EMC Test Report

Add value.
Inspire trust.

Product: LED Tri-proof light

Model: Model Number(s) refer to page 6-7

Applicant: Jiangxi Lepeng Electric Appliance Co., LTD.

Changjiang Electronic Information Industry Park
Changjiang District
333000 Jingdezhen City, Jiangxi Province
PEOPLE'S REPUBLIC OF CHINA

In accordance with

EN IEC 55015, EN IEC 61547,

EN IEC 61000-3-2, EN 61000-3-3

COMMERCIAL-IN-CONFIDENCE

Issue Date: June 04, 2024
Report No. 708882401730-00

RESPONSIBLE FOR	NAME	SIGNATURE	DATE
Approved By	Yongqing ZHENG	YongqingZHENG	June 04, 2024
Prepared By	Yong ZHANG	Yong.ZHANG	June 04, 2024

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service control rules.

EXECUTIVE SUMMARY
The product was tested and found to be in compliance with test specification in chapter 1.2.

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1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Report No.	Description of Change	Date of Issue
708882401730-00	First Issue	06/04/2024

1.2 Introduction

The information contained in this report is intended to show verification of the EMC Qualification Approval Testing of the requirements of the standards for the tests listed in Section 1.3.

Applicant	Jiangxi Lepeng Electric Appliance Co., LTD.
Address	Changjiang Electronic Information Industry Park Changjiang District 333000 Jingdezhen City, Jiangxi Province PEOPLE'S REPUBLIC OF CHINA
Manufacturer	Jiangxi Lepeng Electric Appliance Co., LTD.
Address	Changjiang Electronic Information Industry Park Changjiang District 333000 Jingdezhen City, Jiangxi Province PEOPLE'S REPUBLIC OF CHINA
Factory 1	Zhejiang Meka Optoelectronic Co., Ltd
Address	NO.8 Canghai Road, Lihai Town Binhai New City 312366 Shaoxing, Zhejiang Province PEOPLE'S REPUBLIC OF CHINA
Factory 2	Jiangxi Lepeng Electric Appliance Co., LTD.
Address	Changjiang Electronic Information Industry Park Changjiang District 333000 Jingdezhen City, Jiangxi Province PEOPLE'S REPUBLIC OF CHINA
Trade Name	MKOPTO
Model Number(s)	Refer to page 6-7
Rated Input Voltage/Frequency	220-240V~, 50/60Hz
Rated output	Refer to page 6-7
Protection Class	Class I
Standards	EN IEC 55015:2019/A11:2020, EN IEC 61547:2023, EN IEC 61000-3-2:2019/A1:2021 and EN 61000-3-3:2013/A1:2019/A2:2021
Sample Source	Samples delivered by manufacturer
Sample Number(s)	12004540-F: SHA-804103-1; 12004378-1-F: SHA-804103-2; 12005222-F: SHA-804103-3; 12004513-F: : SHA-804103-4.

Sample received	04/10/2024
Start of Test	05/09/2024
Finish of Test	05/13/2024
Name of Engineer(s)	Yong ZHANG

The sample’s mentioned in this report is/are submitted/ supplied/ manufactured by client. The laboratory therefore assumes no responsibility for accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.

1.3 Test Specification and Results Summary

Summary of the tests is shown below:

No.	Standard/ Specification	Clause.	Test Item	Result	Basic Standard /Comment
1.	EN IEC 55015:2019/A11:2020	4.3.1	Conducted disturbance at the electric power supply interface	Pass (Min. Margin: 5.26 dB)	CISPR 16-2-1
2.	EN IEC 55015:2019/A11:2020	4.5.2	Radiated Disturbance (9 kHz to 30 MHz)	Pass (Min. Margin: >6 dB)	CISPR 16-2-3
3.	EN IEC 55015:2019/A11:2020	4.5.3	Radiated Disturbance (30MHz to 1000MHz)	Pass (Min. Margin: 2.2 dB)	CISPR 16-2-3
4.	EN IEC 61000-3-2:2019/A1:2021	7	Harmonic current emission	Pass	IEC 61000-3-2
5.	EN IEC 61547:2023	5.2	Electrostatic discharge immunity	Pass	IEC 61000-4-2
6.	EN IEC 61547:2023	5.3	Radiated, radio-frequency, electromagnetic field immunity	Pass	IEC 61000-4-3
7.	EN IEC 61547:2023	5.5	Electrical fast transient /burst immunity	Pass	IEC 61000-4-4
8.	EN IEC 61547:2023	5.6	Immunity to conducted disturbances, induced by radio-frequency fields	Pass	IEC 61000-4-6
9.	EN IEC 61547:2023	5.7	Surge immunity	Pass	IEC 61000-4-5
10.	EN IEC 61547:2023	5.8	Voltage dips and short interruptions immunity	Pass	IEC 61000-4-11

1.4 Product Information

1.4.1 Technical Description

The Equipment Under Test (EUT) was a LED Tri-proof light.

According to client's declaration, the model list on page 6-7 has 2 kinds of circuit and 4 kinds of PCB, except for different rated power, size and shape.
See following model list on page 6-7 for the difference details.
So the model 12004540-F, 12004378-1-F, 12005222-F and 12004513-F were chosen to perform the tests.

Pre-tests are performed under 220-240V~ 50/60Hz, only the maximum emission was recorded.

Model:

No.	Models	Rated power	Circuit	PCE	Size	LED number
1	12004538-X	9W	Circuit1	PCB1	52.8x33.8x618.5	60
2	12004538-X-1	9W	Circuit1	PCB1	52.8x33.8x618.5	45
3	12004539-X	18W	Circuit1	PCB1	52.8x33.8x1218.5	90
4	**12004540-X**	**24W**	**Circuit1**	**PCB1**	**52.8x33.8x1518.5**	**120**
5	12004376-X	18W	Circuit1	PCB1	52.8x33.8x618.5	90
6	12005219-1-X	24W	Circuit1	PCB1	52.8x33.8x918.5	90
7	12004377-X	36W	Circuit2	PCB2	52.8x33.8x1218.5	90
8	12004378-X	48W	Circuit2	PCB2	52.8x33.8x1518.5	280
9	12004376-1-X	18W	Circuit1	PCB1	52.8x33.8x618.5	90
10	12005219-X	24W	Circuit1	PCB1	52.8x33.8x918.5	90
11	12004377-1-X	36W	Circuit2	PCB2	52.8x33.8x1218.5	90
12	**12004378-1-X**	**48W**	**Circuit2**	**PCB2**	**52.8x33.8x1518.5**	**280**
13	12004518-X	18W	Circuit1	PCB3	78.9x38.2x656.7	48
14	12004518-1-X	18W	Circuit1	PCB3	78.9x38.2x656.7	60
15	**12005222-X**	**24W**	**Circuit1**	**PCB3**	**78.9x38.2x956.7**	**60**
16	12004519-X	36W	Circuit2	PCB4	78.9x38.2x1256.7	76
17	12004520-X	48W	Circuit2	PCB4	78.9x38.2x1556.7	114
18	12004535-X	18W	Circuit1	PCB3	78.9x38.2x656.7	120
19	12005221-X	24W	Circuit1	PCB3	78.9x38.2x956.7	150
20	12005221-1-X	24W	Circuit1	PCB3	78.9x38.2x956.7	180
21	12004536-X	36W	Circuit2	PCB4	78.9x38.2x1256.7	190
22	12004537-X	48W	Circuit2	PCB4	78.9x38.2x1556.7	266
23	12004521-X	18W	Circuit1	PCB3	78.9x38.2x656.7	120
24	12005220-X	24W	Circuit1	PCB3	78.9x38.2x956.7	150
25	12005220-1-X	24W	Circuit1	PCB3	78.9x38.2x956.7	180
26	12004522-X	36W	Circuit2	PCB4	78.9x38.2x1256.7	190
27	12004523-X	48W	Circuit2	PCB4	78.9x38.2x1556.7	266
28	12004367-X	18W	Circuit1	PCB3	78.9x38.2x656.7	60
29	12005223-X	24W	Circuit1	PCB3	78.9x38.2x656.7	60
30	12004368-X	36W	Circuit2	PCB4	78.9x38.2x1256.7	76
31	12004369-X	48W	Circuit2	PCB4	78.9x38.2x1556.7	114

32	12004431-X	18W	Circuit1	PCB3	78.9x38.2x656.7	60
33	12005223-1-X	24W	Circuit1	PCB3	78.9x38.2x656.7	60
34	12004432-X	36W	Circuit2	PCB4	78.9x38.2x1256.7	76
35	12004433-X	48W	Circuit2	PCB4	78.9x38.2x1556.7	114
36	12004834-X	30W	Circuit2	PCB4	78.9x38.2x656.7	72
37	12004834-1-X	30W	Circuit2	PCB4	78.9x38.2x656.7	96
38	12004841-X	60W	Circuit2	PCB4	78.9x38.2x1256.7	96
39	12004841-1-X	60W	Circuit2	PCB4	78.9x38.2x1256.7	144
40	**12004513-X**	**80W**	**Circuit2**	**PCB4**	**78.9x38.2x1556.7**	**192**
('X' in model name means CCT, can be A, B, C, D, E, F. 'A'=2700K ; 'B'=3000K ; 'C'=3500K ; 'D'=4000K ; 'E'=5000K ; 'F'=6500K.)						

Remark:

1. Incandescent lamp luminaires with ratings less than or equal to 1 000 W and discharge and LED lamp luminaires with ratings less than or equal to 600 W, are deemed to comply with the dc, dmax and Tmax limits in this standard and are not required to be tested. (EN 61000-3-3:2013/ A1:2019/A2:2021, clause A.2)

2.Power frequency magnetic fields test need only to be applied to equipment containing components susceptible to magnetic fields, such as Hall elements or magnetic field sensors. (EN IEC 61547:2023 Clause 5.4).

The sample has no magnetically sensitive components, so the sample doesn't need to be the power frequency magnetic field test.

1.4.2 EUT Port/Cable Identification

Port	Specified Cable Length	Screened (Yes/No)
AC mains port	N/A	No
Enclosure port	N/A	N/A

N/A= Not applicable.

1.4.3 Modes of Operation

Mode No.	Mode Description	Test Item
Mode 1	AC 230V/50Hz, AC Powered Light on.	All test items
Mode 2	Handling mode (The EUT wasn't powered)	Electrostatic discharge.

