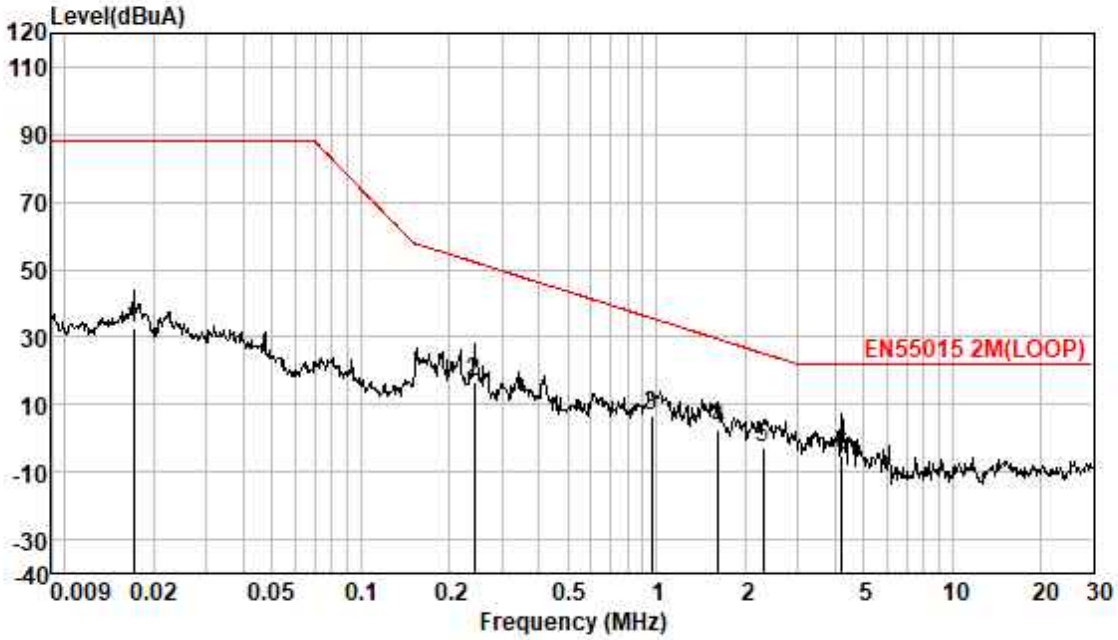
Test Mode: 00; Axial:X



loop : X
Test Mode:
Model :

Frequency MHz	Read level dBuV	Cable Loss dB	Antenna Factor dB	Measured level dBuA	Limit Line dBuA	Over limit dB	Remark
0.02	37.31	0.00	-0.04	37.27	88.00	-50.73	QP
0.18	23.36	0.10	-0.19	23.27	55.64	-32.37	QP
0.79	7.83	0.10	0.00	7.93	38.00	-30.07	QP
1.54	3.36	0.17	0.28	3.81	30.01	-26.20	QP
3.25	-4.94	0.32	0.48	-4.14	22.00	-26.14	QP
6.37	-7.17	0.50	1.07	-5.60	22.00	-27.60	QP

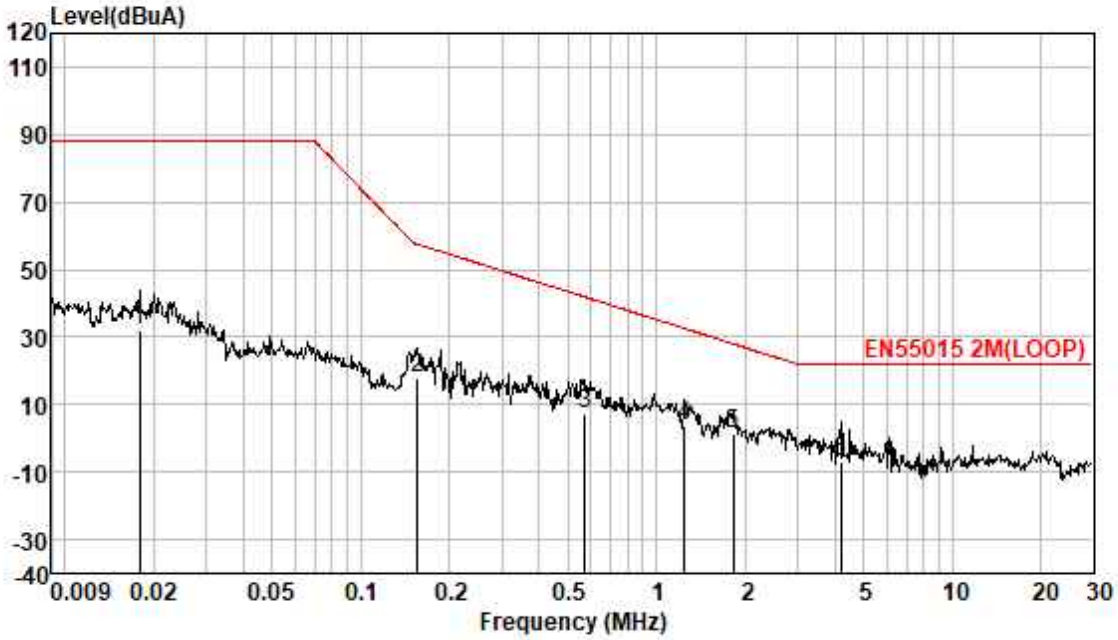
Test Mode: 00; Axial:Y



loop : Y
Test Mode:
Model :

Frequency MHz	Read level dBuV	Cable Loss dB	Antenna Factor dB	Measured level dBuA	Limit Line dBuA	Over limit dB	Remark
0.02	33.30	0.00	-0.46	32.84	88.00	-55.16	QP
0.24	16.99	0.10	-0.16	16.93	52.23	-35.30	QP
0.96	6.91	0.10	-0.20	6.81	35.66	-28.85	QP
1.62	2.43	0.18	-0.04	2.57	29.42	-26.85	QP
2.29	-2.87	0.23	0.03	-2.61	25.23	-27.84	QP
4.25	-5.63	0.40	0.33	-4.90	22.00	-26.90	QP

Test Mode: 00; Axial:Z



loop : Z
Test Mode:
Model :

Frequency MHz	Read level dBuV	Cable Loss dB	Antenna Factor dB	Measured level dBuA	Limit Line dBuA	Over limit dB	Remark
0.02	31.93	0.00	0.08	32.01	88.00	-55.99	QP
0.16	17.84	0.10	-0.34	17.60	57.59	-39.99	QP
0.57	7.58	0.10	-0.28	7.40	41.90	-34.50	QP
1.25	3.47	0.12	-0.04	3.55	32.54	-28.99	QP
1.81	1.09	0.19	0.18	1.46	28.06	-26.60	QP
4.21	-7.92	0.40	0.41	-7.11	22.00	-29.11	QP

6.4 Radiated disturbance Test for CDNE method (30MHz-300MHz)

Test Requirement: EN IEC 55015: 2019+A11:2020

Test Method: CISPR 16-2-1

Limit:

30MHz-100MHz	64dB(μV)-54dB(μV) quasi-peak
100MHz-200MHz	54dB(μV) quasi-peak
200MHz-300MHz	54dB(μV)-51dB(μV) quasi-peak

