TEST REPORT

Reference No.	:	WTN17N0785850E
Applicant	:	FUZHOU SEECHANCE HOLDING CO.,LTD
Address	:	UNIT C1,19/F HUALIN MANSION,201 HUALIN RD.,FUZHOU,CHINA
Manufacturer	:	FUZHOU SEECHANCE HOLDING CO.,LTD
Address	:	169 Hong Wei RD. Min Hou County Fujian.China
Product Name	:	COOL TUBE
Model No	:	Refer to section 3.2
Standards	:	EN 55015:2013+A1:2015 EN 61547:2009 EN 61000-3-2:2014 EN 61000-3-3:2013
Date of Receipt sample	:	2017-07-31
Date of Test	:	2017-07-31 to 2017-08-03
Date of Issue	:	2017-08-04
Test Report Form No.	:	WEL-55015A-01A
Test Result	:	**Pass**

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 compiler and approver.

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Approved by:

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1 Test Summary

EMISSION			
Test Item	**Test Standard**	**Class / Severity**	**Result**
Mains Terminal Disturbance Voltage, 9kHz to 30MHz	EN 55015:2013+A1:2015	Clause 4.3.1	Pass
Radiated electromagnetic disturbance, 9kHz to 30MHz	EN 55015:2013+A1:2015	Clause 4.4.1	Pass
Radiated Emission, 30MHz to 300MHz	EN 55015:2013+A1:2015	Clause 4.4.2	Pass
Harmonic Current emission	EN 61000-3-2:2014	Clause 7	Pass
Voltage Fluctuation and Flicker	EN61000-3-3:2013	Clause 5	Pass
IMMUNITY（EN61547 : 2009）			
Test Item	**Test Method**	**Performance Criteria**	**Result**
Immunity Test	EN61547:2009	---	Pass

Remark:

Pass	Test item meets the requirement
Fail	Test item does not meet the requirement
N/A	Test case does not apply to the test object

2 Contents

3 General Information

3.1 General Description of E.U.T.

Product Name ..... : COOL TUBE

Model No. ..... : Refer to section 3.2

Protection Class ..... : ClassI

Remark.....

1. The EUT (equipment under test) is an ordinary COOL TUBE for Lighting and similar use. For the further information, refer to the user's manual.
2. According to the electrical characteristics, we chose the sample as follows: SC-C560.
3. For the further information refer to 3.2
4. For the test results, the EUT had been tested with the all conditions of rated power. But only the worst case was shown in test report.

3.2 Details of E.U.T.

Technical Data..... :

Model	Rated Voltage	Rated Current	Rated Power
SC-C220	AC 220-240V,50/60Hz	3.0A	600W
SC-C221	AC 220-240V,50/60Hz	3.0A	600W
SC-C230	AC 220-240V,50/60Hz	3.0A	600W
SC-C231	AC 220-240V,50/60Hz	3.0A	600W
SC-C240	AC 220-240V,50/60Hz	3.0A	600W
SC-C241	AC 220-240V,50/60Hz	3.0A	600W
SC-C280	AC 220-240V,50/60Hz	3.0A	600W×2
SC-C281	AC 220-240V,50/60Hz	3.0A	600W×2
SC-C240T	AC 220-240V,50/60Hz	5.0A	600W
SC-C241B	AC 220-240V,50/60Hz	5.0A	600W
SC-C243	AC 220-240V,50/60Hz	5.0A	600W
SC-C540	AC 220-240V,50/60Hz	5.0A	1000W
SC-C541	AC 220-240V,50/60Hz	5.0A	1000W
SC-C580	AC 220-240V,50/60Hz	5.0A	1000W×2
SC-C581	AC 220-240V,50/60Hz	5.0A	1000W×2
SC-C540T	AC 220-240V,50/60Hz	5.0A	1000W
SC-C541B	AC 220-240V,50/60Hz	5.0A	1000W
SC-C560	AC 220-240V,50/60Hz	5.0A	1000W
SC-C561	AC 220-240V,50/60Hz	5.0A	1000W
SC-C562	AC 220-240V,50/60Hz	5.0A	1000W
SC-C563	AC 220-240V,50/60Hz	5.0A	1000W
SC-C2060	AC 220-240V,50/60Hz	5.0A	1000W
SC-C2061	AC 220-240V,50/60Hz	5.0A	1000W
SC-C562-8''	AC 220-240V,50/60Hz	5.0A	1000W

3.3 Description of Support Units

The EUT has been tested as an independent unit. SC-C560 is the test sample. The DV&RE tests were performed In the condition of AC245V/50Hz input. The other tests were performed in the condition of AC 230V/50Hz input.

3.4 Standards Applicable for Testing

The tests were performed according to following standards:

EN 55015:2013+A1:2015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
EN 61547:2009	Equipment for general lighting purposes — EMC immunity requirements
EN 61000-3-2:2014	Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase).
EN 61000-3-3:2013	Electromagnetic compatibility (EMC) -- Part 3-3: Limits - Limitation of 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.

3.5 Test Facility

The test facility has a test site registered with the following organizations:

IC – Registration No.: 7760A-1

Waltek Services(Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration 7760A-1, October 15, 2015.

FCC – Registration No.: 880581

Waltek Services (Shenzhen) Co., Ltd. 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 880581, April 29, 2014.

FCC – Registration No.: 328995

Waltek Services(Shenzhen) 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 328995 December 3, 2014.

3.6 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test items: ---

Lab information: ---

3.7 Abnormalities from Standard Conditions

None.

4 Equipment Used during Test

Mains Terminal Disturbance Voltage (Conducted Emission)					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1	EMI Test Receiver	R&S	ESCI	101406	Valid
2	LISN	R&S	ENV216	101208	Valid
Radiated electromagnetic disturbance(9kHz to 30MHz)					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1	EMI Test Receiver	R&S	ESCI	101406	Valid
2	Three Loops Antenna	SCHWARZBECK	HXYZ9170	256	Valid
CDN method for Lighting Equipments' Radiated Disturbance					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1	EMI Test Receiver	R&S	ESCI	101406	Valid
2	CDN	TESEQ	M016	37358	Valid
3	Attenuator	TESEQ	ATN6075	36917	Valid
Harmonics Measuring System					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1	Harmonics Analyzer	Kikusui	KHA1000	TL002966	Valid
2	AC Power Supply	Kikusui	PCR4000LE	TL003094	Valid
3	Line Impedance Network	Kikusui	LIN40MA PCR-L	TM001297	Valid

4.1 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Mains Terminal Disturbance Voltage	150kHz~30MHz	±2.66dB	(1)
Radiated electromagnetic disturbance	9kHz to 30MHz	±3.00dB	(1)
Radiated Emission(CDN method)	30MHz~300MHz	±3.32dB	(1)

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5 Emission Test Results

5.1 Mains Terminals Disturbance Voltage, 9kHz to 30MHz

Test Requirement..... : EN 55015 Clause 4.3.1

Test Method..... : EN 55015 Clause 8

Test Result..... : Pass

Frequency Range..... : 9kHz to 30MHz

Class/Severity..... : Table 2a of EN55015

5.1.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 17.1°C

Humidity..... : 53.2%RH

Atmospheric Pressure..... : 101.2kPa

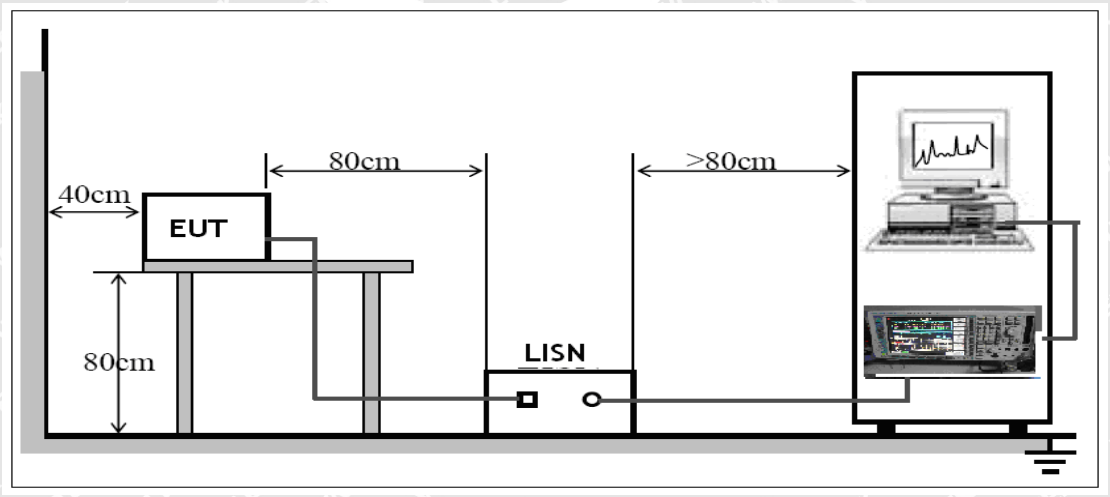
EUT Operation:

Input Voltage ..... : AC 245V/50Hz

Operating Mode..... : On mode

5.1.2 Block Diagram of Test Setup

The Mains Terminals Disturbance Voltage tests were performed in accordance with the EN 55015.

