

TEST REPORT

LED Flood Light

Model: AOK-240WFLC(L)-NV-A5-00-6570-T5-A

Models: See model list

Report Number : LCSB04016058E

Applicant : AOK Industrial Company Limited
Address : 1/F of 1#Building, East Block of 3/F of Building 1, And 2/F of Building 4, ST George's Science and Technology Industrial Park, Northside of Xinyu Road, Xiangshan Community, Xinqiao Street Baoan District, 518000 Shenzhen, Guangdong, CHINA

Manufacturer : AOK Industrial Company Limited
Address : 1/F of 1#Building, East Block of 3/F of Building 1, And 2/F of Building 4, ST George's Science and Technology Industrial Park, Northside of Xinyu Road, Xiangshan Community, Xinqiao Street Baoan District, 518000 Shenzhen, Guangdong, CHINA

Prepared by : Shenzhen Southern LCS Compliance Testing Co., Ltd.
Address : 101-201, Building 39, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China.

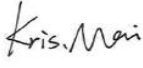
Date of receipt sample : April 01, 2026
Date of test : April 01, 2026 to April 08, 2026
Date of issue : April 08, 2026

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full. without prior written permission of the company, The report would be invalid without specific stamp of test institute and the signatures of approver.



TEST REPORT

Testing Laboratory :	Shenzhen Southern LCS Compliance Testing Co., Ltd. 101-201, Building 39, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China.	
Test Specification:		
Standard :	EN IEC 55015:2019+A11:2020 EN IEC 61000-3-2:2019+A1:2021+A2:2024 EN 61000-3-3:2013+A1:2019+A2:2021 EN IEC 61547:2023	
Equipment Under Test :	LED Flood Light	
Trademark :	 Quality, Honesty, Service and Innovation	
Model/Type :	See model list	
Rating :	See model list	
Test Results	PASS	
Compiled by :	Kris Mai (Engineer)	
Check by :	Amy Liu (Technique principal)	
Approved by :	DM Gu (Manager)	
Test Report Form No. :	TRF-4-E-014 Ver. A/1	
TRF Originator :	Shenzhen Southern LCS Compliance Testing Co., Ltd.	
Master TRF :	/	
Shenzhen Southern LCS Compliance Testing Co., Ltd. All rights reserved. This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen Southern LCS Compliance Testing Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen Southern LCS Compliance Testing Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.		

ENVIRONMENTAL CONDITIONS

The climatic conditions during the test are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. the climatic conditions during the test were in the following Limits:

Ambient temperature	15°C - 30°C
Relative Humidity air	30% - 60%
Atmospheric pressure	86 kPa - 106 kPa

Climate values will be recorded and recorded separately if specifically required in the base standard or application product/product series standard.

POSSIBLE TEST CASE VERDICTS

Test cases does not apply to test object	N/A
Test object does meet requirement	P(Pass) / PASS
Test object does not meet requirement	F(Fail) / FAIL
Not measured	N/M

DEFINITION OF SYMBOLS USED IN THIS TEST REPORT

☒ Indicate that the conditions, standards or equipment listed is applicable to this report / test / EUT.
☐ Indicate that the conditions, standards or equipment listed is not applicable to this report / test / EUT.

REVISION HISTORY

Revision	Issue Date	Revision Content	Revised by
000	April 08, 2026	Initial Issue	-

Remark:
000) : “---”

TABLE OF CONTENTS

1. GENERAL INFORMATION	5
1.1. General Description of The Item(s)	5
1.2. Operating Mode(s) Used of Tests	6
1.3. Support / Auxiliary Equipment for The EUT	6
1.4. Description of Test Facility	6
2. STATEMENT OF THE MEASUREMENT UNCERTAINTY	7
3. MEASURING DEVICES AND TEST EQUIPMENT	8
4. VERDICT SUMMARY SECTION	10
4.1. Standard(s)	10
4.2. Overview of Results	11
5. EMISSION TESTS	12
5.1. Conducted Disturbance	12
5.2. Radiated Disturbance (9KHz - 30MHz)	14
5.3. Radiated Disturbance (30MHz - 1GHz)	15
5.4. Harmonic Current	16
5.5. Voltage Fluctuations & Flicker	17
6. IMMUNITY TESTS	18
6.1. Performance Criteria	18
6.2. Electrostatic Discharge	19
6.3. Radio-Frequency Electromagnetic Fields	20
6.4. Electrical Fast Transient / Burst	21
6.5. Injected Currents (Radio-Frequency Common Mode)	22
6.6. Surge	23
6.7. Voltage Dips and Short Interruptions	24
ANNEX A - TEST RESULTS	25
ANNEX B - TEST PHOTOS	36
ANNEX C - EXTERNAL AND INTERNAL PHOTOS OF THE EUT	41

1. GENERAL INFORMATION

1.1. GENERAL DESCRIPTION OF THE ITEM(S)

Equipment Under Test	LED Flood Light
Model/Type	See model list
Description of Model difference	See model list
Rating	See model list
Road and street lighting equipment	☒ Yes ☐ No
Protection Class	☒ Class I ☐ Class II ☐ Class III

Remarks:

- (1) The applicant and manufacturer information, product name, model, trademark and other information in this report are all provided by the applicant, and this laboratory is not responsible for verifying its authenticity.
 (2) This report after information review and verification, the model "AOK-240WFLC(L)-NV-A5-00-6570-T5-A" were chosen as the representative model to perform all the tests.

Declared by applicant as follows:

- All models of use the same circuit and PCB layout and have similar appearance and structure except power.

Model List:

Model	Driver	Rating	Power
AOK-ZWFLC(L)-NV-L3-BB-XXYY-BN-P	SS-240NH-V300BHB	AC120-277V,50/60Hz	201-240W
AOK-ZWFLC(L)-NV-A5-BB-XXYY-BN-P			
AOK-ZWFLC(M)-NV-L3-BB-XXYY-BN-P			
AOK-ZWFLC(M)-NV-A5-BB-XXYY-BN-P			

Description:

'Z' stands for Rated Power, can be 201-240, in steps of 1W, e.g. 201=201W, 240=240W;
 'BB' stands for whether with Zhaga socket & sealing cap, can be 00 and SN, 00= without Zhaga socket & sealing cap, SN= with Zhaga socket & sealing cap; 'XX' stands for CCT of LED, can be 27, 30, 40, 50, 57 and 65, 27=2700K, 30=3000K, 40=4000K, 50=5000K, 57=5700K, 65=6500K; 'YY' stands for CRI (color rendering index), can be 70 and 80, 70=Ra: 70, 80=Ra: 80;
 'P' stands for internal code, can be A,B,C

1.2. OPERATING MODE(S) USED OF TESTS

During the tests, the following operating mode(s) has(have) been used.

Operating Mode	Operating Mode description	Used for testing	
		Emission	Immunity
1	Lighting	☒	☒
2	/	☐	☐
3	/	☐	☐
4	/	☐	☐

Remarks: The laboratory conducted pre-scan of all operation modes of the EUT. This report only records the measurement data of the worst mode.

1.3. SUPPORT / AUXILIARY EQUIPMENT FOR THE EUT

EUT has been tested using the following auxiliary equipment :

Auxeq	Model/Type	Manufacturer	Supplied by
--			

1.4. DESCRIPTION OF TEST FACILITY

Test Location	Shenzhen Southern LCS Compliance Testing Co., Ltd. 101-201, Building 39, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China. CNAS Registration Number is L10160.
---------------	---

2. STATEMENT OF THE MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO/IEC 17025 were:

System Measurement Uncertainty		
Test Items	Expanded Uncertainty	Note
Conducted Disturbance 9KHz to 30MHz using AMN (SLCS-E-003)	2.96dB	Shield room #1 (SLCS-E-020)
Conducted Disturbance 9KHz to 30MHz using AMN (SLCS-E-010)	2.86dB	Shield room #2 (SLCS-E-037)
Conducted Disturbance 150KHz to 30MHz using VP (SLCS-E-058)	1.94dB	/
Conducted Disturbance 150KHz to 30MHz using ANN (SLCS-E-050)	1.84dB	
Conducted Disturbance 150KHz to 30MHz using CP (SLCS-E-036)	1.96dB	
Conducted Disturbance 30MHz to 300MHz using CDNE (SLCS-E-030)	2.96dB	
Magnetic Disturbance 9KHz to 30MHz	1.92dB	LLAS
	2.82dB	Loop Antenna
Radiated Disturbance 30MHz to 1000MHz	4.32dB	SAC#1 (SLCS-E-001)
	4.16dB	SAC#2 (SLCS-E-200)
Radiated Disturbance above 1GHz	4.88dB	
Harmonic Current	2.02%	/
Voltage Fluctuations and Flicker	1.02%	

Measurement Uncertainty Decision Rule

Measurement uncertainty is not applied when providing statements of conformity in accordance with IEC Guide 115:2023, 4.3.3. and:

- 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.

3. MEASURING DEVICES AND TEST EQUIPMENT

CONDUCTED DISTURBANCE #2						
Item	Test equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Shield Room #2	Maorui	743	#2	2025-12-30	2028-12-29
2	EMI Test Receiver	R&S	ESCI3	101393/003(4.42 SP3)	2025-12-12	2026-12-11
3	Pulse Limiter	R&S	ESH3-Z2	102734	2025-12-12	2026-12-11
4	Artificial Mains Network	SCHWARZBECK	NSLK 8127	8127716	2025-12-12	2026-12-11
5	ISN	SCHWARZBECK	NTFM 8158	#120	2025-04-18	2026-04-17
6	Voltage Probe	SCHWARZBECK	KT 9420	9420401	2025-04-18	2026-04-17
7	Current Probe	R&S	EZ-17	101921	2025-12-12	2026-12-11
8	EMI Test Software	Farad	EZ EMC	1.1.4.4	/	/

RADIATED DISTURBANCE (9KHz - 30MHz)						
Item	Test equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Receiver	R&S	ESCI3	101393/003(4.42 SP3)	2025-12-12	2026-12-11
2	Pulse Limiter	R&S	ESH3-Z2	102734	2025-12-12	2026-12-11
3	Triple-Loop Antenna	EVERFINE	LLA-2	11050003	2025-04-18	2026-04-17
4	EMI Test Software	Farad	EZ EMC	1.1.4.4	/	/

RADIATED DISTURBANCE #2						
Item	Test equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Semi Anechoic Chamber #2	Maorui	966	202512	2025-12-31	2028-12-30
2	Loop Antenna	SCHWARZBECK	FMZB 1519B	00005	2024-07-13	2027-07-12
3	Log-periodic Antenna	SCHWARZBECK	VULB 9163	1865	2025-12-13	2028-12-12
4	Horn Antenna	ETS	3115	EABF-018	2025-07-19	2028-07-18
5	EMI Test Receiver	R&S	ESCI7	100967/007(4.42 SP3)	2025-12-12	2026-12-11
6	Spectrum Analyzer	Agilent	N9020A	MY49061051	2025-07-16	2026-07-15
7	CDNE	SCHWARZBECK	CDNE M2	00251	2025-04-18	2026-04-17
8	CDNE	SCHWARZBECK	CDNE M3	00248	2025-04-18	2026-04-17
9	6dB Attenuator	EMC Solutions	ATT-6G-6dB	25002	2025-12-12	2026-12-11
10	Amplifier	EMC Solutions	TRLA-010180G5 ON	25111101	2025-12-12	2026-12-11
11	EMI Test Software	Farad	EZ EMC	1.1.4.4	/	/

HARMONIC CURRENT & FLICKER						
Item	Test equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Harmonic and Flicker Analyzer	HTEC	AC2000A	/	2025-04-18	2026-04-17
2	Pure Power Supply	HTEC	HHF-5010	/	2025-04-18	2026-04-17
3	Test Software	HTEC	Harmonic	EHFM V2.1.8	/	/

ELECTROSTATIC DISCHARGE						
Item	Test equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	ESD Simulator	TESEQ	NSG 437	1615	2025-12-15	2026-12-14

ELECTRICAL FAST TRANSIENT / BURST						
Item	Test equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EFT Generator	HTEC	HEFT51	162201	2025-04-18	2026-04-17
2	EFT Coupling Clamp	HTEC	H3C	163701	2025-05-08	2026-05-07

SURGE						
Item	Test equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Surge Generator	3CTEST	SG5006G	EC5581070	2025-04-18	2026-04-17
2	Coupling / Decoupling Network	3CTEST	SGN-5010G	EC5591033	2025-04-18	2026-04-17

INJECTED CURRENTS (RADIO-FREQUENCY COMMON MODE)						
Item	Test equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Shield Room #2	Maorui	743	#2	2025-12-30	2028-12-29
2	Conducted Susceptibility Generator	HTEC	CDG6000	126A140012016	2025-04-18	2026-04-17
3	CDN	HTEC	CDN-M2+3	A22/0382/2016	2025-04-18	2026-04-17
4	6dB Attenuator	HTEC	ATT6	HA1601	2025-04-18	2026-04-17
5	Electromagnetic Clamp	LUTHI	EM101	35535	2025-04-18	2026-04-17
6	Test Software	HUBERT	CDG 6000	V1.4.1	/	/

POWER FREQUENCY MAGNETIC FIELD						
Item	Test equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Power Frequency Mag-Field Generator	HTEC	HPFMF100	100-2400	2025-04-18	2026-04-17

VOLTAGEDIPS AND SHORT INTERRUPTIONS						
Item	Test equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Voltage Dips and Up Generator	HTEC	HPFS161P	162202	2025-04-18	2026-04-17

RADIO-FREQUENCY ELECTROMAGNETIC FIELDS						
Item	Test equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Semi Anechoic Chamber #2	Maorui	966	202512	2025-12-31	2028-12-30
2	Power Meter	R&S	NRP-Z11	115232	2025-12-12	2026-12-11
3	Power Meter	R&S	NRP-Z11	117755	2025-12-12	2026-12-11
4	Power Amplifier	SKET	LPA 0810-150	202302457	2025-12-12	2026-12-11
5	Power Amplifier	OPHIR	5273F	1019	2025-07-16	2026-07-15
6	Power Amplifier	SKET	HAP-0306G-50W	/	2025-07-16	2026-07-15
7	RF Signal Generator	Agilent	E4438C	MY42081396	2025-07-16	2026-07-15
8	Field Generating Antenna	SKET	STLP 9129 Plus	/	/	/
9	Test Software	SKET	EMC-S	V2.1.3.23	/	/

4. VERDICT SUMMARY SECTION

This chapter present an overview of the standards and results. Refer the next chapter for details of measured test results and applied test levels.

