

TEST REPORT

Application No.: GZEM2105003196LM
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 Lighting
Model No.: FN-2835T-48, LN-2835T-48, CN-2835T-48, FN-F2835-48, FN-F5050-48, FN-XXXXX-XX, CN-XXXXX-XX, LN-XXXXX-XX, CSP-FLEX-XXX, CSP-NEON-XXX, FXX-XXXX-XXX-48, CXX-XXXX-XXX-48, LXX-XXXX-XXX-48, CSP-XXXX-XXX
 ☐ Please refer to section 2 of this report which indicates which model 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: 2021-03-11
Date of Test: 2021-03-15 to 2021-03-24
Date of Issue: 2021-04-23 (for original report GZEM210300137001)
 2021-05-25 (for copy report GZEM210300137002)

Test Result:	Pass*
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* 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.



Kobe Jian

Kobe Jian
EMC Laboratory Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-04-23		Original
02		2021-05-25		Copy report: Added 4 new models and changed product description.

Authorized for issue by:				
Tested By				
		Michael Huang/Project Engineer		
Reviewed By				
		Terry Lai/Reviewer		

2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (9kHz-30MHz)	EN IEC 55015: 2019+A11:2020	CISPR 16-2-1	Table 1	Pass
Radiated Emissions (30MHz-1GHz)	EN IEC 55015: 2019+A11:2020	CISPR 16-2-3	Table 10	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
Harmonic Current Emission	EN IEC 61000-3-2: 2019	EN IEC 61000-3-2: 2019	Class C	Pass
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

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, 0.5kV Line to Line	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.



Remark for original report GZEM210300137001:

■ Declaration of EUT Family Grouping:

Model No.: FN-2835T-48, CN-2835T-48, CN-2835T-48, LN-2835T-48, CN-2835T-48, FN-F2835-48, FN-F5050-48, FN-XXXXX-XX, CN-XXXXX-XX, LN-XXXXX-XX, CSP-FLEX-XXX, CSP-NEON-XXX

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 the color temperature.

Therefore only one model **FN-2835T-48** was tested in this report.

Remark for copy report GZEM210300137002:

This report GZEM210300137002 was an additional report copied from the GZEM210300137001 original report, in which the model no. of 4 new models were supplemented and changed product description.

1. Changed product description as LED Lighting

2.Added 4 new models as: FXX-XXXX-XXX-48, CXX-XXXX-XXX-48, LXX-XXXX-XXX-48, CSP-XXXX-XXX

According to the declaration of the applicant, the Models FXX-XXXX-XXX-48, CXX-XXXX-XXX-48, LXX-XXXX-XXX-48, CSP-XXXX-XXX supplemented in this report and the Model FN-2835T-48 in the original report were identical, with only difference being the color temperature.

Therefore original data was kept in this report **GZEM210300137002**.



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4 General Information

4.1 Details of E.U.T.

Power supply: AC 100-240V 50/60Hz \ DC 48V (Supply power for the AC\DC adapter)
Rated Power: 25W
Test voltage: AC 230V
Cable(s): 2 wires x about 1.2m unscreened AC mains cable.
2 wires x about 0.3m unscreened DC output cable.
(The AC\DC adapter output cable to LED lighting chain).

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--
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 (30MHz-1GHz)	5.06dB (3m) 4.46dB (10m)
Radiated Emissions (Magnetic field Induced Current)(9kHz-30MHz)	3.08dB(9kHz to 150kHz);3.12dB(150kHz to 30MHz)

Remark:

The U_{lab} (lab Uncertainty) is less than U_{cisp} (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, Sciencetech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663

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

No tests were sub-contracted.



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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 as a result of our NVLAP accreditation.

- **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 2.948 Listed Test Firm(Registration No.: 282399)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

- **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, Jul 13, 2017.

- **Industry Canada (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 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-10449 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.



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4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 EMS Monitor

Visual: LED lighting of the EUT.

Audio: N/A

Other: N/A

5 Equipment List

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 (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2021-01-08	2022-01-07
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECK MESS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Amplifier	HP	8447F	EMC2065	2020-05-26	2021-05-25
High Pass Filter (915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2021-01-08	2022-01-07
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2019-10-20	2022-10-19
Test Software E3	Audix	Ver.6.120110a	GZE100-61	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

Harmonic Current Emission					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
AC Power Source	California	50001iX	EMC0608	2020-03-27	2021-03-26
Power Analyzer	California	PACS	EMC0607	2020-03-27	2021-03-26
Test Software CTS4	California	Ver 4.14.0	GZE100-66	N/A	N/A

Voltage Fluctuations and Flicker					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
AC Power Source	California	50001iX	EMC0608	2020-03-27	2021-03-26
Power Analyzer	California	PACS	EMC0607	2020-03-27	2021-03-26
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	TESEQ AG	NSG 435	EMC2071	2020-06-30	2021-06-30
ESD Ground Plane	SGS-EMC	3m x 3m	EMC0804	N/A	N/A

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

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



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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

6 Emission Test Results

6.1 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

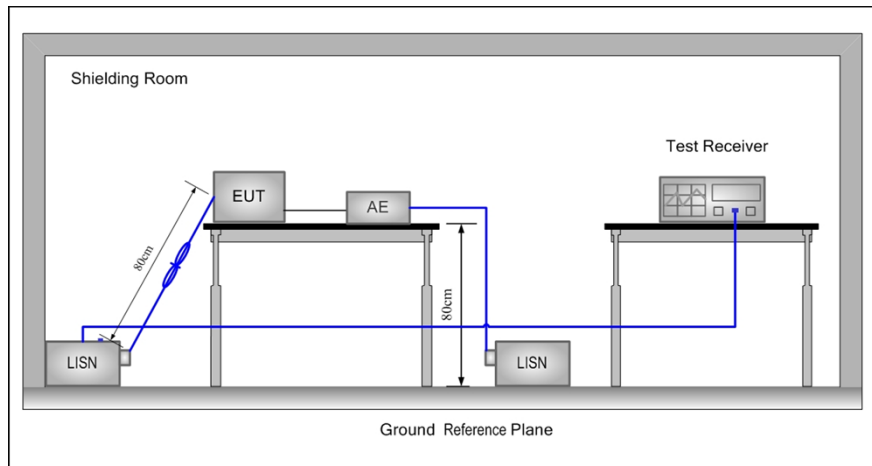
6.1.1 E.U.T. Operation

Operating Environment:
 Temperature: 25.5 °C Humidity: 48.1 % RH Atmospheric Pressure: 1010 mbar