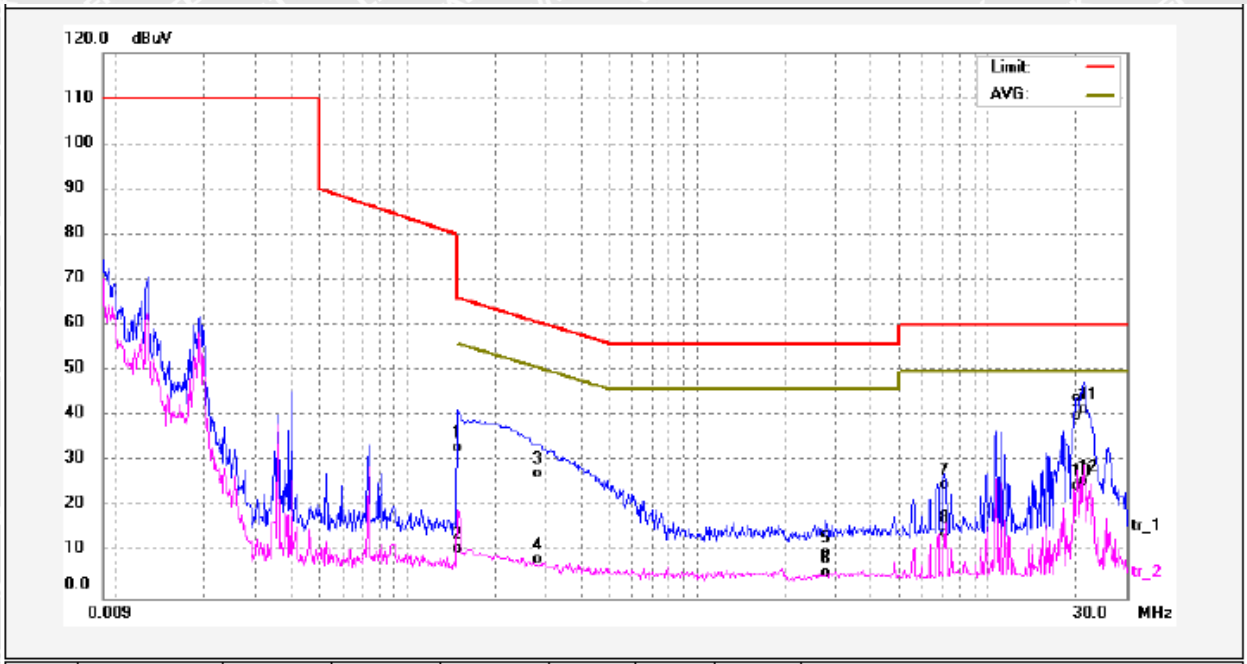


5.1.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

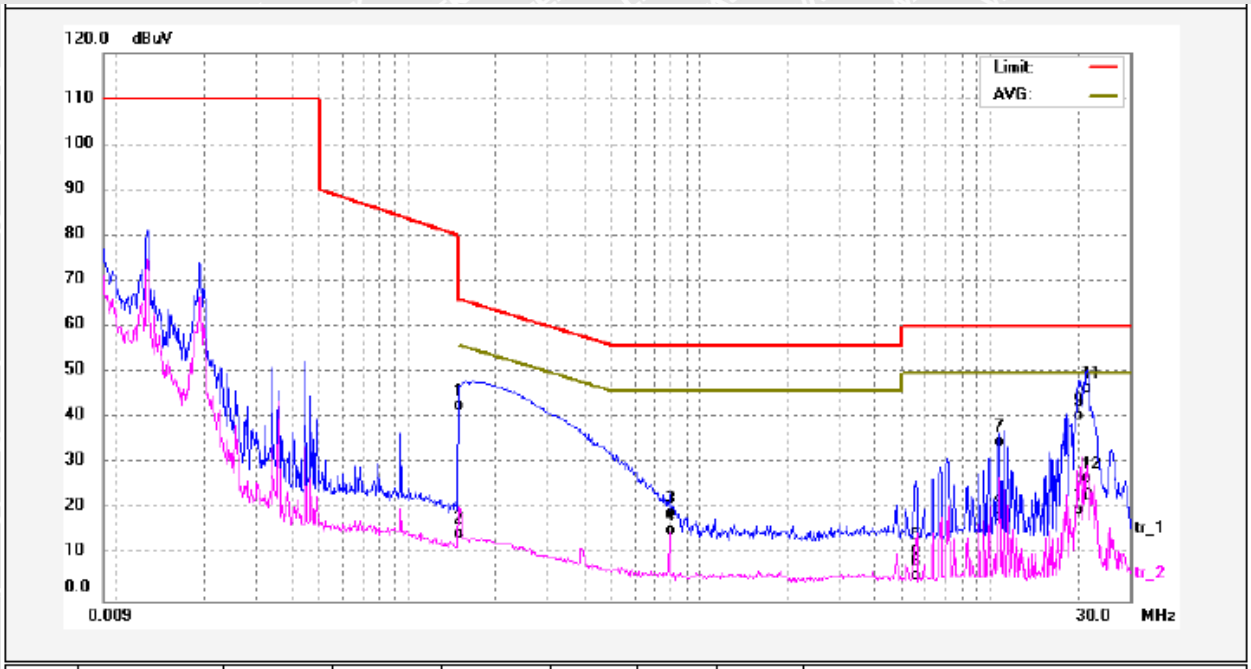
5.1.4 Mains Terminals Disturbance Voltage Test Data

Live Line :



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	22.44	9.61	32.05	65.99	-33.94	QP	
2	0.1500	0.25	9.61	9.86	55.99	-46.13	AVG	
3	0.2860	16.72	9.62	26.34	60.64	-34.30	QP	
4	0.2860	-2.38	9.62	7.24	50.64	-43.40	AVG	
5	2.7659	-0.74	9.70	8.96	56.00	-47.04	QP	
6	2.7659	-5.35	9.70	4.35	46.00	-41.65	AVG	
7	7.1340	14.01	9.76	23.77	60.00	-36.23	QP	
8	7.1340	3.56	9.76	13.32	50.00	-36.68	AVG	
9	20.2300	28.48	10.24	38.72	60.00	-21.28	QP	
10	20.2300	13.35	10.24	23.59	50.00	-26.41	AVG	
11	21.4300	30.15	10.23	40.38	60.00	-19.62	QP	
12	21.4300	14.27	10.23	24.50	50.00	-25.50	AVG	

Neutral Line :



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1502	31.88	9.61	41.49	65.98	-24.49	QP	
2	0.1502	4.14	9.61	13.75	55.98	-42.23	AVG	
3	0.7940	8.57	9.64	18.21	56.00	-37.79	QP	
4	0.7940	4.63	9.64	14.27	46.00	-31.73	AVG	
5	5.5500	0.33	9.75	10.08	60.00	-49.92	QP	
6	5.5500	-5.30	9.75	4.45	50.00	-45.55	AVG	
7	10.7180	23.78	9.86	33.64	60.00	-26.36	QP	
8	10.7180	7.31	9.86	17.17	50.00	-32.83	AVG	
9	20.0700	29.26	10.24	39.50	60.00	-20.50	QP	
10	20.0700	8.45	10.24	18.69	50.00	-31.31	AVG	
11	21.3260	35.12	10.23	45.35	60.00	-14.65	QP	
12	21.3260	15.52	10.23	25.75	50.00	-24.25	AVG	