4.1. STANDARD(S)

EN IEC 55015:2019+A11:2020 - Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment.

EN IEC 61547:2023 - Equipment for general lighting purposes — EMC immunity requirements.

EN IEC 61000-3-2:2019+A1:2021+A2:2024 - Electromagnetic compatibility (EMC) Part 3-2: Limits for harmonic current emissions (equipment input current ≤ 16 A per phase).

EN 61000-3-3:2013+A1:2019+A2:2021 - Electromagnetic compatibility (EMC)Part 3-3: Limits for voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection.



4.2. OVERVIEW OF RESULTS

EMISSION TESTS - EN IEC 55015, EN IEC 61000-3-2, EN 61000-3-3		
Requirement - Test case	Limit	Verdict
Conducted Disturbance - electric power supply	Table 1, Table 4	PASS
Conducted Disturbance - wired network ports at other than power supply	Table 2, Table 3	N/A
Conducted Disturbance - local wired ports at other than electrical power supply interface of ELV lamp	Table 5, Table 6	N/A
Assessment of the enclosure port	---	---
Radiated Disturbance in the frequency range 9 kHz to 30 MHz	Table 8, Table 9	PASS
Radiated Disturbance in the frequency range 30 MHz to 1 GHz	Table 10	PASS
Harmonic Current	Clause 7	PASS
Voltage Fluctuations and Flicker ²	Clause 5	N/A
IMMUNITY TESTS - EN IEC 61547		
Requirement - Test case	Basic Standard(s)	Verdict
Electrostatic Discharge	IEC/EN 61000-4-2	PASS
Radio-Frequency Electromagnetic Fields	IEC/EN 61000-4-3	PASS
Electrical Fast Transient / Burst	IEC/EN 61000-4-4	PASS
Surge	IEC/EN 61000-4-5	PASS
Injected Currents (Radio-Frequency Common Mode)	IEC/EN 61000-4-6	PASS
Power Frequency Magnetic Field ¹	IEC/EN 61000-4-8	N/A
Voltage Dips and Short Interruptions	IEC/EN 61000-4-11	PASS

Supplementary information:

- 1) Only need to be applied to equipment containing components susceptible to magnetic fields.
- 2) EN 61000-3-3:2013+A1+A2, Cause 6.1: "...Tests need not be made on equipment which is unlikely to produce significant voltage fluctuations or flicker..."

5. EMISSION TESTS

5.1. CONDUCTED DISTURBANCE

Standard	EN IEC 55015:2019+A11:2020
Basic Standard(s)	CISPR 16-2-1

Disturbance voltage limits at the electric power supply interface

Frequency range [MHz]	Limit: Quasi-peak [dB(μV)]	Limit: Average[dB(μV)]	IF BW
0,009 - 0,05	110	N/A	200 Hz
0,05 - 0,15	90 - 80	N/A	200 Hz
0,15 - 0,5	66 - 56	56 - 46	9 kHz
0,5 - 5,0	56	46	9 kHz
5,0 - 30	60	50	9 kHz

- 1) At the transition frequency, the lower limit applies.
- 2) The limit decreases linearly with the logarithm of the frequency in the ranges 50 kHz to 150 kHz and 150 kHz to 0,5 MHz.
- 3) If the EUT is non-restricted ELV lamps, the limits add 26dB.

Disturbance voltage limits at wired network interfaces other than power supply

Frequency range [MHz]	Limit: Quasi-peak [dB(μV)]	Limit: Average[dB(μV)]	IF BW
0,15 - 5,0	84 - 74	74 - 64	9 kHz
5,0 - 30	74	64	9 kHz

- 1) The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.
- 2) The disturbance voltage limits are derived for use with an artificial asymmetrical network (AAN) which presents a common mode (asymmetric mode) impedance of 150 Ω to the measured interface.

Disturbance current limits at wired network interfaces other than power supply

Frequency range [MHz]	Limit: Quasi-peak [dB(μA)]	Limit: Average[dB(μA)]	IF BW
0,15 - 5,0	40 - 30	30 - 20	9 kHz
5,0 - 30	30	20	9 kHz

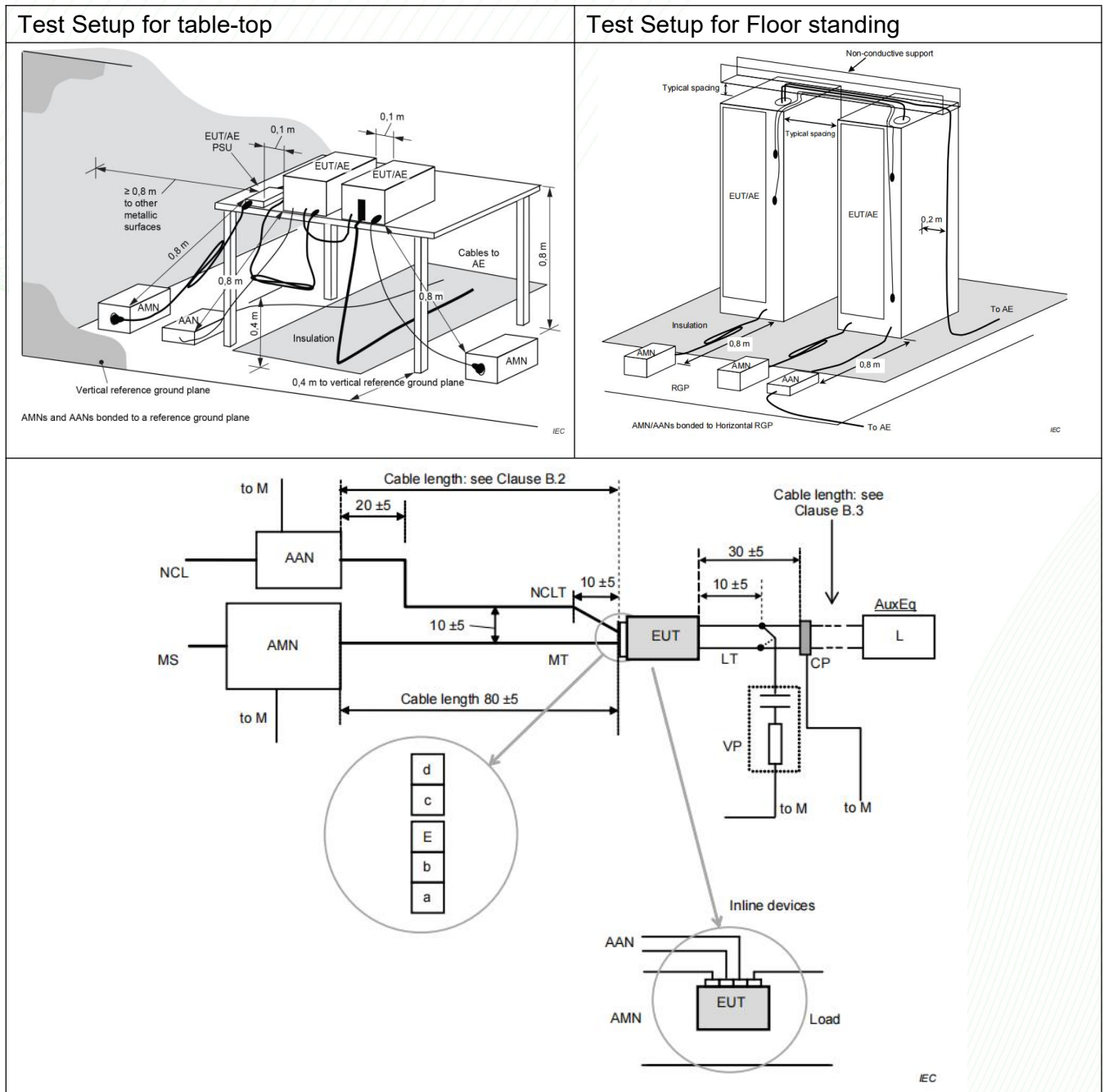
- 1) The limits decrease linearly with the logarithm of the frequency in the range 0.15MHz to 0.5 MHz.

Disturbance voltage limits at local wired ports: local wired ports other than electrical power supply interface of ELV lamp

Frequency range [MHz]	Limit: Quasi-peak [dB(μV)]	Limit: Average[dB(μV)]	IF BW
0,15 - 5,0	80	70	9 kHz
5,0 - 30	74	64	9 kHz

- 1) At the transition frequency, the lower limit applies.

Test configuration



Test Procedure Description

For Table-top, EUT shall be placed at $(0,8 \pm 0,05)$ m above the reference plane of the test site selected for measurement. for Floor standing, EUT shall be placed at $(0,12 \pm 0,04)$ m above the reference plane of the test site selected for measurement.

and connected to the AC mains through artificial mains network (LISN). EUT is powered by V-type artificial power network, and the distance from LISN or ANN is 0,8m. the part of the EUT power cord exceeding 0,8m folds in parallel to form a 0,3-0,4 m eights harness.

Test Results refer to Annex A.1

5.2. RADIATED DISTURBANCE (9KHz - 30MHz)

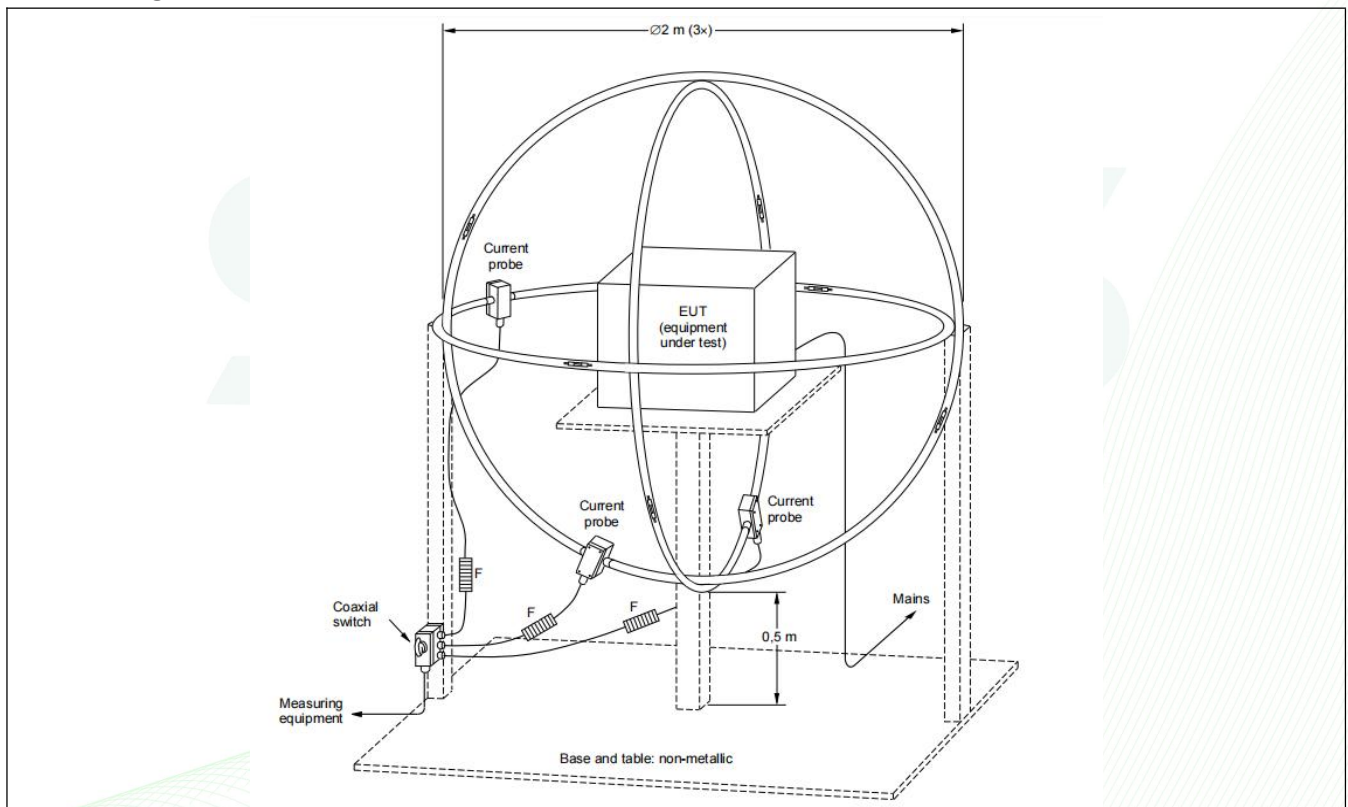
Standard	EN IEC 55015:2019+A11:2020
Basic Standard(s)	CISPR 16-2-3
Test method	Large Loop Antenna (LLA)

LLAS Radiated disturbance limits (2m)

Frequency range [MHz]	Limit: Quasi-peak [dB(μA)]	IF BW
0,009 - 0,07	88	200 Hz
0,07 - 0,15	88 - 58	200 Hz
0,15 - 3,0	58 - 22	9 kHz
3,0 - 30	22	9 kHz

- 1) At the transition frequency the lower limit applies.
- 2) Decreasing linearly with logarithm of the frequency.