Detector: Peak for pre-scan Quasi-Peak for final test (120 kHz resolution bandwidth) 30MHz-300MHz

6.4.1 E.U.T. Operation

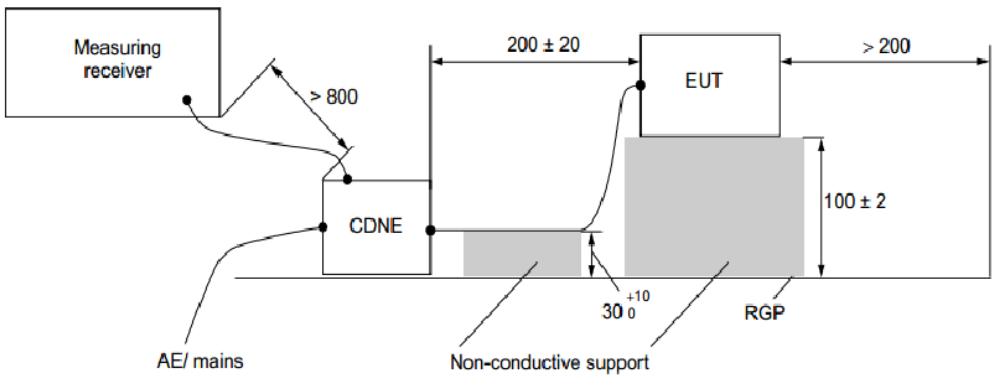
Operating Environment:

Temperature: 25.6 °C Humidity: 52 % RH Atmospheric Pressure: 1010 mbar

6.4.2 Test Mode Description

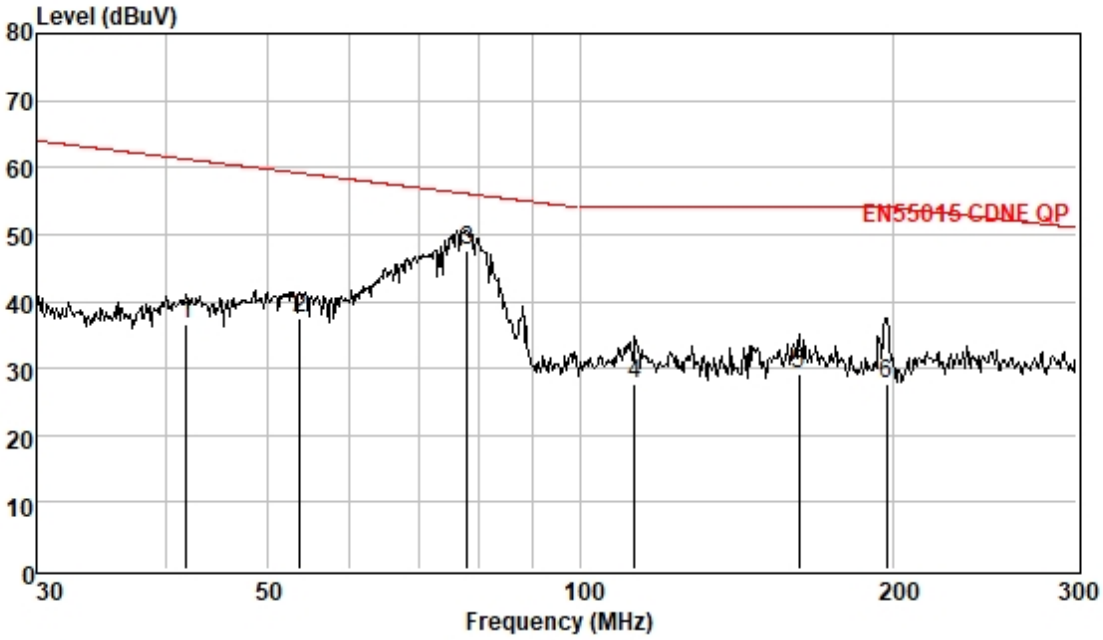
Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in lighting mode.

6.4.3 Test Setup Diagram



6.4.4 Measurement Procedure and Data

Test Mode: 00



Mode :
Model :

Frequenc MHz	Read Level dBuV	Cable Loss dB	CDNE Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
41.79	16.50	0.51	19.52	36.53	61.25	-24.72	QP
53.72	17.29	0.56	19.52	37.37	59.16	-21.79	QP
77.83	27.25	0.68	19.51	47.44	56.08	-8.64	QP
112.75	7.32	0.83	19.49	27.64	54.00	-26.36	QP
162.23	8.49	1.02	19.57	29.08	54.00	-24.92	QP
197.30	6.89	1.13	19.72	27.74	54.00	-26.26	QP

6.5 Harmonic Current Emission

Test Requirement: EN IEC 61000-3-2: 2019

Test Method: EN IEC 61000-3-2: 2019

6.5.1 E.U.T. Operation

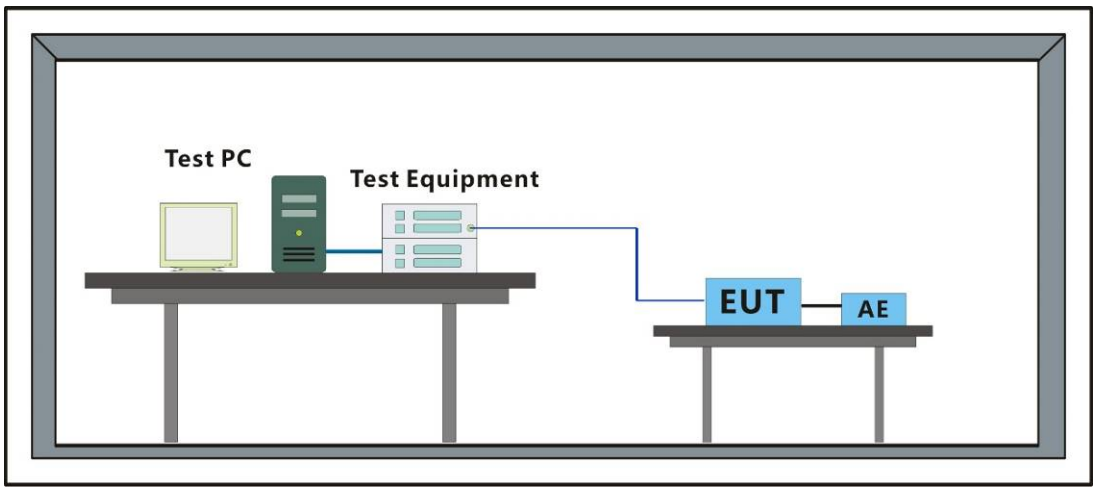
Operating Environment:

Temperature: 21 °C Humidity: 52 % RH Atmospheric Pressure: 1010 mbar

6.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in lighting mode.