1.4.4 Auxiliary Equipment (cable) Used during Test

Equipment	Brand	Model/Type No.	Remark
N/A	N/A	N/A	N/A

1.4.5 Monitoring of Performance

The EUT works normally, the luminous density doesn't deviate by more than 15%.

1.4.6 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 (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 light source(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.

The following additional requirement applies to lighting equipment incorporating a starting device: after the test, the lighting equipment is switched off for 30 min and back on again. The lighting equipment shall start and operate as intended.

1.5 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

1.6 Environmental Conditions

Ambient Temperature	15-35 °C
Relative Humidity	30-60 %
Atmospheric Pressure	860-1060 hPa

1.7 Test Location

1. Radiated Disturbance (30MHz to 1000MHz) only for test model: 12004513-F and 12004378-1-F.
TÜV SÜD Certification and Testing (China) Co., Ltd.
No. 10 Huaxia Road (M), Dongting, Wuxi, Jiangsu Province,214100, P. R. China

Test Name	Test date	Name of Engineer(s)	Test Area
Radiated Disturbance (30MHz to 1000MHz)	05/09/2024	Chumeng LIU	Wuxi 10m labs

2. For other tests:
TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai branch
No.16, Lane 1951, Duhui Road Shanghai, 201108, P.R.China

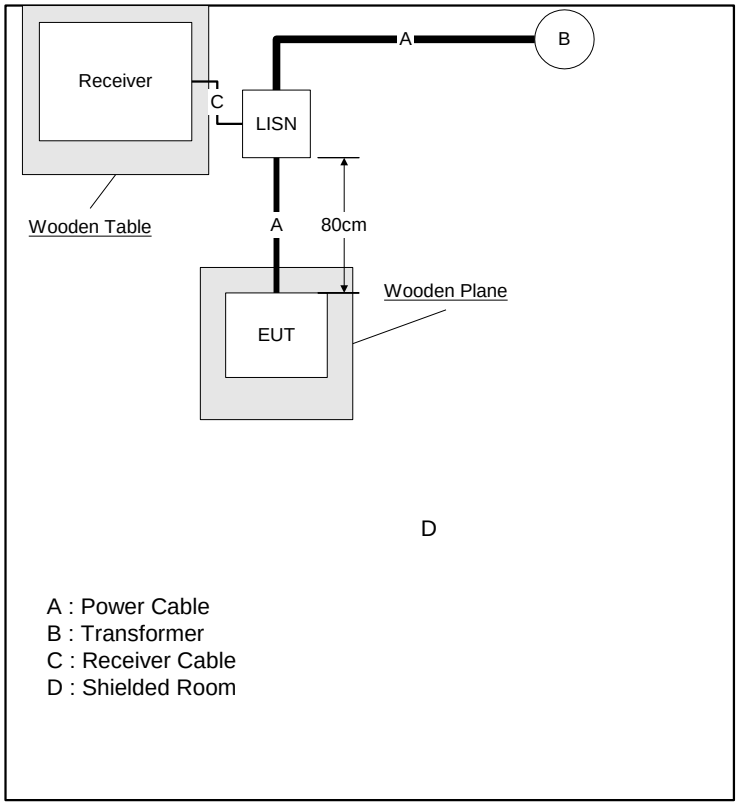
Test Name	Test date	Name of Engineer(s)	Test Area
Conducted Disturbance at the electric power supply interface	05/13/2024	Weijie XU	Z119
Radiated Disturbance (9 kHz to 30 MHz)	05/13/2024	Weijie XU	Z120
Radiated Disturbance (30MHz to 1000MHz)	05/13/2024	Weijie XU	Z116
Harmonic current emission	05/13/2024	Weijie XU	Z106
Electrostatic discharge immunity test	05/13/2024	Weijie XU	Z118
Radiated, radio-frequency, electromagnetic field immunity test	05/13/2024	Weijie XU	Z114
Electrical fast transient /burst immunity test	05/13/2024	Weijie XU	Z118
Immunity to conducted disturbances, induced by radio-frequency fields	05/13/2024	Weijie XU	Z118
Surge immunity test	05/13/2024	Weijie XU	Z118
Voltage dips and short interruptions immunity tests	05/13/2024	Weijie XU	Z118

2 Test Description

2.1 Conducted disturbance at the electric power supply interface

2.1.1 Test Method

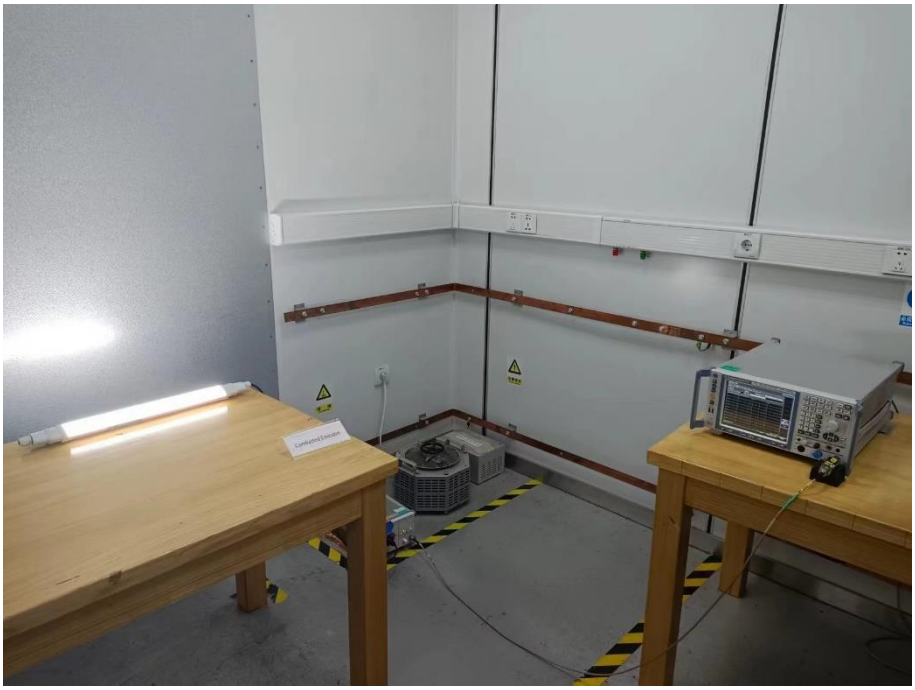
Table-top EUT shall be placed
– at a distance of 0,4 m from a RGP
– at a distance of 0,8 m from the AMN, and
– shall be kept at least 0,8 m from any other earthed conducting surface.
Floor standing EUT shall be:
– placed at a height of 0.1 m above a horizontal RGP,
– placed at a distance of 0,8 m from the AMN,
– kept at least 0,8 m from any other earthed conducting surface, and
Parts supporting the EUT and its parts at the required height shall be made of non-conductive material.



2.1.2 Specification Limits

Disturbance voltage limits at the electric power supply interface		
Frequency range	Limits dB(µV)	
	Quasi-peak	Average
9 kHz to 50 kHz	110	--
50 kHz to 150 kHz	90 to 80	--
150 kHz to 0.5 MHz	66 to 56	56 to 46
0.5 MHz to 5.0 MHz	56	46
5.0 MHz to 30 MHz	60	50

2.1.3 Test Setup Photo



2.1.4 Test Results

9K-30MHz Conducted Disturbance Test

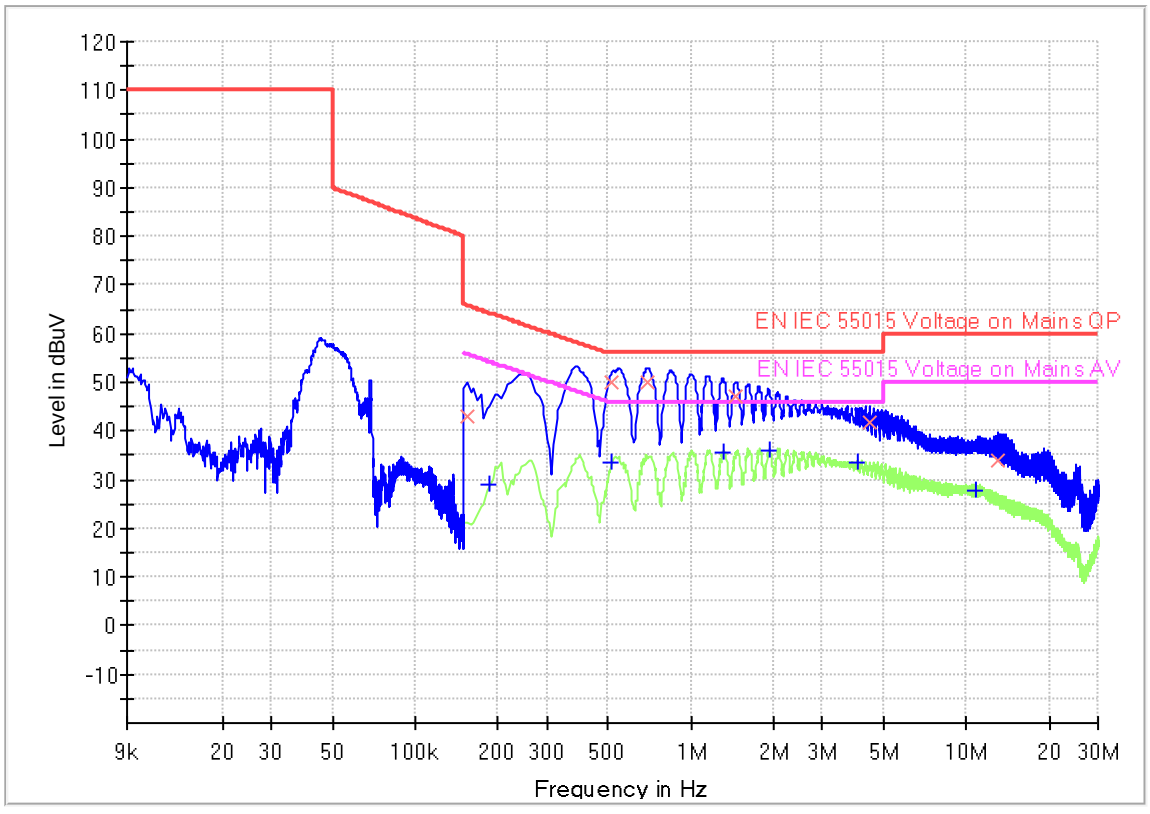
EUT Information

EUT Name:	LED Tri-proof light
Model	12004540-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op Cond	Mode 1
Operator:	Weijie Xu
Standard	EN IEC 55015
Comment:	T21.5, H58.6%, P100.4kPa
Sample No.:	SHA-804103-1

Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup:	Voltage with 2-Line-LISN
Receiver:	[ESR 3]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.154500	42.99	---	65.75	22.76	1000.0	9.000	L1	19.4
0.186000	---	28.83	54.21	25.38	1000.0	9.000	L1	19.4
0.519000	---	33.65	46.00	12.35	1000.0	9.000	L1	19.4
0.519000	49.82	---	56.00	6.18	1000.0	9.000	L1	19.4
0.694500	50.01	---	56.00	5.99	1000.0	9.000	L1	19.5
1.311000	---	35.76	46.00	10.24	1000.0	9.000	L1	19.5
1.446000	47.01	---	56.00	8.99	1000.0	9.000	L1	19.5
1.927500	---	35.95	46.00	10.05	1000.0	9.000	L1	19.5
4.020000	---	33.41	46.00	12.59	1000.0	9.000	L1	19.6
4.447500	41.59	---	56.00	14.41	1000.0	9.000	L1	19.6
10.891500	---	27.59	50.00	22.41	1000.0	9.000	L1	19.8
12.997500	33.82	---	60.00	26.18	1000.0	9.000	L1	20.0

9K-30MHz Conducted Disturbance Test

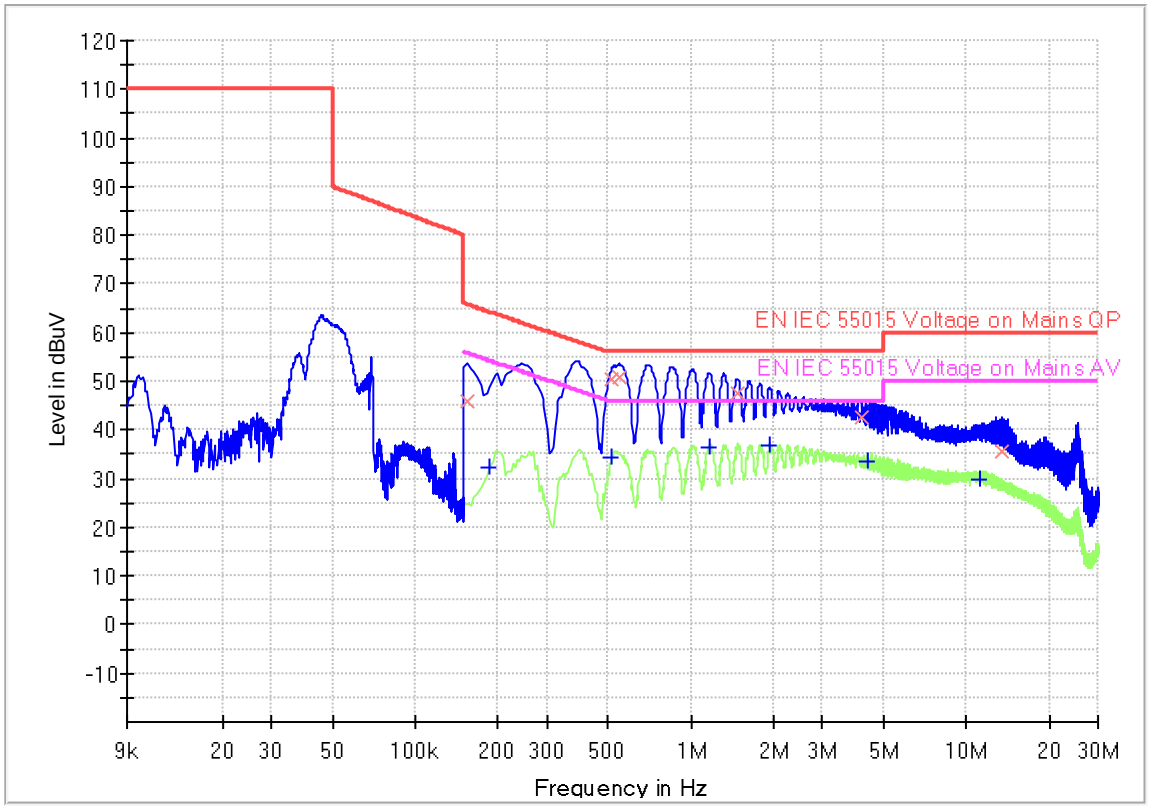
EUT Information

EUT Name:	LED Tri-proof light
Model	12004540-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op Cond	Mode 1
Operator:	Weijie Xu
Standard	EN IEC 55015
Comment:	T21.5, H58.6%, P100.4kPa
Sample No.:	SHA-804103-1

Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup:	Voltage with 2-Line-LISN
Receiver:	[ESR 3]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.154500	45.68	---	65.75	20.07	1000.0	9.000	N	19.4
0.186000	---	32.15	54.21	22.06	1000.0	9.000	N	19.4
0.519000	---	34.47	46.00	11.53	1000.0	9.000	N	19.5
0.519000	50.49	---	56.00	5.51	1000.0	9.000	N	19.5
0.550500	50.74	---	56.00	5.26	1000.0	9.000	N	19.5
1.176000	---	36.58	46.00	9.42	1000.0	9.000	N	19.5
1.473000	47.72	---	56.00	8.28	1000.0	9.000	N	19.5
1.941000	---	36.66	46.00	9.34	1000.0	9.000	N	19.5
4.173000	42.54	---	56.00	13.46	1000.0	9.000	N	19.6
4.366500	---	33.63	46.00	12.37	1000.0	9.000	N	19.6
11.166000	---	29.71	50.00	20.29	1000.0	9.000	N	19.7
13.407000	35.39	---	60.00	24.61	1000.0	9.000	N	19.8

9K-30MHz Conducted Disturbance Test

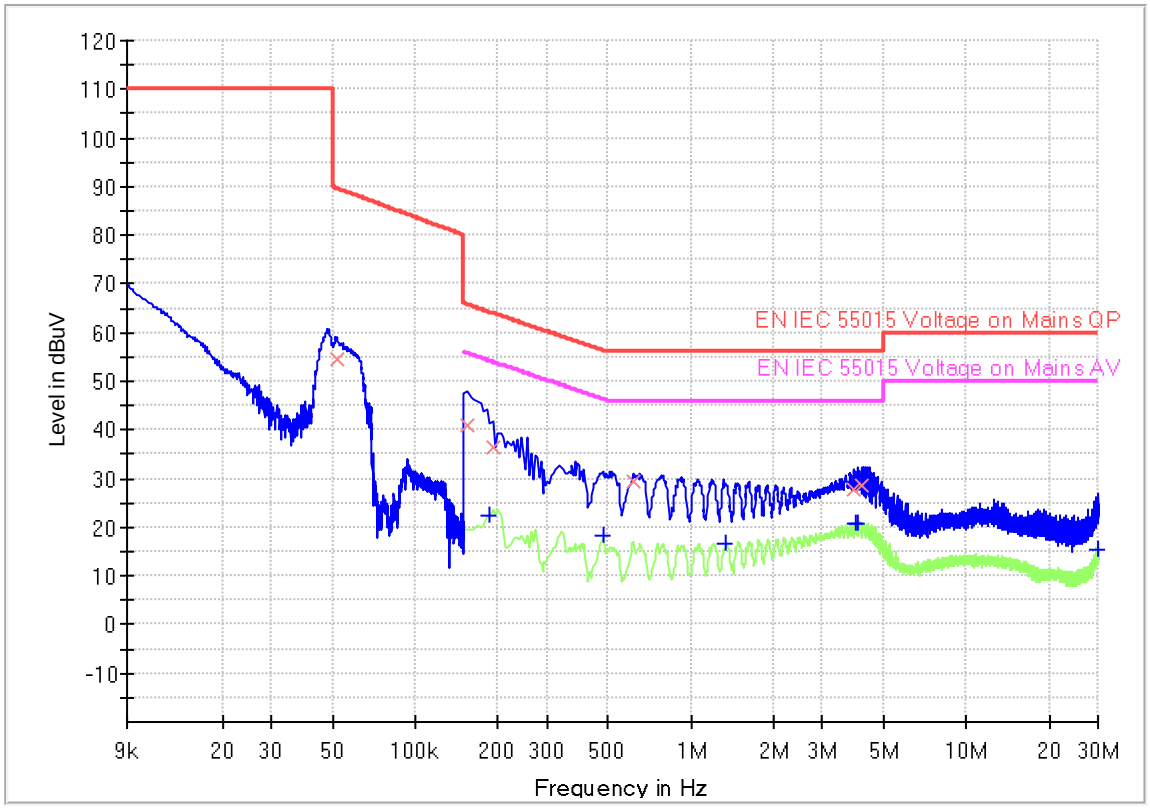
EUT Information

EUT Name:	LED Tri-proof light
Model	12004378-1-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op Cond	Mode 1
Operator:	Weijie Xu
Standard	EN IEC 55015
Comment:	T21.5, H58.6%, P100.4kPa
Sample No.:	SHA-804103-2

Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup:	Voltage with 2-Line-LISN
Receiver:	[ESR 3]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.051900	54.48	---	89.66	35.18	1000.0	0.200	L1	19.5
0.154500	40.74	---	65.75	25.01	1000.0	9.000	L1	19.4
0.186000	---	22.49	54.21	31.72	1000.0	9.000	L1	19.4
0.190500	36.21	---	64.01	27.80	1000.0	9.000	L1	19.4
0.478500	---	18.11	46.37	28.26	1000.0	9.000	L1	19.4
0.618000	29.34	---	56.00	26.66	1000.0	9.000	L1	19.5
1.347000	---	16.73	46.00	29.27	1000.0	9.000	L1	19.5
3.925500	27.84	---	56.00	28.16	1000.0	9.000	L1	19.6
3.934500	---	20.78	46.00	25.22	1000.0	9.000	L1	19.6
4.065000	---	20.83	46.00	25.17	1000.0	9.000	L1	19.6
4.200000	28.39	---	56.00	27.61	1000.0	9.000	L1	19.6
29.818500	---	15.50	50.00	34.50	1000.0	9.000	L1	21.2

