



EMC REPORT

Applicant	NINGBO GROW LIGHTING CO.,LTD
Address	Building 2, No.88, NanYi West Road, Luotuo street, Zhenhai Distract, Ningbo City
Product Name	LED Ceiling lamp
Trademark	/
Model Number	SWR001-7W
Additional Models	SWR001-3W, SBR001-3W, HWR001-3W, HBR001-3W, SWS001-3W, SBS001-3W, HWS001-3W, HBS001-3W, SWR001-5W, SBR001-5W, HWR001-5W, HBR001-5W, SWS001-5W, SBS001-5W, HWS001-5W, HBS001-5W, SBR001-7W, HWR001-7W, HBR001-7W, SWS001-7W, SBS001-7W, HWS001-7W, HBS001-7W, SWR001-9W, SBR001-9W, HWR001-9W, HBR001-9W, SWS001-9W, SBS001-9W, HWS001-9W, HBS001-9W, SWR001-12W, SBR001-12W, HWR001-12W, HBR001-12W, SWS001-12W, SBS001-12W, HWS001-12W, HBS001-12W, 8337BL-7W, 8337NE-7W
Test Laboratory	Shenzhen Circle Testing Certification Co., Ltd.
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Cert. No.	CNAS Cert. No.: L12276, A2LA Cert. No.: 7259.01
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Report Number	CTC122J0807101ER



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TEST REPORT DECLARATION

Applicant	NINGBO GROW LIGHTING CO.,LTD
Address	Building 2, No.88, NanYi West Road, Luotuo street, Zhenhai Distract, Ningbo City
Manufacturer	NINGBO GROW LIGHTING CO.,LTD
Address	Building 2, No.88, NanYi West Road, Luotuo street, Zhenhai Distract, Ningbo City
EUT Description	LED Ceiling lamp
Model Number	SWR001-7W

Test Standards:

EN IEC 55015:2019/A11:2020
EN IEC 61547:2023
EN IEC 61000-3-2:2019/A1:2021
EN 61000-3-3:2013/A2:2021

The EUT described above is tested by Shenzhen Circle Testing Certification Co., Ltd. EMC Laboratory to determine the maximum emissions from the EUT and ensure the EUT to be compliance with the immunity requirements of the EUT. Shenzhen Circle Testing Certification Co., Ltd. EMC Laboratory is assumed full responsibility for the accuracy of the test results. Also, this report shows that the EUT technically complies with the 2014/30/EU directive and its amendment requirements.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Tested by :

Irving

Test Engineer

Approved & Authorized Signer :





1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	Test Results
Power Line Conducted Emission Test	PASS
Magnetic Test	PASS
Radiated Emission	PASS
Harmonic Current Emission Test	PASS
Voltage Fluctuations & Flicker Test	PASS
Electrostatic Discharge Test	PASS
RF Field Strength Susceptibility Test	PASS
Electrical Fast Transient/Burst Test	PASS
Surge Test	PASS
Injected Currents Susceptibility Test	PASS
Magnetic Field Immunity Test	PASS
Voltage Dips And Interruptions Test	PASS

2. GENERAL INFORMATION

2.1. Report information

2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that CTC approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that CTC in any way guarantees the later performance of the product/equipment.

2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, CTC therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through CTC, unless the applicant has authorized CTC in writing to do so.

2.2. Measurement Uncertainty

(95% confidence levels, $k=2$)

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.2dB



Uncertainty for Magnetic emission test	3.3dB
Uncertainty for Radiation emission test (30MHz to 1GHz)	4.0dB

3. PRODUCT DESCRIPTION

3.1. EUT Description

EUT Description	LED Ceiling lamp
Applicant	NINGBO GROW LIGHTING CO.,LTD
Address	Building 2, No.88, NanYi West Road, Luotuo street, Zhenhai Distract, Ningbo City
Manufacturer	NINGBO GROW LIGHTING CO.,LTD
Address	Building 2, No.88, NanYi West Road, Luotuo street, Zhenhai Distract, Ningbo City
Model Number	SWR001-7W
Rating(s)	Input : 180-265VAC, 50/60Hz, 7W

3.2. Block Diagram of EUT Configuration



3.3. Operating Condition of EUT

Test mode 1: Normal operation

3.4. Test Conditions

Temperature: 22-26°C

Relative Humidity: 55-58%

3.5. Modifications

No modification was made.



3.6. Abbreviations

AC	Alternating Current
AMN	Artificial Mains Network
DC	Direct Current
EM	ElectroMagnetic
EMC	ElectroMagnetic Compatibility
EUT	Equipment Under Test
IF	Intermediate Frequency
RF	Radio Frequency
Rms	root mean square
EMI	Electromagnetic Interference
EMS	Electromagnetic Susceptibility

3.7. Performance Criterion

Criterion A: The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended.

Criterion B: After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended.

Criterion C: Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

4. TEST EQUIPMENT USED

4.1. For Conducted Emission Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	E087	2026-02-26	1 Year
2.	Coaxial Cable	CTC	10B	E159	2026-02-26	1 Year
3.	L.I.S.N.	Rohde & Schwarz	ENV 216	E089	2026-07-12	1 Year
4.	Shielding Room	CTC	CTC443	E099	2026-02-26	2 Year

4.2. For Magnetic Test (In Shielding Room)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS20	836600/006	2026-06-04	1 Year
2.	Triple-loop Antenna	Rohde & Schwarz	HM020	843885/002	2026-06-05	1 Year
3.	RF Cable	MIYAZAKI	5D-2W	Tri-loop Cable	2026-03-28	1/2 Year
4.	Coaxial Switch	Anritsu	MP59B	M73989	2026-06-04	1/2 Year

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4.3. For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde& Schwarz	ESCI	E087	2026-02-26	1 Year
2.	Test Receiver	Rohde & Schwarz	ESPI	E155	2026-02-26	1 Year
3.	Broadband Trilog Antenna	Schwarzbeck	VULB 9162	E088	2026-02-17	1 Year
4.	OPT H64 Preamplifier	HP	8447F	E164	2026-02-26	1 Year
5.	Cable	CTC	3B	E139	2026-02-26	1 Year
6.	Cable	CTC	3C	E140	2026-02-26	1 Year
7.	Cable	CTC	3D	E141	2026-02-26	1 Year
8.	Cable	CTC	10A	E158	2026-02-26	1 Year
9.	Horn Antenna	Schwarzbeck	BBHA 9120D	E161	2026-02-17	1 Year
10.	Broadband Preamplifier	Schwarzbeck	BBV9718	E162	2026-02-26	1 Year

4.4. For Harmonic / Flicker Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Harmonic and Flicker Test System	EVERFINE	HFM-3000-V200	E207	2026-10-18	1 Year
2.	AC Power Source	EVERFINE	HFS-4000-V200	E208	2026-10-18	1 Year

4.5. For Electrostatic Discharge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	SCHLODER	SESD 216	E085	2026-07-13	1 Year

4.6. For RF Strength Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	HP	8648A	3633A02081	2026-06-03	1 Year
2.	Amplifier	A&R	500A100	17034	NCR	NCR
3.	Amplifier	A&R	100W/1000M1	17028	NCR	NCR
4.	Isotropic Field Monitor	A&R	FM2000	16829	NCR	NCR
5.	Isotropic Field Probe	A&R	FLW220100	16755	2026-06-03	1 Year
6.	Biconic Antenna	EMCO	3108	9507-2534	NCR	NCR
7.	Log-periodic Antenna	A&R	AT1080	16812	NCR	NCR
8.	PC	N/A	486DX2	N/A	N/A	N/A

4.7. For Electrical Fast Transient/Burst Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Burst/Surge/Dip Tester	HTEC	HCOMPACT 5	E084	2026-07-14	1 Year
2.	Capacitive Coupling Clamp	HTEC	N/A	E111	2026-07-14	1 Year

4.8. For Surge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Burst/Surge/Dip Tester	HTEC	HCOMPACT 5	E084	2026-07-14	1 Year



4.9. For Injected Currents Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Simulator	EMTEST	CWS 500C	0900-12	2026-06-01	1 Year
2.	CDN	EMTEST	CDN-M2	510010010010	2026-06-01	1 Year
3.	VDN	EMTEST	CDN-M3	0900-11	2026-06-01	1 Year
4.	Injection Clamp	EMTEST	F-2031-23MM	368	2026-06-01	1 Year
5.	Attenuator	EMTEST	ATT6	0010222a	2026-06-01	1 Year

4.10. For Magnetic Field Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Magnetic Field Tester	HEAFELY	MAG100.1	083858-10	2026-06-01	1 Year