6.5.3 Test Setup Diagram



6.5.4 Measurement Procedure and Data

Frequency Range: 100Hz to 2kHz

Test Mode: 00

Current Test Result Summary (Replay)

Test category: Class-C per Ed. 5.0 (2018) (European limits) Test Margin: 100
Test duration (min): 2.5

Test Result: Pass Source qualification: Normal
THC(A): 0.015 I-THD(%): 9.9 POHC(A): 0.002 POHC Limit(A): 0.014

Highest parameter values during test:

V_RMS (Volts):	230.06	Frequency(Hz):	50.00
I_Peak (Amps):	0.230	I_RMS (Amps):	0.149
I_Fund (Amps):	0.148	Crest Factor:	1.544
Power (Watts):	33.5	Power Factor:	0.977

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	0.003	N/A	0.001	0.004	N/A	Pass
3	0.009	0.044	20.9	0.011	0.065	16.3	Pass
4	0.001	0.000	N/A	0.001	0.000	N/A	Pass
5	0.007	0.015	46.0	0.007	0.022	32.5	Pass
6	0.000	0.000	N/A	0.000	0.000	N/A	Pass
7	0.007	0.010	71.4	0.008	0.016	50.0	Pass
8	0.000	0.000	N/A	0.000	0.000	N/A	Pass
9	0.005	0.007	N/A	0.005	0.011	N/A	Pass
10	0.000	0.000	N/A	0.000	0.000	N/A	Pass
11	0.002	0.004	N/A	0.002	0.007	N/A	Pass
12	0.000	0.000	N/A	0.000	0.000	N/A	Pass
13	0.001	0.004	N/A	0.001	0.007	N/A	Pass
14	0.000	0.000	N/A	0.000	0.000	N/A	Pass
15	0.001	0.004	N/A	0.001	0.007	N/A	Pass
16	0.000	0.000	N/A	0.000	0.000	N/A	Pass
17	0.000	0.004	N/A	0.000	0.007	N/A	Pass
18	0.000	0.000	N/A	0.000	0.000	N/A	Pass
19	0.001	0.004	N/A	0.001	0.007	N/A	Pass
20	0.000	0.000	N/A	0.000	0.000	N/A	Pass
21	0.001	0.004	N/A	0.001	0.007	N/A	Pass
22	0.000	0.000	N/A	0.000	0.000	N/A	Pass
23	0.001	0.004	N/A	0.001	0.007	N/A	Pass
24	0.000	0.000	N/A	0.000	0.000	N/A	Pass
25	0.001	0.004	N/A	0.001	0.007	N/A	Pass
26	0.000	0.000	N/A	0.000	0.000	N/A	Pass
27	0.001	0.004	N/A	0.001	0.007	N/A	Pass
28	0.000	0.000	N/A	0.000	0.000	N/A	Pass
29	0.000	0.004	N/A	0.001	0.007	N/A	Pass
30	0.000	0.000	N/A	0.000	0.000	N/A	Pass
31	0.000	0.004	N/A	0.000	0.007	N/A	Pass
32	0.000	0.000	N/A	0.000	0.000	N/A	Pass
33	0.000	0.004	N/A	0.000	0.007	N/A	Pass
34	0.000	0.000	N/A	0.000	0.000	N/A	Pass
35	0.000	0.004	N/A	0.000	0.007	N/A	Pass
36	0.000	0.000	N/A	0.000	0.000	N/A	Pass
37	0.000	0.004	N/A	0.000	0.007	N/A	Pass
38	0.000	0.000	N/A	0.000	0.000	N/A	Pass
39	0.001	0.004	N/A	0.001	0.007	N/A	Pass
40	0.000	0.000	N/A	0.000	0.000	N/A	Pass

Note: Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.

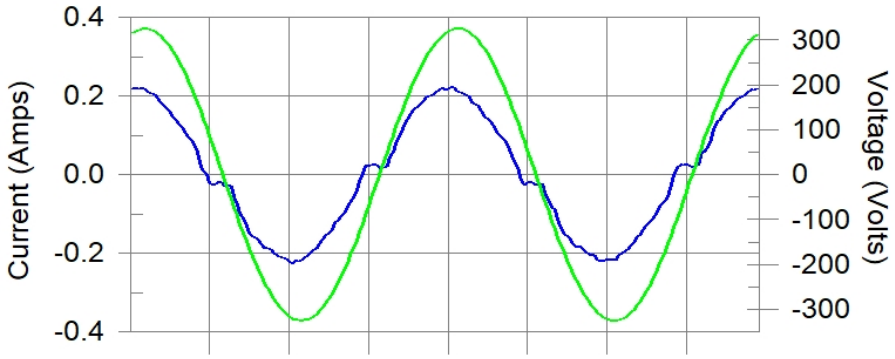
Test Mode: 00

Harmonics – Class-C per Ed. 5.0 (2018)(Replay)

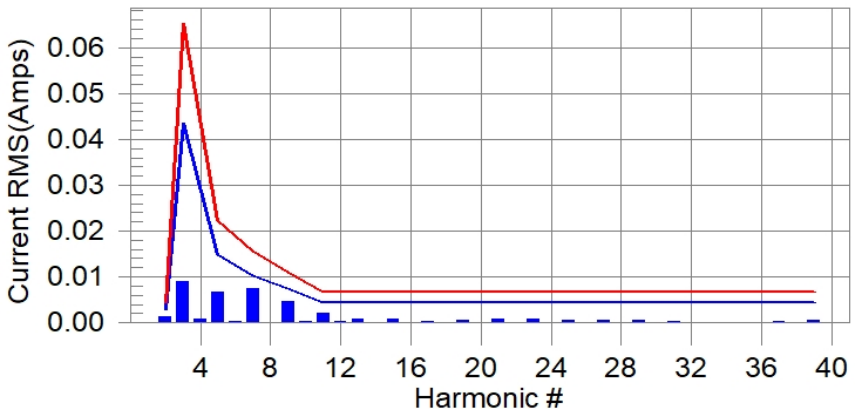
Test category: Class-C per Ed. 5.0 (2018) (European limits) Test Margin: 100
Test duration (min): 2.5

Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class C limit line **European Limits**



Test result: Pass Worst harmonics H7-50.0% of 150% limit, H7-71.4% of 100% limit

7 Immunity Test Results

Performance Criteria Description in Clause 4.2 of EN 61547

Criterion A: During the test, no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.

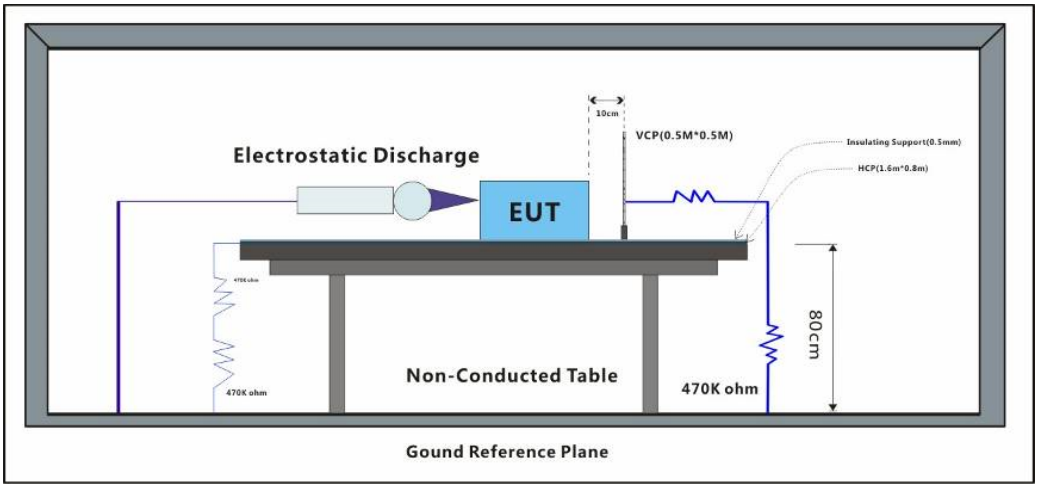
Criterion B: During the test, the luminous intensity may change to any value. After the test, the luminous intensity shall be restored to its initial value within 1 min. Regulating controls need not function during the test, but after the test, the mode of the control shall be the same as before the test provided that during the test no mode changing commands were given.