9K-30MHz Conducted Disturbance Test

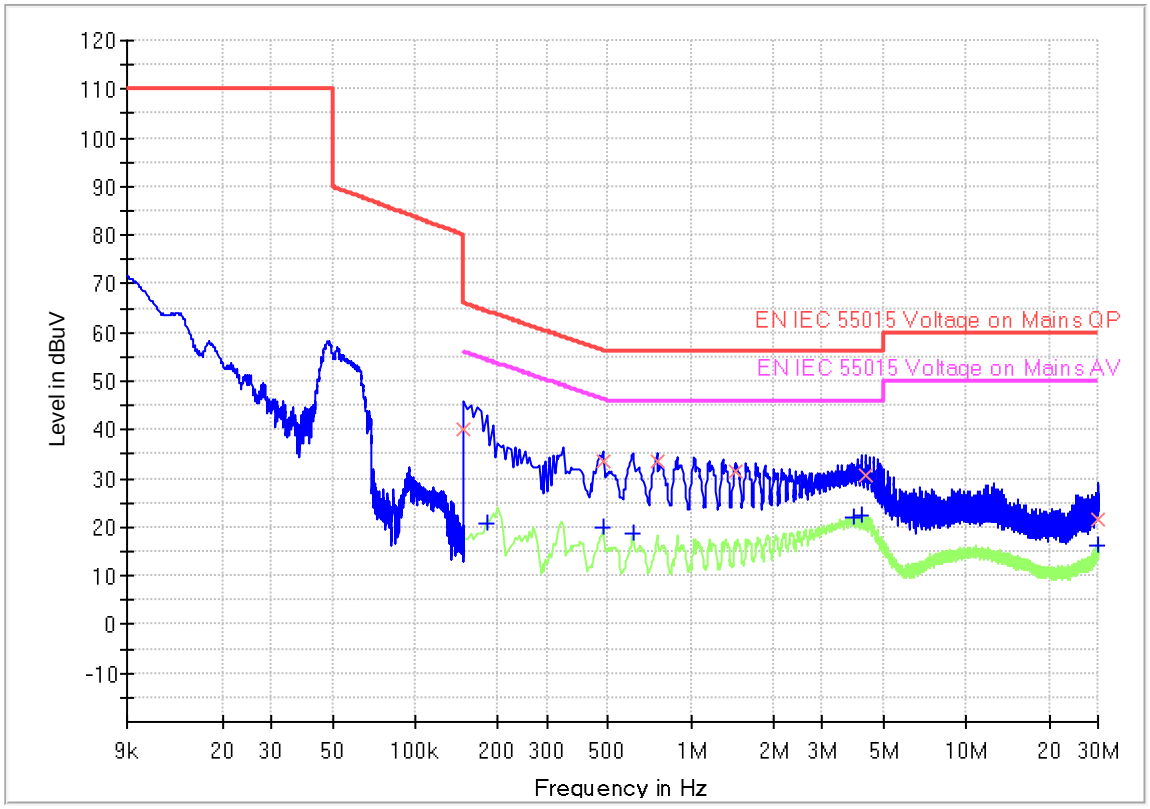
EUT Information

EUT Name:	LED Tri-proof light
Model	12004378-1-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op Cond	Mode 1
Operator:	Weijie Xu
Standard	EN IEC 55015
Comment:	T21.5, H58.6%, P100.4kPa
Sample No.:	SHA-804103-2

Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup:	Voltage with 2-Line-LISN
Receiver:	[ESR 3]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	40.06	---	66.00	25.94	1000.0	9.000	N	19.4
0.181500	---	20.64	54.42	33.78	1000.0	9.000	N	19.4
0.478500	---	20.06	46.37	26.31	1000.0	9.000	N	19.5
0.478500	33.47	---	56.37	22.90	1000.0	9.000	N	19.5
0.618000	---	18.87	46.00	27.13	1000.0	9.000	N	19.4
0.757500	33.37	---	56.00	22.63	1000.0	9.000	N	19.5
1.446000	31.42	---	56.00	24.58	1000.0	9.000	N	19.5
3.921000	---	22.06	46.00	23.94	1000.0	9.000	N	19.6
4.191000	---	22.46	46.00	23.54	1000.0	9.000	N	19.6
4.330500	30.46	---	56.00	25.54	1000.0	9.000	N	19.6
29.886000	---	16.24	50.00	33.76	1000.0	9.000	N	20.7
29.935500	21.64	---	60.00	38.36	1000.0	9.000	N	20.7

9K-30MHz Conducted Disturbance Test

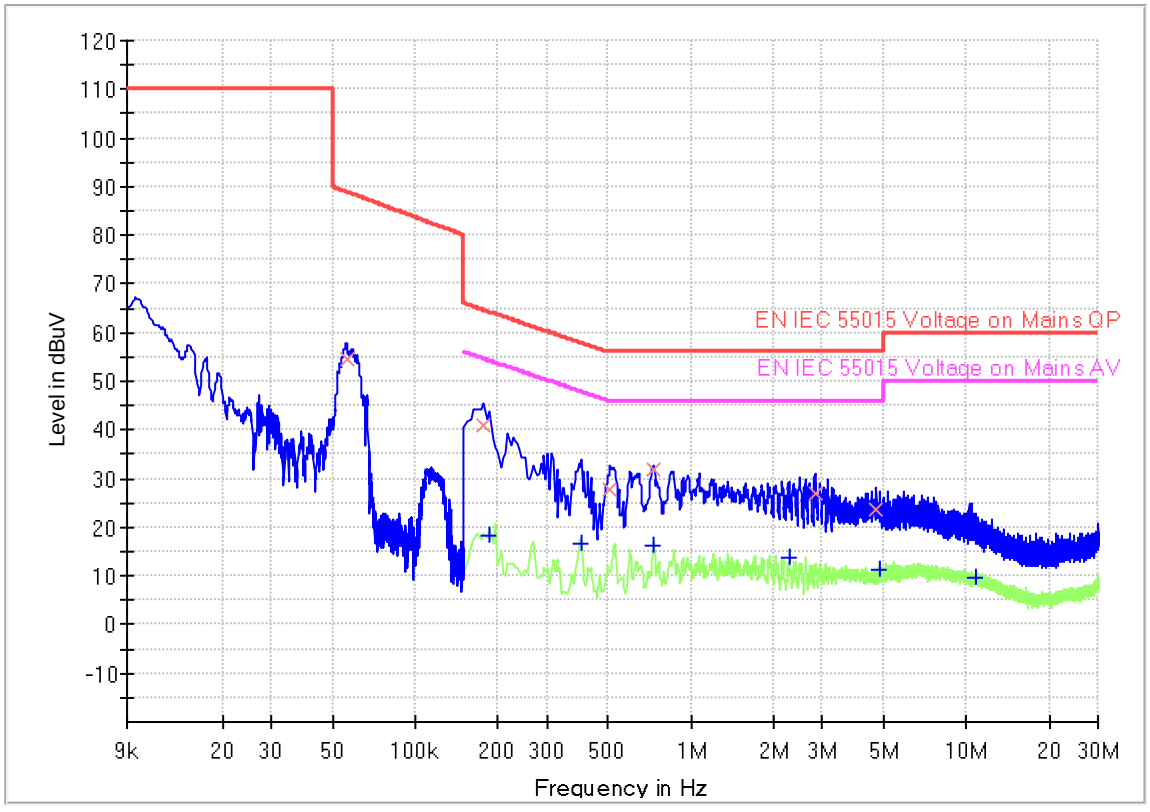
EUT Information

EUT Name:	LED Tri-proof light
Model	12005222-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op Cond	Mode 1
Operator:	Weijie Xu
Standard	EN IEC 55015
Comment:	T21.5, H58.6%, P100.4kPa
Sample No.:	SHA-804103-3

Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup:	Voltage with 2-Line-LISN
Receiver:	[ESR 3]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.056300	54.68	---	88.92	34.24	1000.0	0.200	L1	19.5
0.177000	40.81	---	64.63	23.82	1000.0	9.000	L1	19.4
0.186000	---	18.37	54.21	35.84	1000.0	9.000	L1	19.4
0.402000	---	16.74	47.81	31.07	1000.0	9.000	L1	19.5
0.510000	27.60	---	56.00	28.40	1000.0	9.000	L1	19.4
0.735000	31.76	---	56.00	24.24	1000.0	9.000	L1	19.5
0.735000	---	16.43	46.00	29.57	1000.0	9.000	L1	19.5
2.274000	---	13.63	46.00	32.37	1000.0	9.000	L1	19.5
2.814000	27.00	---	56.00	29.00	1000.0	9.000	L1	19.5
4.722000	23.71	---	56.00	32.29	1000.0	9.000	L1	19.6
4.852500	---	11.26	46.00	34.74	1000.0	9.000	L1	19.6
10.887000	---	9.80	50.00	40.20	1000.0	9.000	L1	19.8