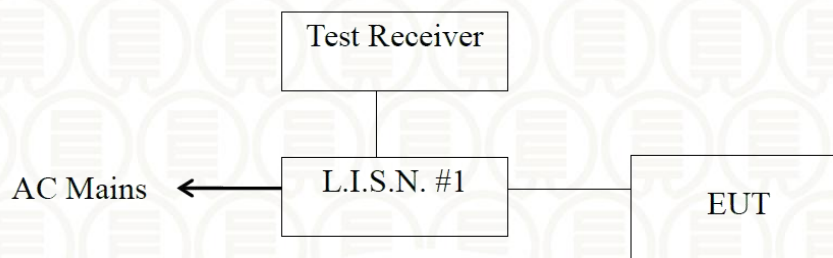
4.11. For Voltage Dips and Interruptions Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Burst/Surge/Dip Tester	HTEC	HCOMPACT 5	E084	2026-07-14	1 Year



5. POWER LINE CONDUCTED EMISSION TEST

5.1. Block Diagram of Test Setup



5.2. Test Standard

EN IEC 55015:2019/A11:2020

5.3. Power Line Conducted Emission Limit

Frequency MHz	Quasi-peak Level	Limits dB(uV) Average Level
0.009-0.05	110	-
0.05-0.15	90-80*	-
0.15-0.50	66-56*	56-46*
0.50-5.00	56	46
5.00-30.00	60	50

Notes: 1.*Decreasing linearly with logarithm of frequency.
2.The lower limit shall apply at the transition frequencies.

5.4. EUT Configuration on Test

The following equipment are installed on conducted emission test to meet EN IEC 55015 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

5.5. Operating Condition of EUT

- 5.5.1.Setup the EUT and simulators as shown in Section 5.1.
- 5.5.2.Turn on the power of all equipment.
- 5.5.3.Let the EUT work in test modes (Normal operation) and test it.

5.6. Test Procedure

The EUT is put on the ground and connected to the AC mains through a Artificial Mains Network (AMN). This provided 50ohm-coupling impedance for the tested equipment. Both sides of AC line are checked to find out the maximum conducted emission levels according to the EN IEC 55015 regulations during conducted emission test.



The bandwidth of the test receiver is set at 9kHz.

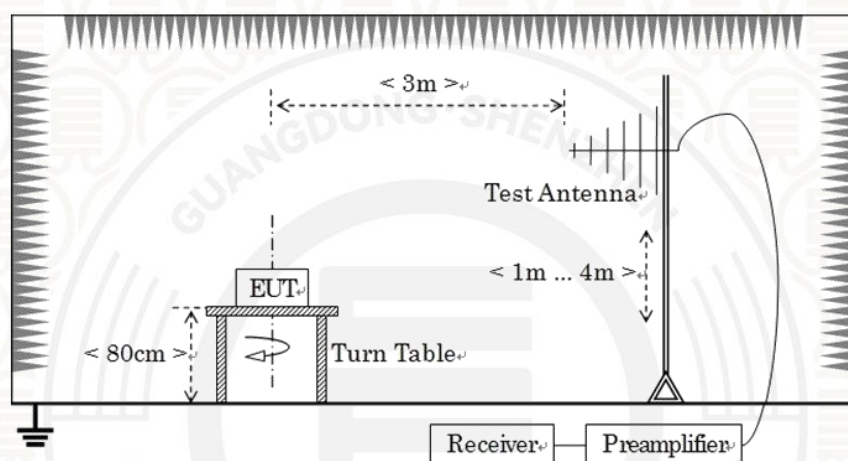
The frequency range from 150 kHz to 30 MHz is investigated. and all the scanning waveform is put in **Appendix I**.

5.7. Test Results.

PASS.

6. RADIATED EMISSION TEST

6.1 Semi-Anechoic Chamber Setup Diagram



6.2 Test Standard

EN IEC 55015:2019/A11:2020

6.3 Radiated Emission Limit

All emanations from lighting equipments or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBuV/m)
30-230	3	40
230-1000	3	47

Note:(1) The tighter limit shall apply at the edge between two frequency bands.
(2) Distance refers to the distance in meters between the measuring instruments antenna and the closed point of any part of the EUT.

6.4 EUT Configuration on Test

The EN IEC 55015 regulations test method must be used to find the maximum emission during radiated emission test.



6.5 Operating Condition of EUT

- 6.5.1. Setup the EUT as shown on Section 6.1.
- 6.5.2. Turn on the power of all equipment.
- 6.5.3. Let the EUT work in test mode (Normal operation) and measure it.

6.6 Test Procedure

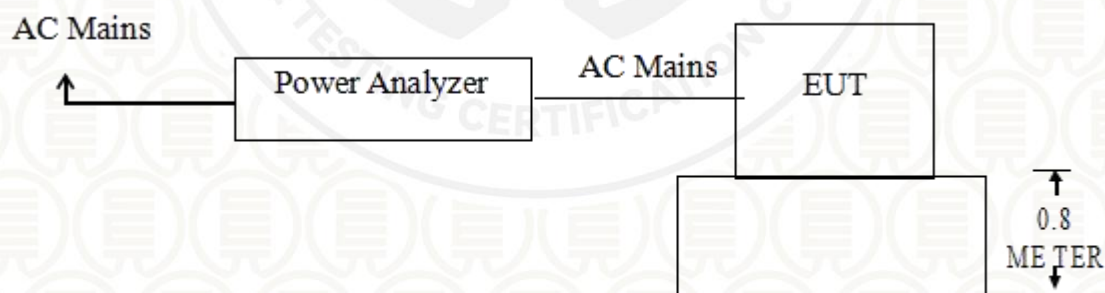
The EUT is placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on an antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna (calibrated by dipole antenna) are used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on test. The bandwidth setting on the test receiver is 120 kHz. The EUT is tested in Semi-Anechoic Chamber, and all the scanning waveform is put in **Appendix II**.

6.7 Test Results

PASS.

7. HARMONIC CURRENT EMISSION TEST

7.1 Block Diagram of Test Setup



(EUT: LED ACRYLIC PAINTING)

7.2 Test Standard

EN IEC 61000-3-2:2019/A1:2021 Class C

7.3 Operating Condition of EUT

- 7.3.1. Setup the EUT as shown in Section 7.1.
- 7.3.2. Turn on the power of all equipments.
- 7.3.3. Let the EUT work in test mode (Normal operation) and test it.



7.4 Test Procedure

The power cord of the EUT is connected to the output of the test system. Turn on the Power of the EUT and use the test system to test the harmonic current level.

7.5 Test Results

PASS (Data see **Appendix III**).

8. VOLTAGE FLUCTUATIONS & FLICKER TEST

8.1 Block Diagram of Test Setup

Same as Section 7.1.

8.2 Test Standard

EN 61000-3-3:2013/A2:2021

8.3 Operating Condition of EUT

Same as Section 7.3. The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test.

Flicker Test Limit

Test items	Limits
Pst	1.0
dc	3.3%
dmax	4.0%
dt	Not exceed 3.3% for 500ms

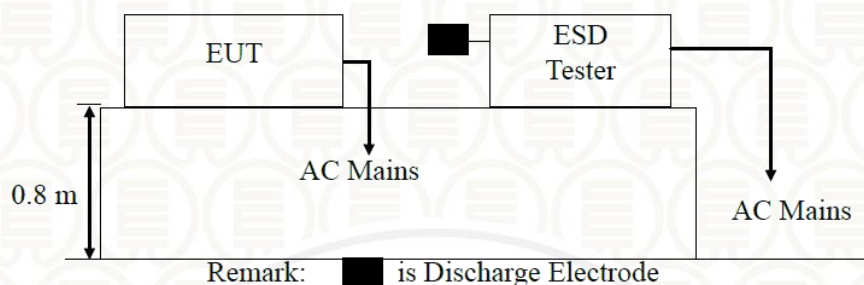
8.4 Test Results

PASS (Data see **Appendix IV**).



9. ELECTROSTATIC DISCHARGE TEST

9.1. Block Diagram of ESD Test Setup



9.2. Test Standard

EN IEC 61547:2023
Severity Level 3 for Air Discharge at 8kV
Severity Level 2 for Contact Discharge at 4kV

9.3. Severity Levels and Performance Criterion

9.3.1. Severity level

Level	Test Voltage	Test Voltage
	Contact Discharge (kV)	Air Discharge (kV)
1.	2	2
2.	4	4
3.	6	8
4.	8	15
X.	Special	Special

9.3.2. Performance criterion: B

9.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.