5.2 Radiated Electromagnetic Disturbance, 9kHz to 30MHz

Test Requirement..... : EN 55015 Clause 4.4.1

Test Method..... : EN 55015 Clause 9.1

Test Result..... : Pass

Frequency Range..... : 9kHz to 30MHz

Class/Severity..... : Table 3a of EN55015

5.2.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 17.1°C

Humidity..... : 53.2%RH

Barometric Pressure..... : 101.2kPa

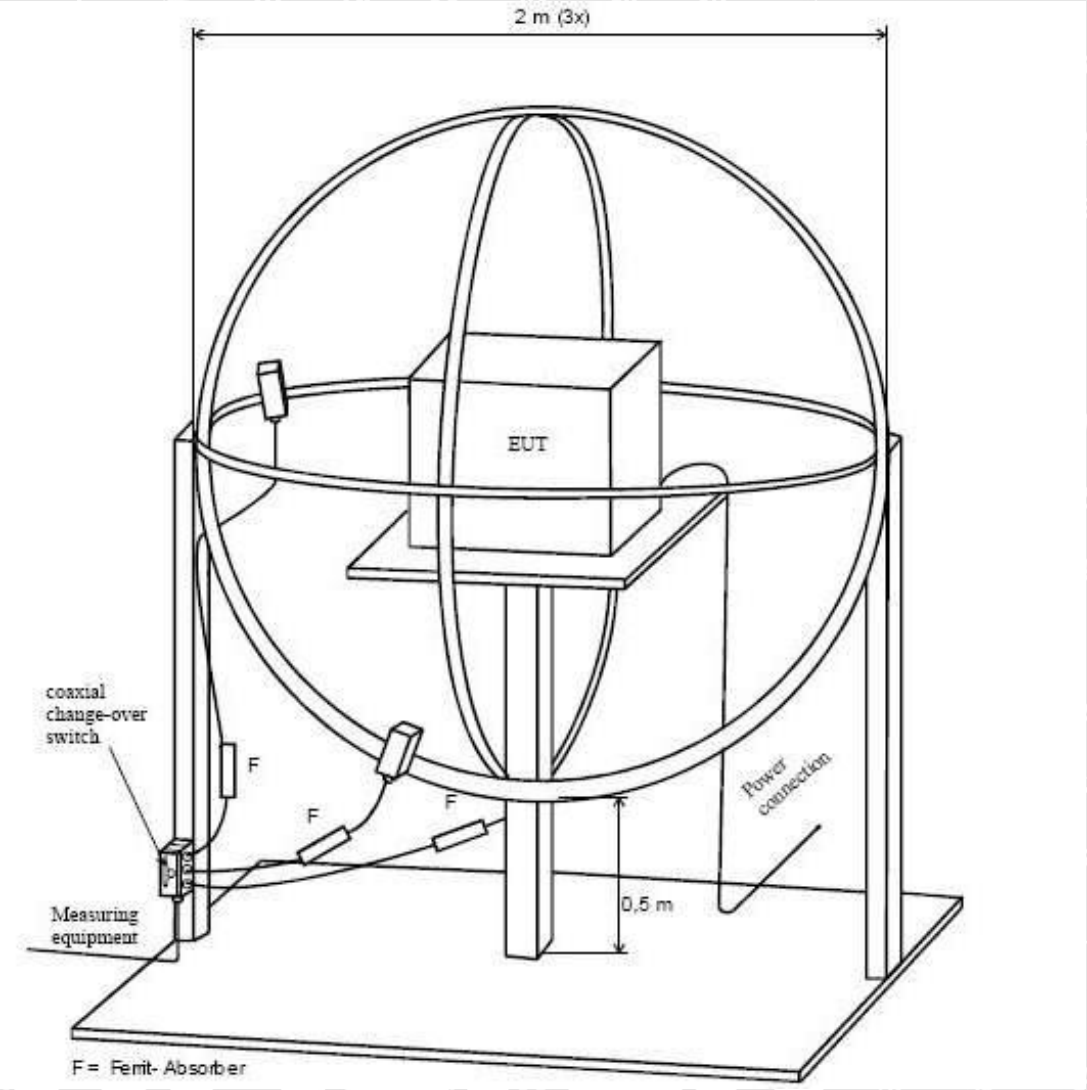
EUT Operation:

Input Voltage ..... : AC 245V/50Hz

Operating Mode..... : On mode

5.2.2 Block Diagram of Test Setup

The Radiated Electromagnetic Disturbance (9kHz to 30MHz) test was performed in accordance with the EN 55015.

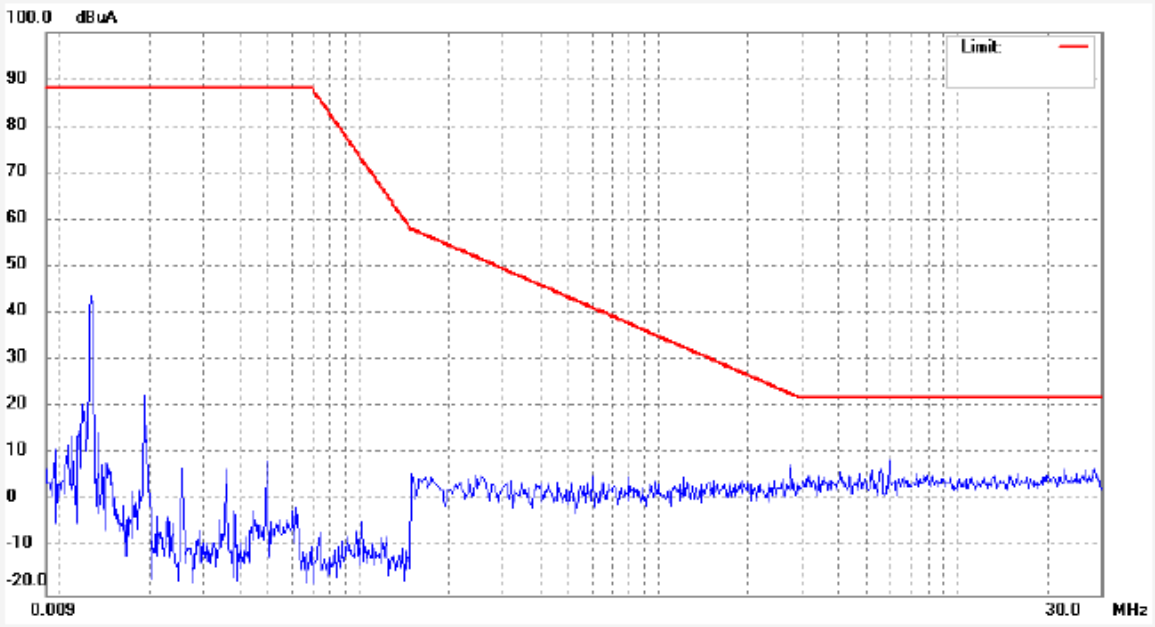


5.2.3 Measurement Data

According to the data in section 5.2.4, the EUT complied with the EN55015 standards.

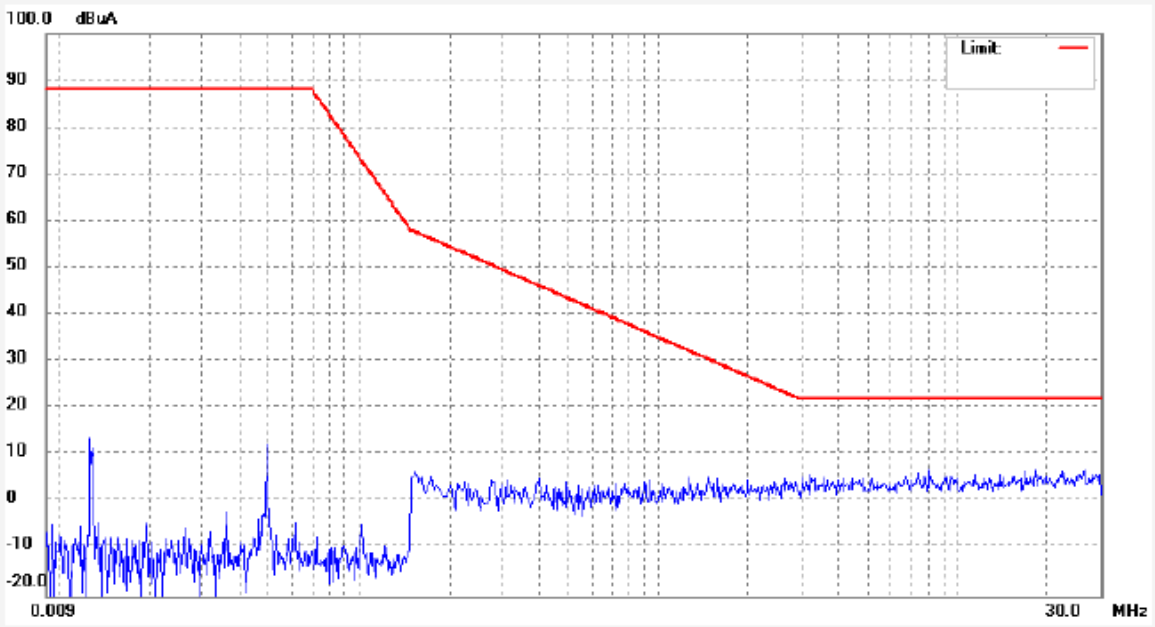
5.2.4 Radiated Electromagnetic Disturbance test data, 9kHz to 30MHz