6.1.2 Test Mode Description

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

6.1.3 Test Setup Diagram

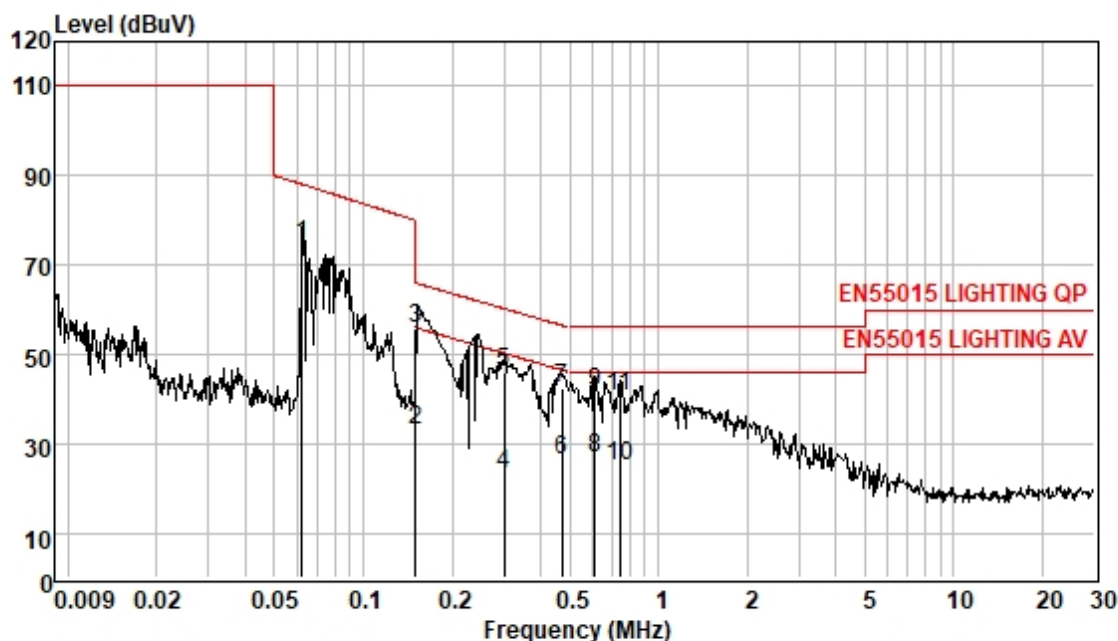


6.1.4 Measurement Procedure and Data

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



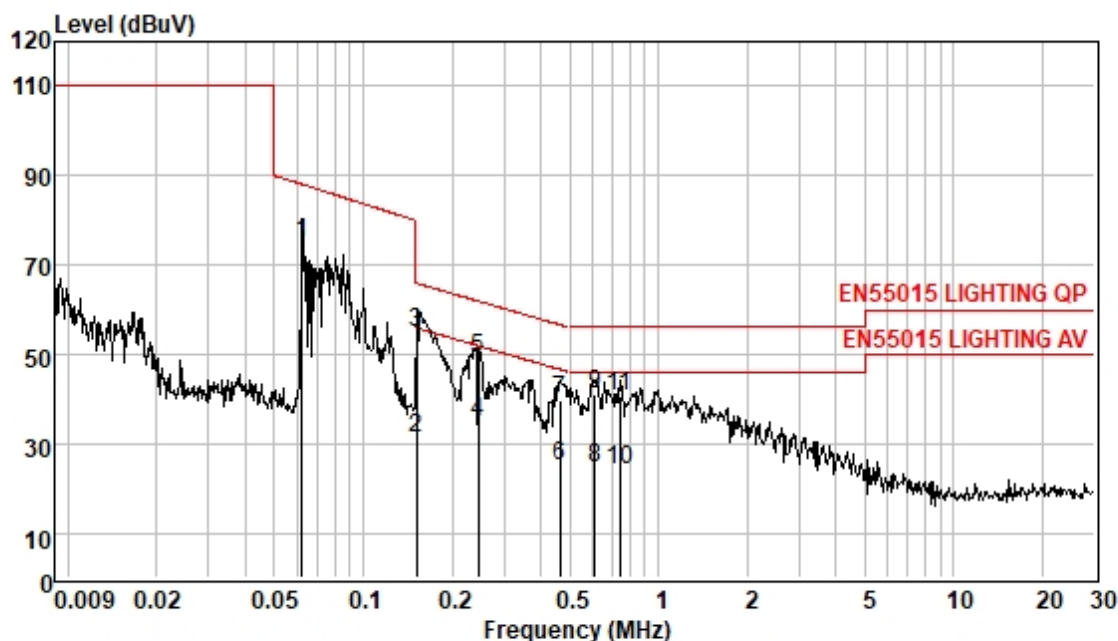
Pol : LINE

Mode :

Model :

Frequency MHz	Read Level dBUV	Cable Loss dB	LISN Factor dB	Measured Level dBUV	Limit Line dBUV	Over Limit dB	Remark
0.06	64.61	0.05	9.64	74.30	88.02	-13.72	QP
0.15	23.33	0.06	9.62	33.01	55.96	-22.95	Average
0.15	46.11	0.06	9.62	55.79	65.96	-10.17	QP
0.30	13.63	0.06	9.62	23.31	50.24	-26.93	Average
0.30	36.21	0.06	9.62	45.89	60.24	-14.35	QP
0.47	16.42	0.07	9.63	26.12	46.49	-20.37	Average
0.47	32.54	0.07	9.63	42.24	56.49	-14.25	QP
0.61	16.97	0.07	9.63	26.67	46.00	-19.33	Average
0.61	31.78	0.07	9.63	41.48	56.00	-14.52	QP
0.74	15.49	0.07	9.63	25.19	46.00	-20.81	Average
0.74	30.86	0.07	9.63	40.56	56.00	-15.44	QP

Test Mode: 00; Line: Neutral Line



Pol : NEUTRAL

Mode :

Model :

Frequency MHz	Read Level dBUV	Cable Loss dB	LISN Factor dB	Measured Level dBUV	Limit Line dBUV	Over Limit dB	Remark
0.06	65.39	0.05	9.58	75.02	88.07	-13.05	QP
0.15	21.40	0.06	9.55	31.01	55.91	-24.90	Average
0.15	45.09	0.06	9.55	54.70	65.91	-11.21	QP
0.25	24.97	0.06	9.55	34.58	51.91	-17.33	Average
0.25	39.58	0.06	9.55	49.19	61.91	-12.72	QP
0.46	15.37	0.07	9.55	24.99	46.63	-21.64	Average
0.46	30.24	0.07	9.55	39.86	56.63	-16.77	QP
0.61	15.15	0.07	9.54	24.76	46.00	-21.24	Average
0.61	31.36	0.07	9.54	40.97	56.00	-15.03	QP
0.74	14.44	0.07	9.55	24.06	46.00	-21.94	Average
0.74	30.94	0.07	9.55	40.56	56.00	-15.44	QP

6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN IEC 55015: 2019+A11:2020
 Test Method: CISPR 16-2-3
 Limit:
 30MHz-230MHz 30 dB(μV/m) quasi-peak
 230MHz-1GHz 37 dB(μV/m) quasi-peak
 Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

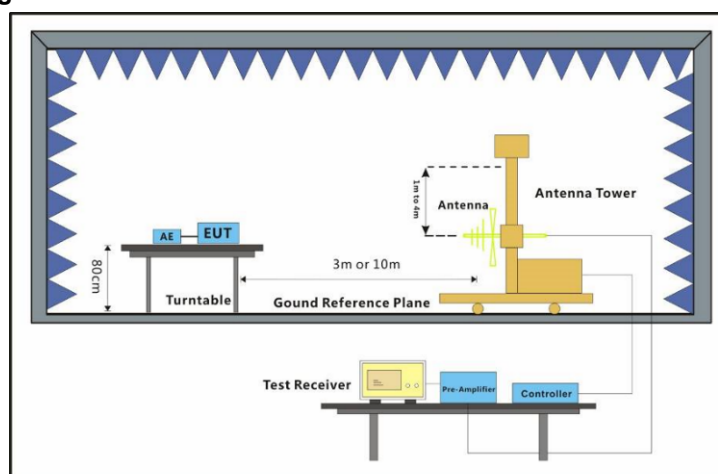
6.2.1 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 52 % RH Atmospheric Pressure: 1010 mbar