Criterion C: During and after the test, any change of the luminous intensity is allowed and the lamp(s) may be extinguished. After the test, within 30 min, all functions shall return to normal, if necessary by temporary interruption of the mains supply and/or operating the regulating control.

7.1 Electrostatic Discharge

Test Requirement: EN 61547: 2009
Test Method: EN 61000-4-2:2009

7.1.1 Test Setup Diagram



7.1.2 E.U.T. Operation

Operating Environment:
Temperature: 21 °C Humidity: 52 % RH Atmospheric Pressure: 1010 mbar

7.1.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in lighting mode.

7.1.4 Test Condition and Results:

Performance Criterion: B
Discharge Impedance: 330 Ω / 150 pF
Discharge Voltage: Air Discharge: 8 kV; Contact Discharge:4 kV; VCP/HCP: 4 kV.
Polarity: Positive & Negative
Number of Discharge:Minimum 10 times at each test point
Discharge Mode: Single Discharge
Discharge Period: 1 second minimum
Test Point 1: All insulated enclosure & seams.
Test Point 2: All accessible metal parts of the enclosure.
Test Point 3: All sides.

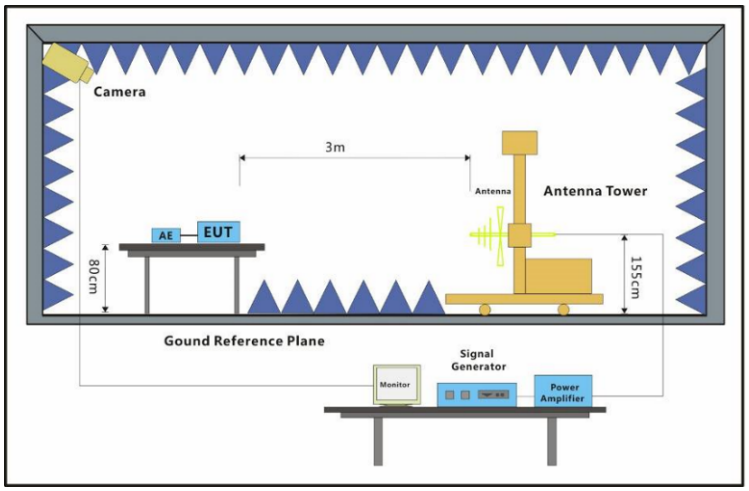
Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	A
Air Discharge	2,4,8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A
A: No degradation in the performance of the EUT was observed				

7.2 Radiated Immunity (80MHz-1GHz)

Test Requirement: EN 61547: 2009

Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C Humidity: 53.8 % RH Atmospheric Pressure: 1010 mbar

7.2.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in lighting mode.

7.2.4 Test Condition and Results:

Performance Criterion: A

Frequency Range: 80MHz to 1GHz

Antenna Polarisation: Vertical and Horizontal

Modulation 1kHz, 80% Amp. Mod,1% increment

Test Distance:3m

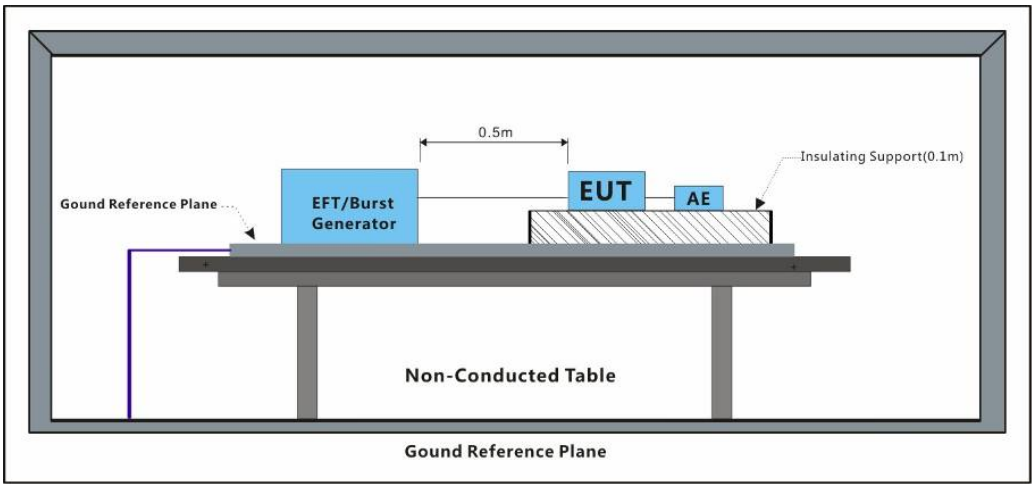
Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	3	Front	3s	A
80MHz-1GHz	3	Back	3s	A
80MHz-1GHz	3	Left	3s	A
80MHz-1GHz	3	Right	3s	A
80MHz-1GHz	3	Top	3s	A
80MHz-1GHz	3	Bottom	3s	A
A: No degradation in the performance of the EUT was observed				

7.3 Electrical Fast Transients Burst at AC Mains Power Port

Test Requirement: EN 61547: 2009

Test Method: EN 61000-4-4:2012

7.3.1 Test Setup Diagram



7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 25.2 °C Humidity: 62.8 % RH Atmospheric Pressure: 1010 mbar

7.3.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in lighting mode.