Test configuration



Test Procedure Description

The EUT is placed on a wood table in the center of a loop antenna. the induced current in the loop antenna is measured by means of a current probe and the test receiver. Three field components are checked by means of a coaxial switch.

Test Results refer to Annex A.2

5.3. RADIATED DISTURBANCE (30MHz - 1GHz)

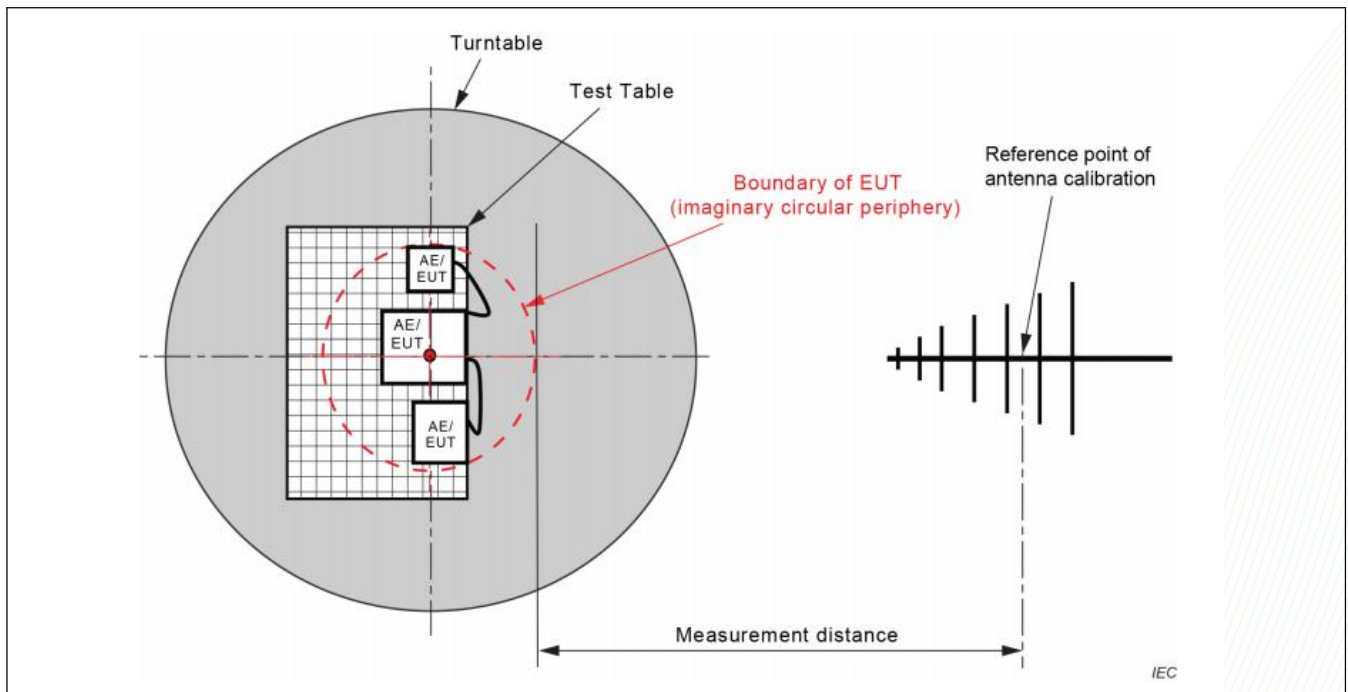
Standard	EN IEC 55015:2019+A11:2020
Basic Standard(s)	CISPR 16-2-3
Test method	Semi Anechoic Chamber (SAC)

SAC Radiated disturbance limit

Frequency range [MHz]	Limit: Quasi-peak [dB(μ V/m)]		IF BW
	3 m distance	10 m distance	
30 - 230	40	30	120 KHz
230 - 1000	47	37	120 KHz

- 1) At the transition frequency, the lower limit applies.
- 2) Distance refers to the distance in meters between the measuring instrument antenna geometric center and the closed point of any part of the EUT.

Test configuration



Test Procedure Description

The radiated disturbance test was conducted in a 3m Semi Anechoic Chamber and conforming to CISPR 16-2-3. the EUT is placed on a turntable, which is 0.8 meter high above the ground. the turntable can rotate 360 degrees to determine the position of the maximum emission level. the EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. the antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Log-periodic Antenna (calibrated by Dipole antenna) is used as a receiving antenna. both horizontal and vertical polarization of the antenna is set on test.

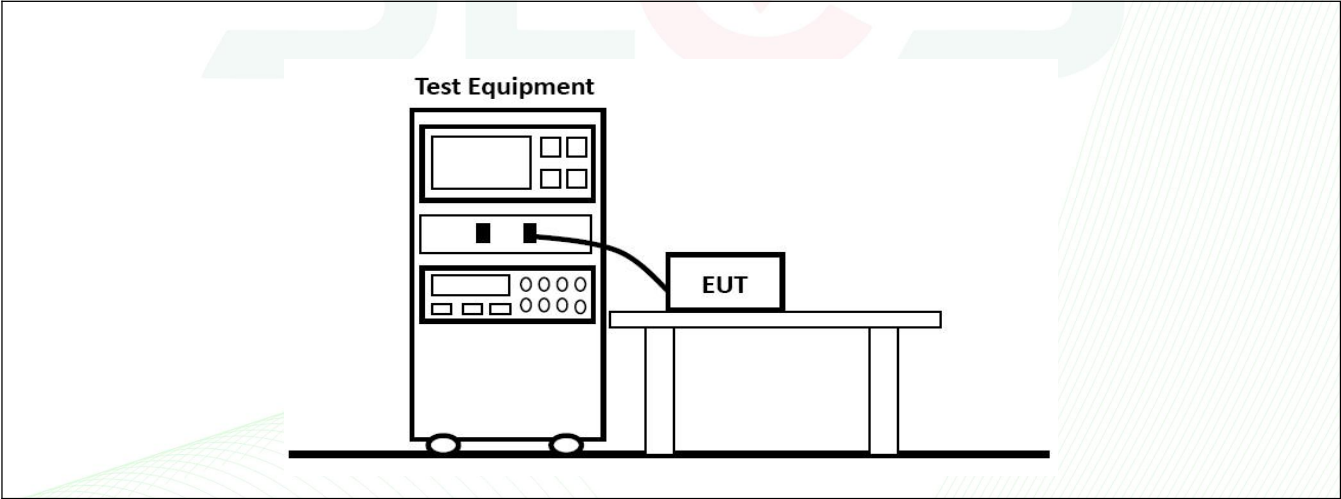
Test Results refer to Annex A.3

5.4. HARMONIC CURRENT

Standard	EN IEC 61000-3-2:2019+A1:2021+A2:2024	
Exclusions (For these categories of equipment, limits are not specified in the EN IEC 61000-3-2)	☐	Systems with nominal voltages less than 220V _{AC} (line-to-neutral)
	☐	Lighting equipment with rated power < 5 W
	☐	Equipment with rated power of ≤ 75 W (other than lighting equipment)
	☐	Professional equipment with a total rated power >1kW
	☐	Symmetrically controlled heating elements with rated power ≤ 200 W
	☐	Independent dimmers for incandescent lamps with rated power ≤ 1kW

Classification		
☐	Class A	All equipment not specified as belonging to Class B, C or D
☐	Class B	Portable tools
☒	Class C	☒ Lighting equipment with active input power > 25W
		☐ Lighting equipment with active input power ≥ 5W and ≤ 25W
		☐ Table 3, column 2 (Power-related limits)
		☐ 3rd harmonic ≤ 86%, 5th harmonic ≤ 61% and waveform conditions
☐	Class D	THD ≤ 70%, Harmonic:3rd ≤ 35%, 5th ≤ 25%, 7th ≤ 30%, 9th and 11th ≤ 20%, 2nd ≤ 5%
☐	Class D	Personal computers, television receivers,refrigerators and freezers having one or more variable-speed drives to control compressor

Test configuration



Test Results refer to Annex A.4

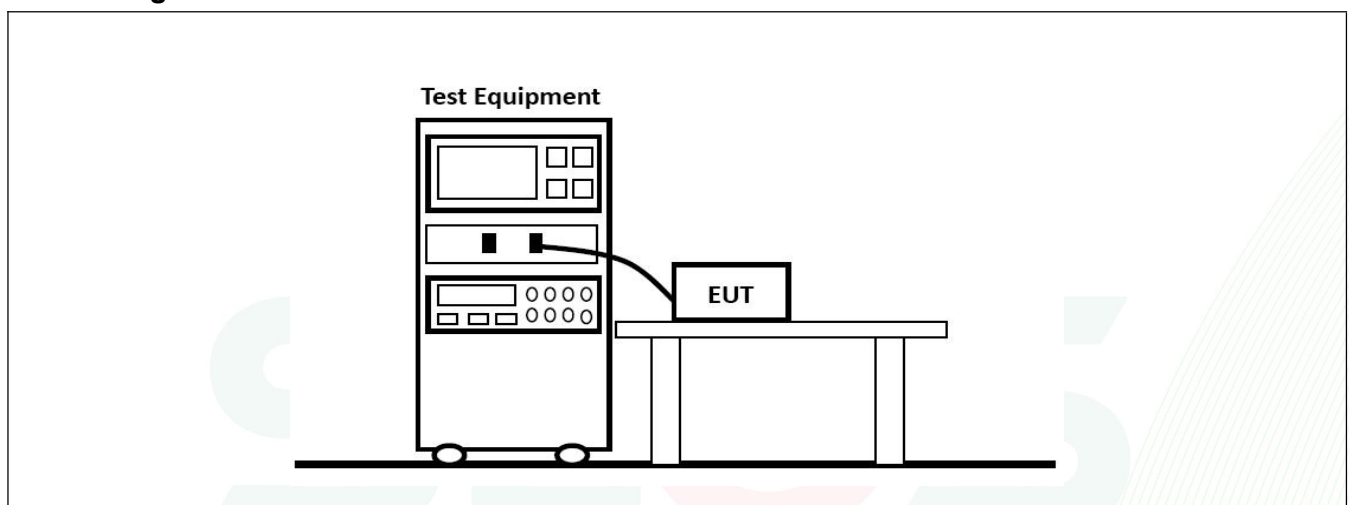
5.5. VOLTAGE FLUCTUATIONS & FLICKER

Standard	EN 61000-3-3:2013+A1:2019+A2:2021
----------	-----------------------------------

Limit

P _{st} (Short term flicker)	☐	≤ 1	☒	Not applicable
P _{lt} (Long-term flicker)	☐	$\leq 0,65$	☒	Not applicable
T _{max} (Accumulated time)	☐	≤ 500 ms	☒	Not applicable
d _c (Relative voltage change)	☐	$\leq 3.3\%$	☒	Not applicable
d _{max} (Max.voltage change)	☐	$\leq 4\%$	☐	$\leq 6\%$
	☐	$\leq 7\%$	☒	Not applicable

Test configuration



The max rated input power of the EUTs is less than 600W. which unlikely to produce significant voltage fluctuation. Therefore no test was applied.

6. IMMUNITY TESTS

6.1. PERFORMANCE CRITERIA

Standard	EN IEC 61547:2023
----------	-------------------

For the various immunity tests that apply, the performance of the following functions shall be assessed, as far as applicable or specified by the manufacturer:

- the luminous intensity of the luminaire or of the light source(s);
- the control function, for example on/off switching, light level setting, colour adjustment, wireless control.

Performance 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.

Performance 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(30 min for high pressure gas discharge lamps) 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.

Performance 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.

Electronic lighting equipment		Tests and performance criteria							
		5.2 (ESD)	5.3 (RS)	5.4 (PFMF)	5.5 (EFT)	5.6 (CS)	5.7 (Surge)	5.8 (Dips)	5.8 (Interruption)
☐	Self-ballasted lamps	B	A	A	B	A	C	B	B
☒	Lighting equipment (excluding self-ballasted lamps) Module in host	B	A	A	B	A	C	B	B ¹
☐	Luminaire for emergency lighting	B ²	A	A	B ²	A	B ²	See ³	See ³

Supplementary information:

- 1) For ballasts where the lamp is not able to restart within 1 min, due to the physical constraints of the lamp, performance criterion C applies.
- 2) Luminaires for emergency lighting shall be tested in both the normal and emergency mode of operation.
- 3) These tests do not apply as they are covered by the test in IEC 60598-2-22.
- 4) For emergency luminaires designed to operate in high-risk task areas, after the test, the luminous intensity shall be restored to its initial value within 0,5 s.