Loop X:



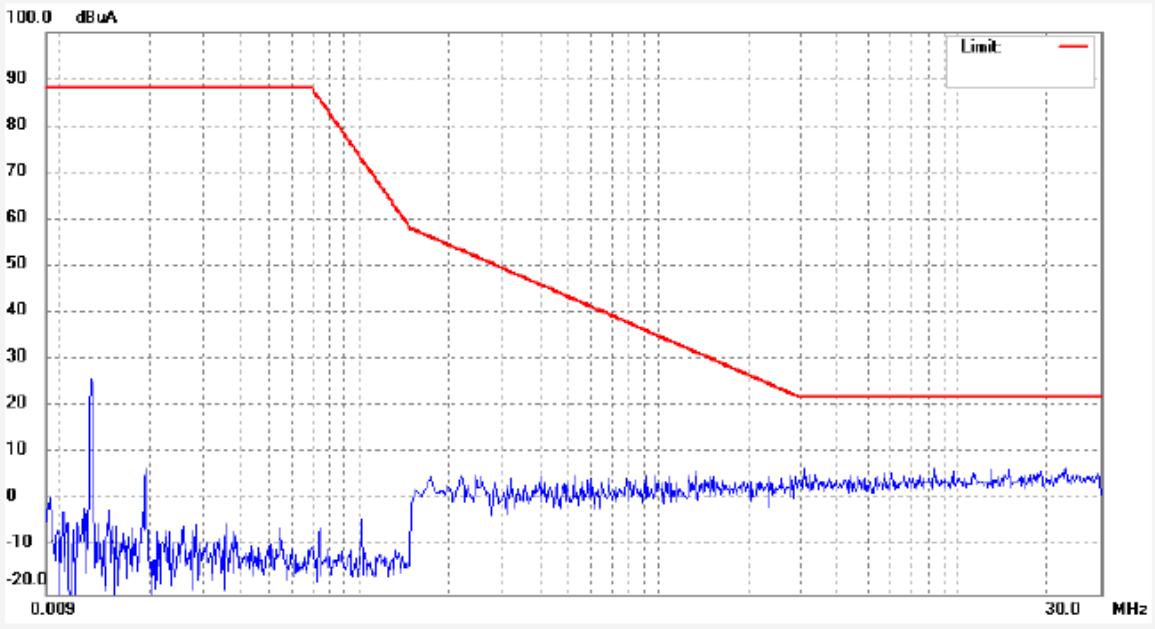
No.	Freq. (MHz)	Reading (dBuA)	Factor (dB)	Result (dBuA)	Limit (dBuA)	Margin (dB)	Detector	Remark

Loop Y:



No.	Freq. (MHz)	Reading (dBuA)	Factor (dB)	Result (dBuA)	Limit (dBuA)	Margin (dB)	Detector	Remark

Loop Z:



No.	Freq. (MHz)	Reading (dBuA)	Factor (dB)	Result (dBuA)	Limit (dBuA)	Margin (dB)	Detector	Remark

5.3 Radiated Emission, 30MHz to 300MHz

Test Requirement..... : EN 55015 Clause 4.4.2

Test Method..... : EN 55015 Annex B

Test Result..... : Pass

Frequency Range..... : 30MHz to 300MHz

Class/Severity..... : Table B.1 of EN55015

5.3.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 17.1°C

Humidity..... : 53.2%RH

Atmospheric Pressure..... : 101.2kPa

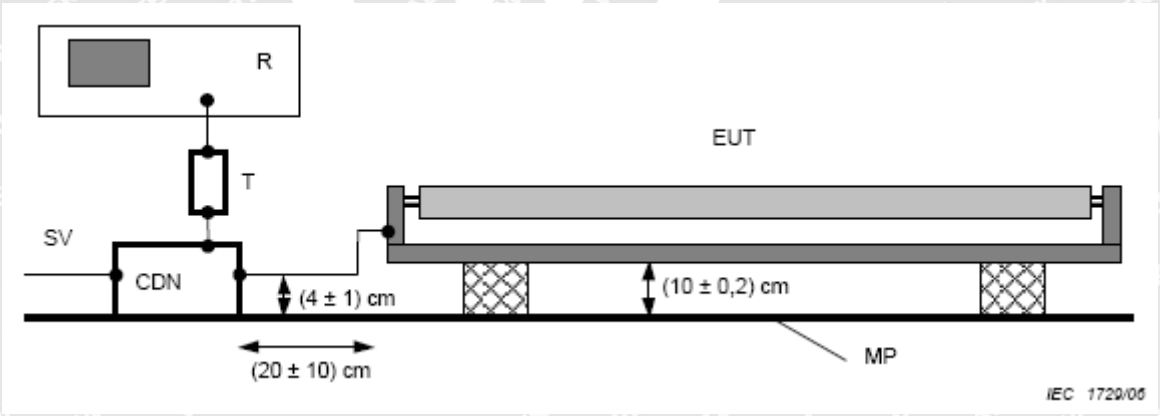
EUT Operation :

Input Voltage ..... : AC 245V/50Hz

Operating Mode..... : On mode

5.3.2 Block Diagram of Setup

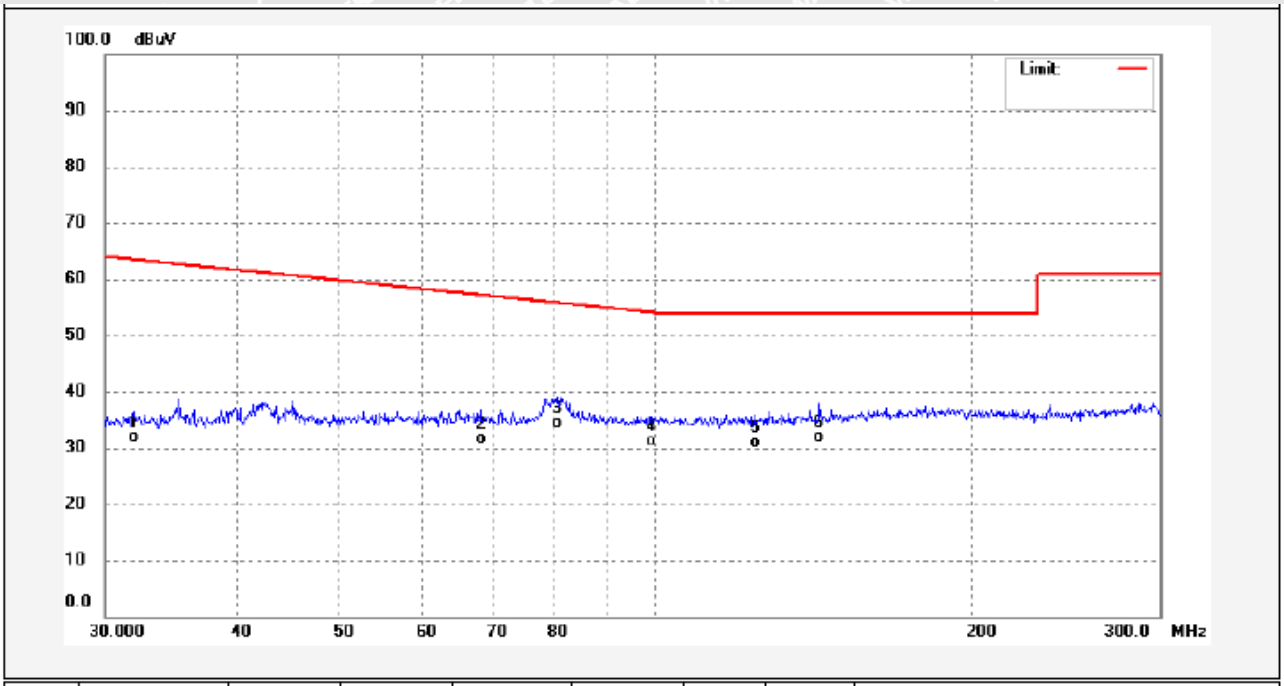
The Radiated Emission test was performed in accordance with EN55015 Annex B.