7.3.4 Test Condition and Results:

Performance Criterion: B

Repetition Frequency: 5kHz

Burst Period: 300ms

Test Duration: 2 minute per level & polarity

Test Level: 1.0kV

Polarity: Positive & Negative

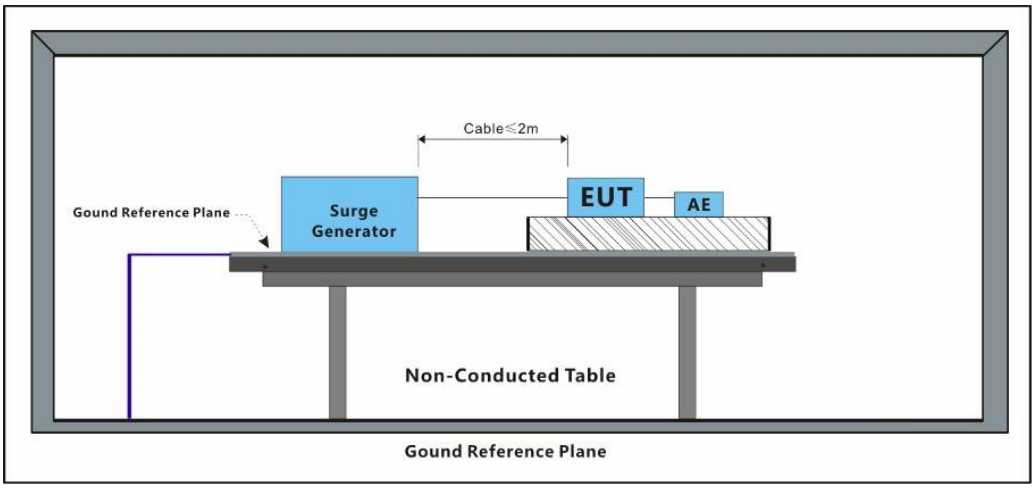
Test Line	Level (kV)	Polarity	CDN/Clamp	Result / Observations
AC power port	1	+	CDN	A
AC power port	1	-	CDN	A
A: No degradation in the performance of the EUT was observed				

7.4 Surge at Power Port

Test Requirement: EN 61547: 2009

Test Method: EN 61000-4-5:2014

7.4.1 Test Setup Diagram



7.4.2 E.U.T. Operation

Operating Environment:

Temperature: 25.2 °C Humidity: 63.0 % RH Atmospheric Pressure: 1010 mbar

7.4.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in lighting mode.

7.4.4 Test Condition and Results:

Performance Criterion: B

Interval: 60s between each surge

Test Level: ±0.5kV, ±1kV Live to Neutral; ±1kV, ±2kV Live, Neutral to Earth

Polarity: Positive & Negative

Generator source impedance: 2Ω

Trigger Mode: Internal

No. of surges: 5 positive at 90°, 5 negative at 270°.

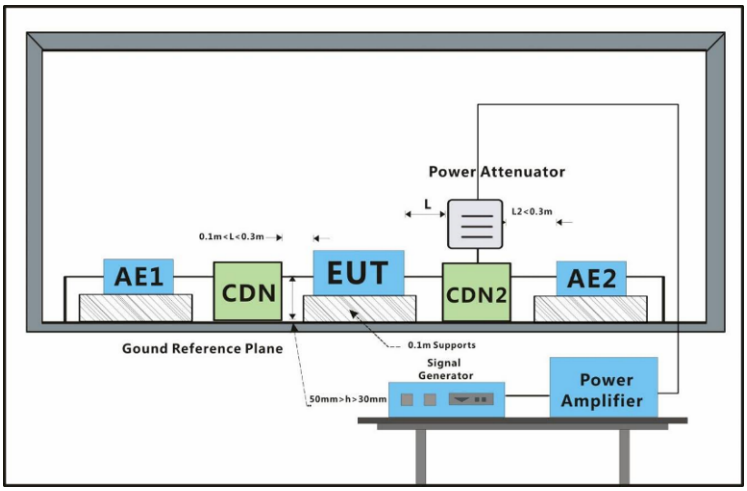
Test Line	Level (kV)	Polarity	Phase (deg)	Result / Observations
L-N	1.0	+	90°	B
L-N	1.0	-	270°	B
L-PE	2.0	+	90°	B
L-PE	2.0	-	270°	B
N-PE	2.0	+	90°	B
N-PE	2.0	-	270°	B
B: During test, the light flashed. After test, it could recover automatically				

7.5 Conducted Immunity at AC Mains Power Port (150kHz-80MHz)

Test Requirement: EN 61547: 2009

Test Method: EN 61000-4-6:2014

7.5.1 Test Setup Diagram



7.5.2 E.U.T. Operation

Operating Environment:

Temperature: 25.2 °C Humidity: 63.4 % RH Atmospheric Pressure: 1010 mbar

7.5.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in lighting mode.

7.5.4 Test Condition and Results:

Performance Criterion: A

Step Size: 1%

Frequency Range: 0.15MHz to 80MHz

Modulation: 80%, 1kHz Amplitude Modulation

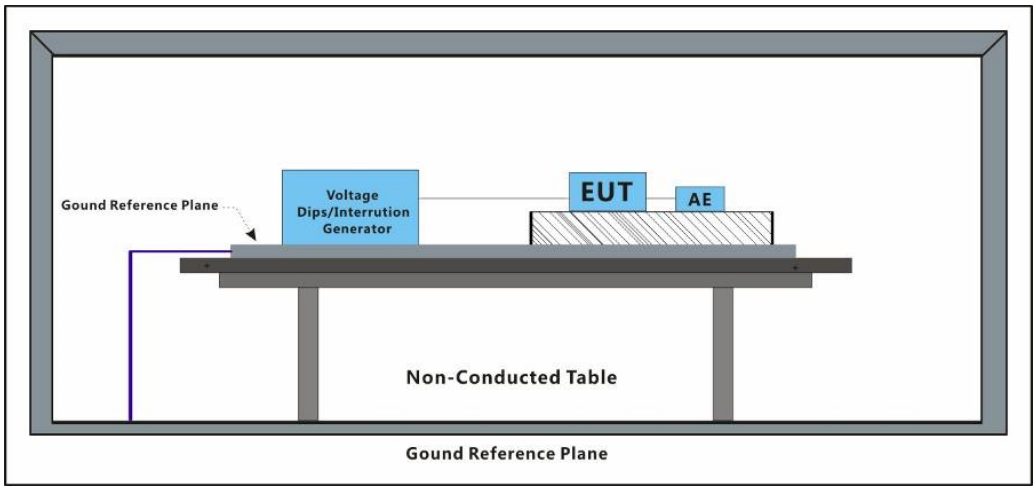
Cable port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
AC power port	3	CDN	3s	A
A: No degradation in the performance of the EUT was observed				

7.6 Voltage Dips and Interruptions

Test Requirement: EN 61547: 2009

Test Method: EN 61000-4-11:2004

7.6.1 Test Setup Diagram



7.6.2 E.U.T. Operation

Operating Environment:

Temperature: 25.2 °C Humidity: 63.7 % RH Atmospheric Pressure: 1010 mbar

7.6.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in lighting mode.