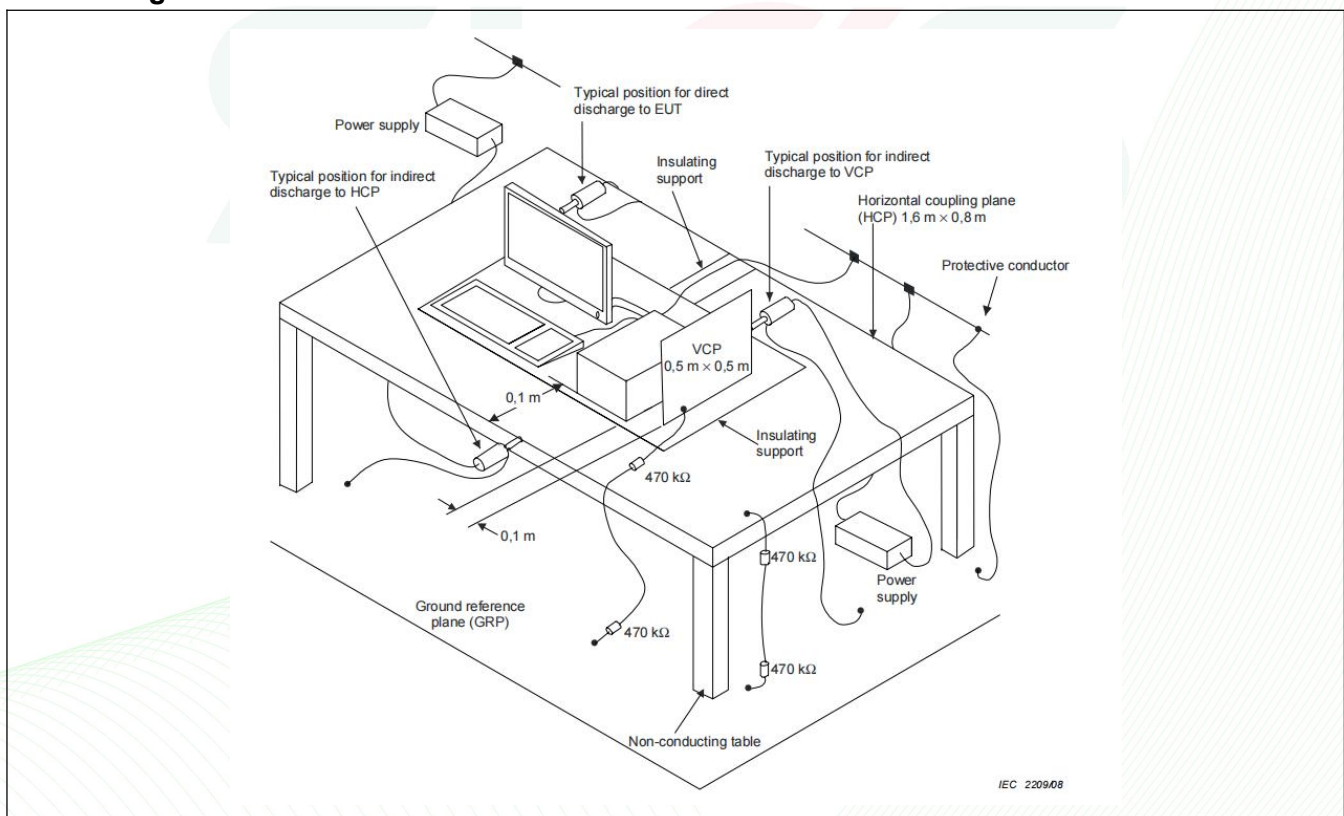
6.2. ELECTROSTATIC DISCHARGE

Electrostatic discharge (ESD) is the result of accumulated static electricity from a person or object, for example, walking on a synthetic carpet. ESD can indirectly affect the operation of equipment or damage its electronic components through direct discharge or coupling. both effects were simulated during the test. contact discharge is the preferred test method. twenty discharges (10 with positive and 10 with negative polarity) shall be applied on each accessible metallic part of the enclosure (terminals are excluded). air discharges shall be used where contact discharges cannot be applied. discharges shall be applied on the horizontal or vertical coupling planes.

Requirements

Standard	EN IEC 61547:2023							
Basic standard	EN 61000-4-2							
Port under test	Enclosure							
Contact discharge	☒	± 2 kV	☒	± 4 kV	☒	±8 kV	☐	±15 kV
Air discharge	☒	± 2 kV	☒	± 4 kV	☒	±8 kV	☒	±15 kV
Number of discharges	≥ 10 per polarity with ≥ 1 sec interval							
Note : Road and street lighting equipment shall be tested for air discharge at ±15 kV and for contact discharge at ±8 kV. This is to simulate the phenomenon of static charging during thunderstorms.								

Test configuration



Test Results refer to Annex A.5

6.3. RADIO-FREQUENCY ELECTROMAGNETIC FIELDS

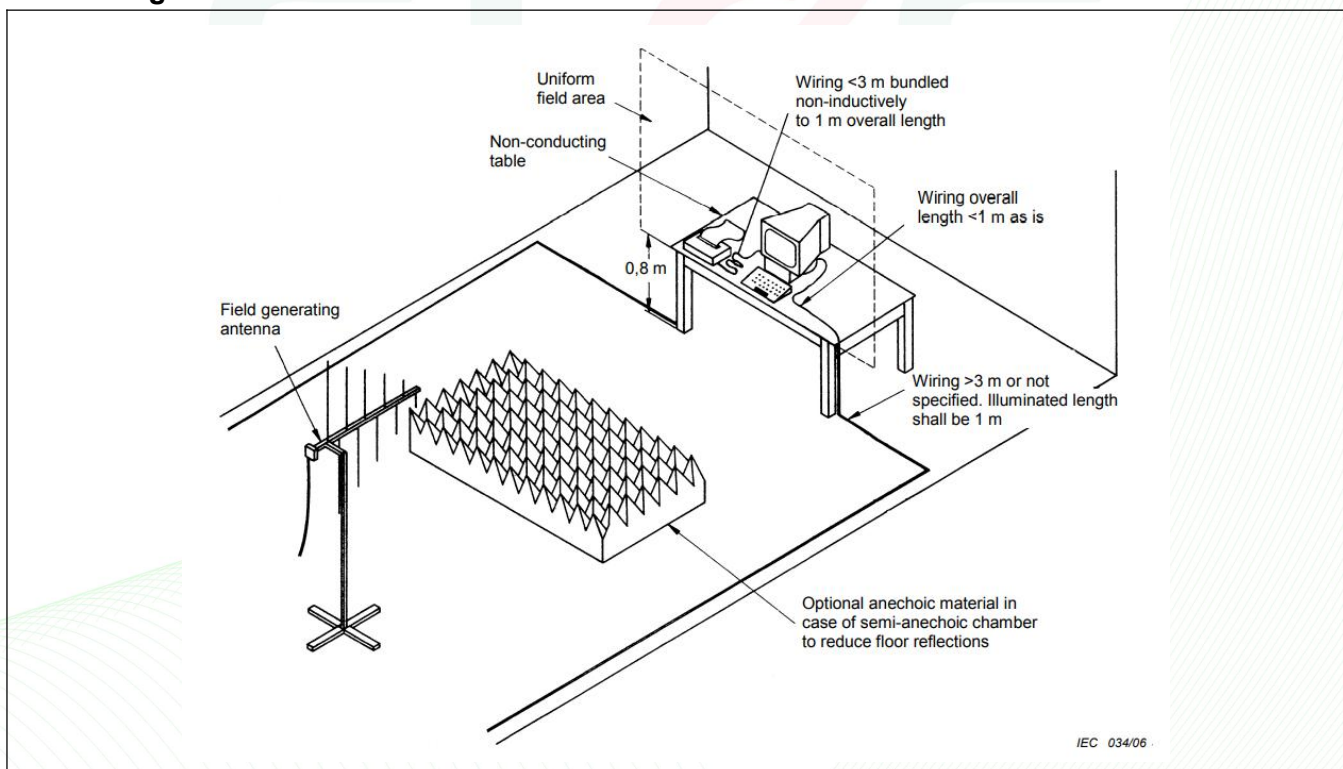
During the test it is verified if the EUT has sufficient immunity against radiated electromagnetic fields. The test was carried out in a half-wave anechoic chamber with absorbent material attached to a reflective ground plate. Before the test, the test field strength needs to be calibrated. during the calibration, the corresponding relationship between the target field strength and the forward power applied to the transmitting antenna is established. during the test, except for EUT, the indoor layout is consistent with the calibration.

The EUT and its simulators are placed on a turn table which is 0,8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. both horizontal and vertical polarization of the antenna are set on test. each of the four sides of EUT must be faced this transmitting antenna and measured individually. in order to judge the EUT performance, a CCD camera is used to monitor EUT screen.

Requirements

Standard	EN IEC 61547:2023			
Basic standard	EN 61000-4-3			
Port under test	Enclosure			
Frequency range	Test level	Modulation	Dwell time	Step size
80 - 1000 MHz	3 V/m	1 kHz, 80 % AM	≥ 0,5 s	≤ 1%

Test configuration



Test Results refer to Annex A.5

6.4. ELECTRICAL FAST TRANSIENT / BURST

The EFT immunity test simulates the disturbances by caused of very short transient bursts.

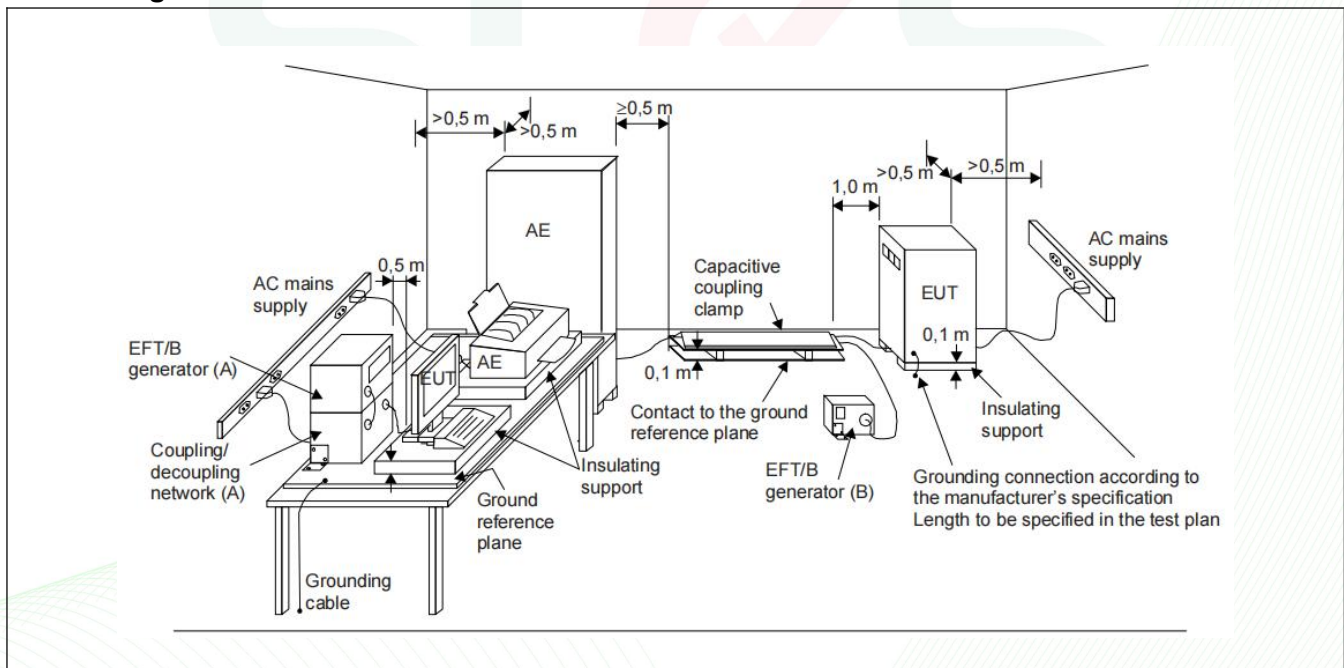
The EUT is put on the Insulating support which is 0.1 meter high above the ground reference plane. the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5 m. both polarities of the test voltage should be applied during test, fast transients are carried out with a minimum duration of 2 min with a positive polarity and a minimum of 2 min with a negative polarity.

Requirements

Standard	EN IEC 61547:2023			
Basic standard	EN 61000-4-4			
Pulse characteristics	5/50 ns			
Port under test		Test level	Repetition frequency	Duration
☒	AC input / output power	$\pm 1000 \text{ V}$	5 kHz	2 min / polarity
☐	DC input / output power ²	$\pm 500 \text{ V}$	5 kHz	2 min / polarity
☐	Signal / control lines and load ¹ ports	$\pm 500 \text{ V}$	5 kHz	2 min / polarity

1) Only applicable to ports interfacing with cables whose total length may exceed 3 m.
2) Not applicable to equipment not connected to the mains while in use.