6.2.2 Test Mode Description

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

6.2.3 Test Setup Diagram

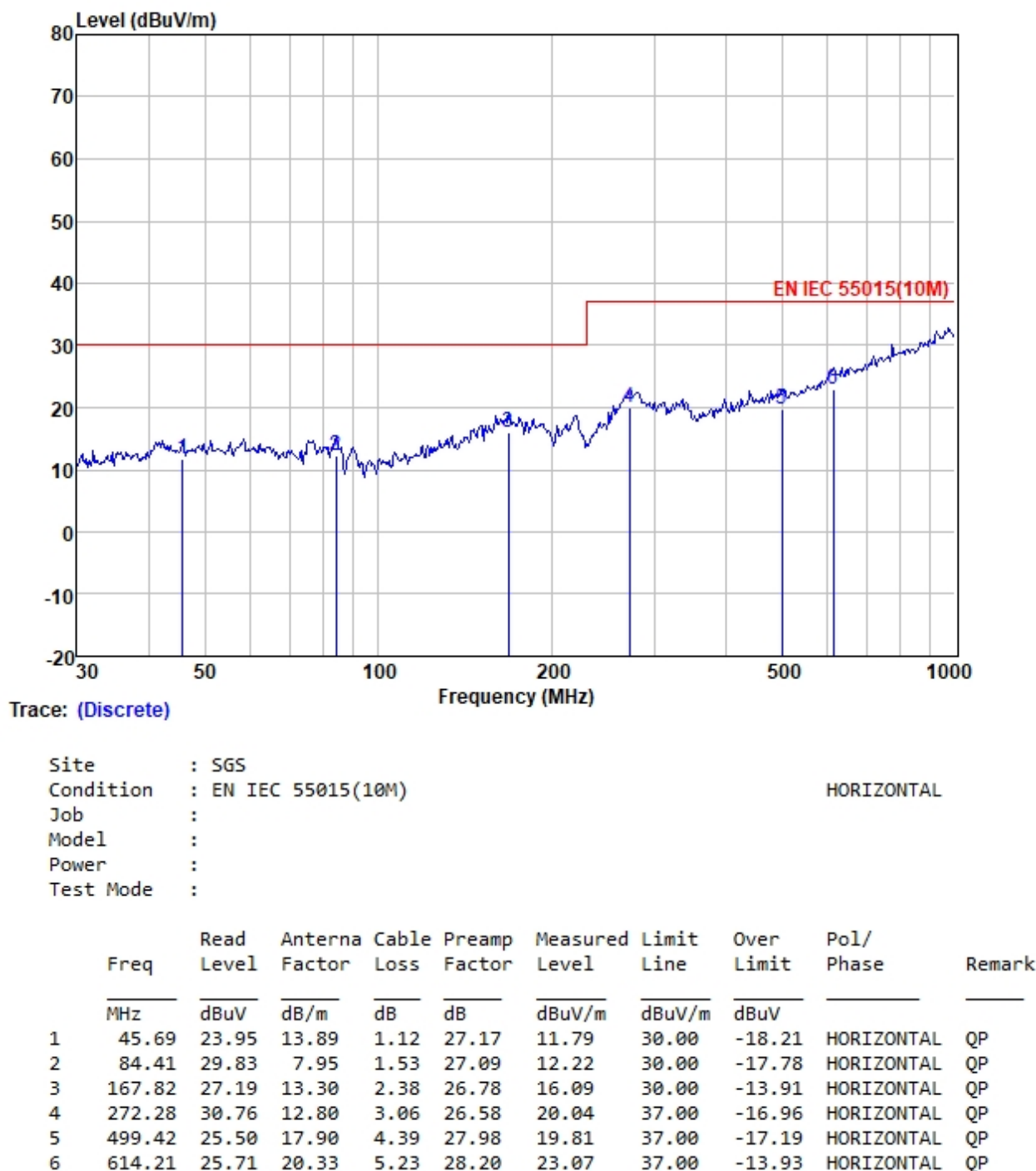


6.2.4 Measurement Procedure and Data

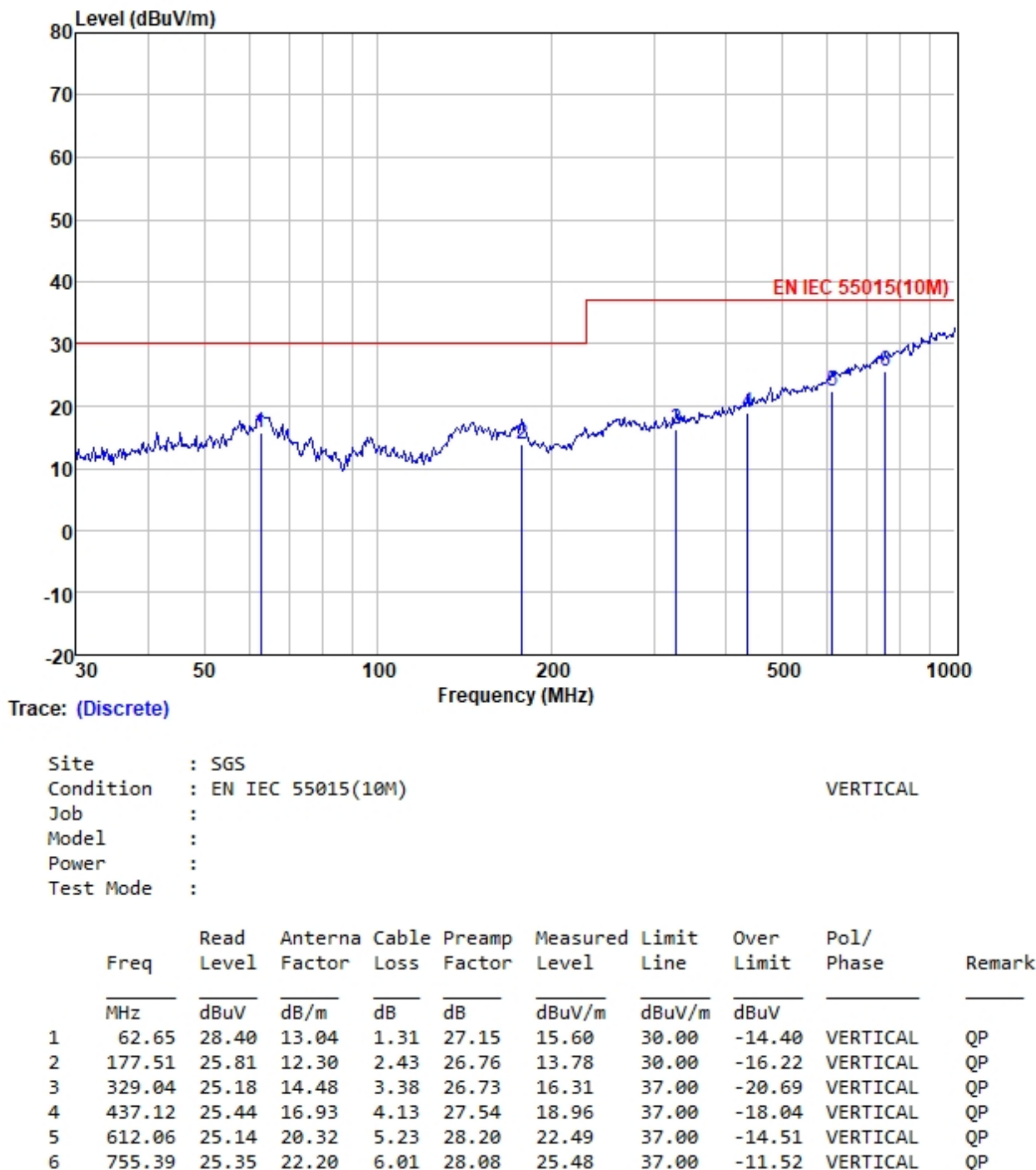
An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

Test Mode: 00; Polarity: Horizontal



Test Mode: 00; Polarity: Vertical



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

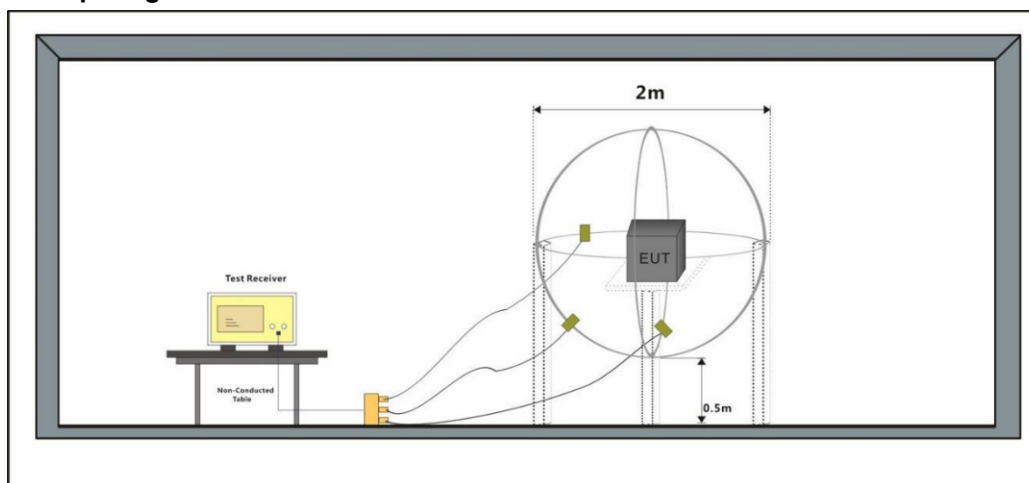
Operating Environment:

Temperature: 25.2 °C Humidity: 65.6 % RH Atmospheric Pressure: 1010 mbar

6.3.2 Test Mode Description

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

6.3.3 Test Setup Diagram

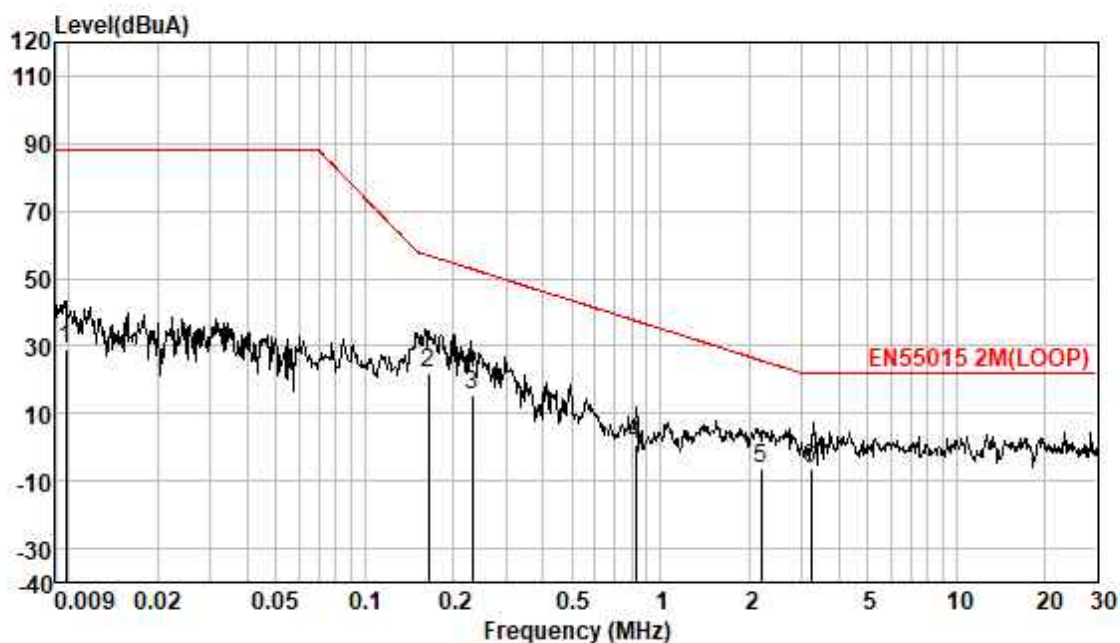


6.3.4 Measurement Procedure and Data

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



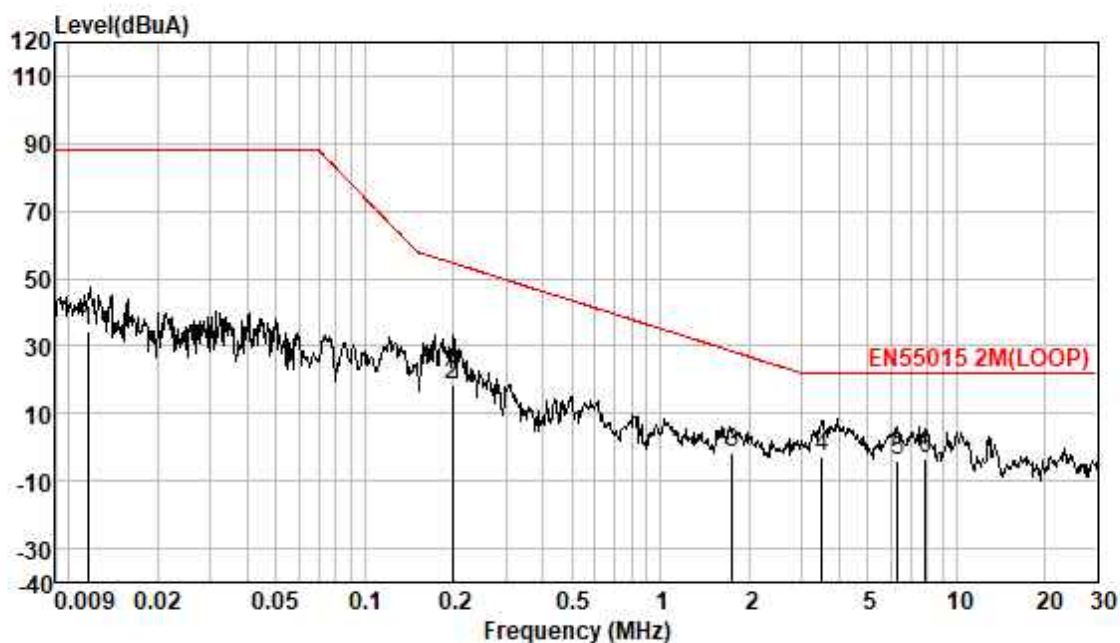
loop : X

Test Mode:

Model :

Frequency MHz	Read level dBuV	Cable Loss dB	Antenna Factor dB	Measured level dBuA	Limit Line dBuA	Over limit dB	Remark
0.01	29.62	0.00	-0.27	29.35	88.00	-58.65	QP
0.16	22.36	0.10	-0.18	22.28	56.91	-34.63	QP
0.23	15.58	0.10	-0.18	15.50	52.82	-37.32	QP
0.83	0.84	0.10	0.00	0.94	37.51	-36.57	QP
2.18	-6.90	0.22	0.41	-6.27	25.82	-32.09	QP
3.22	-7.39	0.32	0.48	-6.59	22.00	-28.59	QP

Test Mode: 00; Axial:Y



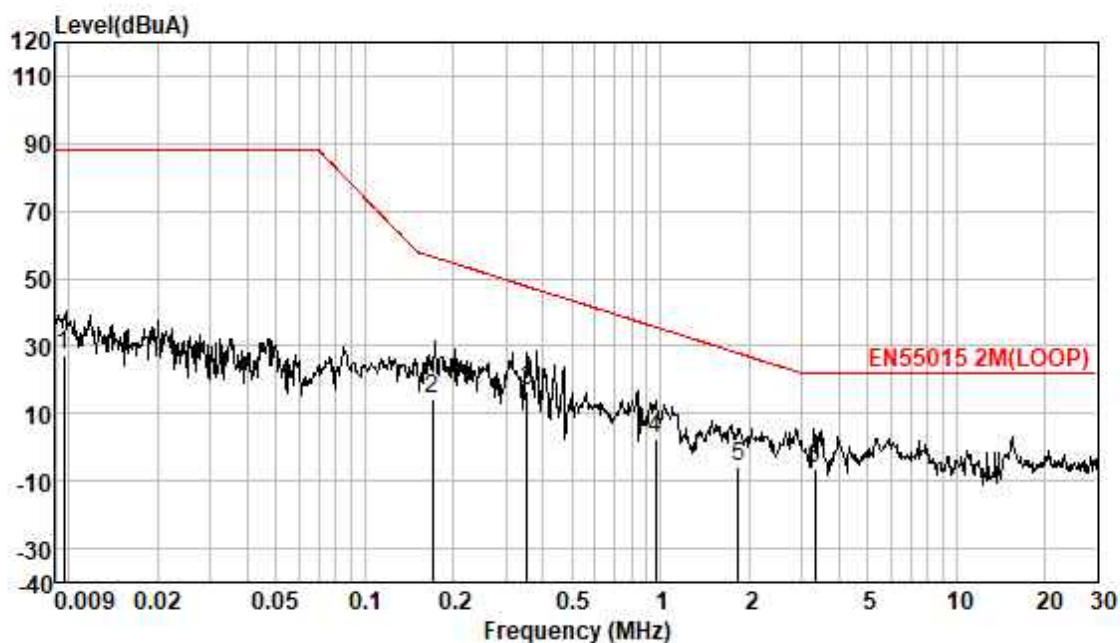
loop : Y

Test Mode:

Model :

Frequency MHz	Read level dBuV	Cable Loss dB	Antenna Factor dB	Measured level dBuA	Limit Line dBuA	Over limit dB	Remark
0.01	35.13	0.00	-0.75	34.38	88.00	-53.62	QP
0.20	18.61	0.10	-0.20	18.51	54.67	-36.16	QP
1.75	-1.70	0.19	-0.02	-1.53	28.45	-29.98	QP
3.52	-3.47	0.36	0.27	-2.84	22.00	-24.84	QP
6.32	-4.93	0.50	0.60	-3.83	22.00	-25.83	QP
7.87	-4.56	0.50	0.60	-3.46	22.00	-25.46	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
0.01	27.72	0.00	-0.36	27.36	88.00	-60.64	QP
0.17	14.36	0.10	-0.27	14.19	56.52	-42.33	QP
0.35	16.67	0.10	-0.02	16.75	47.65	-30.90	QP
0.96	2.46	0.10	-0.11	2.45	35.66	-33.21	QP
1.83	-6.40	0.19	0.18	-6.03	27.96	-33.99	QP
3.33	-7.14	0.33	0.37	-6.44	22.00	-28.44	QP

6.4 Harmonic Current Emission

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

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

6.4.1 E.U.T. Operation

Operating Environment:

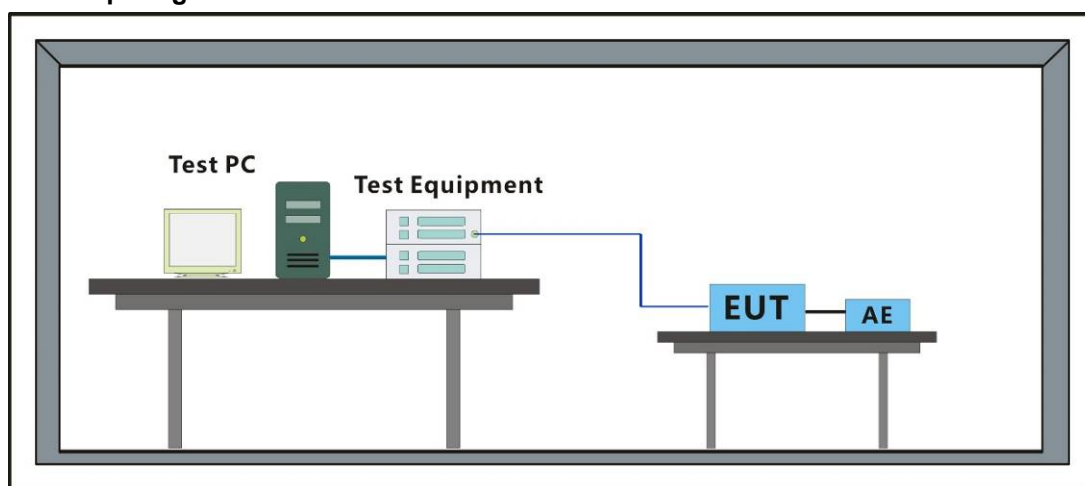
Temperature: 21 °C Humidity: 52 % RH Atmospheric Pressure: 1010 mbar

6.4.2 Test Mode Description

Pre-scan / Mode	Description
Final test Code	

Final test 00 Test the EUT in LED lighting mode.