7.6.4 Test Condition and Results:

Performance Criterion:0% of UT (Supply Voltage) for 0.5 Cycle:B; 70 % of UT for 10 Cycles: C

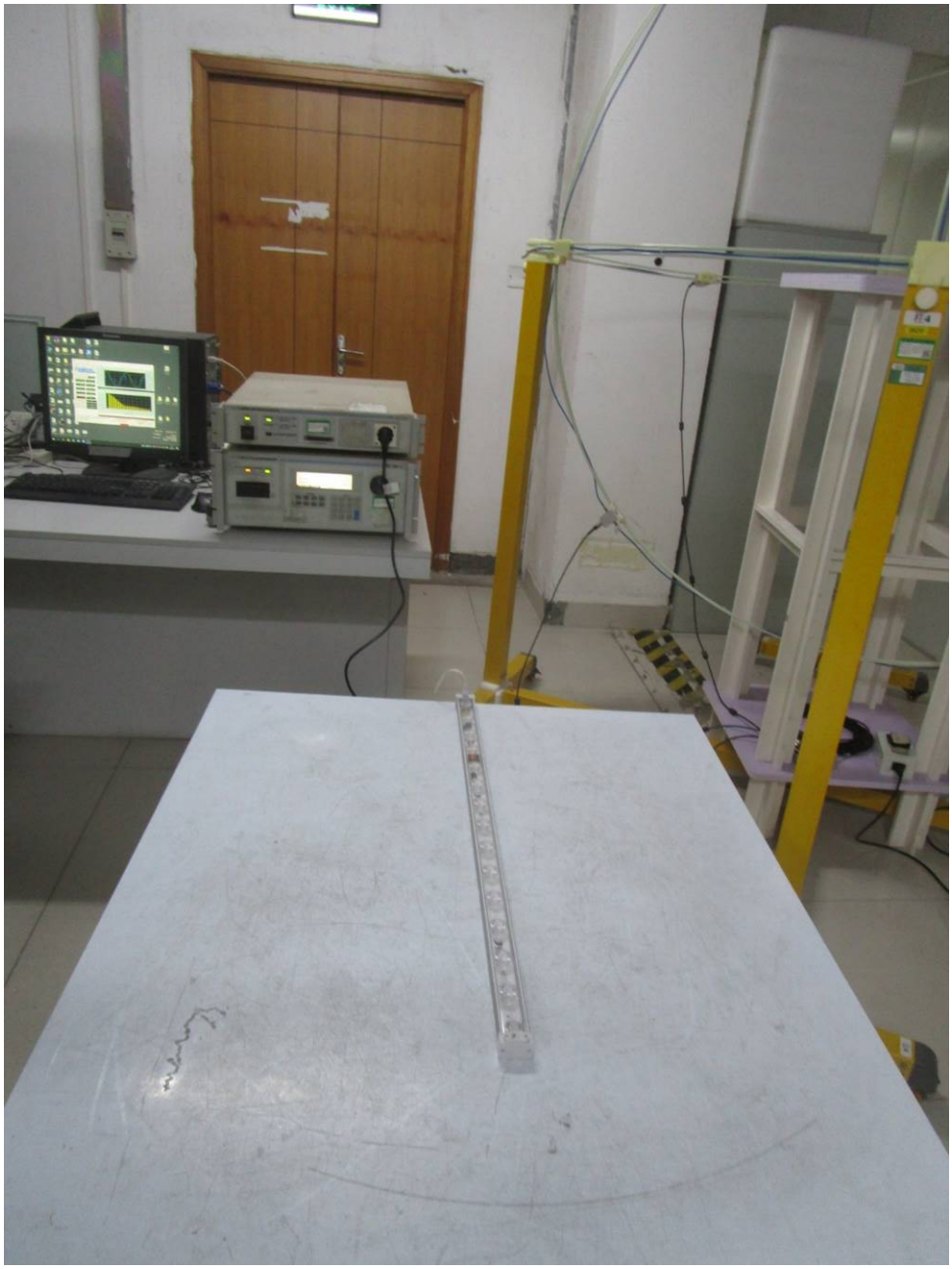
No. of Dips / Interruptions: 3 per Level

Time between dropout: 10s

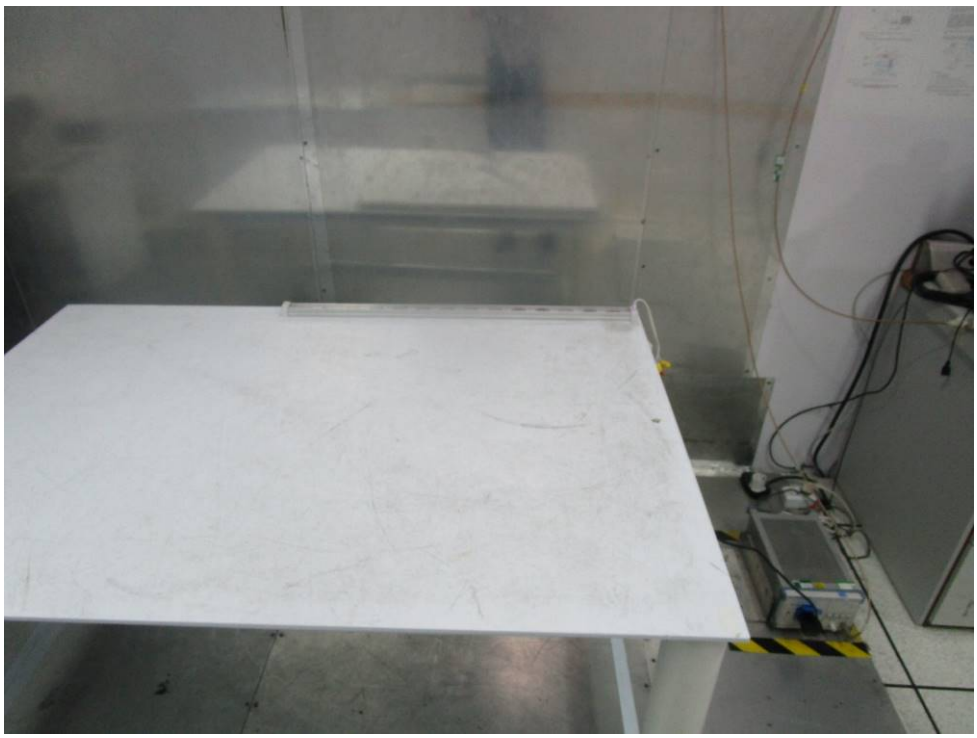
Level % UT	Phase (deg)	Duration	No. of Dips / Interruptions	Result / Observations
0	0°	0.5 Cycle	3	A
0	180°	0.5 Cycle	3	A
70	0°	10 Cycles	3	A
70	180°	10 Cycles	3	A
A: No degradation in the performance of the EUT was observed				