Test configuration



Test Results refer to Annex A.5

6.5. INJECTED CURRENTS (RADIO-FREQUENCY COMMON MODE)

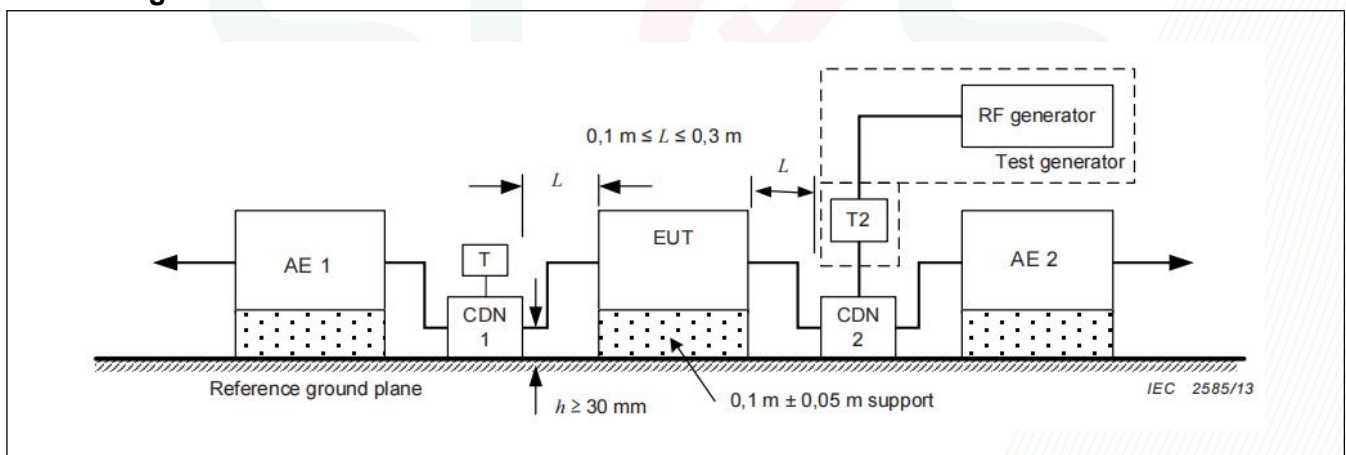
During the test the immunity of the EUT for conducted electromagnetic fields is checked .

The equipment to be tested is placed on an insulating support of $0,1 \text{ m} \pm 0,05 \text{ m}$ height above a reference ground plane. a non conductive roller / caster in the range of $0,1 \text{ m} \pm 0,05 \text{ m}$ above the reference ground plane can be used as an alternative to an insulating support. all cables exiting the EUT shall be supported at a height of at least 30 mm above the reference ground plane. The coupling and decoupling devices shall be placed on the reference ground plane, making direct contact with it at a distance of 0,1 m to 0,3 m from the EUT.

Requirements

Standard		EN IEC 61547:2023			
Basic standard		EN 61000-4-6			
Frequency range		0,15 - 80 MHz			
Port under test		Test level	Modulation	Dwell time	Step size
☒	AC input / output power	3 V	1 kHz, 80 % AM	≥ 0,5 s	≤ 1%
☐	DC input / output power ^{1 2}	3 V	1 kHz, 80 % AM	≥ 0,5 s	≤ 1%
☐	Signal / control line ²	3 V	1 kHz, 80 % AM	≥ 0,5 s	≤ 1%
1) Not applicable to equipment not connected to the mains while in use.					
2) Only applicable to ports interfacing with cables whose whose total length may exceed 3 m.					

Test configuration



Test Results refer to Annex A.5

6.6. SURGE

The surge immunity test simulates unidirectional surges caused by over voltages from switching and lightning transients.

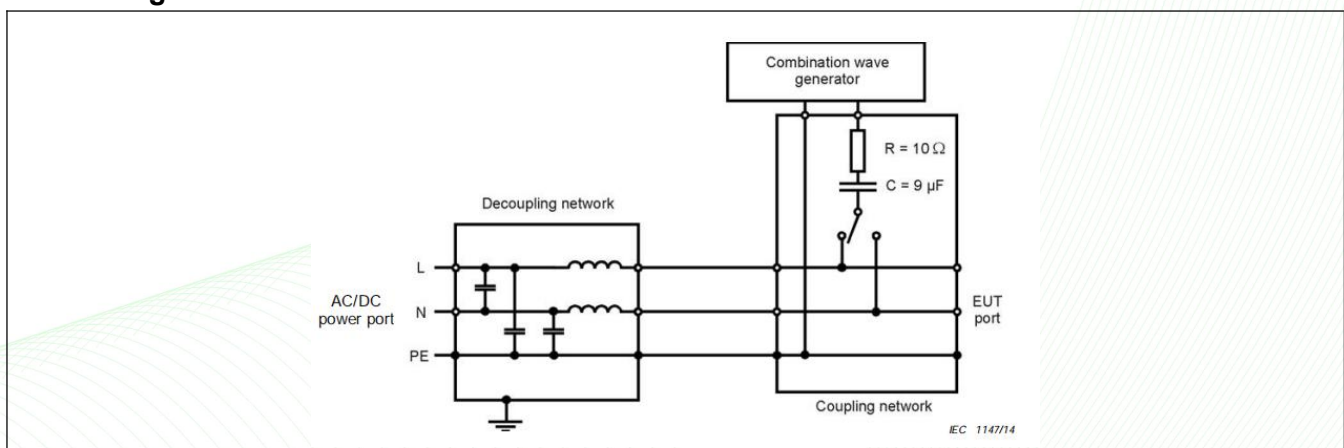
The surge is applied to the EUT power supply terminal via the capacitive coupling network, to the EUT power supply provide a 1,2/50 μ s voltage surge (at open-circuit condition), at least 5 positive and 5 negative tests with 1 min or less repetition rate are conducted during test. and phase angles is 90° and 270°.

Requirements

Standard		EN IEC 61547:2023			
Basic standard		EN 61000-4-5			
Pulse wave-shape		1,2/50 μ s			
Repetition rate		1 per minute or faster			
Number of pulses		5 pulses (at each polarity and phase angles)			
Classification		Port under test	Test Level	Coupling	Phase angle
☒	Lighting equipment (except self ballasted lamps ≤ 25 W)	AC input power	+ 1 kV	line - line	90°
			- 1 kV	line - line	270°
			+ 2 kV	line - ground	90°
			- 2 kV	line - ground	270°
☐	Self-ballasted lamps ≤ 25 W	AC input power	+ 0,5 kV	line - line	90°
			- 0,5 kV	line - line	270°
			N/A	line - ground	N/A
			N/A	line - ground	N/A

1) In addition to the specified test level, all lower test levels as detailed in EN 61000-4-5 should also be satisfied.
 2) Road and street lighting equipment shall comply with $\pm 2,0$ kV line to line and $\pm 4,0$ kV line to ground voltages.

Test configuration



Test Results refer to Annex A.5

6.7. VOLTAGE DIPS AND SHORT INTERRUPTIONS

This immunity test is simulates voltage dips and short interruptions occur due to faults in a (public or non-public) network or in installations by sudden changes of large loads.

The EUT shall be connected to the test generator for testing using the shortest power cable specified by the EUT manufacturer and, if no cable length is specified, the shortest cable suitable for the EUT, each representative mode of operation shall be tested. for short interruptions to use 0° for one of the phases.

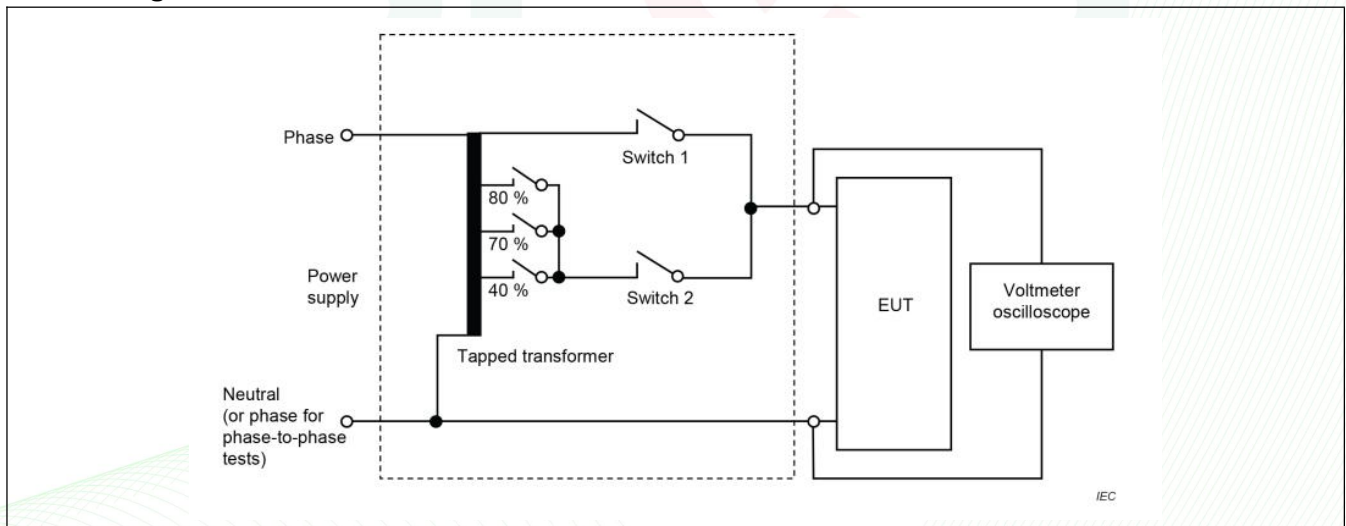
Requirements

Standard	EN IEC 61547:2023		
Basic standard	EN 61000-4-11		
# of dips / interruptions	3 dips / interruptions for each test level and phase angle		
Intervals between events	≥ 10 s		
Port under test	Test level ¹	Number of periods (cycles)	
		50Hz	60Hz
AC input power	70% of U_{NOM}	10	12
	0% of U_{NOM}	0,5	0,5

1) Where the equipment has a rated voltage range the following shall apply:

- If the voltage range does not exceed 20 % of the lower voltage specified for the rated voltage range, a single voltage within that range may be specified as a basis for the test level specification.
- in all other cases, the test procedure shall be applied for both the lowest and highest voltages declared in the voltage range.