9.5. Operating Condition of EUT

9.5.1. Setup the EUT as shown in Section 9.1.

9.5.2. Turn on the power of all equipment.

9.5.3. Let the EUT work in test mode (Normal operation) and test it.



9.6. Test Procedure

9.6.1. Air Discharge:

This test is done on a non-conductive surfaces. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT.

After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

9.6.2. Contact Discharge:

All the procedure shall be same as Section 9.6.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

9.6.3. Indirect discharge for horizontal coupling plane

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

9.6.4. Indirect discharge for vertical coupling plane

At least 20 single discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

9.7. Test Results

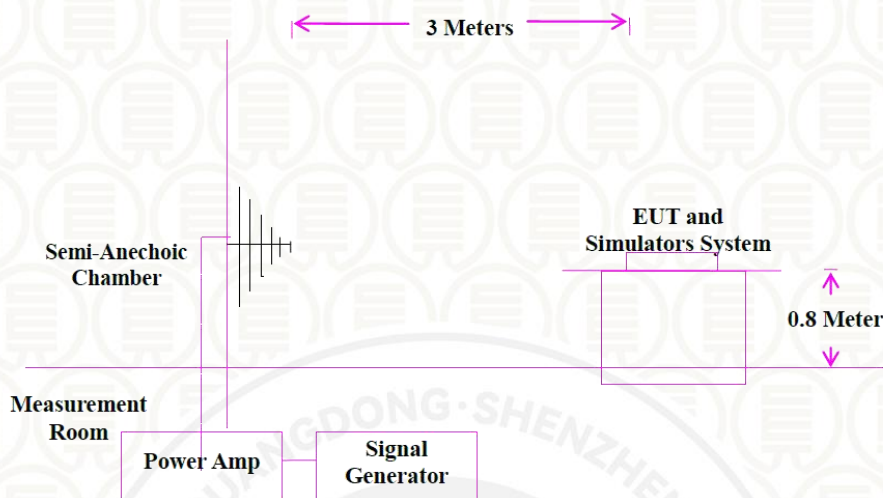
Temperature:	22.6°C	Humidity:	55%
Air Discharge: ±8kV	For each point positive 10 times and negative 10 times discharge.		
Contact Discharge: ±4kV			
Location	Kind A-Air Discharge C-Contact Discharge	Result	
HCP	C	PASS	
VCP	C	PASS	
Metal	C	PASS	
Product surface	A	PASS	
Gap	A	PASS	
Conversion key	A	PASS	
Power cord	A	PASS	

Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).



10.RF FIELD STRENGTH SUSCEPTIBILITY TEST

10.1.R/S Test Setup



10.2.Test Standard

EN IEC 61547:2023
Severity Level 2 at 3V/m

10.3.Severity Levels and Performance Criterion

10.3.1.Severity level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X.	Special

10.3.2.Performance criterion : A

10.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3.2

10.5.Operating Condition of EUT

Setup the EUT as shown in Section 10.1. The operating condition of EUT are listed in section 3.3.

10.6.Test Procedure



The EUT and its simulators are placed on a turn table which is 0.8 meter above the ground. The EUT is set 3 meters 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 the EUT. All the scanning conditions are as follows :

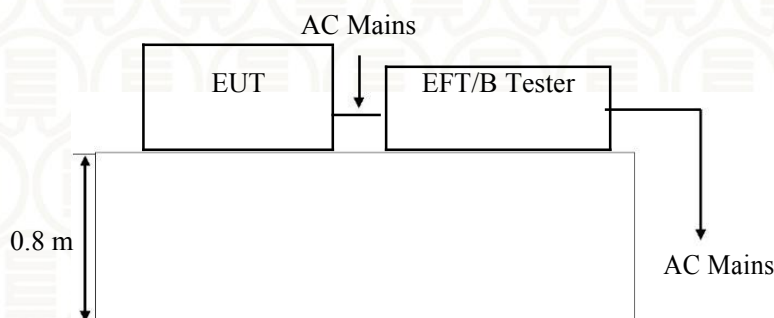
Condition of Test	Remarks
1. Fielded Strength	3 V/m (Severity Level 2)
2. Radiated Signal	Modulated
3. Scanning Frequency	80 - 1000MHz
4. Sweeping time of radiated	0.0015 decade/s
5. Dwell Time	1 Sec.

10.7.Test Results

Temperature:	24.0℃	Humidity:	55%
Modulation: ☒ AM	☐ Pulse	☐ none	1kHz 80%
Criterion : A			
Frequency Range : 80 MHz to 1000 MHz			
Steps:1%			
	Horizontal	Vertical	
Front	PASS	PASS	
Right	PASS	PASS	
Rear	PASS	PASS	
Left	PASS	PASS	

11.ELECTRICAL FAST TRANSIENT/BURST TEST

11.1.EFT Test Setup



11.2.Test Standard

EN IEC 61547:2023
Severity Level 2 at 1kV

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11.3. Severity Levels and Performance Criterion

11.3.1. Severity level

Open Circuit Output Test Voltage $\pm 10\%$		
Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1.	0.5 kV	0.25 kV
2.	1 kV	0.5 kV
3.	2 kV	1 kV
4.	4 kV	2 kV
X	Special	Special

11.3.2. Performance criterion : B

11.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.

11.5. Operating Condition of EUT

Setup the EUT as shown in Section 11.1. The operating condition of EUT are listed in section 3.3.

11.6. Test Procedure

The EUT is put on the table which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between the EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

11.6.1. For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 mins.

11.6.2. For signal lines and control lines ports: It's unnecessary to test.

11.6.3. For DC output line ports: It's unnecessary to test.

11.7. Test Results

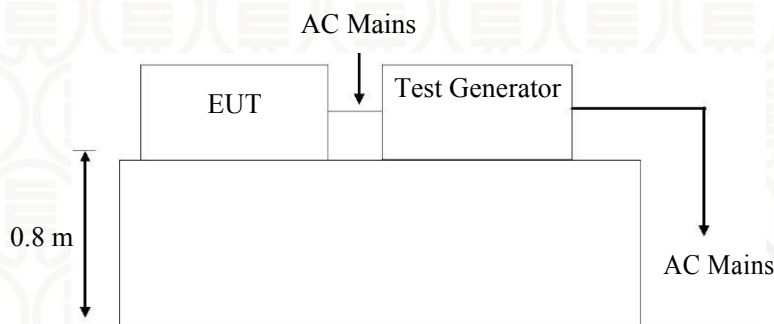
Temperature:	22.6°C				Humidity:	55%			
Power Supply:	AC 230V/50Hz				Test Mode:	Normal operation			
Inject Place : AC Mains									
Inject Line	Voltage kV	Inject Time(s)	Inject Method	Results	Inject Line	Voltage kV	Inject Time(s)	Inject Method	Results
L	±1	120	Direct	PASS					
N	±1	120	Direct	PASS					
L+N	±1	120	Direct	PASS					



PE	±1	120	Direct	N/A					
L+N+PE	±1	120	Direct	N/A					
L+PE	±1	120	Direct	N/A					
N+PE	±1	120	Direct	N/A					

12.SURGE TEST

12.1.Surge Test Setup



12.2.Test Standard

EN IEC 61547:2023

Severity Level 1 for Line to Neutral at 0.5kV

12.3.Severity Levels and Performance Criterion

12.3.1.Severity level

Severity Level	Open-Circuit Test Voltage
	kV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

Performance criterion : **B**

12.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.

12.5.Operating Condition of EUT

12.5.1.Setup the EUT as shown in Section 12.1.

12.5.2.Turn on the power of all equipment.

12.5.3.Let the EUT work in test mode (Normal operation) and test it.