8 Test Setup Photo

Voltage Fluctuations and Flicker

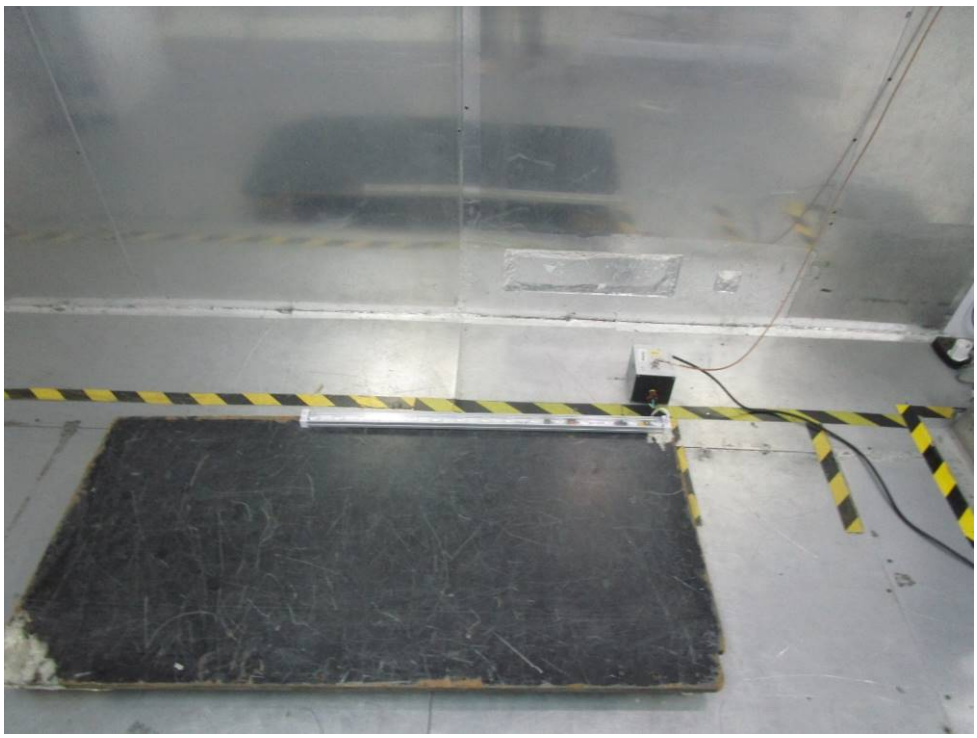


Conducted Emissions at Mains Terminals (9kHz-30MHz)

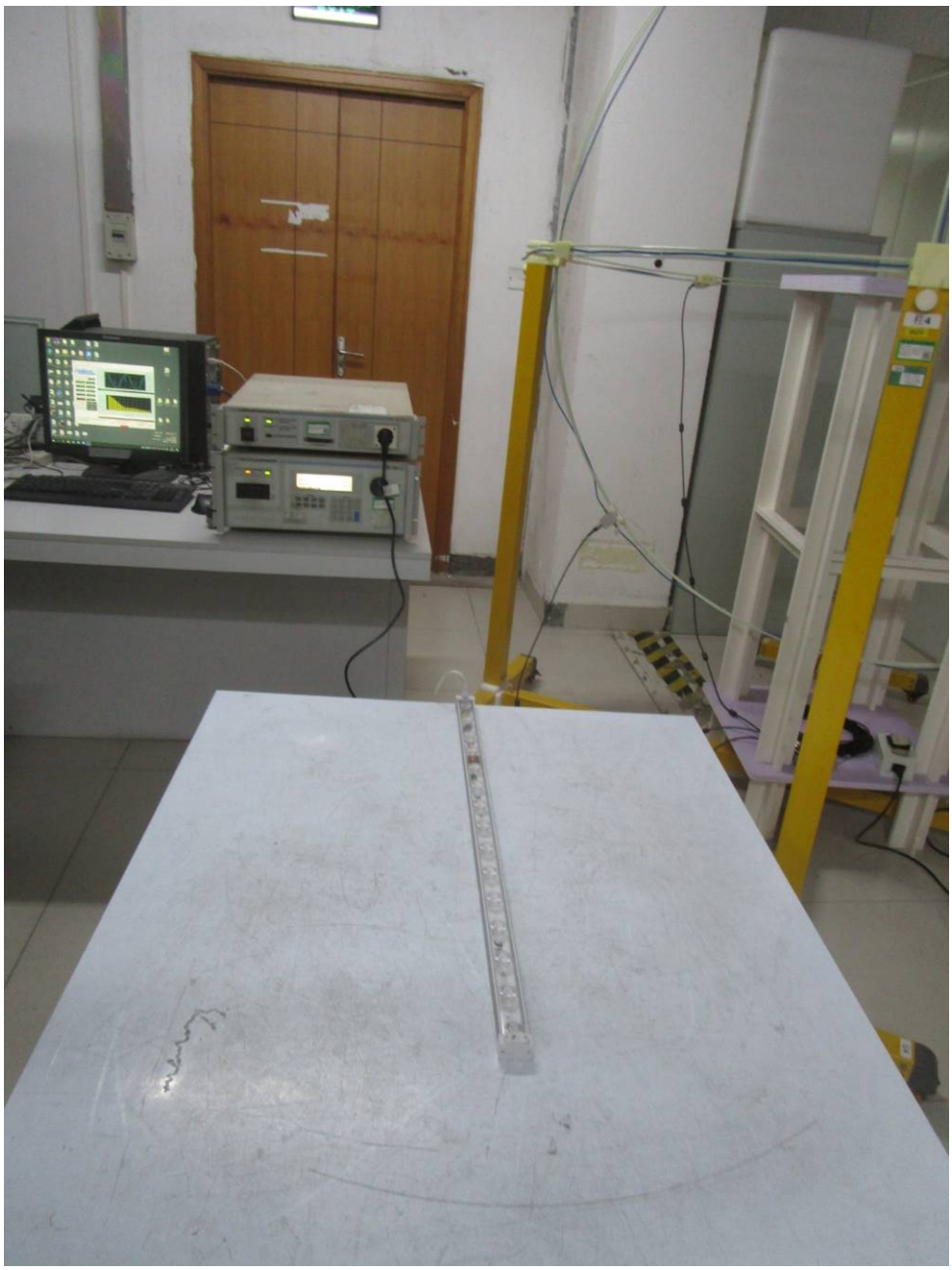


Radiated Emissions (Magnetic field Induced Current)(9kHz-30MHz)

Radiated disturbance Test for CDNE method (30MHz-300MHz)



Harmonic Current Emission



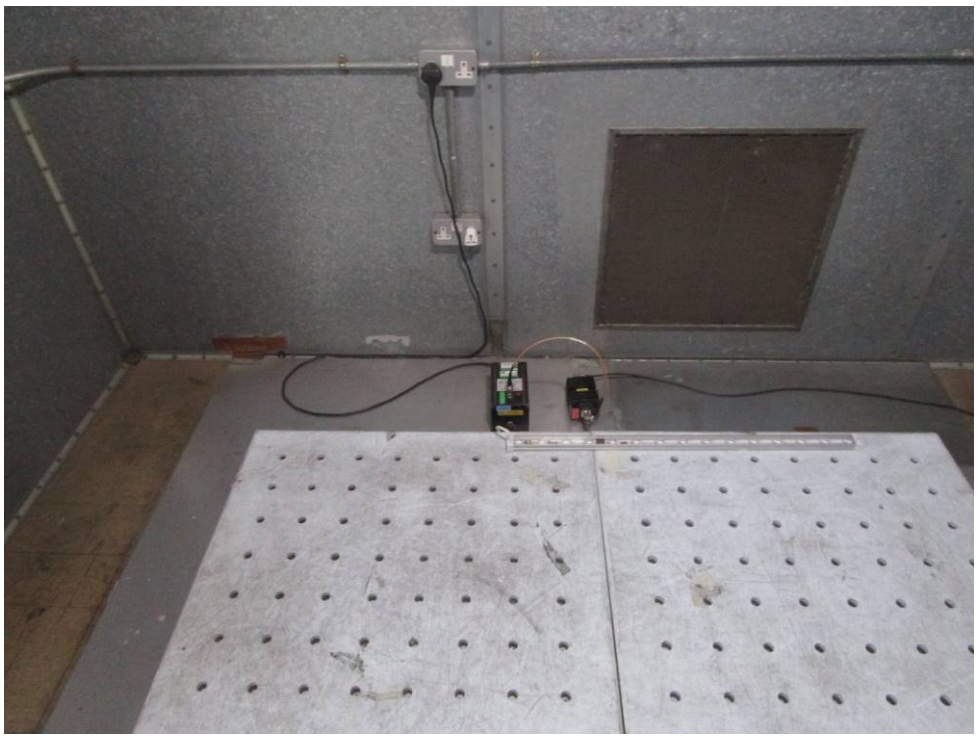
Electrostatic Discharge

Radiated Immunity (80MHz-1GHz)