Test configuration



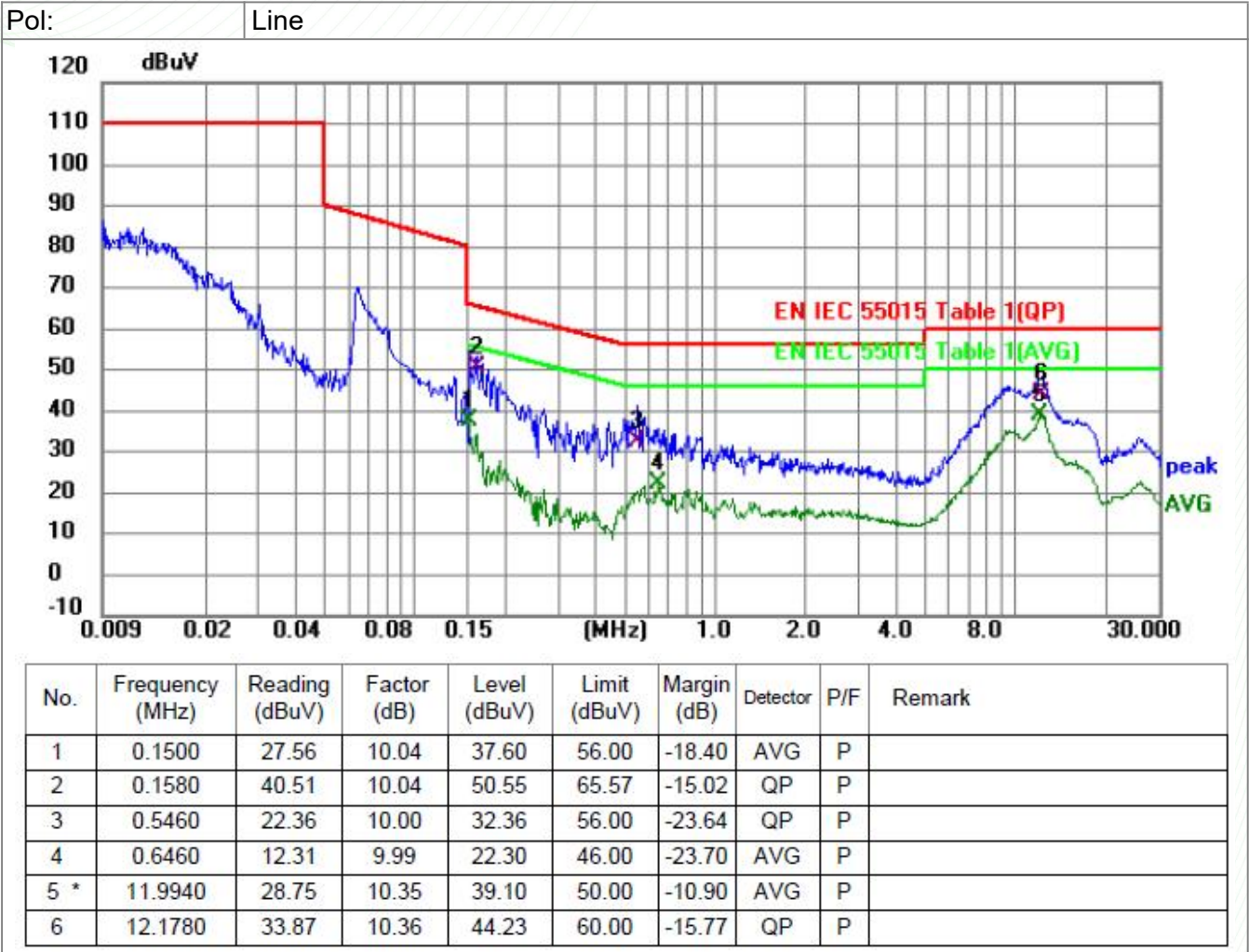
Test Results refer to Annex A.5

ANNEX A - TEST RESULTS

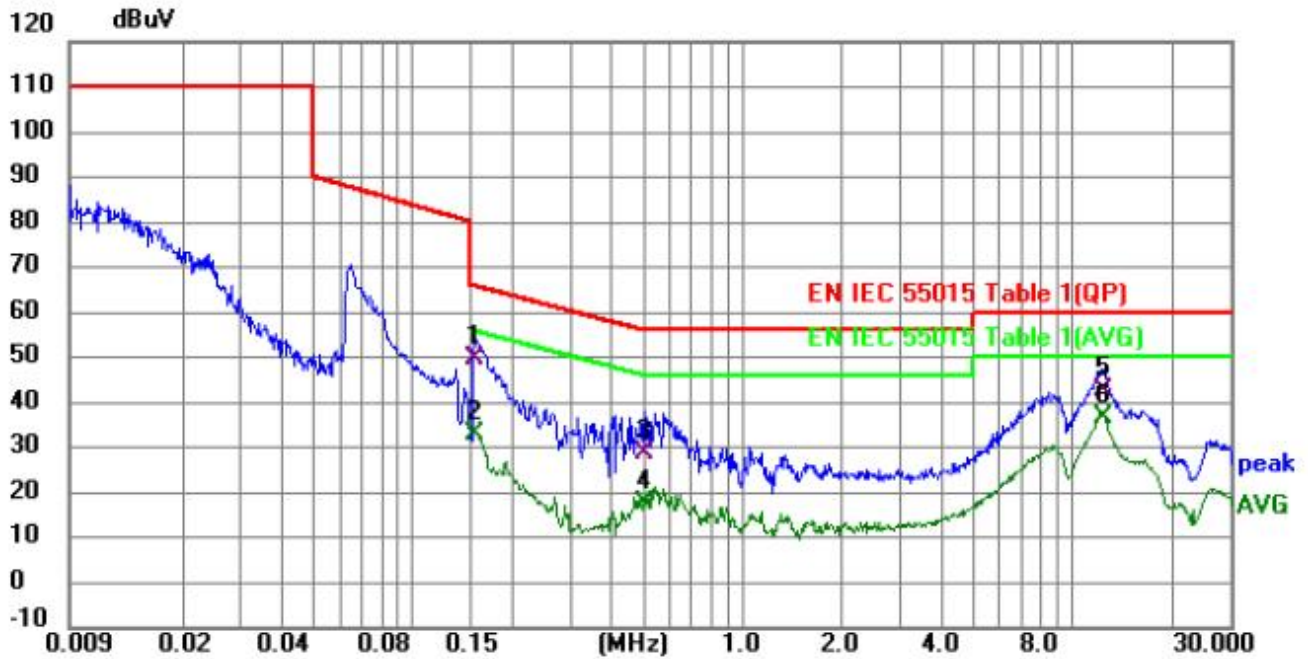
A.1. CONDUCTED DISTURBANCE TEST RESULTS

This Test Environment Conditions: 24.4°C, 55%RH

M/N: AOK-240WFLC(L)-NV-A5-00-6570-T5-A
 Input voltage: AC230V,50Hz
 Operating mode: Mode 1



Pol: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1539	39.43	10.02	49.45	65.79	-16.34	QP	P	
2	0.1539	22.72	10.02	32.74	55.79	-23.05	AVG	P	
3	0.4980	18.71	9.98	28.69	56.03	-27.34	QP	P	
4	0.4980	7.53	9.98	17.51	46.03	-28.52	AVG	P	
5	12.3180	32.30	10.33	42.63	60.00	-17.37	QP	P	
6 *	12.3180	26.53	10.33	36.86	50.00	-13.14	AVG	P	

Remark:

Level=Reading Level + Correction Factor

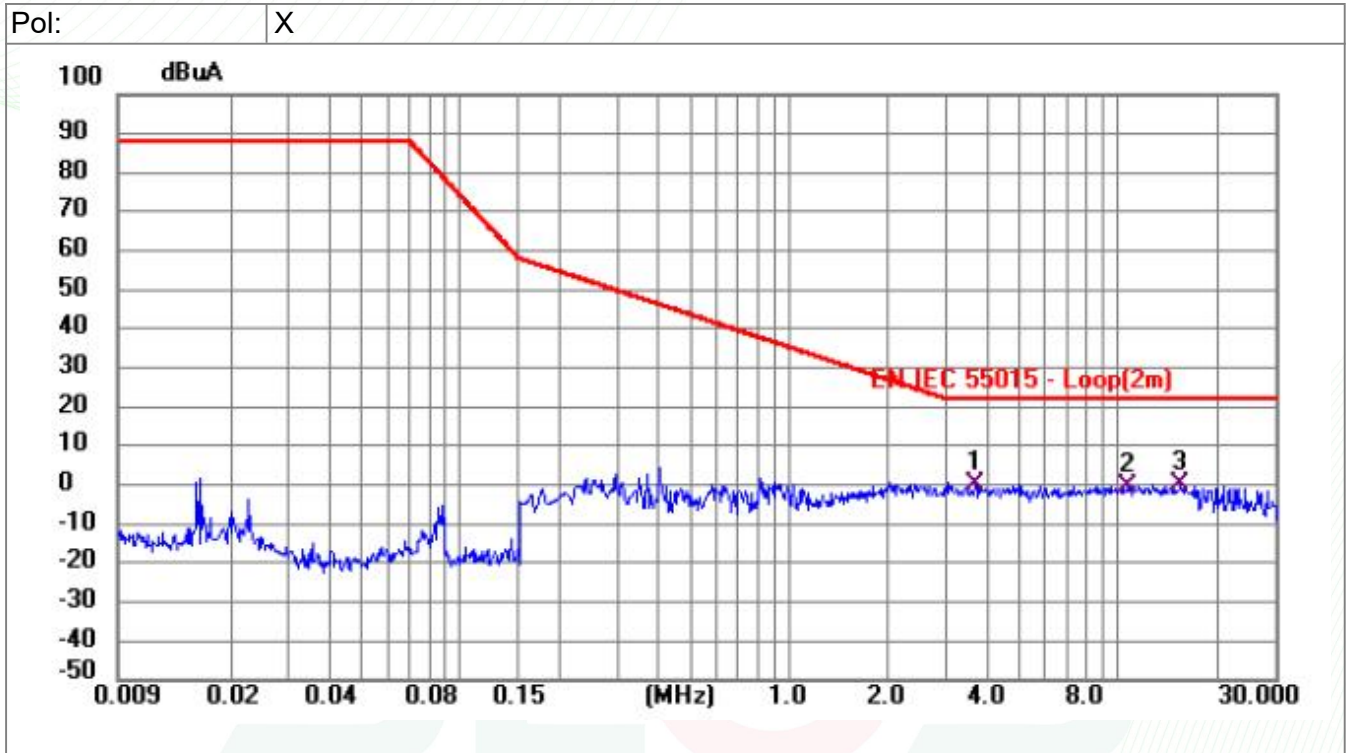
Correction Factor=Cable Loss + LISN Factor

(The Reading Level is recorded by software which is not shown in the sheet)

A.2. RADIATED DISTURBANCE TEST RESULTS (9kHz - 30MHz)

This Test Environment Conditions: 24.4°C, 55%RH

M/N: AOK-240WFLC(L)-NV-A5-00-6570-T5-A
Input voltage: AC230V,50Hz
Operating mode: Mode 1



Pol: Y



No.	Frequency (MHz)	Reading (dBuA)	Factor (dB)	Level (dBuA)	Limit (dBuA)	Margin (dB)	Detector	P/F	Remark
1	2.9670	-25.73	25.74	0.01	22.13	-22.12	QP	P	
2	9.1230	-25.79	26.27	0.48	22.00	-21.52	QP	P	
3 *	16.4801	-24.10	25.88	1.78	22.00	-20.22	QP	P	

Pol: Z



No.	Frequency (MHz)	Reading (dBuA)	Factor (dB)	Level (dBuA)	Limit (dBuA)	Margin (dB)	Detector	P/F	Remark
1	4.0605	-26.46	26.47	0.01	22.00	-21.99	QP	P	
2	9.0914	-26.54	26.64	0.10	22.00	-21.90	QP	P	
3 *	24.2835	-24.46	24.77	0.31	22.00	-21.69	QP	P	

Remark:

Level=Reading Level + Correction Factor

Correction Factor=Antenna Factor + Cable Loss

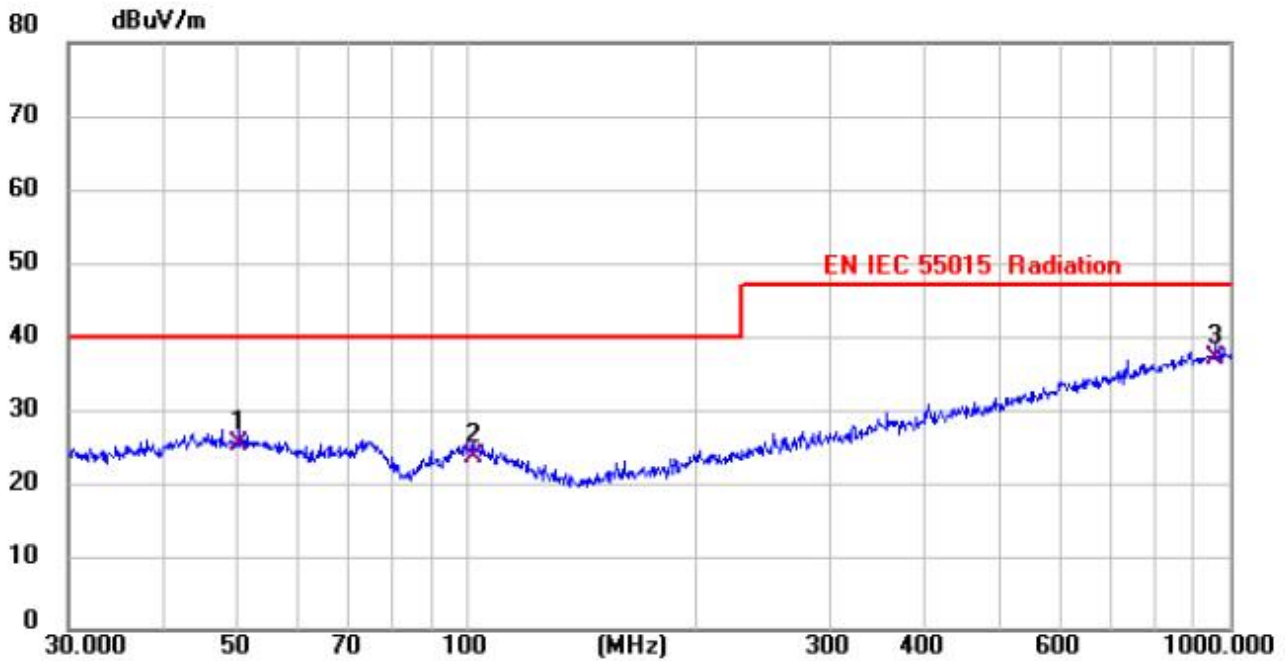
(The Reading Level is recorded by software which is not shown in the sheet)

A.3. RADIATED DISTURBANCE TEST RESULTS (30MHz - 1GHz)

This Test Environment Conditions: 24.1°C, 54%RH

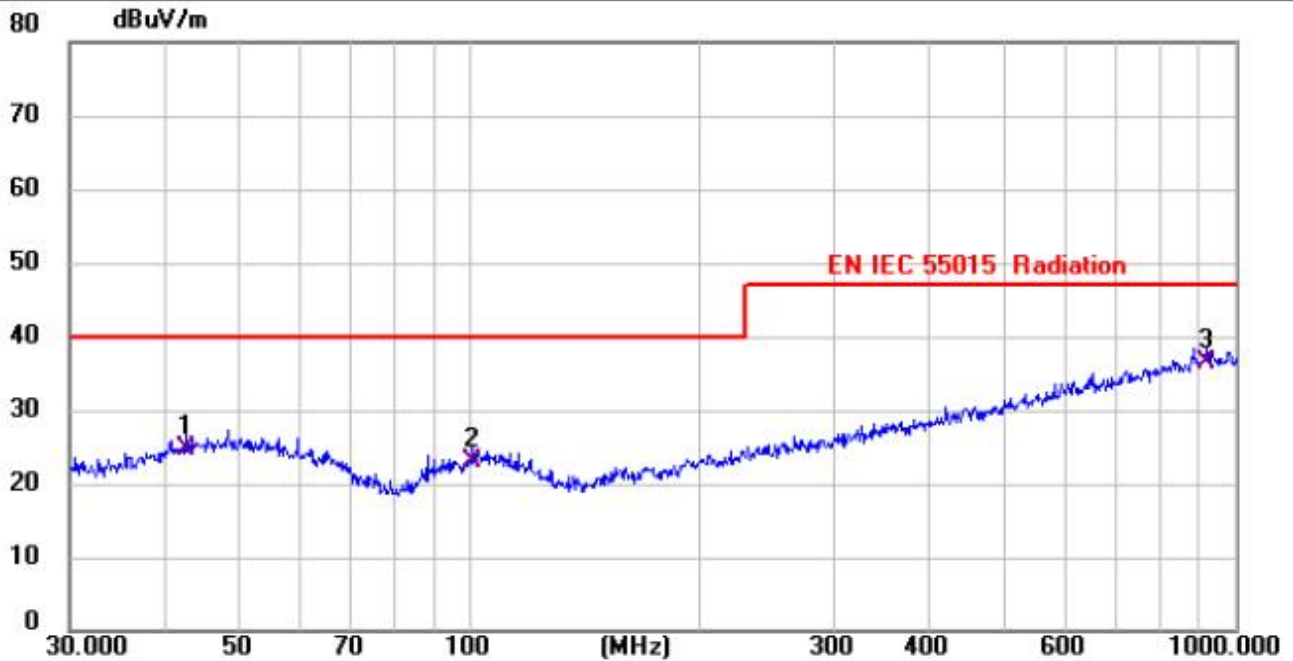
M/N: AOK-240WFLC(L)-NV-A5-00-6570-T5-A
 Input voltage: AC230V,50Hz
 Operating mode: Mode 1