5.3.3 Measurement Data

If the lighting equipment complies with the requirements of this annex, it is deemed to comply with the radiated disturbances requirements in the frequency range 30 MHz to 300 MHz specified in 4.4.2 of this standard.

5.3.4 Radiated Emission test data,30MHz to 300MHz



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Remark
1	31.9600	14.84	16.14	30.98	63.47	-32.49	QP	
2	68.2400	14.38	16.27	30.65	57.17	-26.52	QP	
3	80.7200	17.19	16.27	33.46	55.78	-22.32	QP	
4	99.0800	13.72	16.32	30.04	54.08	-24.04	QP	
5	124.1600	13.55	16.37	29.92	54.00	-24.08	QP	
6	142.9200	14.47	16.41	30.88	54.00	-23.12	QP	

5.4 Harmonics Current Emission

Test Requirement..... : EN61000-3-2

Test Method..... : EN61000-3-2

Test Result..... : Pass

Class/Severity..... : Class C

5.4.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 17.1°C

Humidity..... : 53.2%RH

Barometric Pressure..... : 101.2kPa

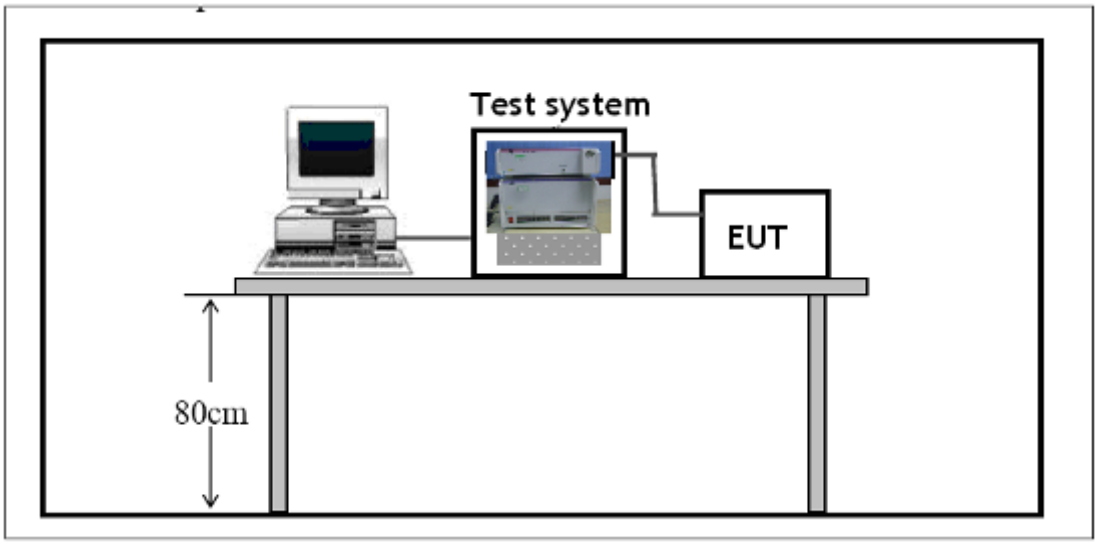
EUT Operation:

Input Voltage ..... : AC 230V/50Hz

Operating Mode..... : On mode

5.4.2 Block Diagram of Setup

The Harmonics Current emission test was performed in accordance with the EN 61000-3-2.



5.4.3 Harmonic Current EmissionTest Data

Test Result: Pass Source qualification: Normal
THC(A): 1.35 I-THD(%): 28.02 POHC(A): 0.000 POHC Limit(A): 0.458
Highest parameter values during test:

V_RMS (Volts):	230.10	Frequency(Hz):	50.00
I_Peak (Amps):	8.422	I_RMS (Amps):	5.016
I_Fund (Amps):	4.830	Crest Factor:	1.679
Power (Watts):	997.9	Power Factor:	0.865

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	0.004	0.0	0.002	0.006	0.00	Pass
3	0.050	0.053	95.1	0.053	0.079	66.46	Pass
4	0.025						
5	0.175	0.483	36.2	0.176	0.724	24.24	Pass
6	0.021						
7	0.159	0.338	47.0	0.160	0.507	31.51	Pass
8	0.009						
9	0.047	0.241	19.7	0.048	0.362	13.23	Pass
10	0.004						
11	0.035	0.145	24.3	0.036	0.217	16.36	Pass
12	0.006						
13	0.045	0.145	31.4	0.046	0.217	21.02	Pass
14	0.005						
15	0.026	0.145	0.0	0.026	0.217	0.00	Pass
16	0.003						
17	0.014	0.145	0.0	0.014	0.217	0.00	Pass
18	0.003						
19	0.017	0.145	0.0	0.017	0.217	0.00	Pass
20	0.003						
21	0.012	0.145	0.0	0.012	0.217	0.00	Pass
22	0.003						
23	0.007	0.145	0.0	0.007	0.217	0.00	Pass
24	0.002						
25	0.007	0.145	0.0	0.007	0.217	0.00	Pass
26	0.002						
27	0.006	0.145	0.0	0.006	0.217	0.00	Pass
28	0.002						
29	0.004	0.145	0.0	0.004	0.217	0.00	Pass
30	0.001						
31	0.004	0.145	0.0	0.004	0.217	0.00	Pass
32	0.001						
33	0.004	0.145	0.0	0.004	0.217	0.00	Pass
34	0.001						
35	0.002	0.145	0.0	0.002	0.217	0.00	Pass
36	0.001						
37	0.002	0.145	0.0	0.002	0.217	0.00	Pass
38	0.001						
39	0.002	0.145	0.0	0.002	0.217	0.00	Pass
40	0.001						

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

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	230.10	Frequency(Hz):	50.00
I_Peak (Amps):	8.422	I_RMS (Amps):	5.016
I_Fund (Amps):	4.830	Crest Factor:	1.679
Power (Watts):	997.9	Power Factor:	0.865

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.077	0.460	16.72	OK
3	0.556	2.070	26.88	OK
4	0.093	0.460	20.19	OK
5	0.073	0.920	7.94	OK
6	0.069	0.460	14.96	OK
7	0.086	0.690	12.51	OK
8	0.022	0.460	4.85	OK
9	0.047	0.460	10.16	OK
10	0.018	0.460	3.88	OK
11	0.027	0.230	11.82	OK
12	0.020	0.230	8.87	OK
13	0.022	0.230	9.62	OK
14	0.009	0.230	3.89	OK
15	0.024	0.230	10.44	OK
16	0.021	0.230	9.09	OK
17	0.018	0.230	7.84	OK
18	0.015	0.230	6.60	OK
19	0.017	0.230	7.46	OK
20	0.024	0.230	10.23	OK
21	0.018	0.230	7.69	OK
22	0.009	0.230	3.70	OK
23	0.011	0.230	4.91	OK
24	0.009	0.230	3.88	OK
25	0.010	0.230	4.28	OK
26	0.005	0.230	2.07	OK
27	0.007	0.230	3.02	OK
28	0.008	0.230	3.27	OK
29	0.007	0.230	3.16	OK
30	0.005	0.230	2.11	OK
31	0.008	0.230	3.54	OK
32	0.004	0.230	1.78	OK
33	0.008	0.230	3.34	OK
34	0.004	0.230	1.53	OK
35	0.007	0.230	2.91	OK
36	0.004	0.230	1.74	OK
37	0.004	0.230	1.78	OK
38	0.004	0.230	1.79	OK
39	0.008	0.230	3.38	OK
40	0.011	0.230	4.83	OK