Electrical Fast Transients Burst at AC Mains Power Port

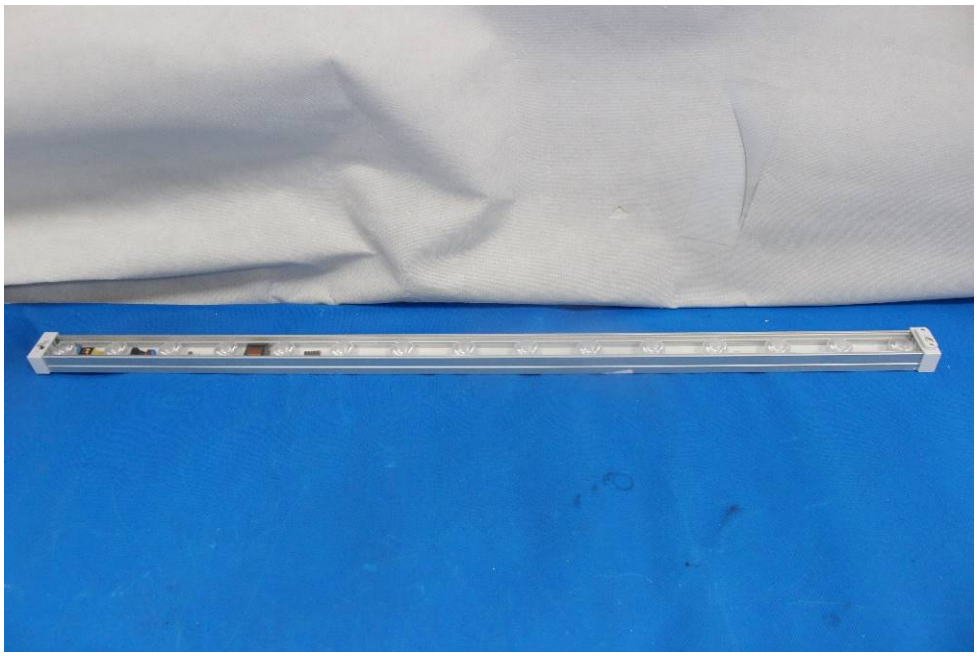
Surge at Power Port

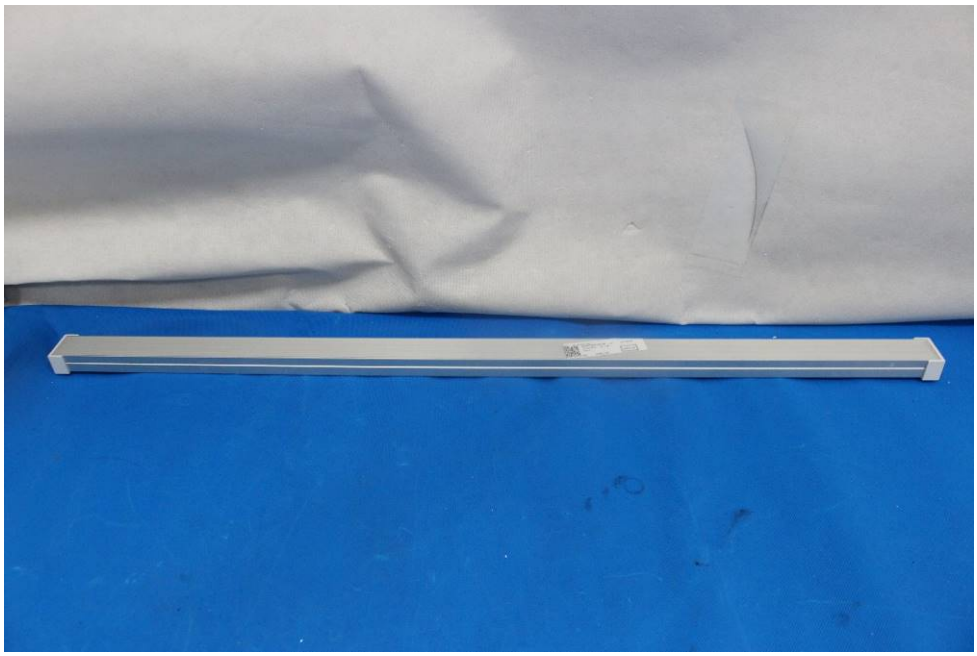
Conducted Immunity at AC Mains Power Port (150kHz-80MHz)

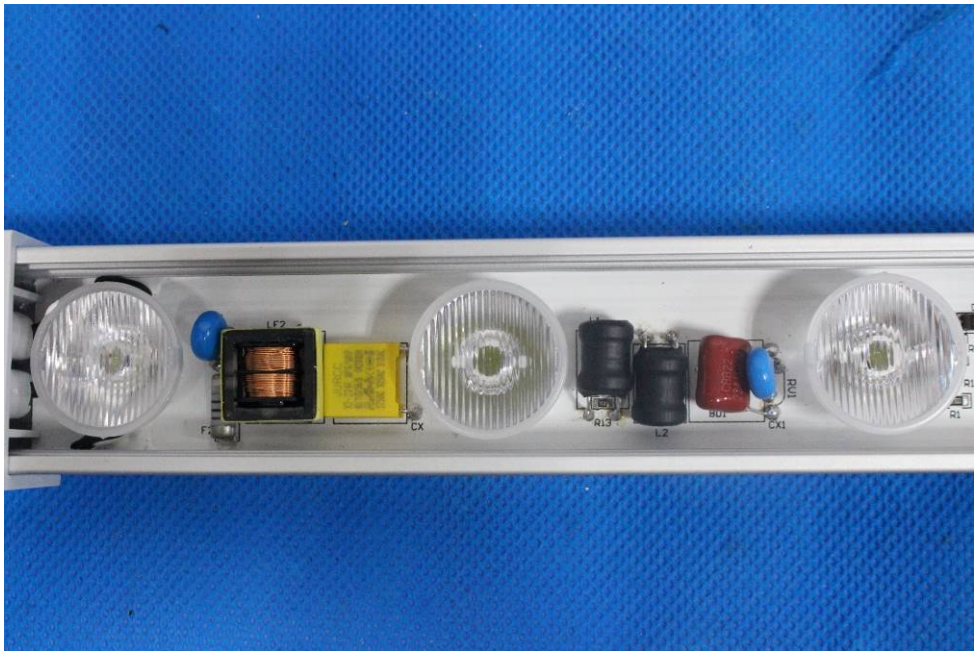


Voltage Dips and Interruptions

9 EUT Constructional Details (EUT Photos)







- End of the Report -