Pol: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	50.2986	4.95	20.42	25.37	40.00	-14.63	QP			P	
2	102.1356	4.99	18.65	23.64	40.00	-16.36	QP			P	
3 *	955.8570	5.99	30.93	36.92	47.00	-10.08	QP			P	

Pol: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	42.6747	4.41	20.27	24.68	40.00	-15.32	QP			P	
2	100.8455	4.25	18.70	22.95	40.00	-17.05	QP			P	
3 *	915.2660	5.48	30.86	36.34	47.00	-10.66	QP			P	

Remark:

Level=Reading Level + Correction Factor

Correction Factor=Antenna Factor + Cable Loss

(The Reading Level is recorded by software which is not shown in the sheet)

A.4. HARMONIC CURRENT TEST RESULTS

This Test Environment Conditions: 23.5°C, 52%RH

M/N: AOK-240WFLC(L)-NV-A5-00-6570-T5-A
 Input voltage: AC230V,50Hz
 Operating mode: Mode 1

Test Result: Pass

Source qualification(Power OFF Load):

Normal

THC(mA):37.00

I - THD(%):3.59

POHC(mA):

POHC Limit(mA):97.90

Highest Parameter values during test:

V_RMS(Volts):230.99

Frequency(Hz):50.00

I_RMS(mA): 1032.5

Crest Factor:1.45

Power(W):236.00

Power Factor:0.987

I_Fund(mA):1032.00 to 1032.80(Filtered)

Harm#	Harms(avg) mA	Limit mA	%Limit	Harms(max) mA	1.5*Limit mA	%1.5*Limit	Status
2	1.4	20.64	-	1.6	30.96	-	Pass
3	25.3	278.64	9.08	25.6	417.96	6.12	Pass
4							
5	7.5	103.20	7.27	7.8	154.80	5.04	Pass
6							
7	4.5	72.24	-	4.8	108.36	-	Pass
8							
9	5.5	51.60	10.66	5.6	77.40	7.24	Pass
10							
11	7.5	30.96	24.22	7.7	46.44	16.58	Pass
12							
13	7.5	30.96	24.22	7.7	46.44	16.58	Pass
14							
15	8.4	30.96	27.13	8.6	46.44	18.52	Pass
16							
17	6.3	30.96	20.35	6.4	46.44	13.78	Pass
18							
19	7.4	30.96	23.90	7.6	46.44	16.37	Pass
20							
21	7.4	30.96	23.90	7.5	46.44	16.15	Pass
22							
23	7.9	30.96	25.52	8.0	46.44	17.23	Pass
24							
25	8.4	30.96	27.13	8.5	46.44	18.30	Pass
26							
27	6.5	30.96	20.99	6.8	46.44	14.64	Pass
28							
29	4.0	30.96	-	4.2	46.44	-	Pass
30							
31	3.8	30.96	-	4.0	46.44	-	Pass
32							
33	3.2	30.96	-	3.4	46.44	-	Pass
34							
35	5.4	30.96	17.44	5.5	46.44	11.84	Pass
36							
37	3.4	30.96	-	3.5	46.44	-	Pass
38							
39	3.1	30.96	-	3.3	46.44	-	Pass
40							
POHC		97.90	0.00				Pass

A.5. IMMUNITY TEST RESULTS

ELECTROSTATIC DISCHARGE TEST RESULTS					
Test model	AOK-240WFLC(L)-NV-A5-00-6570-T5-A		Temperature	23.9°C	
Test mode	Mode 1		Humidity	53%	
Input voltage	AC230V,50Hz		Pressure	1010mbar	
Discharge Mode	Test Points	Test Voltage (kV) & polarity	Number of discharges/polarity	Discharge interval (s)	Performance Criteria
Contact Discharge	Conductive surfaces	± 8	10	1	B
Air Discharge	Insulating surfaces	± 2&4&8&15	10	1	B
VCP	-	± 8	10	1	B
HCP	-	± 8	10	1	B
Note :					

RADIO-FREQUENCY ELECTROMAGNETIC FIELD TEST RESULTS				
Test model	AOK-240WFLC(L)-NV-A5-00-6570-T5-A		Temperature	23.9°C
Test mode	Mode 1		Humidity	54%
Input voltage	AC230V,50Hz		Pressure	1010mbar
Angle of EUT	Antenna polarization	Frequency Range	Test Level	Performance Criteria
0°	Vertical, Horizontal	80 - 1000 MHz	3 V/m	A
90°	Vertical, Horizontal	80 - 1000 MHz	3 V/m	A
180°	Vertical, Horizontal	80 - 1000 MHz	3 V/m	A
270°	Vertical, Horizontal	80 - 1000 MHz	3 V/m	A
Note :				
(1) Modulation:1kHz, 80% AM.				

ELECTRICAL FAST TRANSIENT/BURST TEST RESULTS

Test model	AOK-240WFLC(L)-NV-A5-00-6570-T5-A		Temperature	24.1℃
Test mode	Mode 1		Humidity	54%
Input voltage	AC230V,50Hz		Pressure	1010mbar
Port under test	Test Level&polarity	Repetition Frequency	Test duration /polarity	Performance Criteria
AC input power	± 1 kV	5 kHz	2min	B
DC input power				
Signal/control/load				
Note :				

INJECTED CURRENTS (RADIO-FREQUENCY COMMON MODE) TEST RESULTS

Test model	AOK-240WFLC(L)-NV-A5-00-6570-T5-A		Temperature	24.1℃
Test mode	Mode 1		Humidity	54%
Input voltage	AC230V,50Hz		Pressure	1010mbar
Port under test	Test Level	Coupling method	Dwell time	Performance Criteria
AC input power	3 V	CDN	1 seconds	A
DC input power				
Signal/control				
Note:				
(1) Frequency range:0.15MHz - 80MHz.				

SURGE TEST RESULTS						
Test model	AOK-240WFLC(L)-NV-A5-00-6570-T5-A			Temperature	24.1℃	
Test mode	Mode 1			Humidity	54%	
Input voltage	AC230V,50Hz			Pressure	1010mbar	
Port under test	Coupling	Test Level & polarity(kV)	Phase angle (°)	Number of surges	Repetition rate(s)	Performance criteria
AC Input power	L - N	+ 2	90	5	60	C
		- 2	270	5	60	C
	L - PE	+ 4	90	5	60	C
		- 4	270	5	60	C
	N - PE	+ 4	90	5	60	C
		- 4	270	5	60	C
Note:						

VOLTAGE DIPS AND SHORT INTERRUPTIONS TEST RESULTS					
Test model	AOK-240WFLC(L)-NV-A5-00-6570-T5-A			Temperature	24.1°C
Test mode	Mode 1			Humidity	54%
Input voltage	AC230V,50Hz			Pressure	1010mbar
U _{NOM} (Vac)	Test Level (% U _{NOM})	Number of periods		Phase angle (°)	Performance criteria
		50Hz	60Hz		
230	70	10	12	0, 90, 180, 270	B
	0	0,5	0,5	0	B
Note:					

ANNEX B - TEST PHOTOS

B.1. Conducted Disturbance



B.2. Radiated Disturbance (9kHz - 30MHz)



B.3. Radiated Disturbance (30MHz to 1GHz)



B.4. Harmonic Current



B.5. Electrostatic Discharge



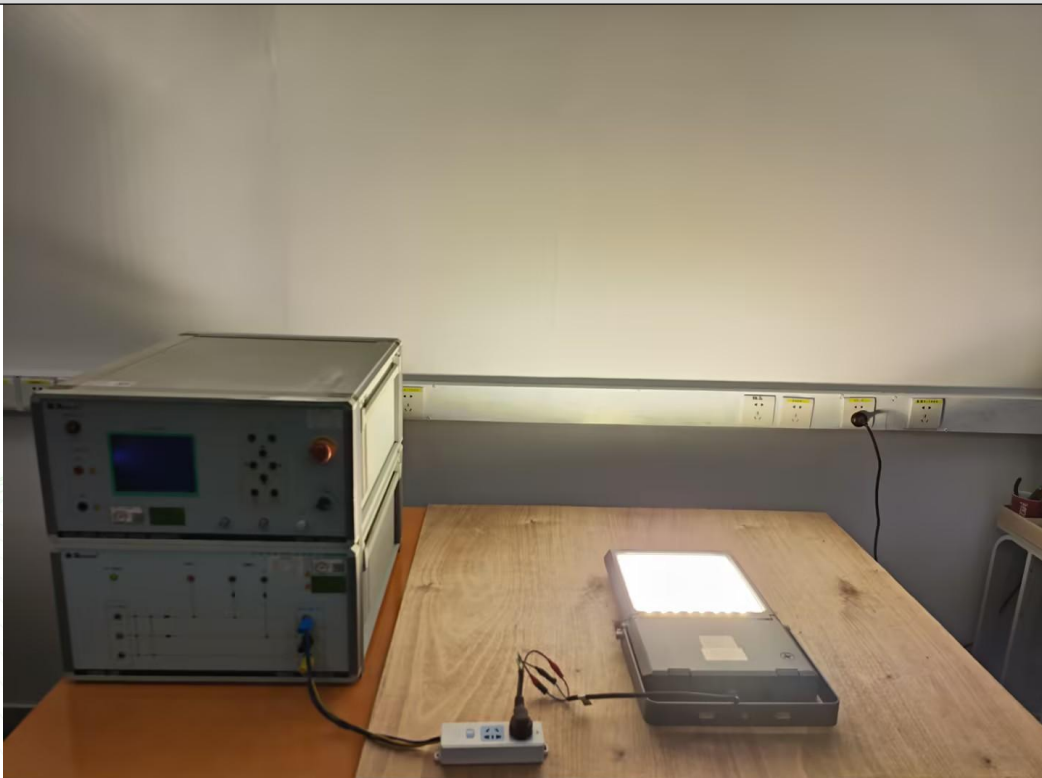
B.6. Electrical Fast Transient / Burst



B.7. Injected Currents (Radio-Frequency Common Mode)



B.8. Surge



B.9. Voltage Dips and Short Interruptions



ANNEX C - EXTERNAL AND INTERNAL PHOTOS OF THE EUT

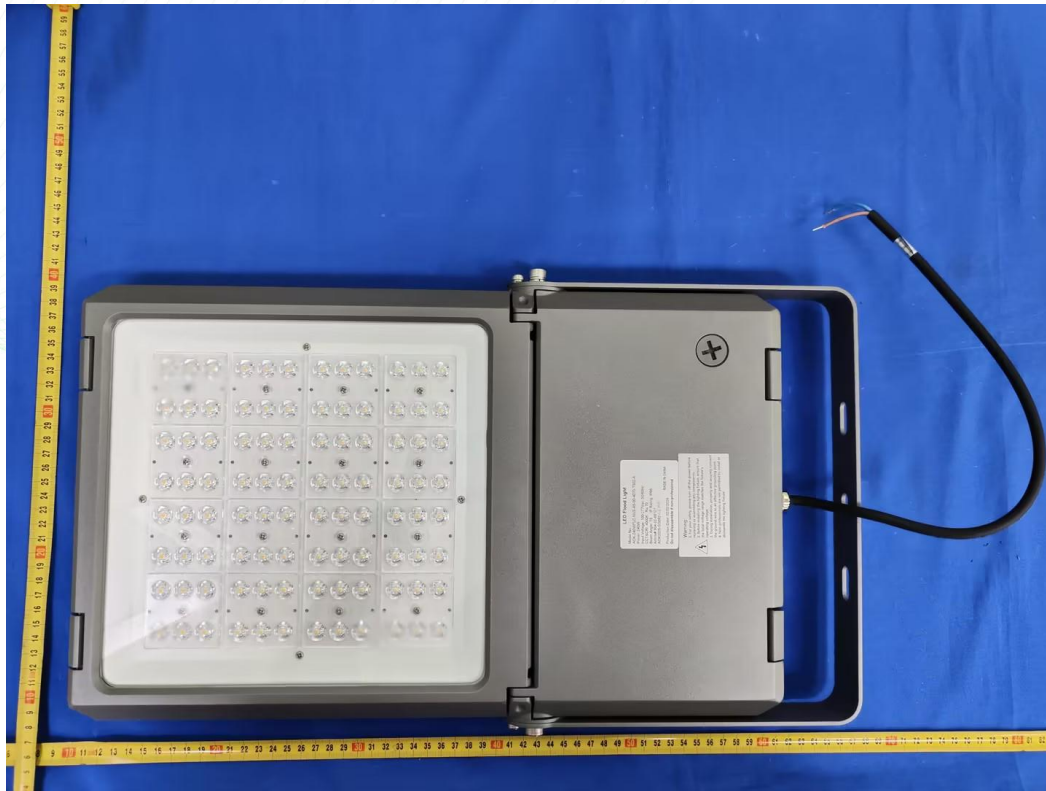


Photo.1 (AOK-240WFLC-NV-A5-00-4070-T5-A)