12.6. Test Procedure

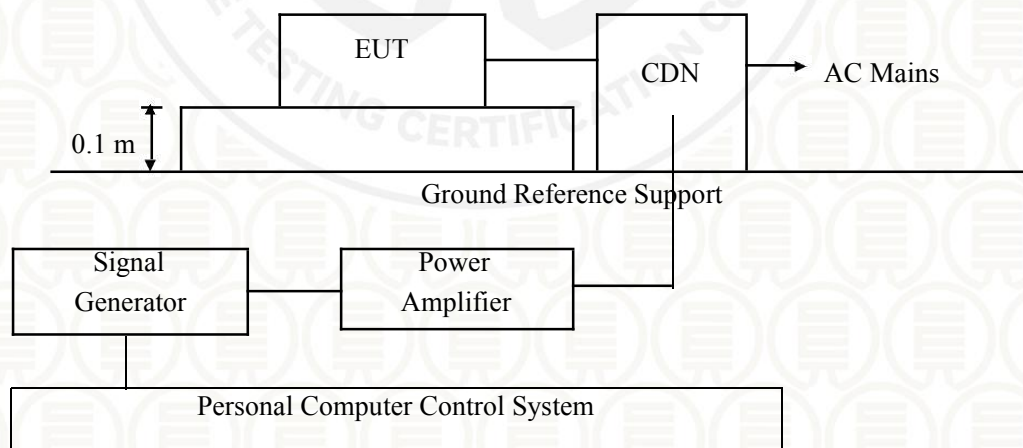
1. Setup the EUT and test generator as shown on Section 12.1.
2. For line to line coupling mode, provide a 0.5kV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
3. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
4. Different phase angles are done individually.
5. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

12.7. Test Results

Temperature:	22.6℃		Humidity:	55%	
Location	Polarity	Phase Angle	No of Pulse	Pulse Voltage (kV)	Result
L-N	+/-	90/270	5	0.5	PASS
L-PE	+/-	90/270	5	1.0	N/A
N-PE	+/-	90/270	5	1.0	N/A
L+N-PE	+/-	90/270	5	1.0	N/A

13. INJECTED CURRENTS SUSCEPTIBILITY TEST

13.1. Block Diagram of Test AC Mains Setup



13.2. Test Standard

EN IEC 61547:2023
Severity Level 2 at 3V (rms), 0.15MHz ~ 80MHz

13.3. Severity Levels and Performance Criterion

13.3.1. Severity level

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Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

13.3.2.Performance criterion: A

13.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3.2

13.5.Operating Condition of EUT

Setup the EUT as shown in Section 13.1. The operating condition of EUT are listed in section 3.3

13.6.Test Procedure

1. Set up the EUT, CDN and test generators as shown on Section 13.1.
2. Let the EUT work in test mode and test it.
3. The EUT are placed on an insulating support 0.8m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
4. The disturbance signal described below is injected to EUT through CDN.
5. The EUT operates within its operational mode(s) under intended climatic conditions after power on.
6. The frequency range is swept from 150kHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.
7. The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
8. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

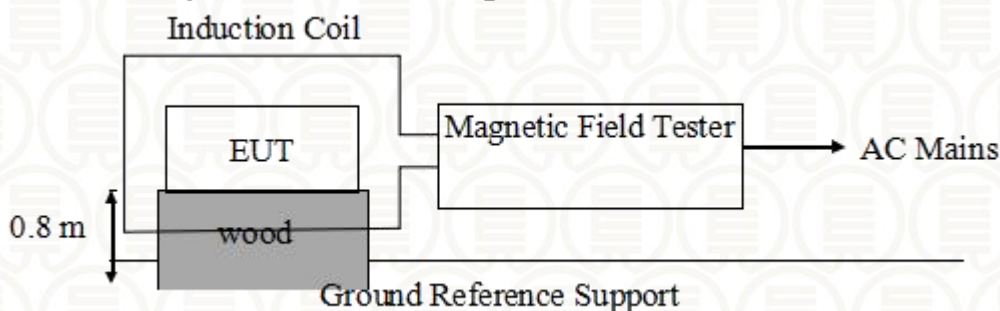
13.7.Test Results

Temperature	22.6℃	Humidity	55%	
Frequency Range (MHz)	Injected Position	Strength	Criterion	Result
0.15 ~ 80	AC Line	3V(rms), Unmodulated	A	PASS



14. MAGNETIC FIELD IMMUNITY TEST

14.1 Block Diagram of Test Setup



14.2 Test Standard

EN IEC 61547:2023
Severity Level 2 at 3A/m

14.3 Severity Levels and Performance Criterion

14.3.1 Severity level

Level	Magnetic Field Strength A/m
1.	1
2.	3
3.	10
4.	30
5.	100
X.	Special

14.3.2 Performance criterion : A

14.4 EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.

14.5 Operating Condition of EUT

14.5.1. Setup the EUT as shown in Section 14.1

14.5.2. Turn on the power of all equipments.

14.5.3. Let the EUT work in test mode (Normal operation) and test it.



14.6 Test Procedure

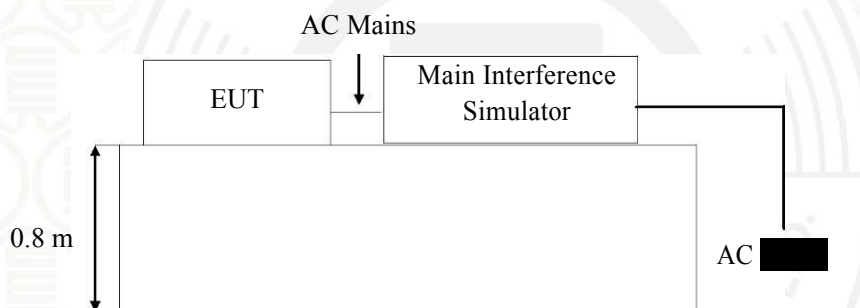
The EUT shall be subjected to the test magnetic field by using the induction coil of standard dimensions (1m*1m) and shown in Section 15.1. The induction coil shall then be rotated by 90° in order to expose the EUT to the test field with different orientations.

14.7 Test Results

Test Level (A/m)	Criterion	Test Result
3	A	PASS

15.VOLTAGE DIPS AND INTERRUPTIONS TEST

15.1.Voltage Dips and Interruptions Test Setup



Remark: Combination wave generator and decoupling network are included in test generator.

15.2.Test Standard

EN IEC 61547:2023

15.3.Severity Levels and Performance Criterion

15.3.1.Severity level

Test Level %UT	Voltage dip and short interruptions %UT	Duration (in period)
0	100	0.5p
70	30	10P

15.3.2.Performance criterion : B

15.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.



15.5.Operating Condition of EUT

15.5.1.Setup the EUT as shown in Section 15.1.

15.5.2.Turn on the power of all equipment.

15.5.3.Let the EUT work in test mode (Normal operation) and test it.

15.6.Test Procedure

1. Set up the EUT and test generator as shown on Section 15.1.
2. The interruptions is introduced at selected phase angles with specified duration.
3. Record any degradation of performance.

15.7.Test Result

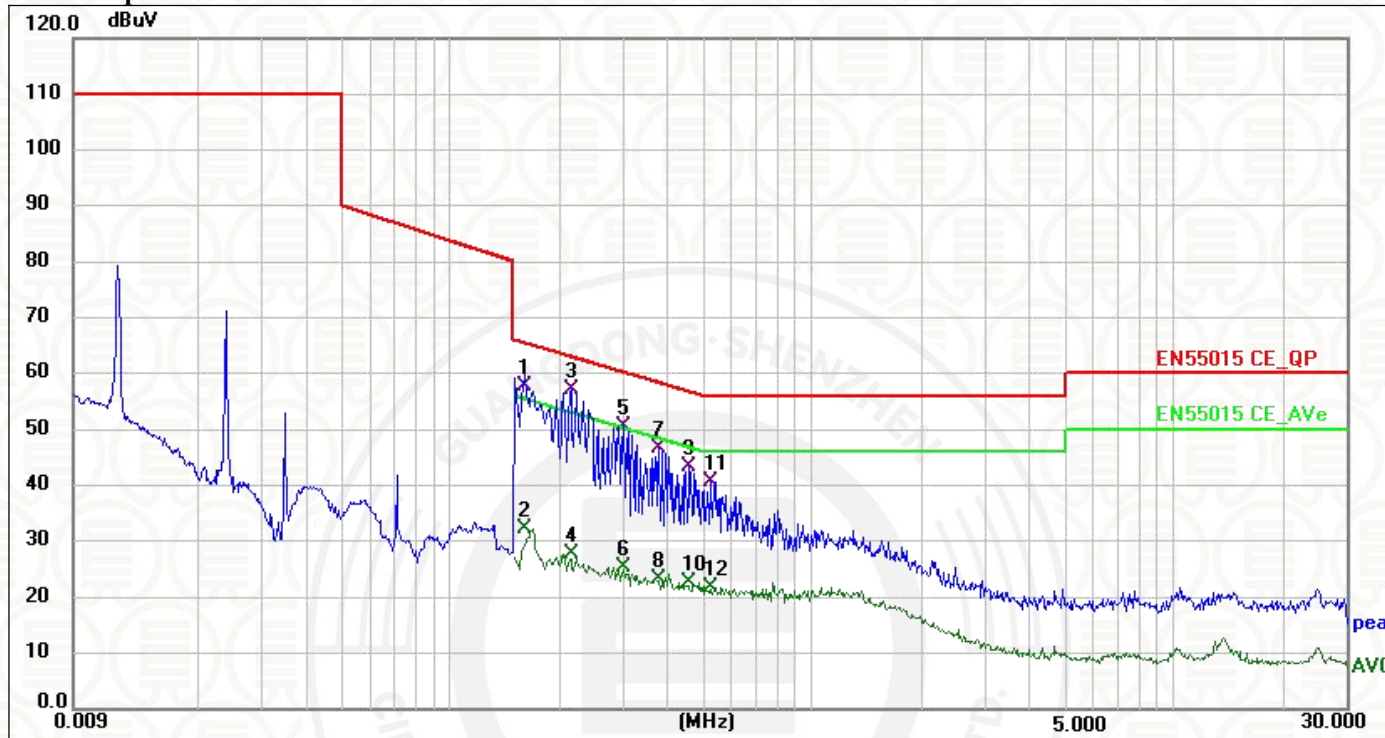
Temperature	22.6℃		Humidity	55%	
Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in period)	Phase Angle	Criterion	Result
0	100	0.5P	0°, 90°, 270°	A	PASS
70	30	10P	0°, 90°, 270°	A	PASS