5.5 Voltage Fluctuation and Flicker

Test Requirement ..... : EN 61000-3-3

Test Method ..... : EN 61000-3-3

Test Result ..... : Pass

5.5.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 17.1°C

Humidity..... : 53.2%RH

Barometric Pressure..... : 101.2kPa

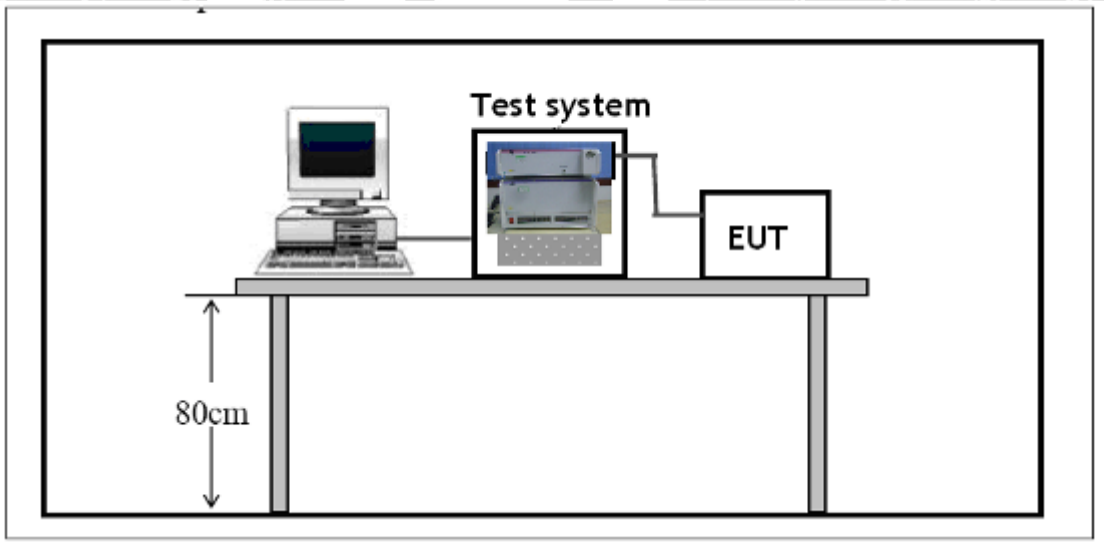
EUT Operation:

Input Voltage ..... : AC 230V/50Hz

Operating Mode..... : On mode

5.5.2 Block Diagram of Setup

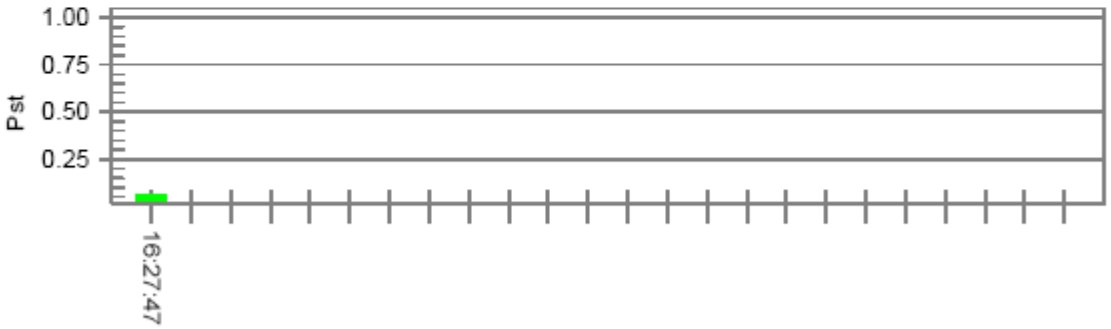
The Voltage Fluctuation and Flicker test was performed in accordance with the EN 61000-3-3.



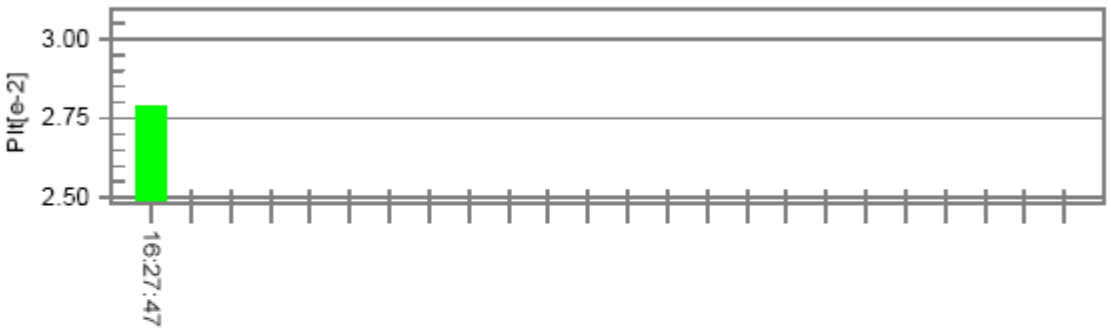
5.5.3 Voltage Fluctuation and Flicker Test Data

Test Result: Pass Status: Test Completed

Pst_i and limit line European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	228.65			
Highest dt (%):	0.00	Test limit (%):	3.30	Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000	Pass

6 Immunity Test Results

6.1 Performance Criteria

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. 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.

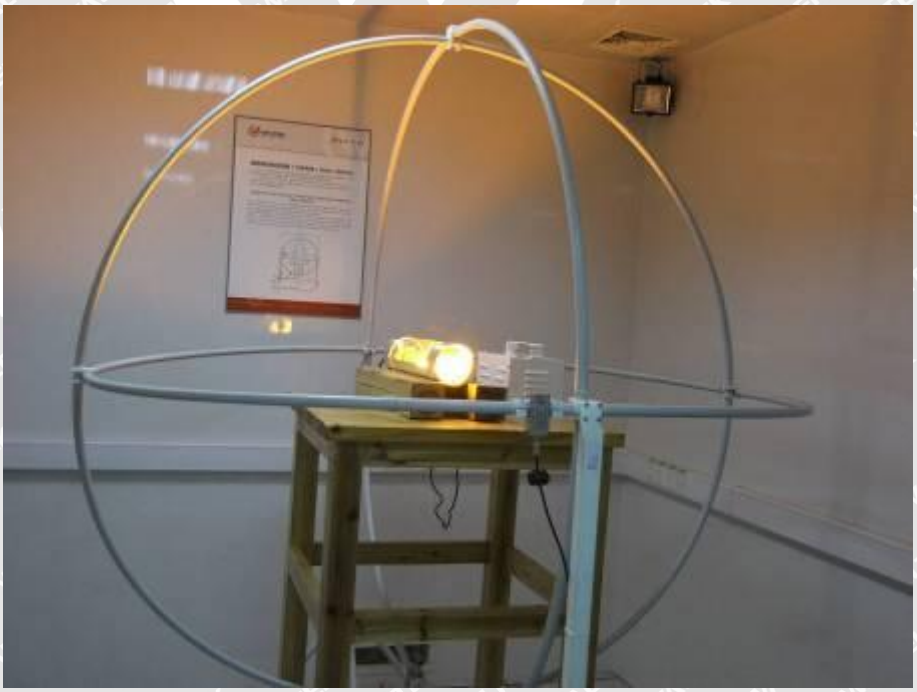
6.2 Test Result

According to EN61547 which states:"Lighting equipment, with the exception of emergency lighting luminaires, in which the light source is mains frequency or battery-operated and which does not contain any active electronic component, is deemed to fulfil the immunity requirements without testing."