Photo.2



Photo.3

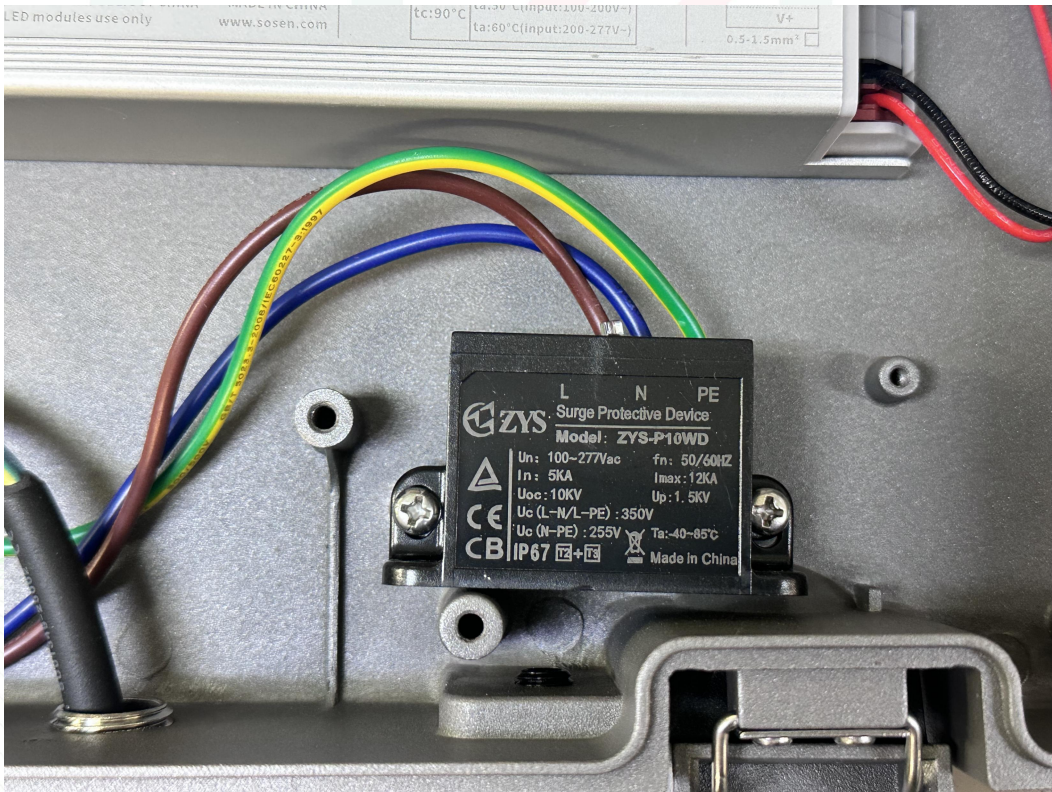


Photo.4

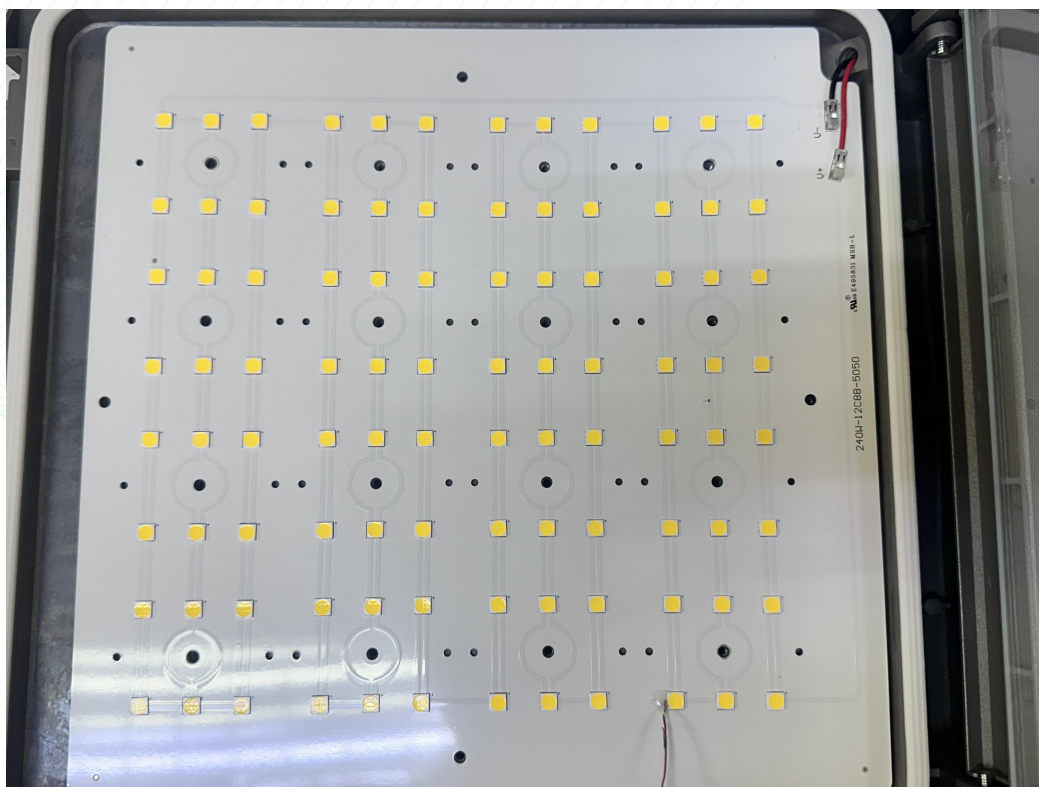


Photo.5

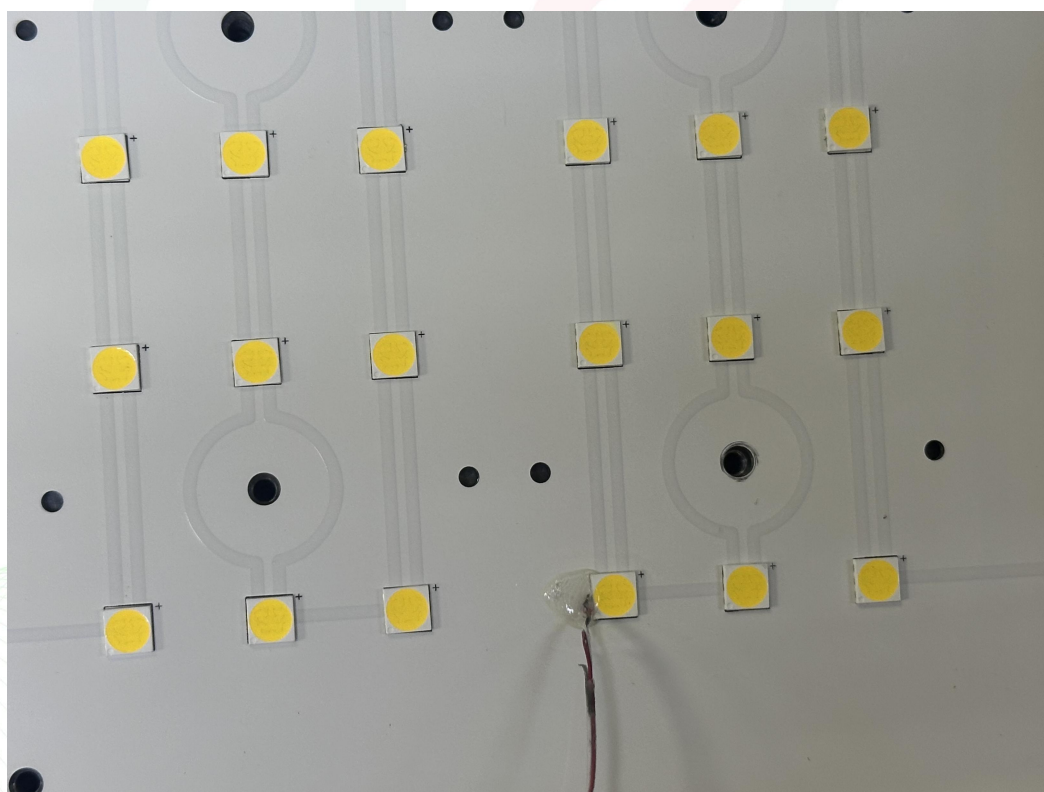


Photo.6



Photo.7 (AOK-240WFLC-NV-L3-00-4070-T5-A)



Photo.8



Photo.9



Photo.10

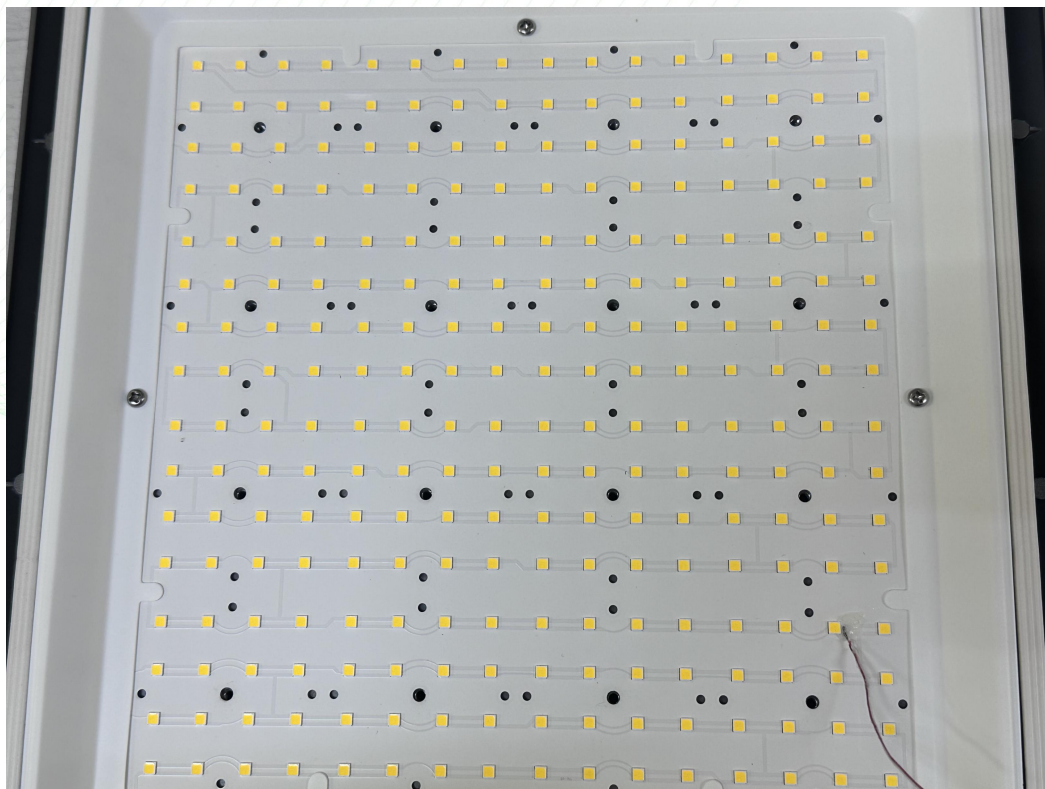


Photo.11

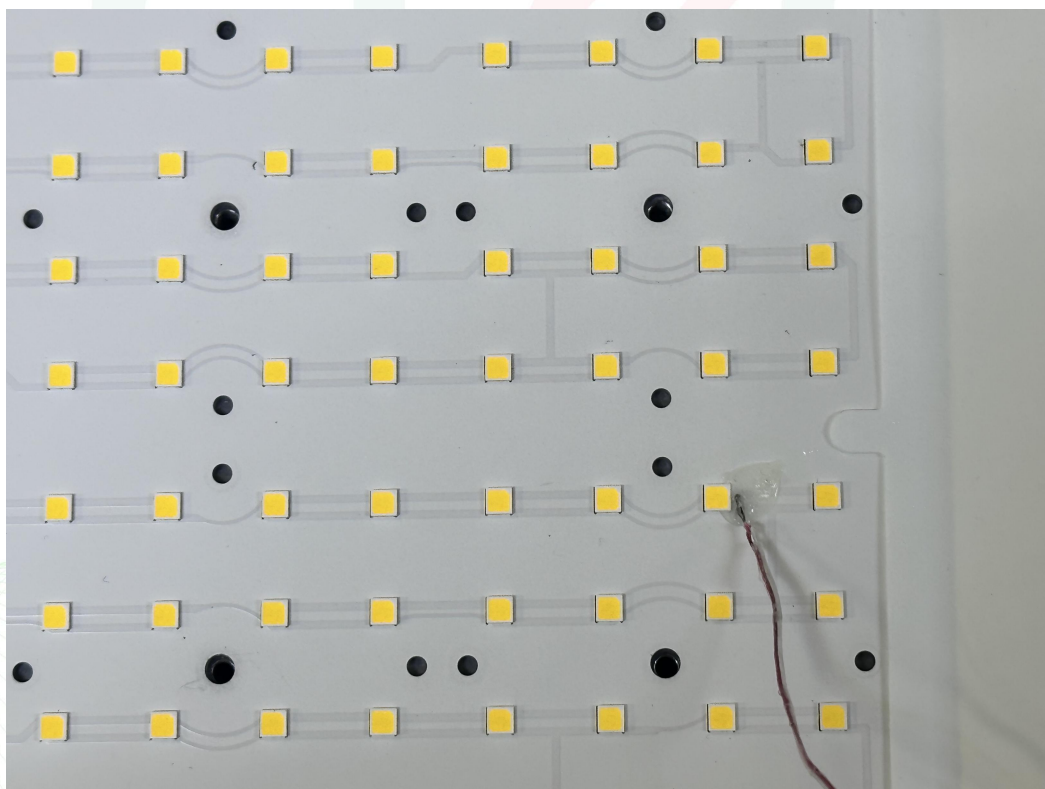


Photo.12

----- END -----