6.4.3 Test Setup Diagram



6.4.4 Measurement Procedure and Data

Frequency Range: 100Hz to 2kHz

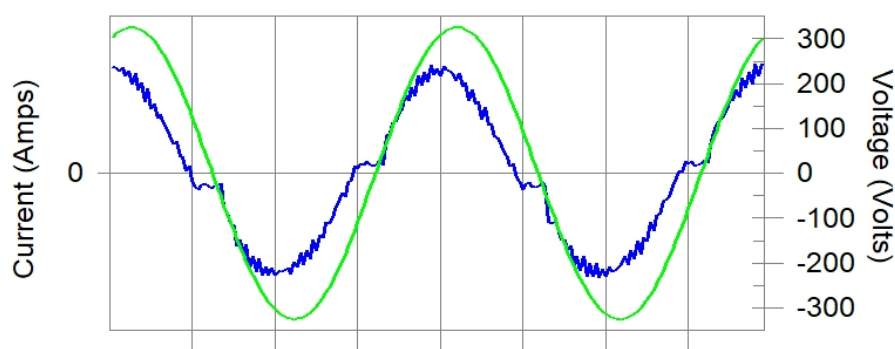
Test Mode: 00

Harmonics – Class-C ($\geq 5W$ and $\leq 25W$) per Ed. 5.0 (2018)(Run time)

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

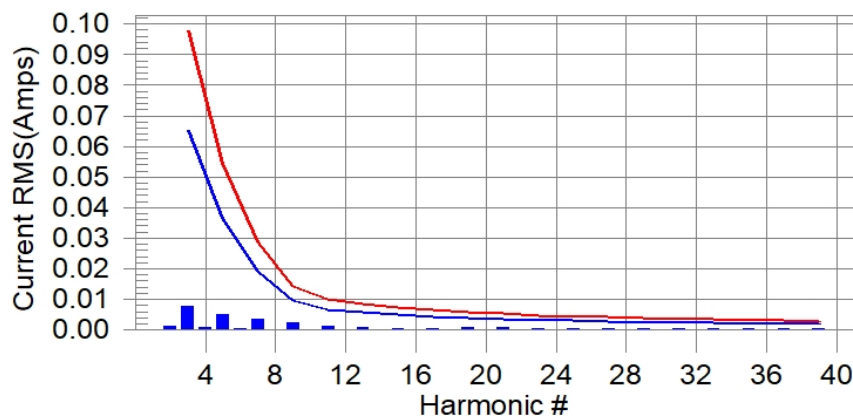
Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class C limit line (Table-3 Class-D)

European Limits



Test result: Pass

Test Mode: 00

Current Test Result Summary (Run time)

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): 0.010 I-THD(%): 12.0 POHC(A): 0.001 POHC Limit(A): 0.008

Highest parameter values during test:

V _{RMS} (Volts): 230.09	Frequency(Hz): 50.00
I _{Peak} (Amps): 0.146	I _{RMS} (Amps): 0.088
I _{Fund} (Amps): 0.087	Crest Factor: 1.700
Power (Watts): 19.2	Power Factor: 0.948

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	0.000	N/A	0.001	0.000	N/A	Pass
3	0.008	0.065	11.6	0.009	0.098	9.0	Pass
4	0.001	0.000	N/A	0.001	0.000	N/A	Pass
5	0.005	0.036	13.9	0.005	0.055	10.0	Pass
6	0.000	0.000	N/A	0.000	0.000	N/A	Pass
7	0.004	0.019	N/A	0.004	0.029	N/A	Pass
8	0.000	0.000	N/A	0.000	0.000	N/A	Pass
9	0.002	0.010	N/A	0.003	0.014	N/A	Pass
10	0.000	0.000	N/A	0.000	0.000	N/A	Pass
11	0.001	0.007	N/A	0.002	0.010	N/A	Pass
12	0.000	0.000	N/A	0.000	0.000	N/A	Pass
13	0.001	0.006	N/A	0.001	0.009	N/A	Pass
14	0.000	0.000	N/A	0.000	0.000	N/A	Pass
15	0.000	0.005	N/A	0.001	0.007	N/A	Pass
16	0.000	0.000	N/A	0.000	0.000	N/A	Pass
17	0.001	0.004	N/A	0.001	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	0.006	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	0.005	N/A	Pass
22	0.000	0.000	N/A	0.000	0.000	N/A	Pass
23	0.001	0.003	N/A	0.001	0.005	N/A	Pass
24	0.000	0.000	N/A	0.000	0.000	N/A	Pass
25	0.000	0.003	N/A	0.001	0.004	N/A	Pass
26	0.000	0.000	N/A	0.000	0.000	N/A	Pass
27	0.000	0.003	N/A	0.000	0.004	N/A	Pass
28	0.000	0.000	N/A	0.000	0.000	N/A	Pass
29	0.000	0.003	N/A	0.000	0.004	N/A	Pass
30	0.000	0.000	N/A	0.000	0.000	N/A	Pass
31	0.000	0.002	N/A	0.000	0.004	N/A	Pass
32	0.000	0.000	N/A	0.000	0.000	N/A	Pass
33	0.000	0.002	N/A	0.000	0.003	N/A	Pass
34	0.000	0.000	N/A	0.000	0.000	N/A	Pass
35	0.000	0.002	N/A	0.000	0.003	N/A	Pass
36	0.000	0.000	N/A	0.000	0.000	N/A	Pass
37	0.000	0.002	N/A	0.000	0.003	N/A	Pass
38	0.000	0.000	N/A	0.000	0.000	N/A	Pass
39	0.000	0.002	N/A	0.000	0.003	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 (Class C < 25 Watts).



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6.5 Voltage Fluctuations and Flicker

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

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

6.5.1 E.U.T. Operation

Operating Environment:

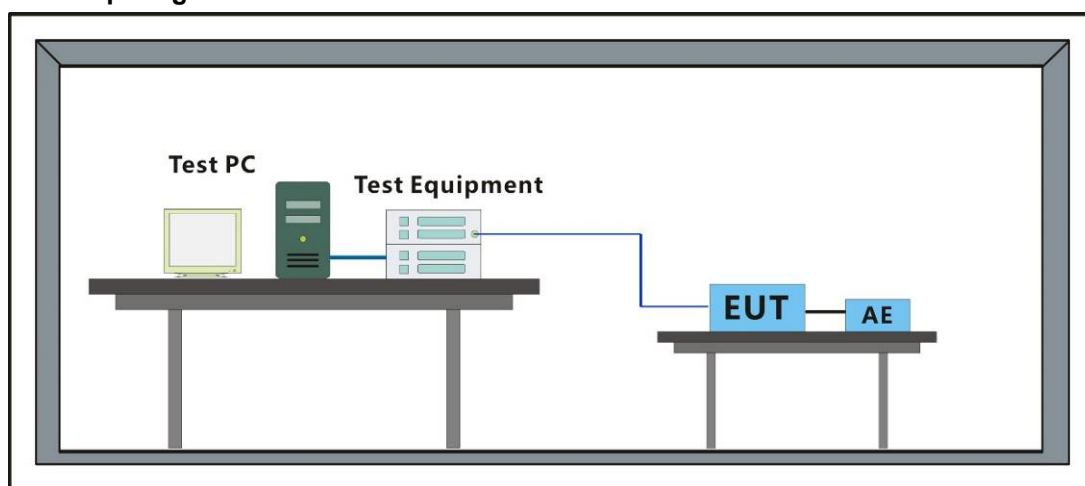
Temperature: 21 °C Humidity: 52 % RH Atmospheric Pressure: 1010 mbar

6.5.2 Test Mode Description

Pre-scan / Mode	Description
Final test Code	

Final test 00 Test the EUT in LED lighting mode.

6.5.3 Test Setup Diagram





6.5.4 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 duration (min): 10

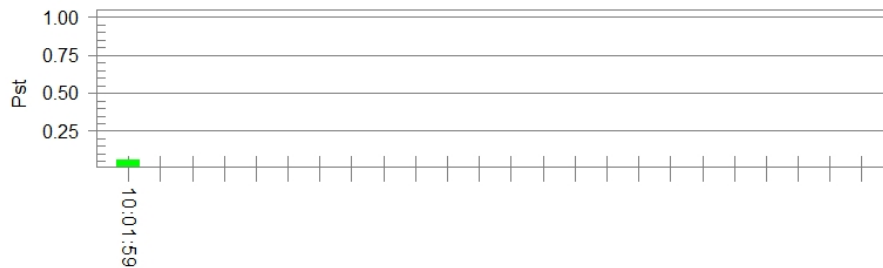
Test Margin: 100

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): 229.93

T-max (mS): 0

Highest dc (%): 0.00

Highest dmax (%): 0.00

Highest Pst (10 min. period): 0.064

Test limit (mS): 500.0 Pass

Test limit (%): 3.30 Pass

Test limit (%): 4.00 Pass

Test limit: 1.000 Pass



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7 Immunity Test Results

Performance Criteria Description in Clause 4.2 of EN 61547

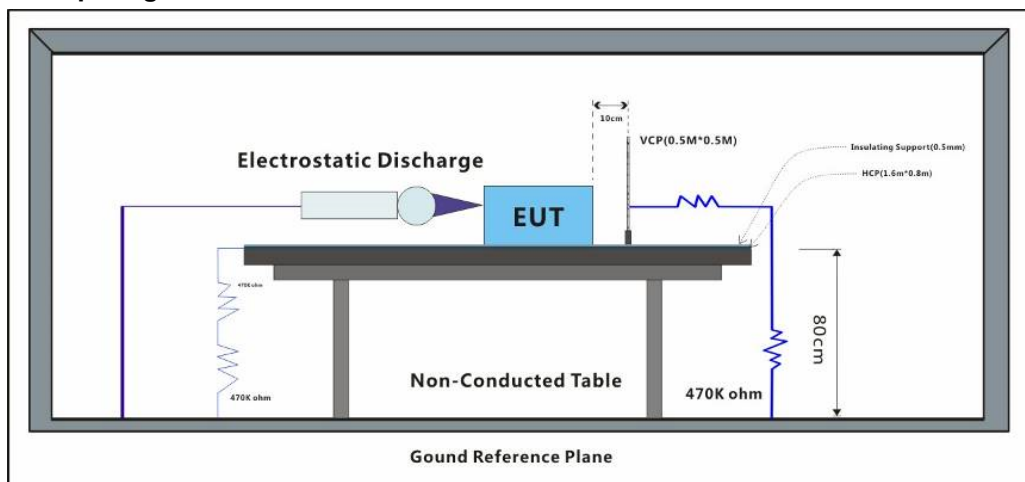
- Criterion A:** During the test, no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.
- Criterion B:** During the test, the luminous intensity may change to any value. After the test, the luminous intensity shall be restored 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 LED 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.