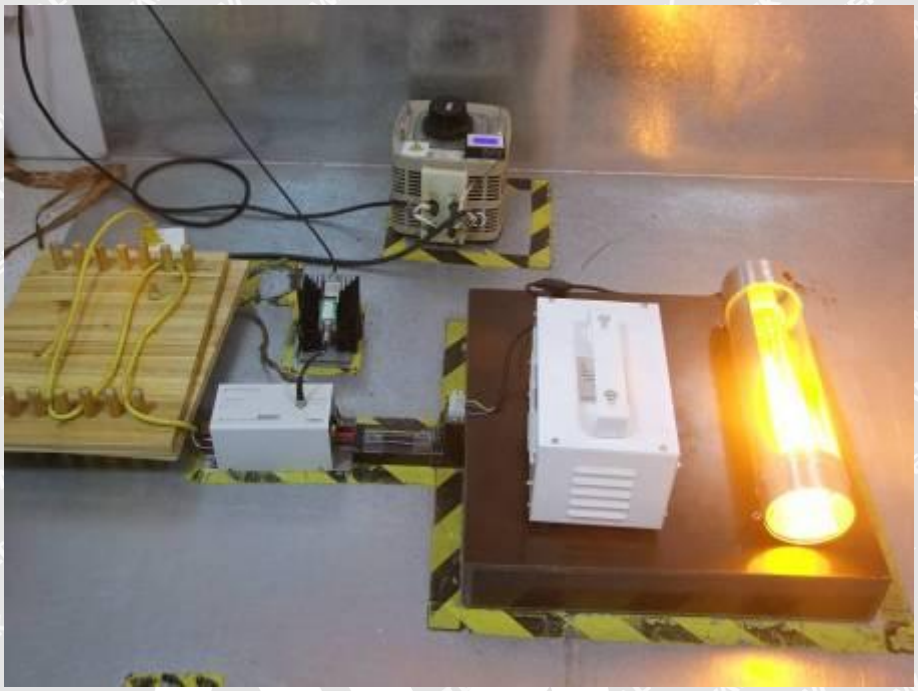
7 Photographs – Test Setup

7.1 Photograph – Mains Terminal Disturbance Voltage Test Setup

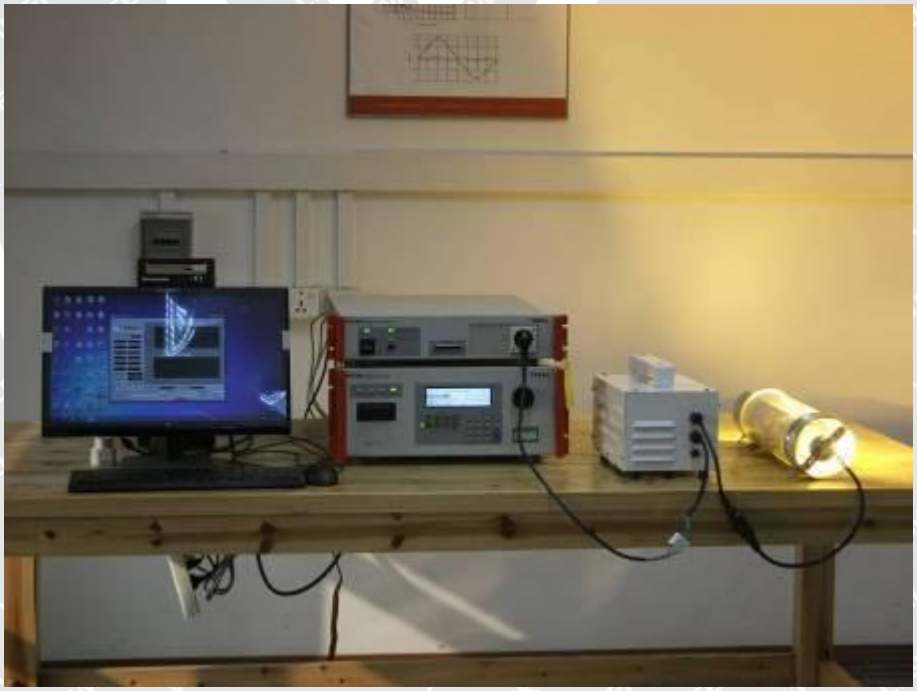
7.2 Photograph – Radiated electromagnetic disturbance Test Setup, 9kHz to 30MHz



7.3 Photograph – Radiated Emission(CDN method) Test Setup, 30MHz to 300MHz

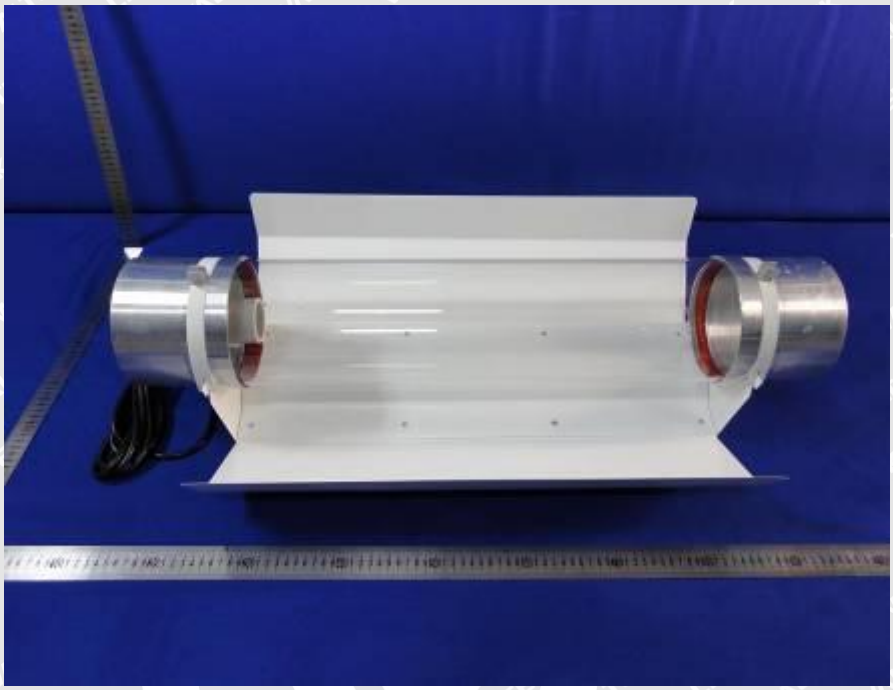


7.4 Photograph – Harmonic Current and Voltage Fluctuation and Flicker Test Setup

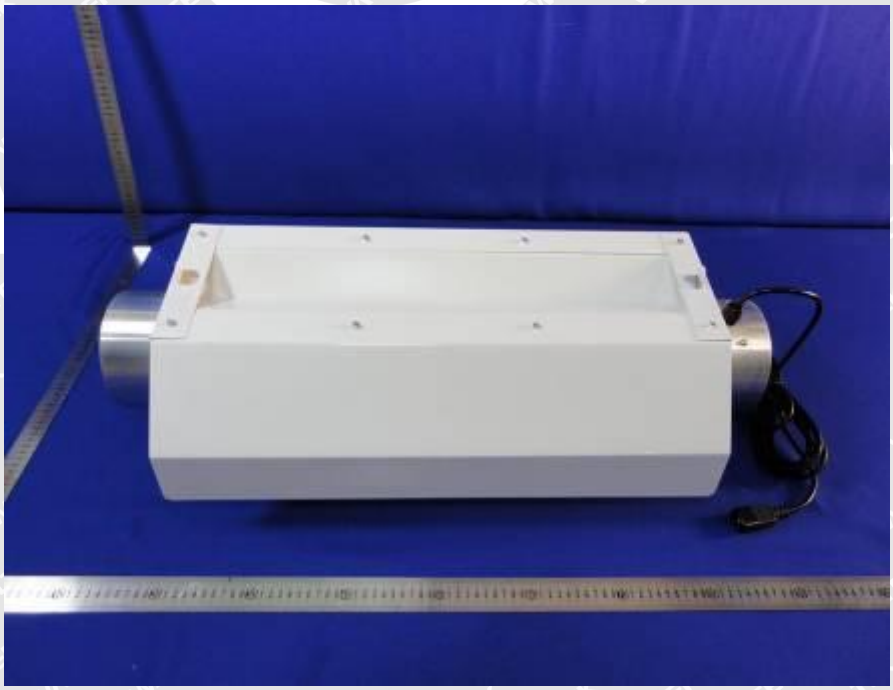


8 Photographs – Constructional Details

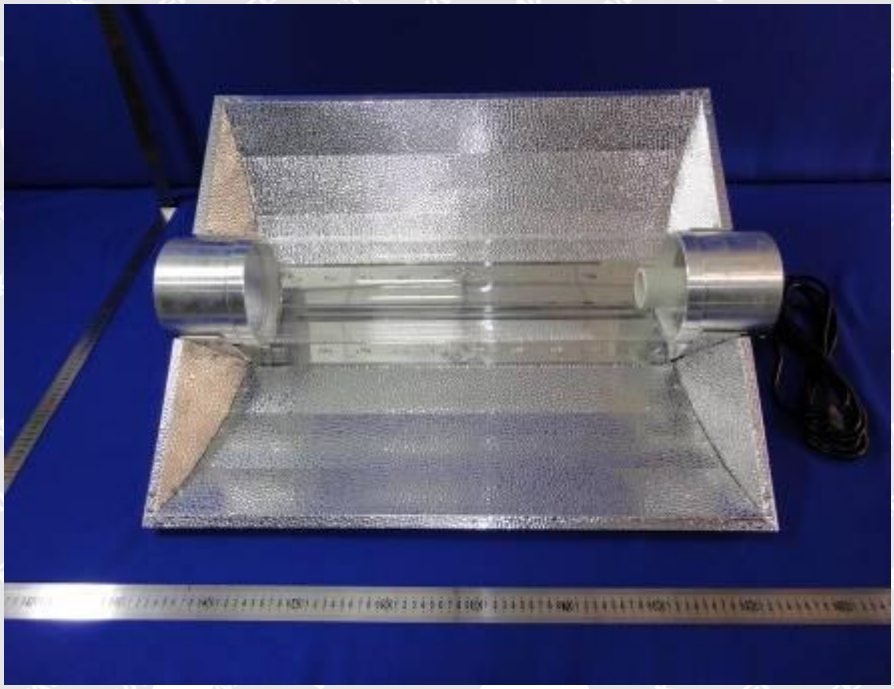
8.1 EUT – Front View(SC-C560)