APPENDIX I: Conducted Emission Test data

Operation Mode : AC230V/50Hz, Normal Operation
Phase : L (9kHz - 30MHz)

Test Graph

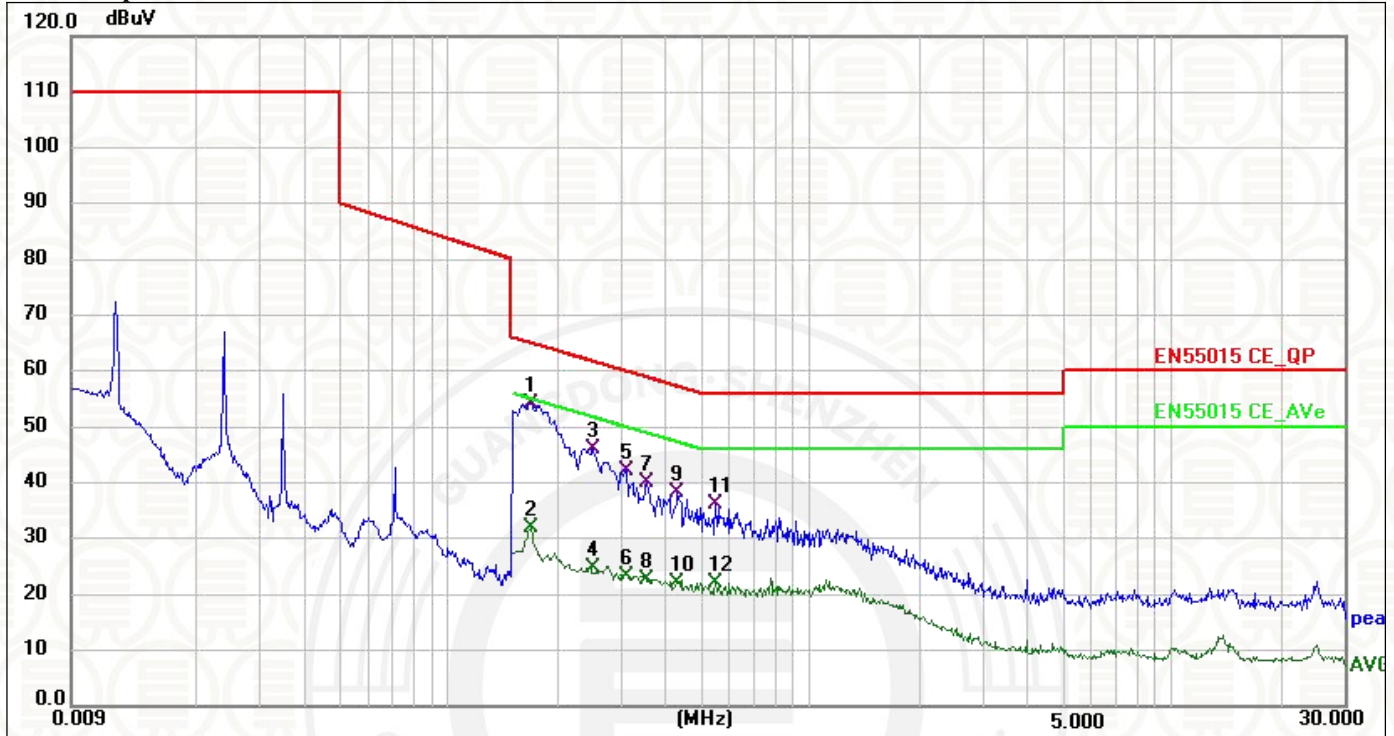


No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measurement(dBuV)	Limit (dBuV)	Margin (dB)	Detector	Comment
1	0.1590	46.89	11.01	57.90	65.52	-7.62	QP	
2	0.1590	21.36	11.01	32.37	55.52	-23.15	AVG	
3	0.2130	46.02	11.01	57.03	63.09	-6.06	QP	
4	0.2130	16.70	11.01	27.71	53.09	-25.38	AVG	
5	0.2985	39.63	11.01	50.64	60.28	-9.64	QP	
6	0.2985	14.26	11.01	25.27	50.28	-25.01	AVG	
7	0.3750	35.54	11.01	46.55	58.39	-11.84	QP	
8	0.3750	12.27	11.01	23.28	48.39	-25.11	AVG	
9	0.4560	32.42	11.01	43.43	56.77	-13.34	QP	
10	0.4560	11.60	11.01	22.61	46.77	-24.16	AVG	
11	0.5235	29.57	11.01	40.58	56.00	-15.42	QP	
12	0.5235	10.72	11.01	21.73	46.00	-24.27	AVG	



Operation Mode : AC230V/50Hz, Normal Operation
Phase : N (9kHz - 30MHz)

Test Graph



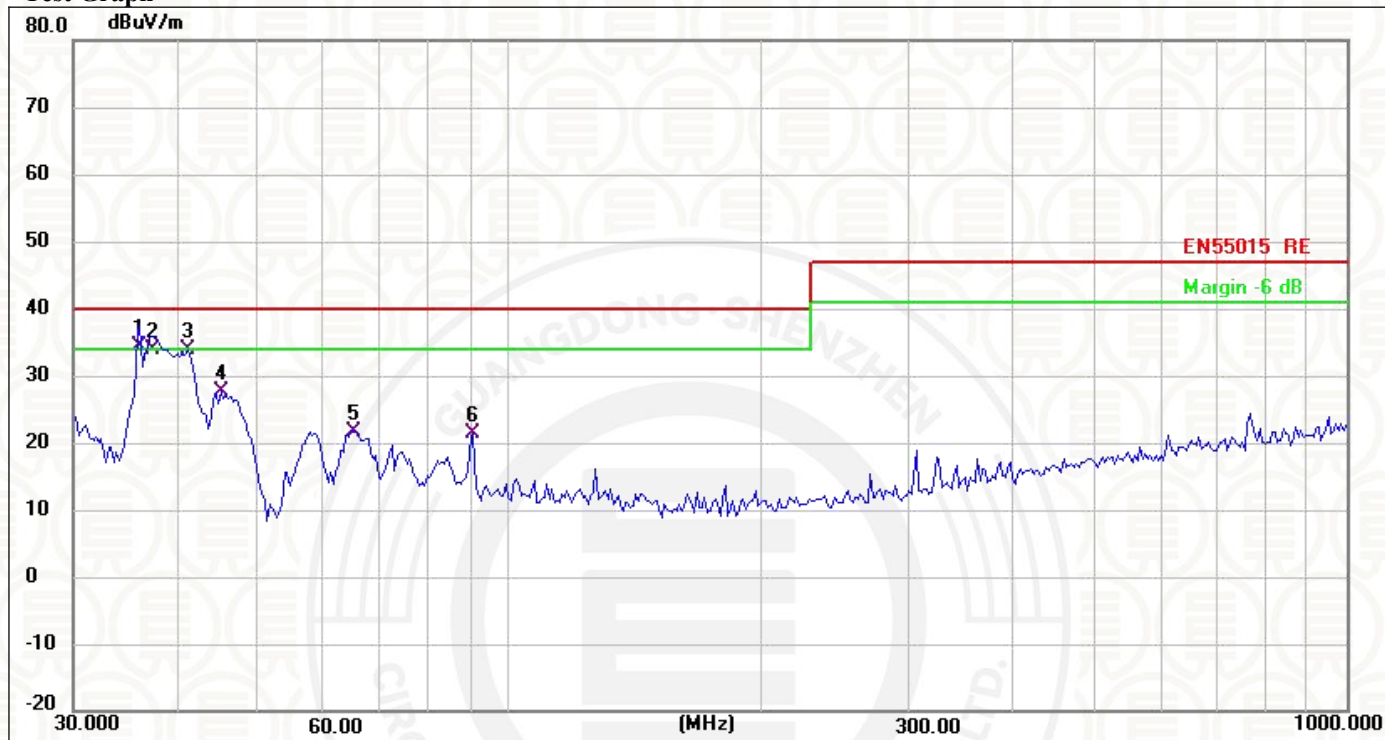
No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure-ment(dBuV)	Limit (dBuV)	Margin (dB)	Detector	Comment
1	0.1680	43.29	11.01	54.30	65.06	-10.76	QP	
2	0.1680	21.01	11.01	32.02	55.06	-23.04	AVG	
3	0.2490	35.15	11.01	46.16	61.79	-15.63	QP	
4	0.2490	13.75	11.01	24.76	51.79	-27.03	AVG	
5	0.3074	31.20	11.01	42.21	60.04	-17.83	QP	
6	0.3074	12.39	11.01	23.40	50.04	-26.64	AVG	
7	0.3524	28.94	11.01	39.95	58.91	-18.96	QP	
8	0.3524	11.79	11.01	22.80	48.91	-26.11	AVG	
9	0.4290	27.21	11.01	38.22	57.27	-19.05	QP	
10	0.4290	11.01	11.01	22.02	47.27	-25.25	AVG	
11	0.5460	25.14	11.01	36.15	56.00	-19.85	QP	
12	0.5460	11.12	11.01	22.13	46.00	-23.87	AVG	