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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



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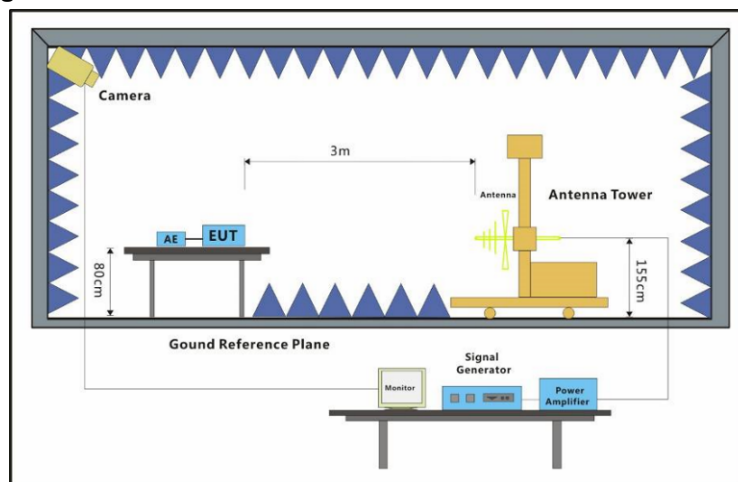
Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

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 °C

Humidity: 52 % RH

Atmospheric Pressure: 1010 mbar

7.2.3 Test Mode Description

Pre-scan / Mode Description
 Final test Code

Final test 00 Test the EUT in LED 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

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

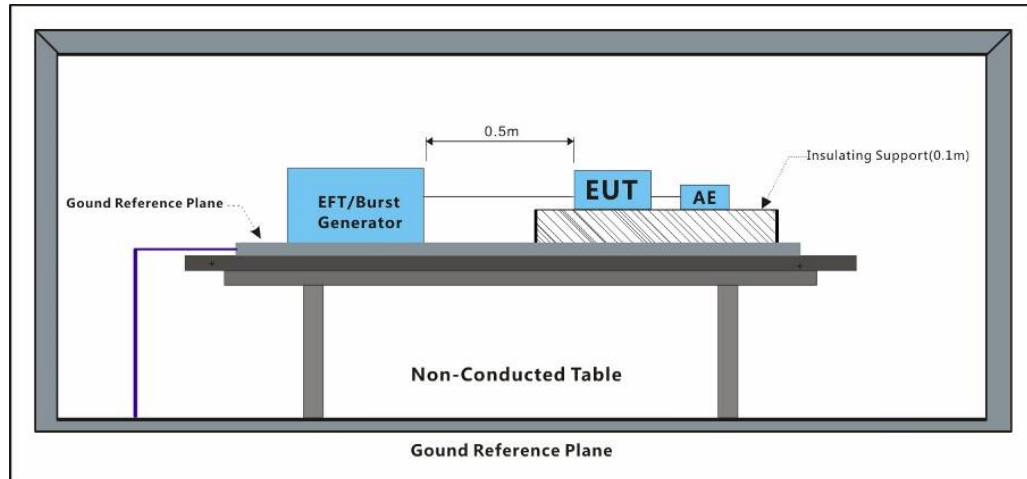
A: No degradation in the performance of the EUT was observed

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: °C Humidity: % RH Atmospheric Pressure: 1010 mbar

7.3.3 Test Mode Description

Pre-scan / Mode Description
 Final test Code

Final test 00 Test the EUT in LED 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

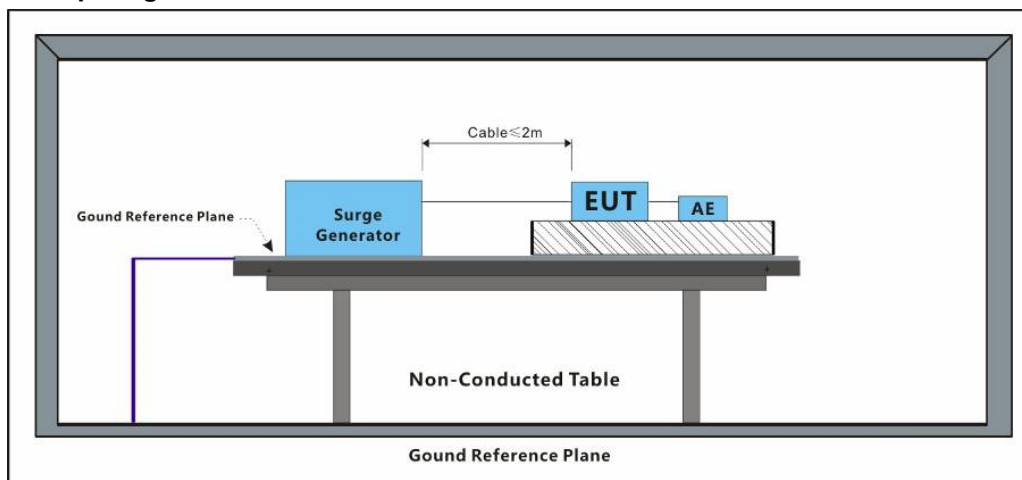
A: No degradation in the performance of the EUT was observed

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: °C Humidity: % RH Atmospheric Pressure: 1010 mbar

7.4.3 Test Mode Description

Pre-scan / Mode Description

Final test Code

Final test 00 Test the EUT in LED lighting mode.

7.4.4 Test Condition and Results:

Performance Criterion: B

Interval: 60s between each surge

Test Level: $\pm 0.5\text{kV}$ Live to Neutral

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	0.5	+	90°	A
L-N	0.5	-	270°	A

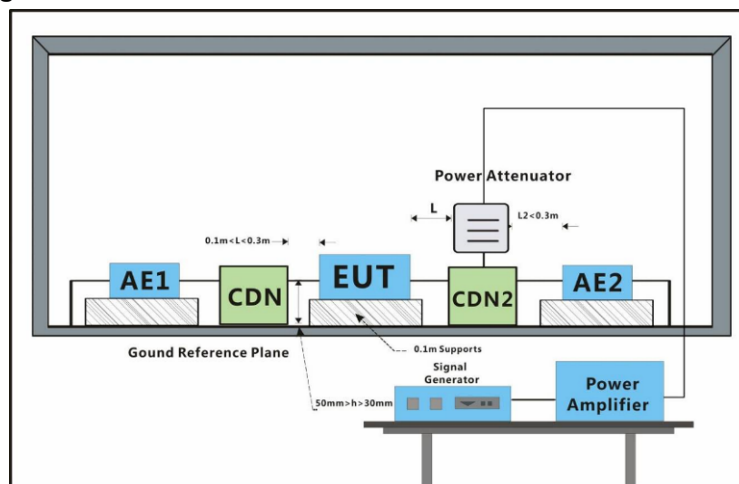
A: No degradation in the performance of the EUT was observed

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: °C

Humidity: % RH

Atmospheric Pressure: 1010 mbar

7.5.3 Test Mode Description

Pre-scan / Mode Description

Final test Code

Final test 00 Test the EUT in LED 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

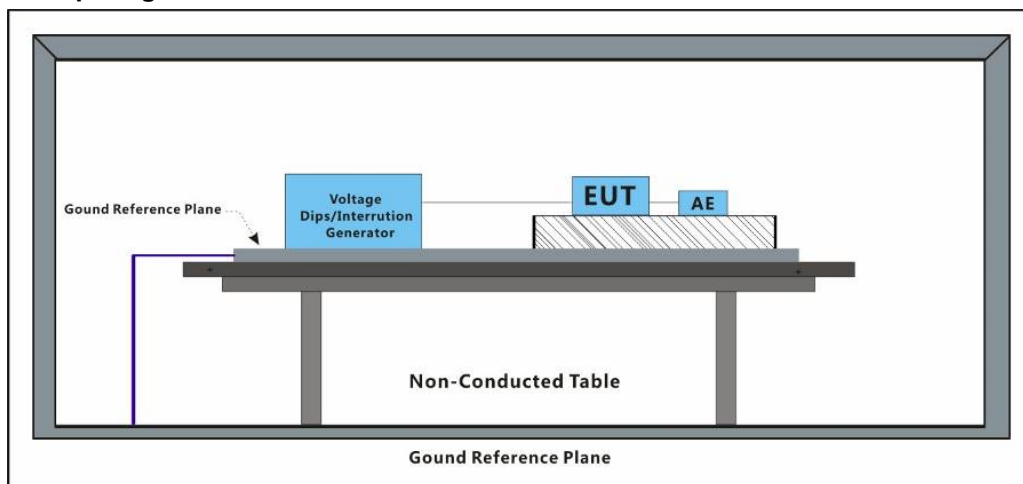
Cable port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
AC power port	3	CDN	3s	A
A: No degradation in the performance of the EUT was observed				