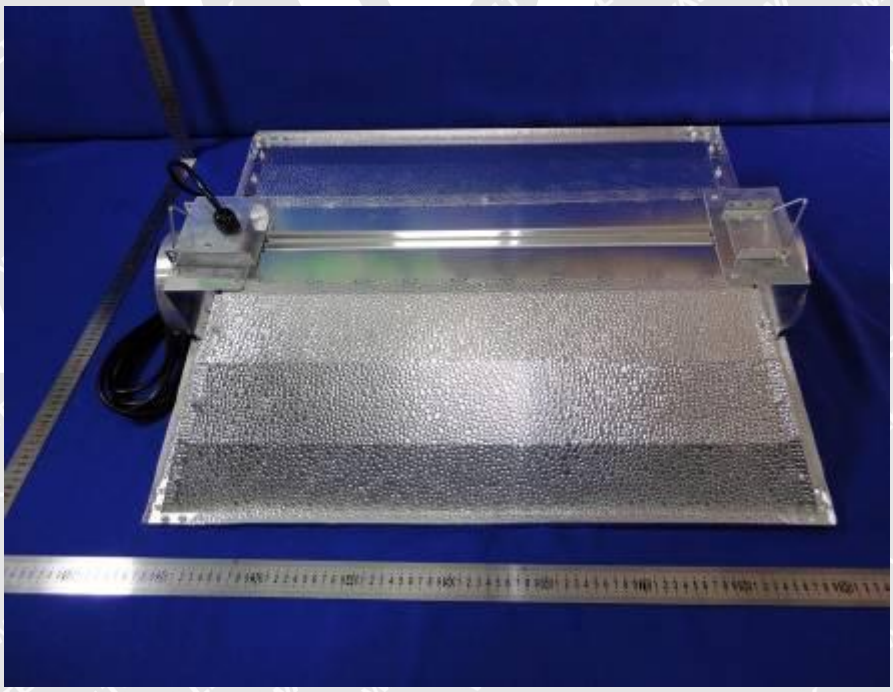
8.2 EUT – Back View(SC-C560)



8.3 EUT – Front View(SC-C562)



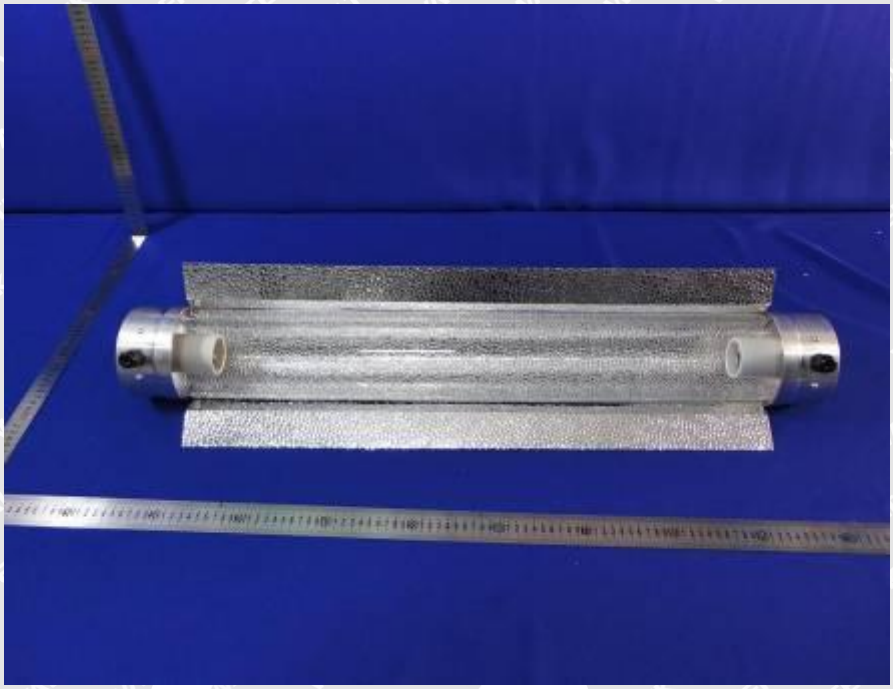
8.4 EUT – Back View(SC-C562)



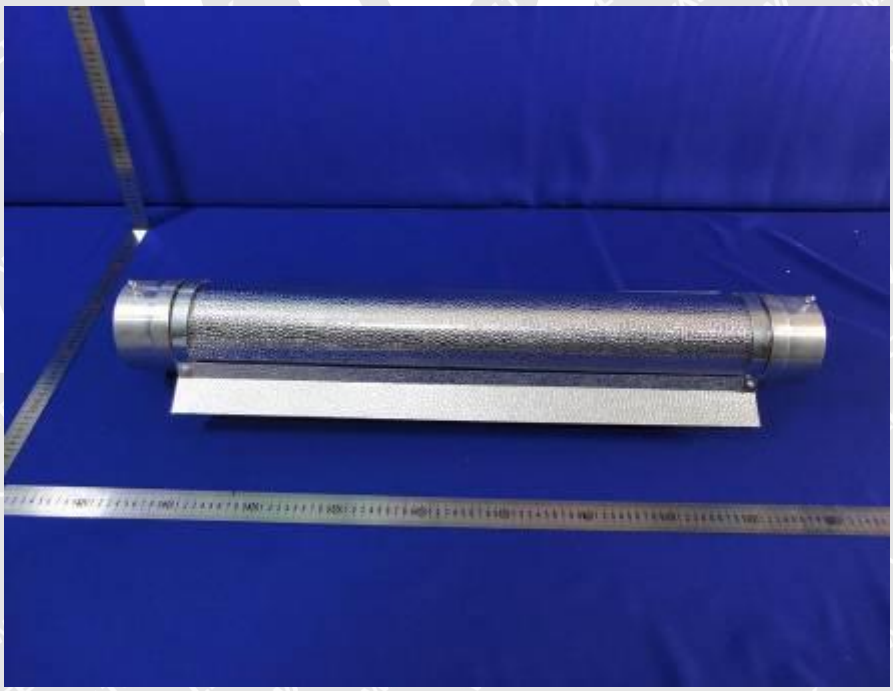
8.5 EUT – Front View(SC-C541)

8.6 EUT – Back View(SC-C541)

8.7 EUT – Front View(SC-C281)

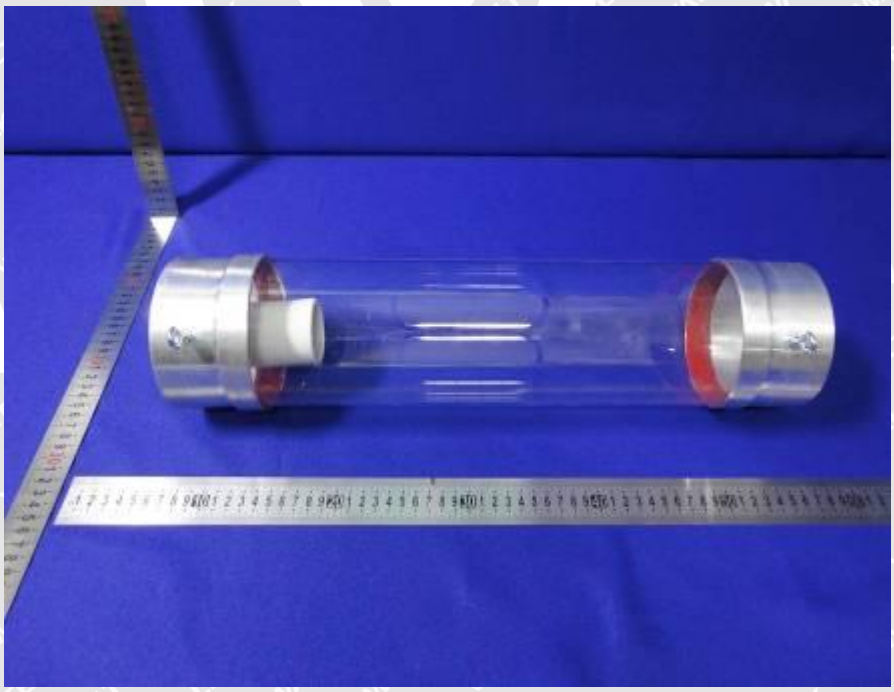


8.8 EUT – Back View(SC-C281)



8.9 EUT – Front View(SC-C240)

8.10 EUT – Back View(SC-C240)



====== End of Report ======