APPENDIX II: Radiated Emission Test data

Polarization : Horizontal
Operation Mode : AC230V/50Hz, Normal Operation

Test Graph

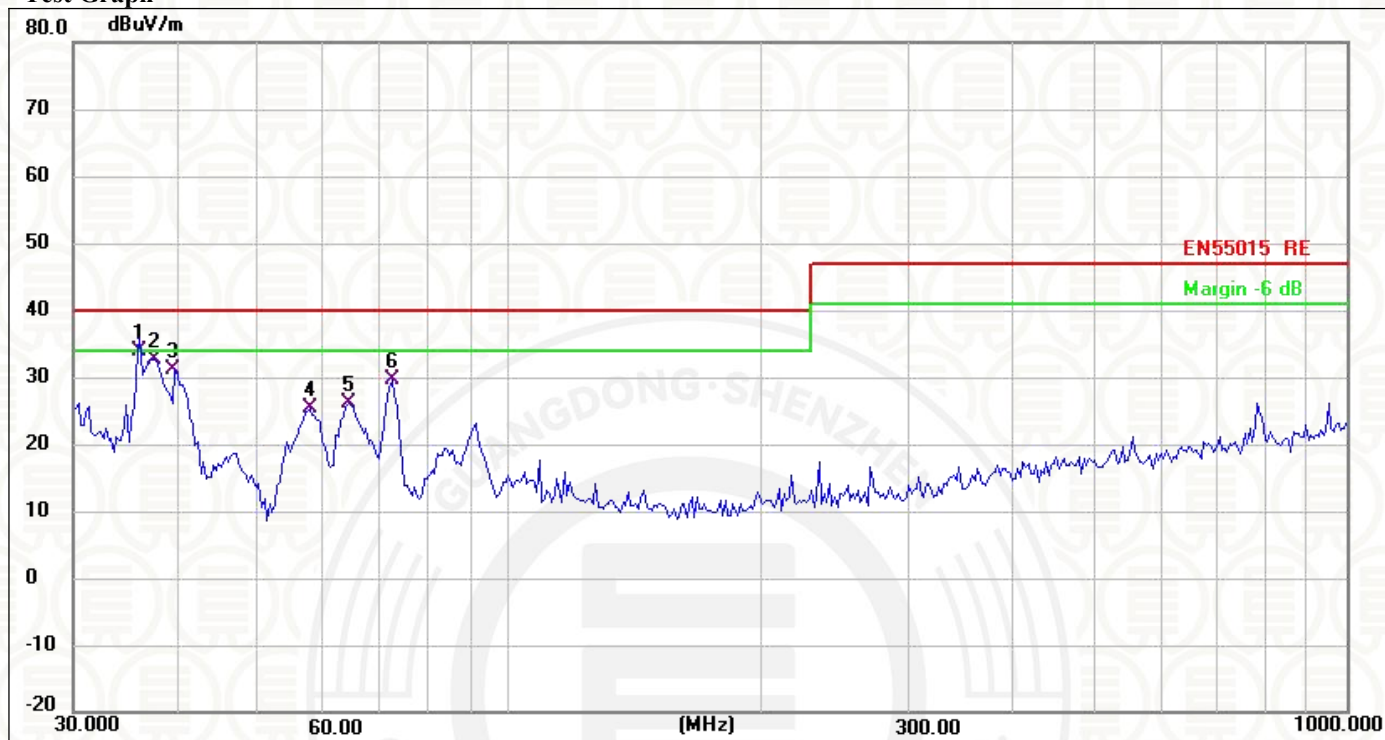


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	36.0007	40.50	-6.00	34.50	40.00	-5.50	QP			
2	37.2854	40.56	-6.76	33.80	40.00	-6.20	QP			
3	41.1320	42.93	-9.00	33.93	40.00	-6.07	QP			
4	45.0583	38.84	-11.18	27.66	40.00	-12.34	QP			
5	64.8865	37.18	-15.46	21.72	40.00	-18.28	QP			
6	90.2204	32.85	-11.50	21.35	40.00	-18.65	QP			



Polarization : Vertical
Operation Mode : AC230V/50Hz, Normal Operation

Test Graph



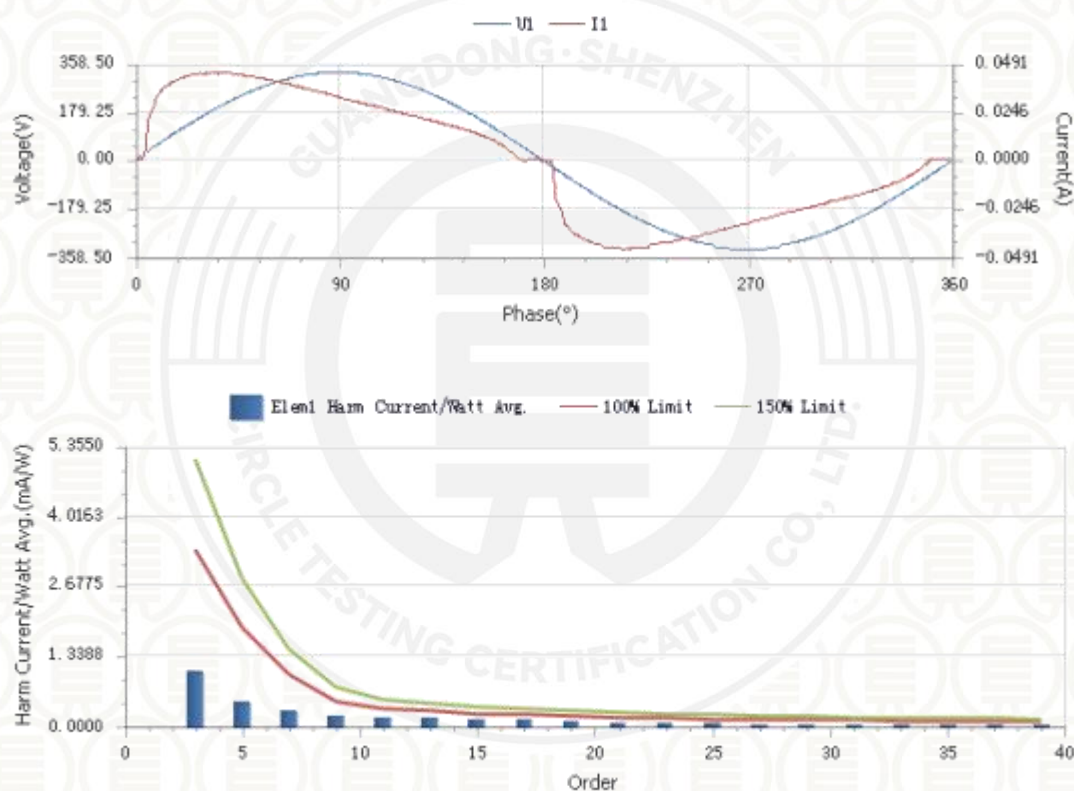
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	36.0007	39.90	-6.00	33.90	40.00	-6.10	QP			
2	37.5478	39.50	-6.92	32.58	40.00	-7.42	QP			
3	39.7146	39.37	-8.21	31.16	40.00	-8.84	QP			
4	57.5940	40.62	-15.34	25.28	40.00	-14.72	QP			
5	63.9827	41.77	-15.54	26.23	40.00	-13.77	QP			
6	72.0843	44.27	-14.63	29.64	40.00	-10.36	QP			