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: °C Humidity: % RH Atmospheric Pressure: 1010 mbar

7.6.3 Test Mode Description

Pre-scan / Mode Description
 Final test Code

Final test 00 Test the EUT in LED 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

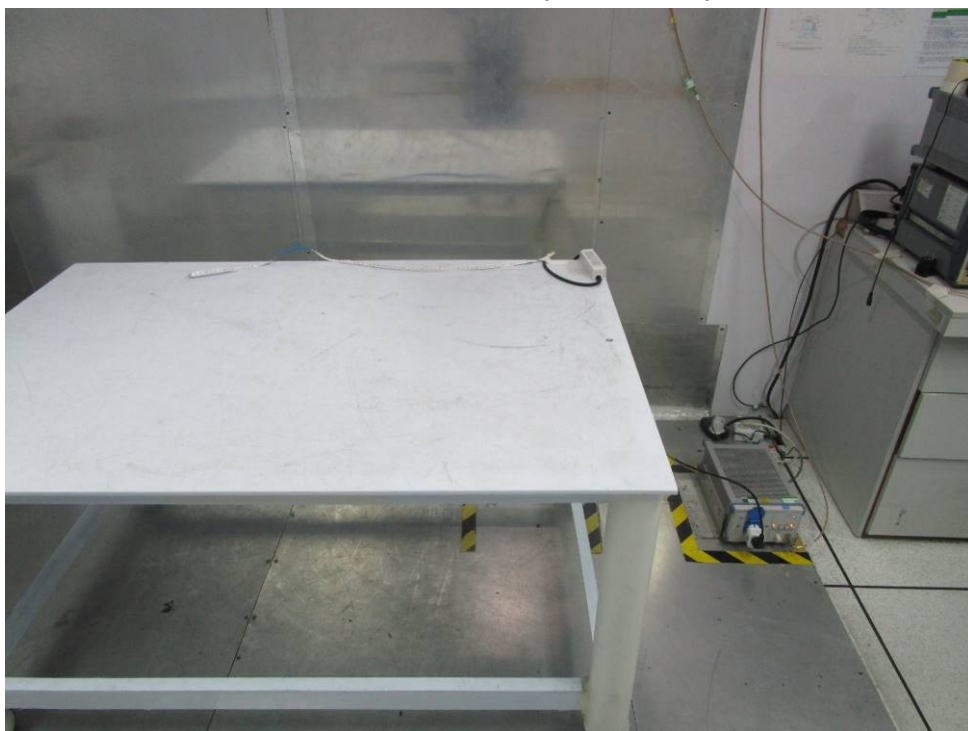
Time between dropout: 10s

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

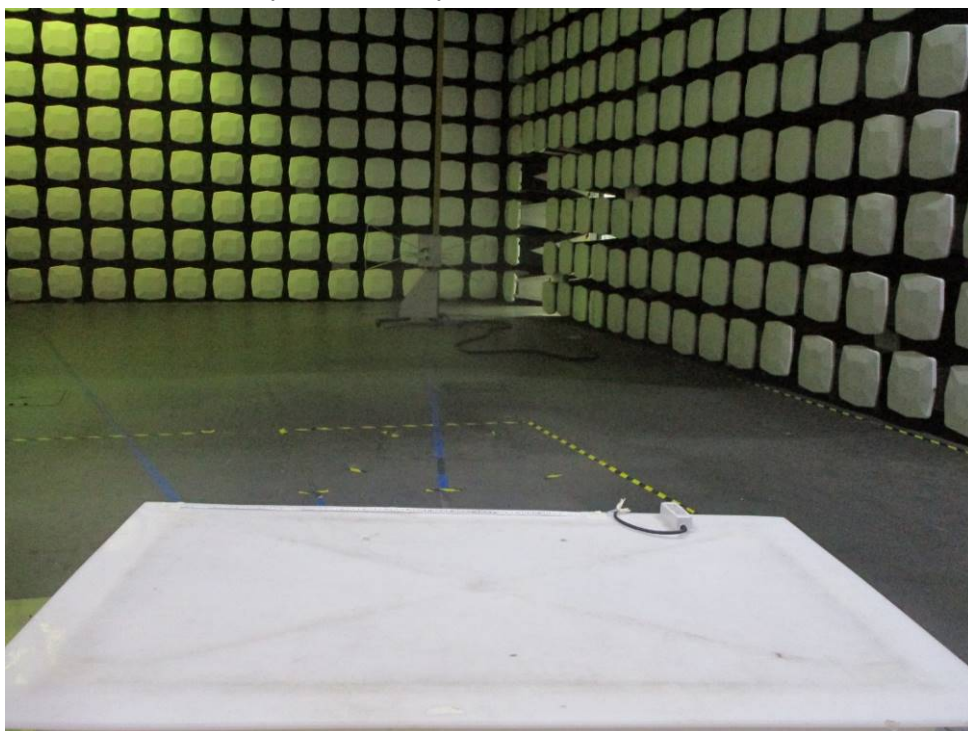
A: No degradation in the performance of the EUT was observed

8 Test Setup Photo

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



Radiated Emissions (30MHz-1GHz)



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



Harmonic Current Emission



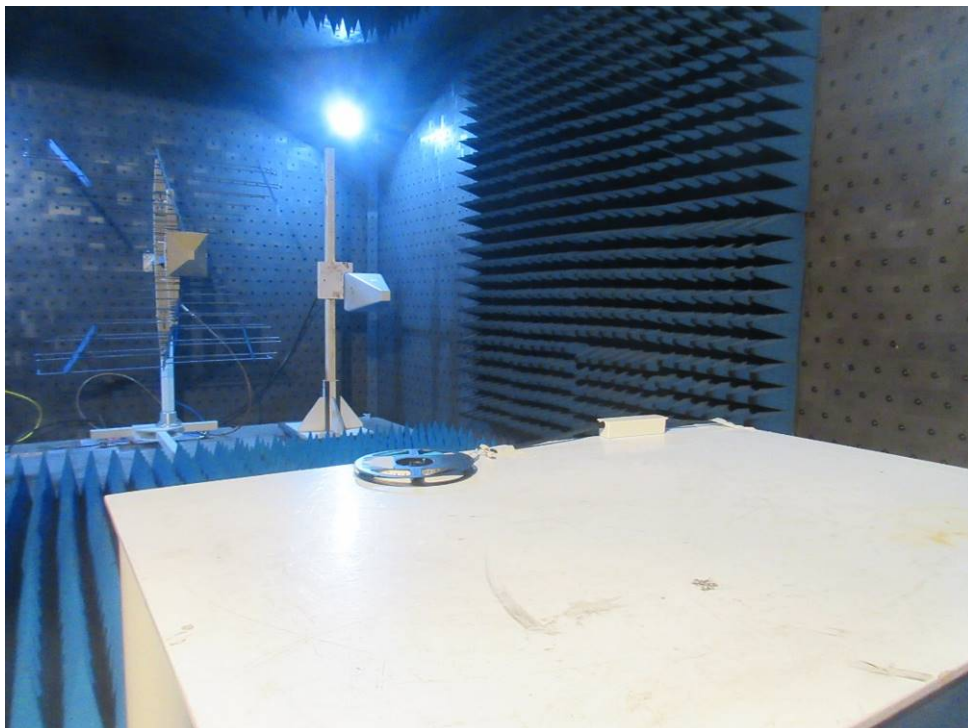
Voltage Fluctuations and Flicker



Electrostatic Discharge



Radiated Immunity (80MHz-1GHz)



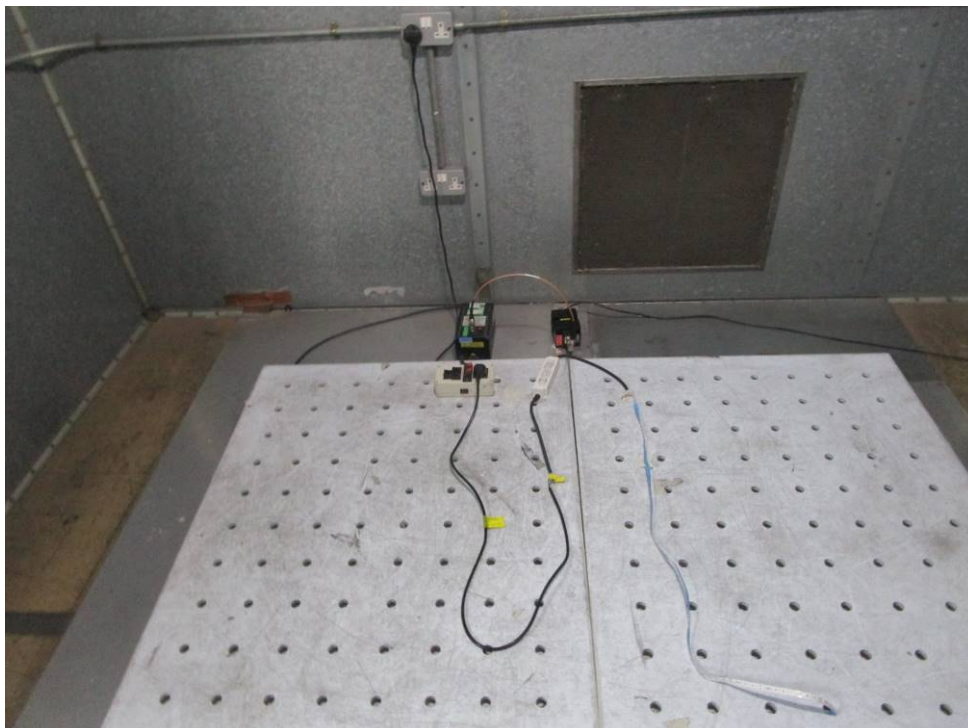
Electrical Fast Transients Burst at AC Mains Power Port