APPENDIX III: Harmonic Emission Test data

Harmonics Test Report_IEC 61000-3-2 Ed. 5.1 (2020)

Tester : Irving
Tested : LED Ceiling lamp Product Type: SWR001-7W Work Mode : Normal operation
Device
Test Type : Class C_2-1_IEC 61000-3-2 Ed. 5.1 (2020) Pre-Heat Time: 900 s
Test Date : 2025-08-20 Start Time : 09:52:05 End Time : 09:54:35
Temperature : 25.0°C Humidity : 55.0% Test Volt. : 230.00V
Comments : /
Customer : NINGBO GROW LIGHTING CO., LTD Result : Pass





Current Test Record

Tester : Irving
Tested : LED Ceiling lamp Product Type: SWR001-7W Work Mode : Normal operation
Device
Test Type : Class C_2-1_IEC 61000-3-2 Ed. 5.1 (2020) Pre-Heat Time: 900 s
Test Date : 2025-08-20 Start Time : 09:52:05 End Time : 09:54:35
Temperature : 25.0°C Humidity : 55.0% Test Volt. : 230.00V
Comments : /
Customer : NINGBO GROW LIGHTING CO., LTD Result : Pass

Total Current Harmonic ans Some Odd Harmonic Parameters

THC(A)	0.0079	THD(%)	26.80	POHC(A)	0.0010	POHC Limit(A)	0.0027
--------	--------	--------	-------	---------	--------	---------------	--------

Maximum Value of Relevant Parameter During Test Period

U _{rms} (V)	230.32	Freq(Hz)	50.000
I _{rms} (A)	0.0304	I _{peak} (A)	0.0447
I ₁ (A)	0.0295	ICF	1.4783
P(W)	6.3339	λ	0.9034

Determination of Harmonics and Limits

Order(n)	Harmonics Current/Watt Avg. (mA/W)	100% Limit (mA/W)	Limit Percent (%)	Harmonics Current/Watt Max. (mA/W)	150% Limit (mA/W)	Limit Percent (%)	Result
3	1.0513	3.4000	30.92	1.0536	5.1000	20.66	Pass
5	0.4358	1.9000	N/A	0.4379	2.8500	N/A	Pass
7	0.2719	1.0000	N/A	0.2741	1.5000	N/A	Pass
9	0.2166	0.5000	N/A	0.2185	0.7500	N/A	Pass
11	0.1892	0.3500	N/A	0.1906	0.5250	N/A	Pass
13	0.1657	0.2962	N/A	0.1672	0.4442	N/A	Pass
15	0.1445	0.2567	N/A	0.1458	0.3850	N/A	Pass
17	0.1248	0.2265	N/A	0.1262	0.3397	N/A	Pass
19	0.1045	0.2026	N/A	0.1057	0.3039	N/A	Pass
21	0.0854	0.1833	N/A	0.0866	0.2750	N/A	Pass
23	0.0697	0.1674	N/A	0.0708	0.2511	N/A	Pass
25	0.0575	0.1540	N/A	0.0584	0.2310	N/A	Pass
27	0.0477	0.1426	N/A	0.0486	0.2139	N/A	Pass
29	0.0416	0.1328	N/A	0.0426	0.1991	N/A	Pass
31	0.0381	0.1242	N/A	0.0392	0.1863	N/A	Pass
33	0.0357	0.1167	N/A	0.0367	0.1750	N/A	Pass
35	0.0340	0.1100	N/A	0.0349	0.1650	N/A	Pass
37	0.0322	0.1041	N/A	0.0332	0.1561	N/A	Pass
39	0.0305	0.0987	N/A	0.0314	0.1481	N/A	Pass



Voltage Test Record

Tester : Irving
Tested : LED Ceiling lamp Product Type: SWR001-7W Work Mode : Normal operation
Device
Test Type : Class C_2-1_IEC 61000-3-2 Ed. 5.1 (2020) Pre-Heat Time: 900 s
Test Date : 2025-08-20 Start Time : 09:52:05 End Time : 09:54:35
Temperature: 25.0°C Humidity : 55.0% Test Volt. : 230.00V
Comments : /
Customer : NINGBO GROW LIGHTING CO., LTD Result : Pass

Determination of Voltage Relevant Parameter During Test Period

Item	Nominal Value	Tested Value	Error Value	Allowable Error Value	Result
Urms(V)	230.00	230.32	0.32	±2.0%	Pass
Frequency(Hz)	50.000	49.999	0.001	±0.5%	Pass
CFU	1.4100	1.4154	0.0054	±0.01	Pass
Peak-Volt Phase	90.00	89.63	0.37	±3	Pass

Determination of Voltage Harmonics and Limits

Order (n)	U _h (%)	Limit (%)	Limit Percent (%)	Result
1	100%	---	---	---
2	0.01%	0.20	5.24%	Pass
3	0.01%	0.90	1.36%	Pass
4	0.00%	0.20	1.13%	Pass
5	0.00%	0.40	0.31%	Pass
6	0.00%	0.20	1.55%	Pass
7	0.00%	0.30	0.37%	Pass
8	0.00%	0.20	1.92%	Pass
9	0.01%	0.20	2.97%	Pass
10	0.01%	0.20	4.42%	Pass
11	0.00%	0.10	2.47%	Pass
12	0.01%	0.10	8.24%	Pass
13	0.01%	0.10	6.92%	Pass
14	0.00%	0.10	4.16%	Pass
15	0.01%	0.10	6.13%	Pass
16	0.00%	0.10	2.03%	Pass
17	0.00%	0.10	3.73%	Pass
18	0.00%	0.10	1.09%	Pass
19	0.01%	0.10	6.66%	Pass
20	0.00%	0.10	1.06%	Pass
21	0.01%	0.10	9.19%	Pass
22	0.00%	0.10	1.19%	Pass
23	0.01%	0.10	9.93%	Pass
24	0.00%	0.10	1.04%	Pass
25	0.01%	0.10	9.13%	Pass
26	0.00%	0.10	1.11%	Pass
27	0.01%	0.10	10.03%	Pass
28	0.00%	0.10	0.87%	Pass
29	0.01%	0.10	9.87%	Pass
30	0.00%	0.10	1.00%	Pass
31	0.01%	0.10	8.95%	Pass
32	0.00%	0.10	1.22%	Pass
33	0.01%	0.10	8.53%	Pass
34	0.00%	0.10	1.15%	Pass
35	0.01%	0.10	7.69%	Pass
36	0.00%	0.10	1.56%	Pass
37	0.01%	0.10	7.53%	Pass
38	0.00%	0.10	1.23%	Pass
39	0.01%	0.10	8.15%	Pass
40	0.00%	0.10	0.86%	Pass



APPENDIX IV: Flicker Test data

Flicker Test Report IEC 61000-3-3 Ed. 3.1 (2017)

Tester : Irving
Tested : LED Ceiling lamp Product Type: SWR001-7W Work Mode : Normal operation
Device
Test Type : All Parameters
Test Date : 2025-08-20 Start Time : 14:55:28 End Time : 15:05:28
Temperature: 25.0°C Humidity : 55.0% Test Volt. : 230.00V
Comments : /
Customer : NINGBO GROW LIGHTING CO., LTD Result : PASS

Pst and Limit



Plt and Limit



Relevant Parameter and Judgement During Test Period

<u>Vrms</u> at the end of test (V)	230.39			
<u>Error</u> Max (%)		Test Limit (%)		
<u>T-max</u> (ms)	0.00	Test Limit (ms)	500	Pass
<u>dc</u> (%)	0.00	Test Limit (%)	3.30	Pass
<u>dmax</u> (%)	0.00	Test Limit (%)	4.00	Pass
<u>Pst</u>	0.017	Test Limit	1.000	Pass
<u>Plt</u>	0.007	Test Limit	0.650	Pass



Elem1 Test Parameters

Item	dc (%)	dmax (%)	Tmax (ms)	Pst	Flt
1	0.00	0.00	0.00	0.017	0.007





APPENDIX V: EUT and Test Setup Photo



Figure 1: EUT Front - Side

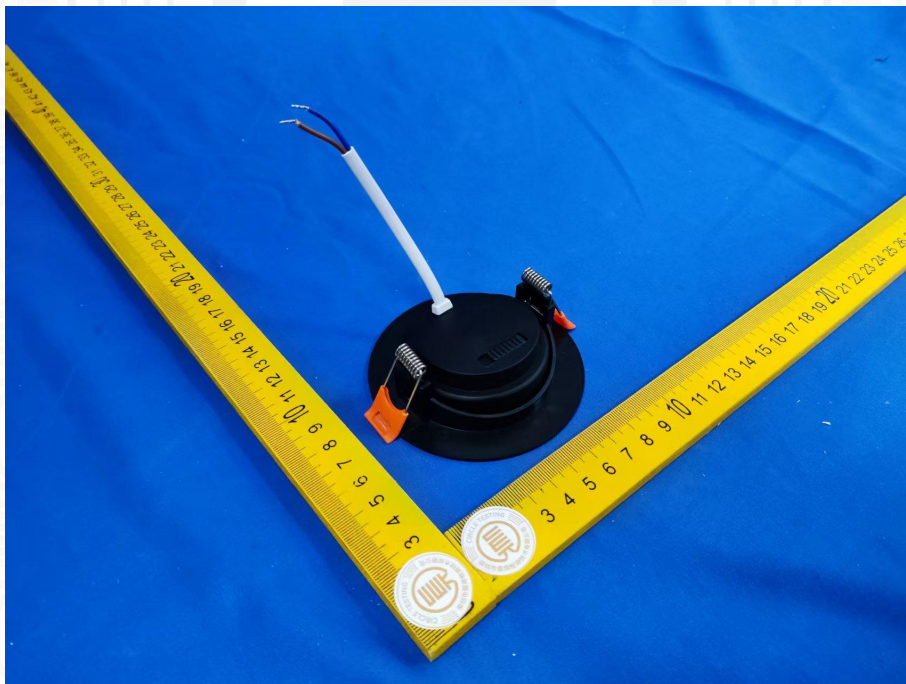


Figure 2: EUT Back - Side

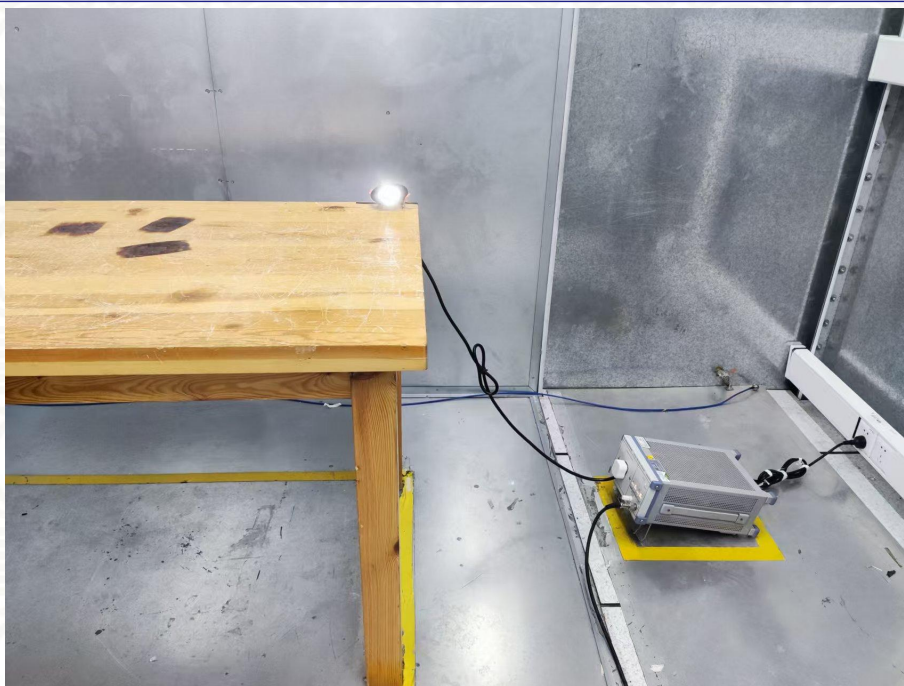


Figure 3: Conducted Emission Test Setup



Figure 4: Radiated Emission Test Setup

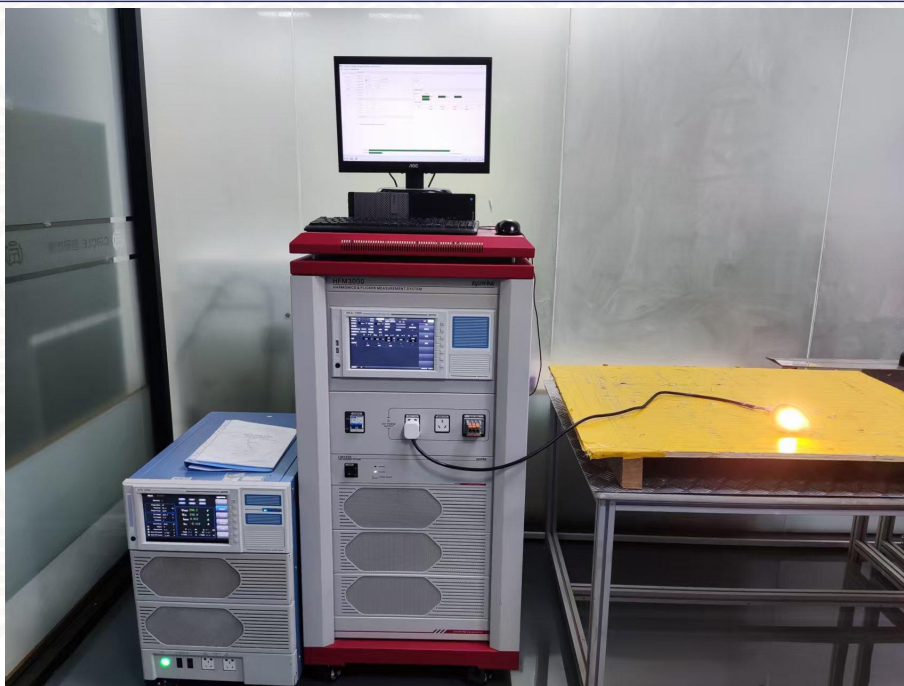


Figure 5: Harmonic & Flicker Test Setup



Figure 6: Electrostatic Discharge Test Setup

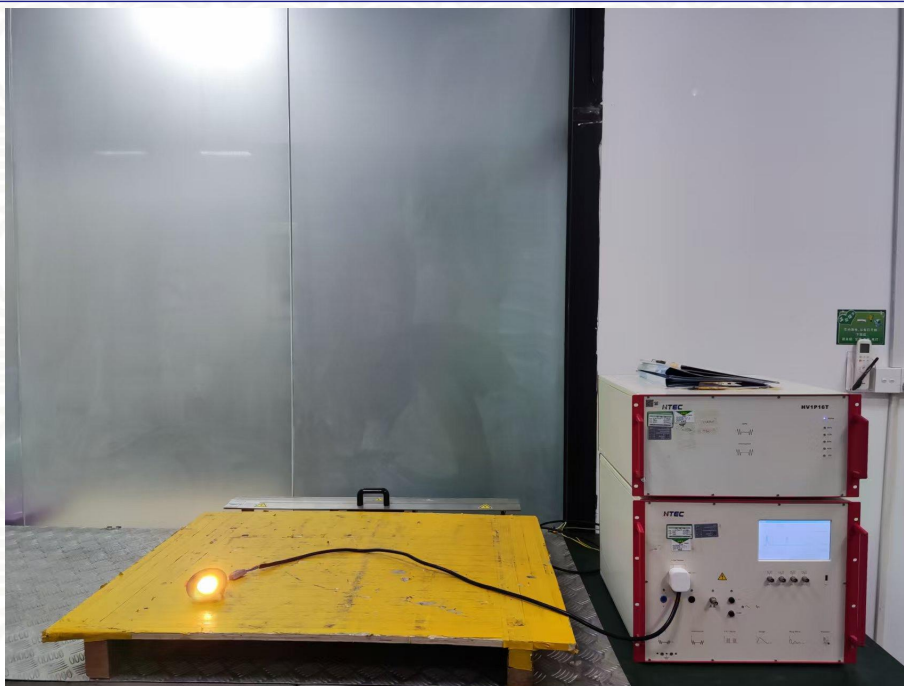


Figure 7: SURGE、DIP&EFT Test Setup

*** REPORT END ***