Surge at Power Port



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



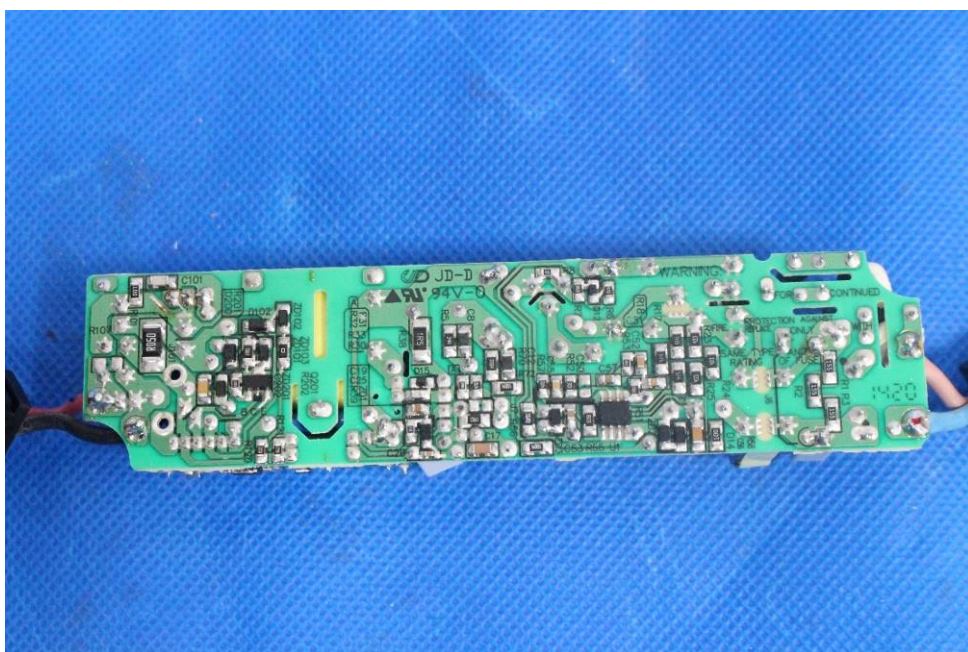
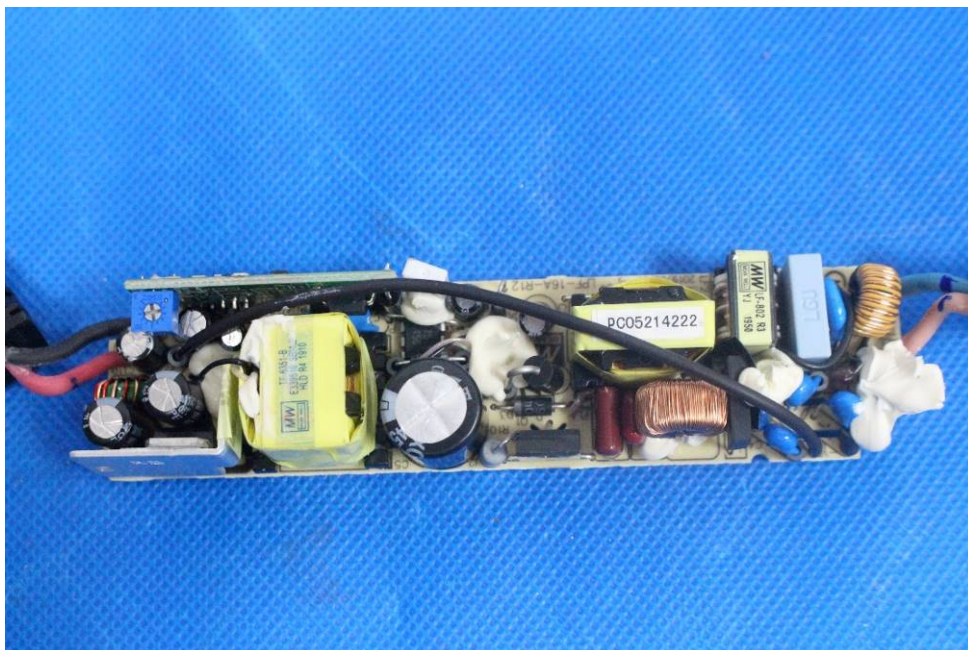
Voltage Dips and Interruptions

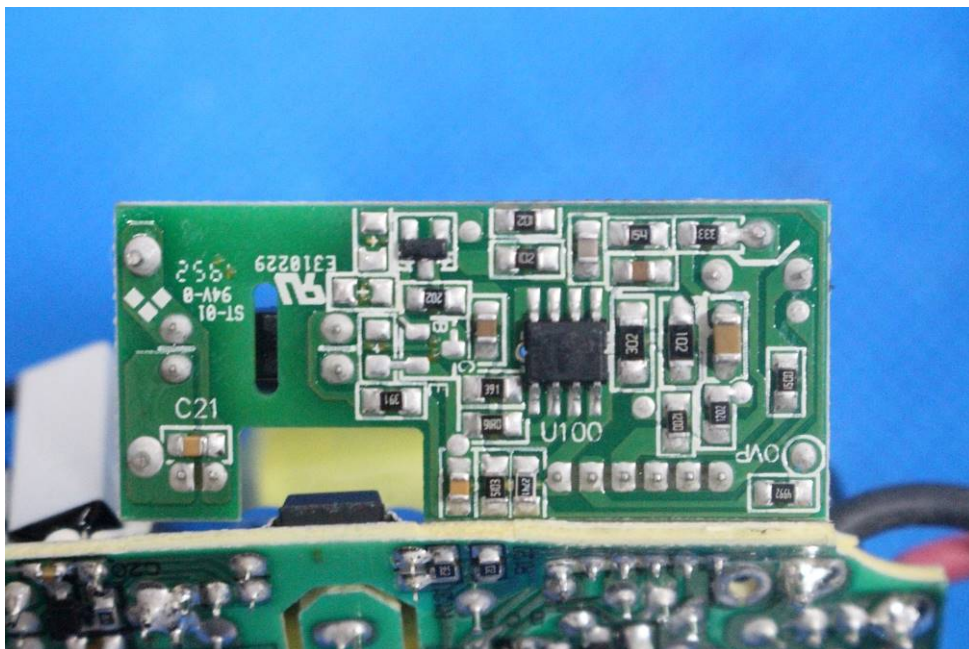
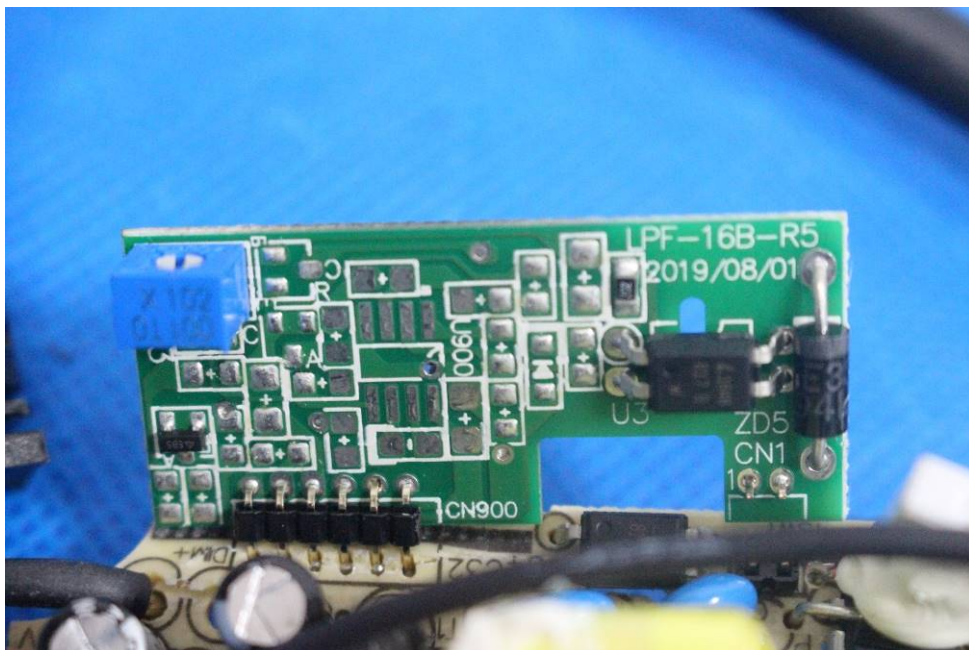


9 EUT Constructional Details (EUT Photos)









- End of the Report -