9K-30MHz Conducted Disturbance Test

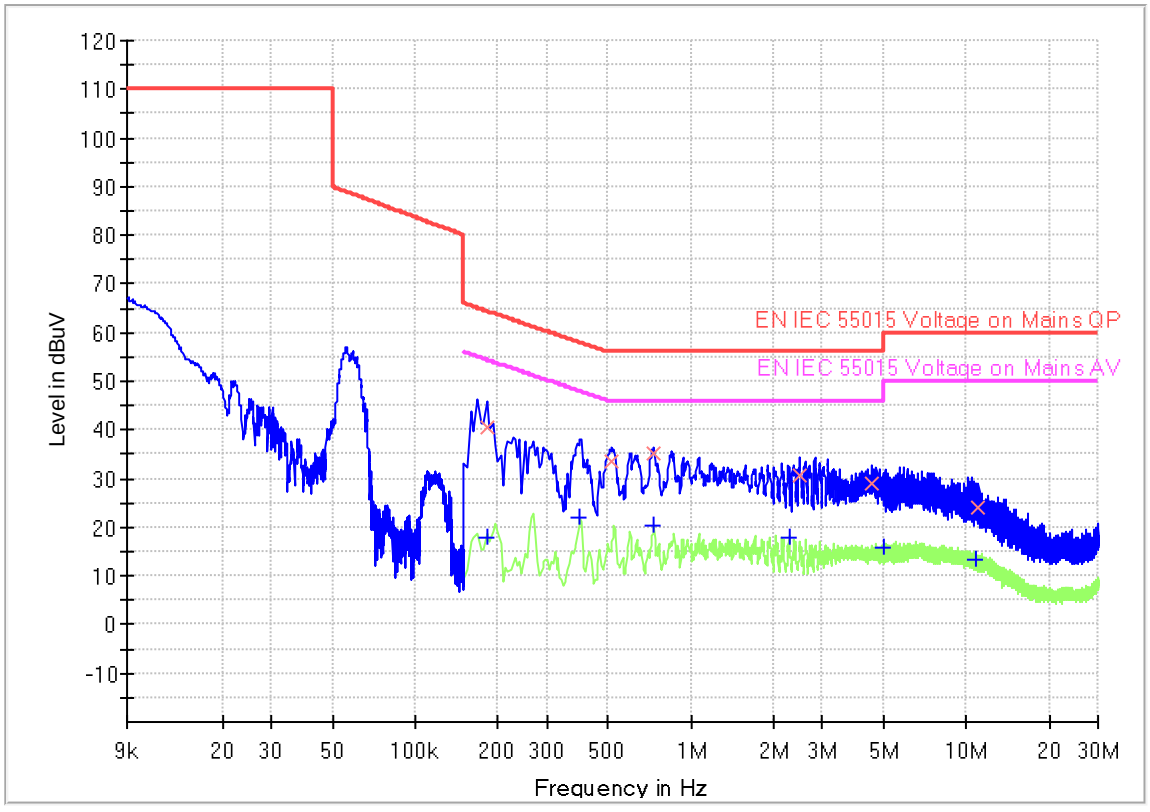
EUT Information

EUT Name:	LED Tri-proof light
Model	12005222-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op Cond	Mode 1
Operator:	Weijie Xu
Standard	EN IEC 55015
Comment:	T21.5, H58.6%, P100.4kPa
Sample No.:	SHA-804103-3

Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup:	Voltage with 2-Line-LISN
Receiver:	[ESR 3]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.181500	---	17.70	54.42	36.72	1000.0	9.000	N	19.4
0.181500	40.70	---	64.42	23.72	1000.0	9.000	N	19.4
0.397500	---	22.11	47.91	25.80	1000.0	9.000	N	19.4
0.519000	33.38	---	56.00	22.62	1000.0	9.000	N	19.5
0.735000	---	20.30	46.00	25.70	1000.0	9.000	N	19.5
0.735000	35.33	---	56.00	20.67	1000.0	9.000	N	19.5
2.274000	---	17.74	46.00	28.26	1000.0	9.000	N	19.5
2.481000	30.66	---	56.00	25.34	1000.0	9.000	N	19.5
4.524000	28.81	---	56.00	27.19	1000.0	9.000	N	19.6
4.987500	---	15.79	46.00	30.21	1000.0	9.000	N	19.6
10.891500	---	13.34	50.00	36.66	1000.0	9.000	N	19.7
11.089500	23.95	---	60.00	36.05	1000.0	9.000	N	19.7

9K-30MHz Conducted Disturbance Test

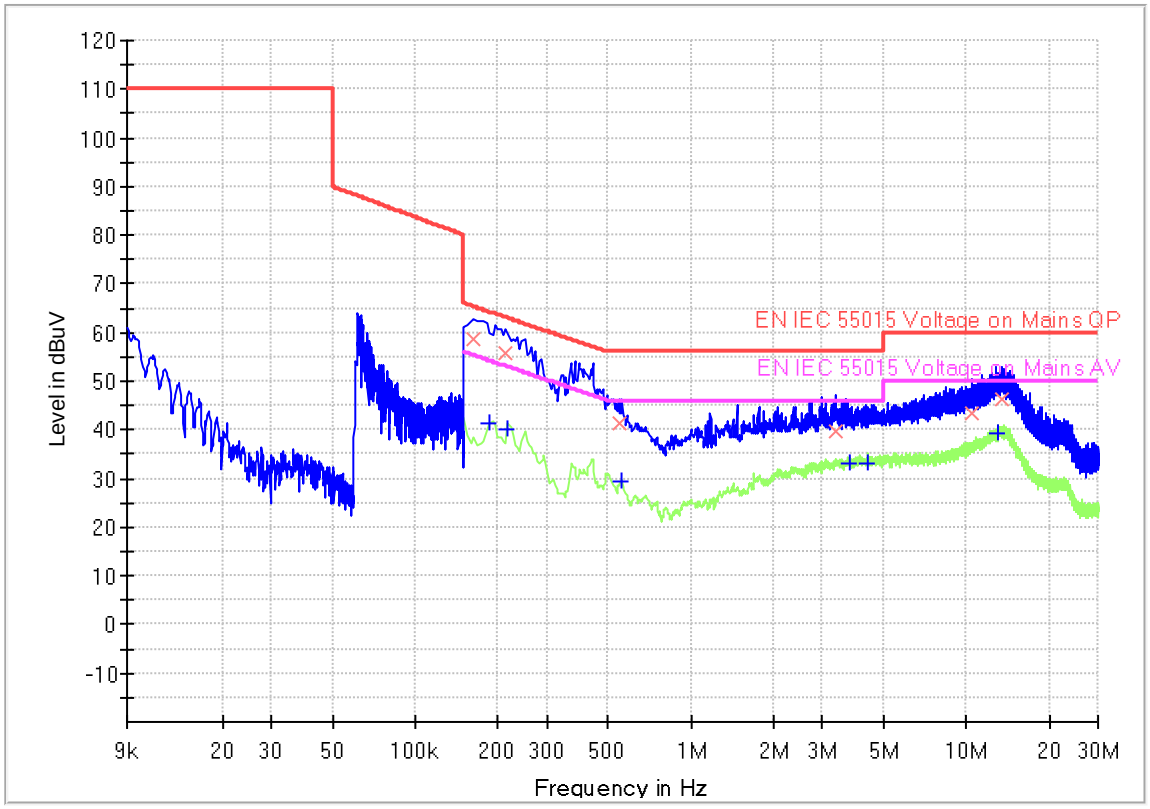
EUT Information

EUT Name:	LED Tri-proof light
Model	12004513-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op Cond	Mode 1
Operator:	Weijie Xu
Standard	EN IEC 55015
Comment:	T21.5, H58.6%, P100.4kPa
Sample No.:	SHA-804103-4

Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup:	Voltage with 2-Line-LISN
Receiver:	[ESR 3]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.163500	58.47	---	65.28	6.81	1000.0	9.000	L1	19.4
0.186000	---	41.15	54.21	13.06	1000.0	9.000	L1	19.4
0.213000	55.91	---	63.09	7.18	1000.0	9.000	L1	19.4
0.217500	---	40.17	52.91	12.74	1000.0	9.000	L1	19.4
0.550500	41.28	---	56.00	14.72	1000.0	9.000	L1	19.4
0.564000	---	29.51	46.00	16.49	1000.0	9.000	L1	19.4
3.367500	39.62	---	56.00	16.38	1000.0	9.000	L1	19.5
3.759000	---	33.10	46.00	12.90	1000.0	9.000	L1	19.6
4.389000	---	33.25	46.00	12.75	1000.0	9.000	L1	19.6
10.513500	43.53	---	60.00	16.47	1000.0	9.000	L1	19.8
12.988500	---	39.31	50.00	10.69	1000.0	9.000	L1	20.0
13.398000	46.35	---	60.00	13.65	1000.0	9.000	L1	20.0

9K-30MHz Conducted Disturbance Test

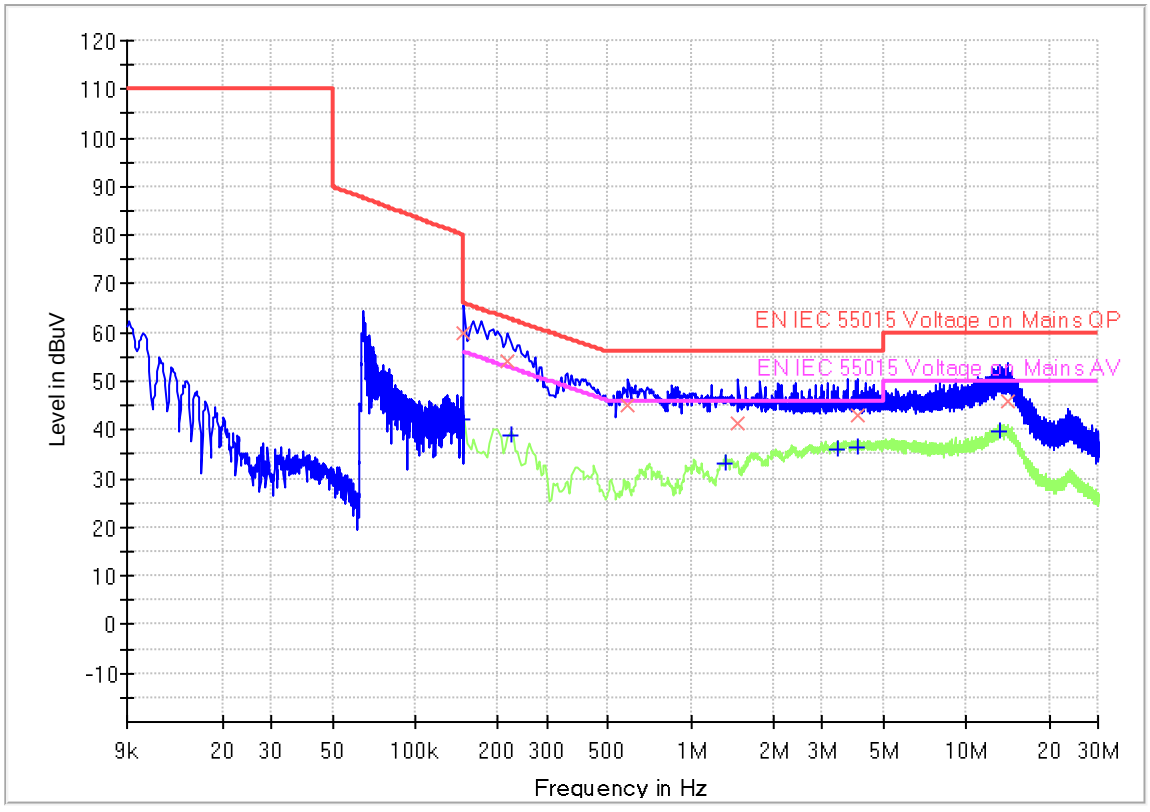
EUT Information

EUT Name:	LED Tri-proof light
Model	12004513-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op Cond	Mode 1
Operator:	Weijie Xu
Standard	EN IEC 55015
Comment:	T21.5, H58.6%, P100.4kPa
Sample No.:	SHA-804103-4

Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup:	Voltage with 2-Line-LISN
Receiver:	[ESR 3]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



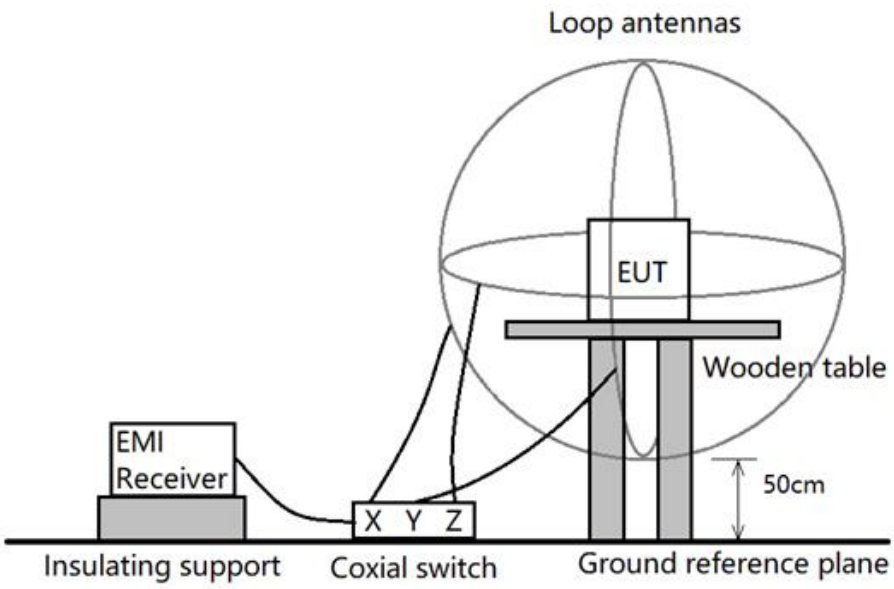
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	42.17	56.00	13.83	1000.0	9.000	N	19.4
0.150000	60.06	---	66.00	5.94	1000.0	9.000	N	19.4
0.217500	54.05	---	62.91	8.86	1000.0	9.000	N	19.4
0.222000	---	38.75	52.74	13.99	1000.0	9.000	N	19.4
0.591000	44.87	---	56.00	11.13	1000.0	9.000	N	19.4
1.342500	---	33.20	46.00	12.80	1000.0	9.000	N	19.5
1.486500	41.54	---	56.00	14.46	1000.0	9.000	N	19.5
3.412500	---	36.08	46.00	9.92	1000.0	9.000	N	19.5
4.015500	42.95	---	56.00	13.05	1000.0	9.000	N	19.6
4.060500	---	36.31	46.00	9.69	1000.0	9.000	N	19.6
13.168500	---	39.72	50.00	10.28	1000.0	9.000	N	19.8
14.199000	46.04	---	60.00	13.96	1000.0	9.000	N	19.9

2.2 Radiated disturbance (9 kHz to 30 MHz)

2.2.1 Test Method

The EUT shall be placed in the center of the LLAS. The current induced in the LLAS is measured in accordance with CISPR 16-2-3. By means of a coaxial switch, the three field directions of the EUT can be measured in sequence. The measurement results for each direction shall comply with the limits.



2.2.2 Specification Limits

LLAS radiated disturbance limits in the frequency range 9 kHz to 30 MHz	
Frequency range	Quasi-peak limits for three loop diameters dB(µA)
	2 m loop diameter
9 kHz to 70 kHz	88
70 kHz to 150 kHz	88 to 58
150 kHz to 3.0 MHz	58 to 22
3.0 MHz to 30 MHz	22

2.2.3 Test Setup Photos



2.2.4 Test Results

9K-30MHz Radiated Disturbance Test

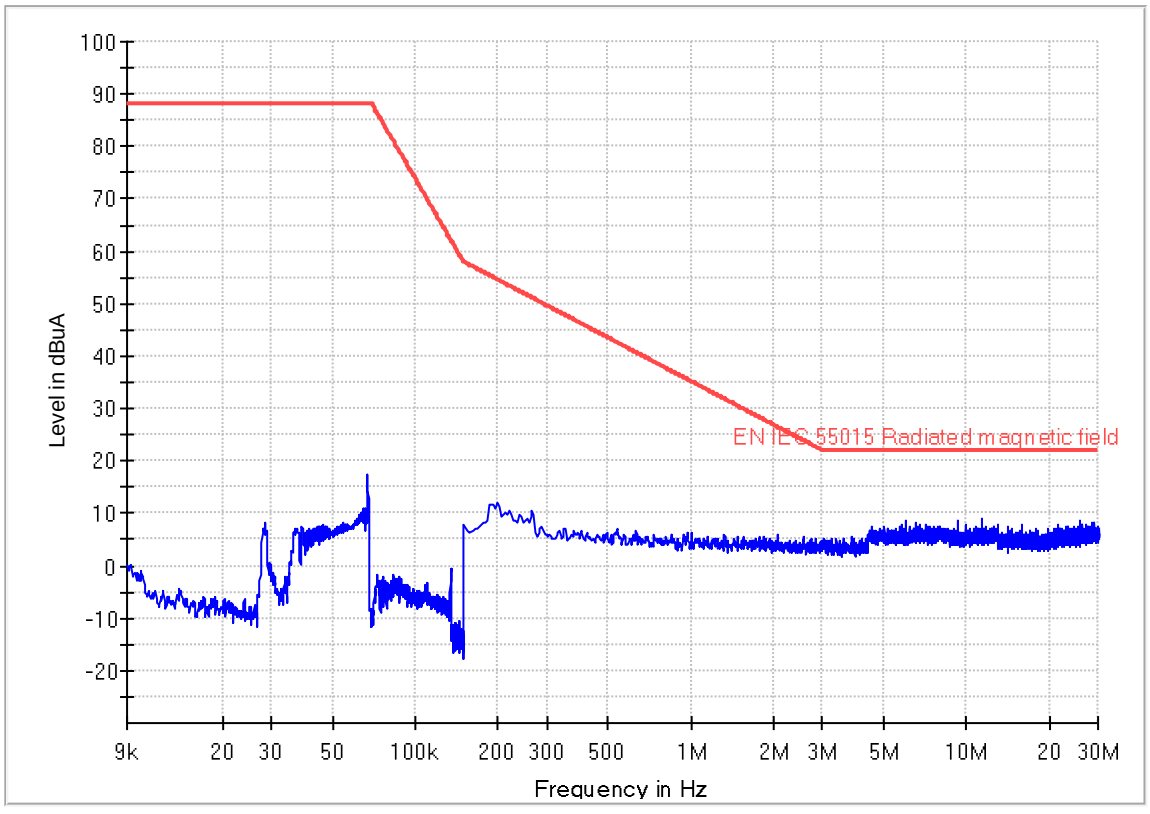
EUT Information

EUT Name:	LED Tri-proof light
Model:	12004540-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op cond:	Mode 1
Tester	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	X
Sample No.:	SHA-804103-1

Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup:	TripleLoop
Receiver:	[ESR 3]
Level Unit:	dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



9K-30MHz Radiated Disturbance Test

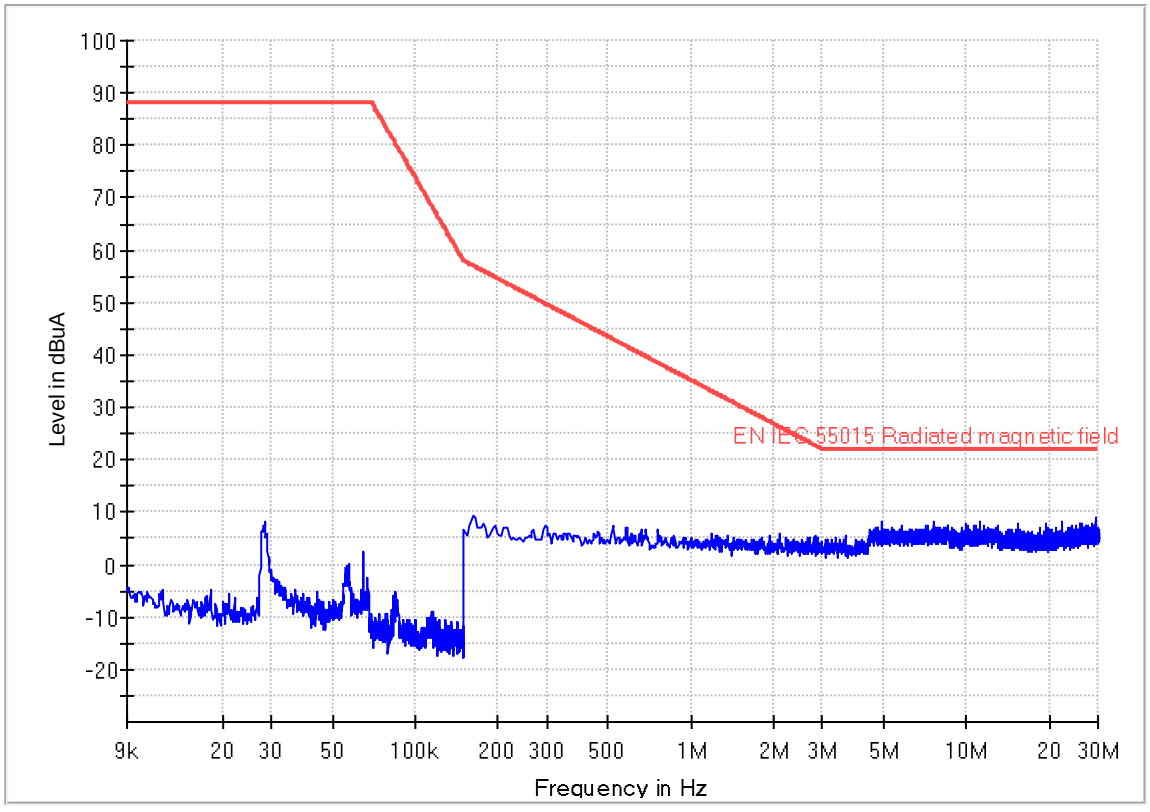
EUT Information

EUT Name:	LED Tri-proof light
Model:	12004540-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op cond:	Mode 1
Tester	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	Y
Sample No.:	SHA-804103-1

Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup:	TripleLoop
Receiver:	[ESR 3]
Level Unit:	dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



9K-30MHz Radiated Disturbance Test

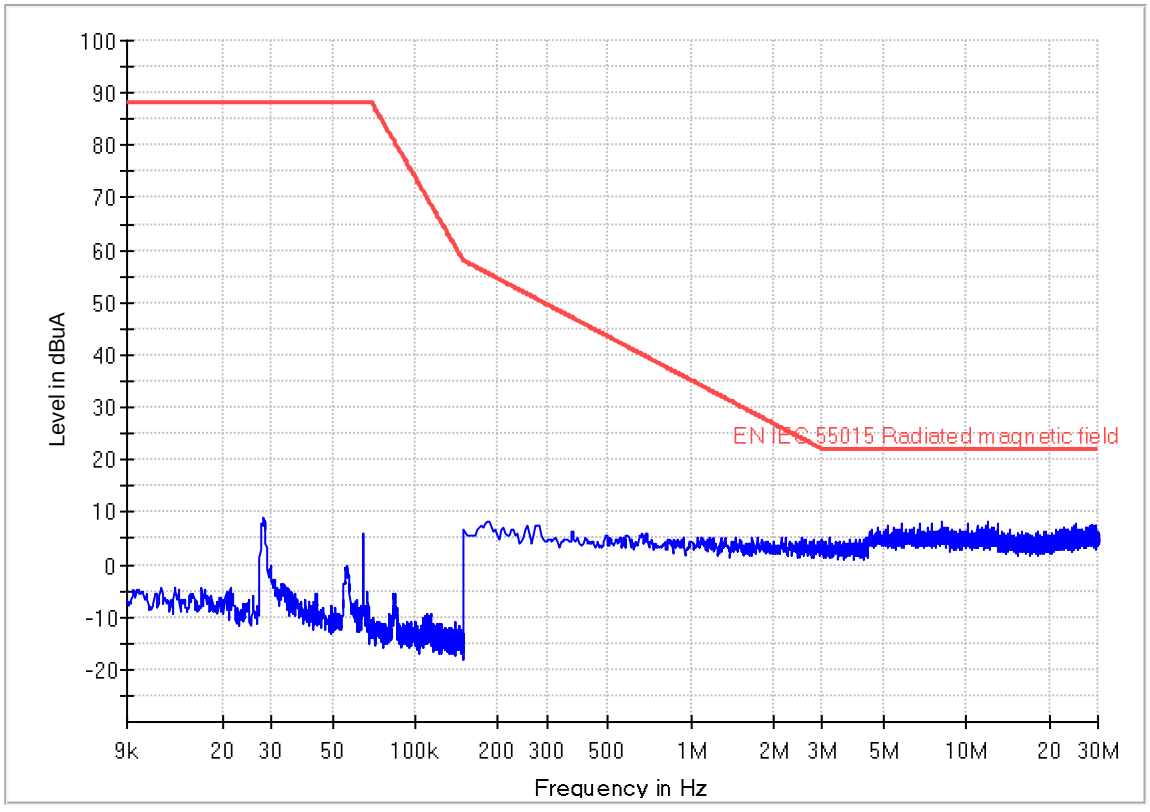
EUT Information

EUT Name:	LED Tri-proof light
Model:	12004540-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op cond:	Mode 1
Tester	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	Z
Sample No.:	SHA-804103-1

Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup:	TripleLoop
Receiver:	[ESR 3]
Level Unit:	dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



9K-30MHz Radiated Disturbance Test

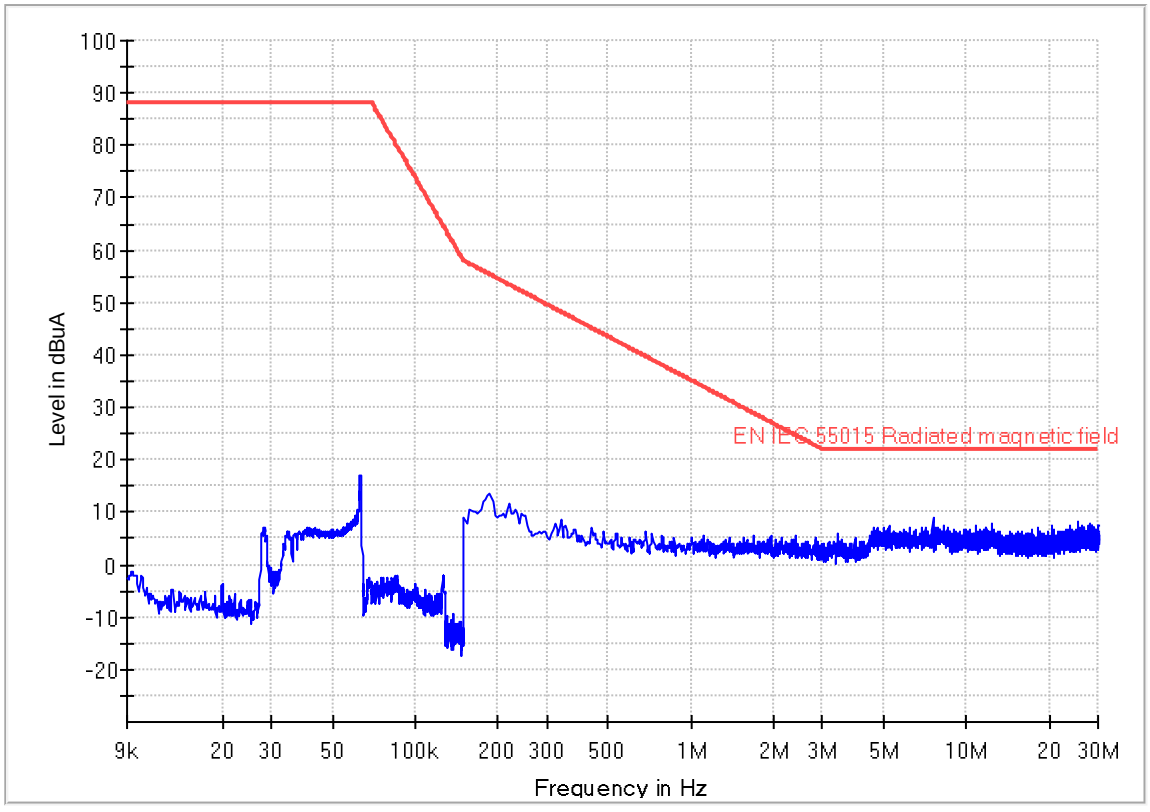
EUT Information

EUT Name:	LED Tri-proof light
Model:	12004378-1-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op cond:	Mode 1
Tester	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	X
Sample No.:	SHA-804103-2

Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup:	TripleLoop
Receiver:	[ESR 3]
Level Unit:	dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



9K-30MHz Radiated Disturbance Test

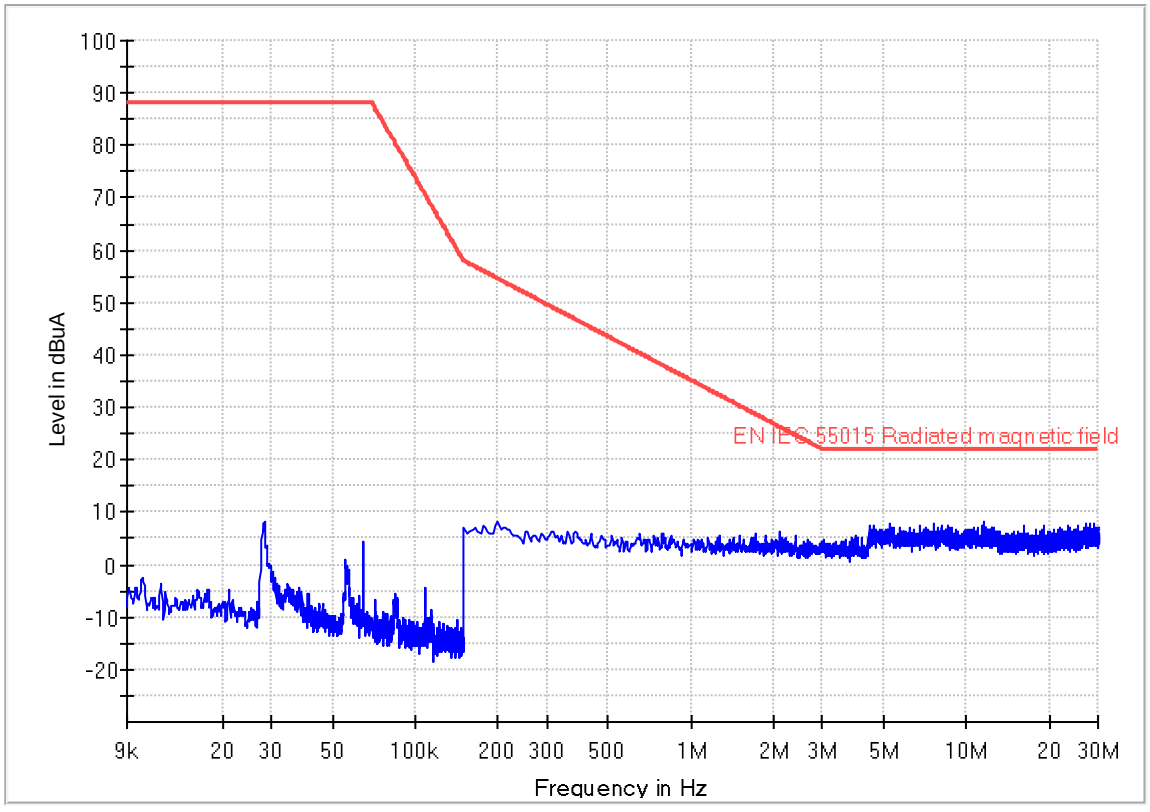
EUT Information

EUT Name:	LED Tri-proof light
Model:	12004378-1-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op cond:	Mode 1
Tester	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	Y
Sample No.:	SHA-804103-2

Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup:	TripleLoop
Receiver:	[ESR 3]
Level Unit:	dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



9K-30MHz Radiated Disturbance Test

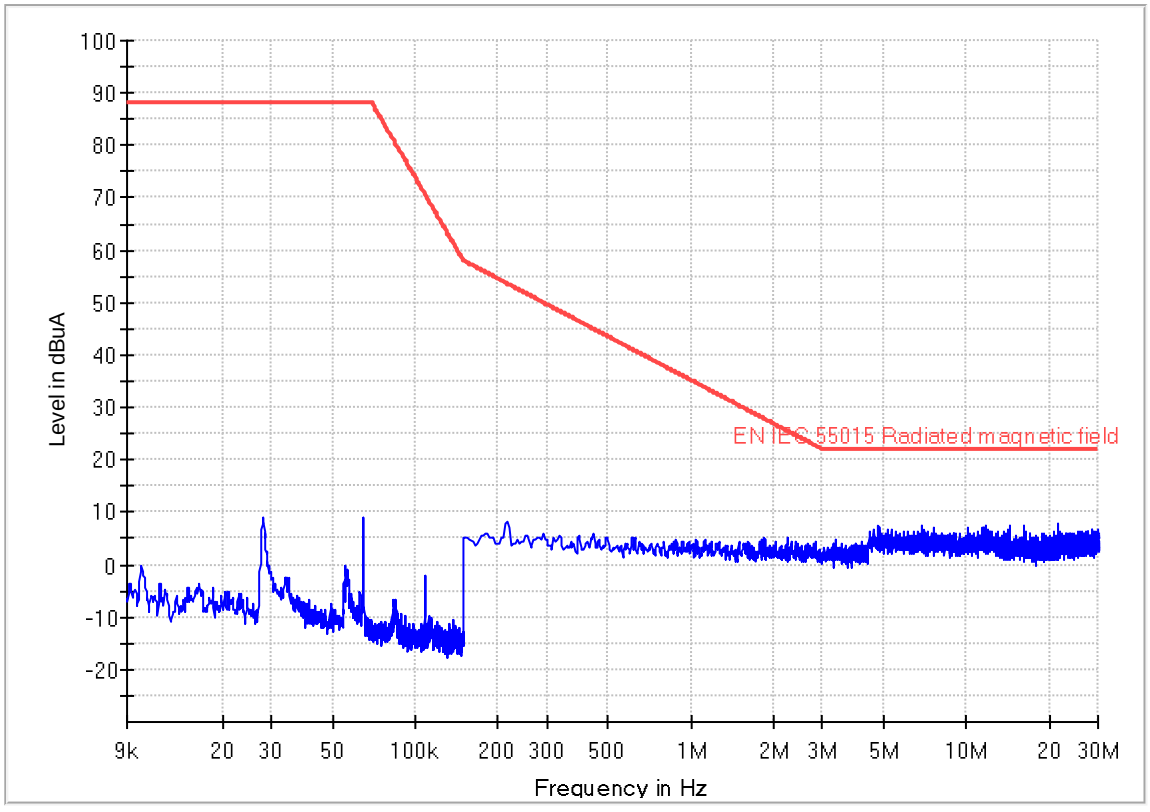
EUT Information

EUT Name:	LED Tri-proof light
Model:	12004378-1-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op cond:	Mode 1
Tester	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	Z
Sample No.:	SHA-804103-2

Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup:	TripleLoop
Receiver:	[ESR 3]
Level Unit:	dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



9K-30MHz Radiated Disturbance Test

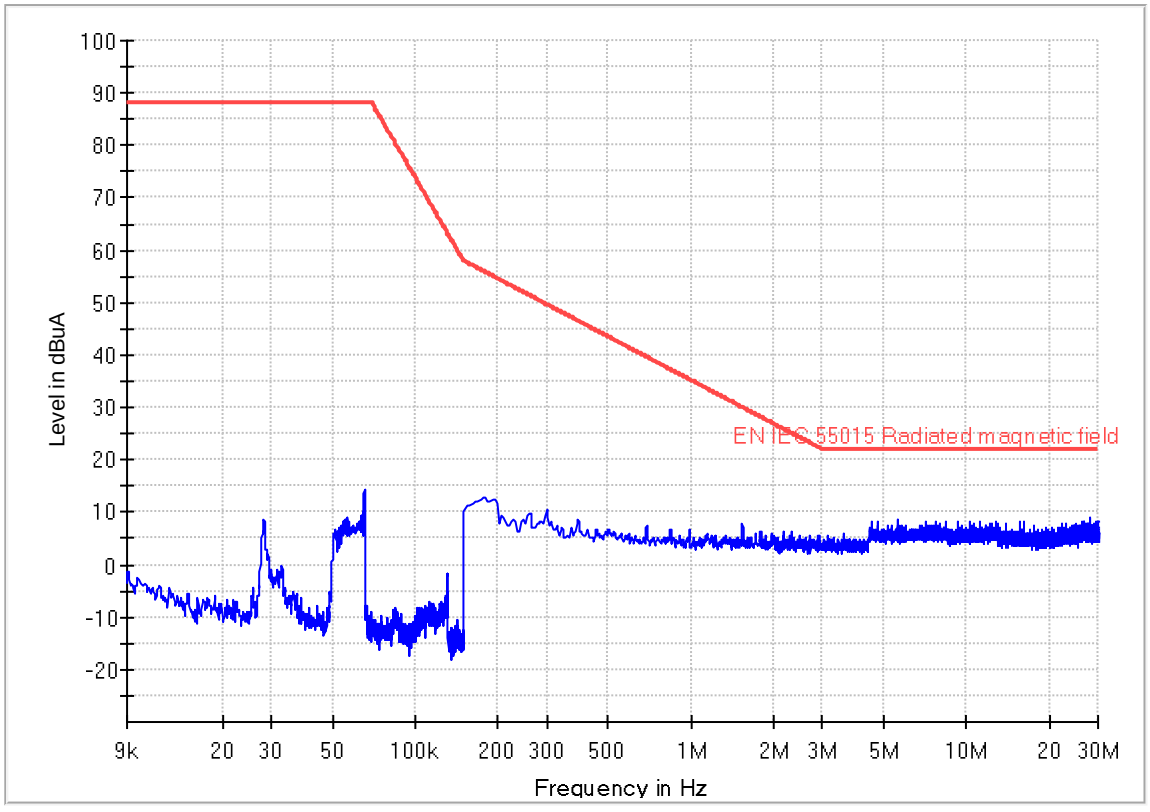
EUT Information

EUT Name:	LED Tri-proof light
Model:	12005222-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op cond:	Mode 1
Tester	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	X
Sample No.:	SHA-804103-3

Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup:	TripleLoop
Receiver:	[ESR 3]
Level Unit:	dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



9K-30MHz Radiated Disturbance Test

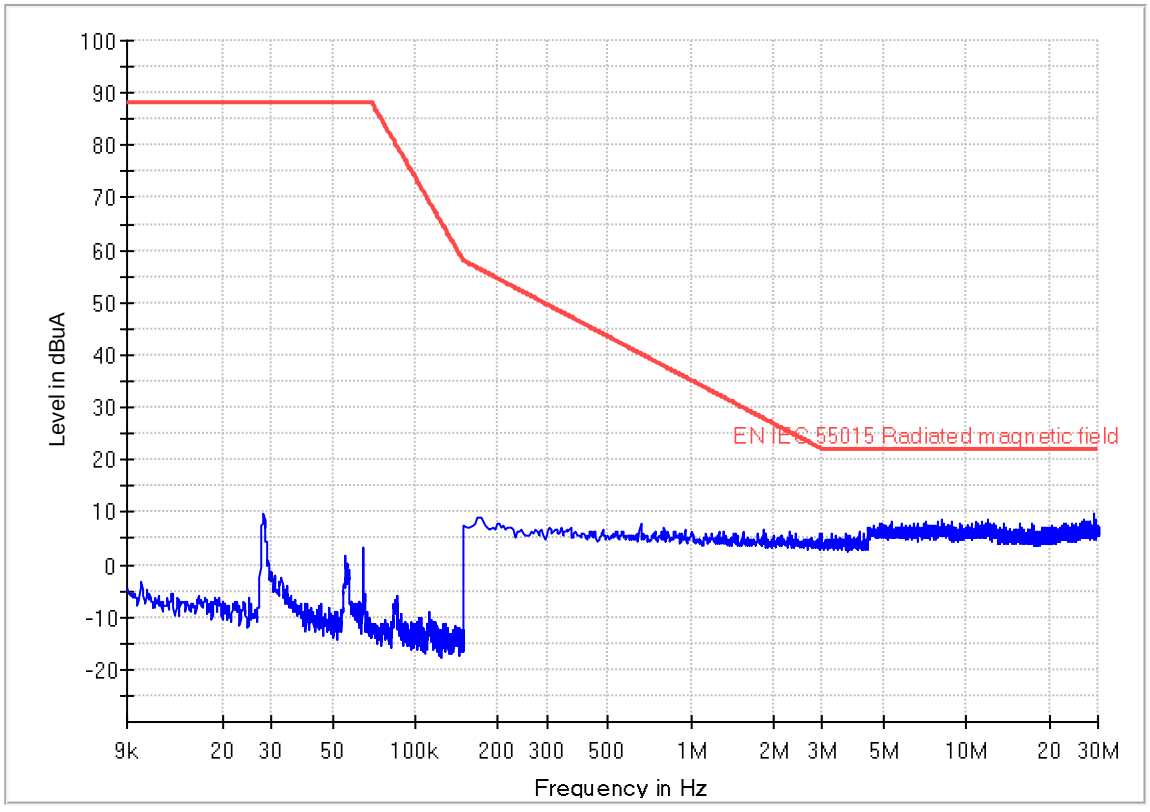
EUT Information

EUT Name:	LED Tri-proof light
Model:	12005222-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op cond:	Mode 1
Tester	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	Y
Sample No.:	SHA-804103-3

Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup:	TripleLoop
Receiver:	[ESR 3]
Level Unit:	dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



9K-30MHz Radiated Disturbance Test

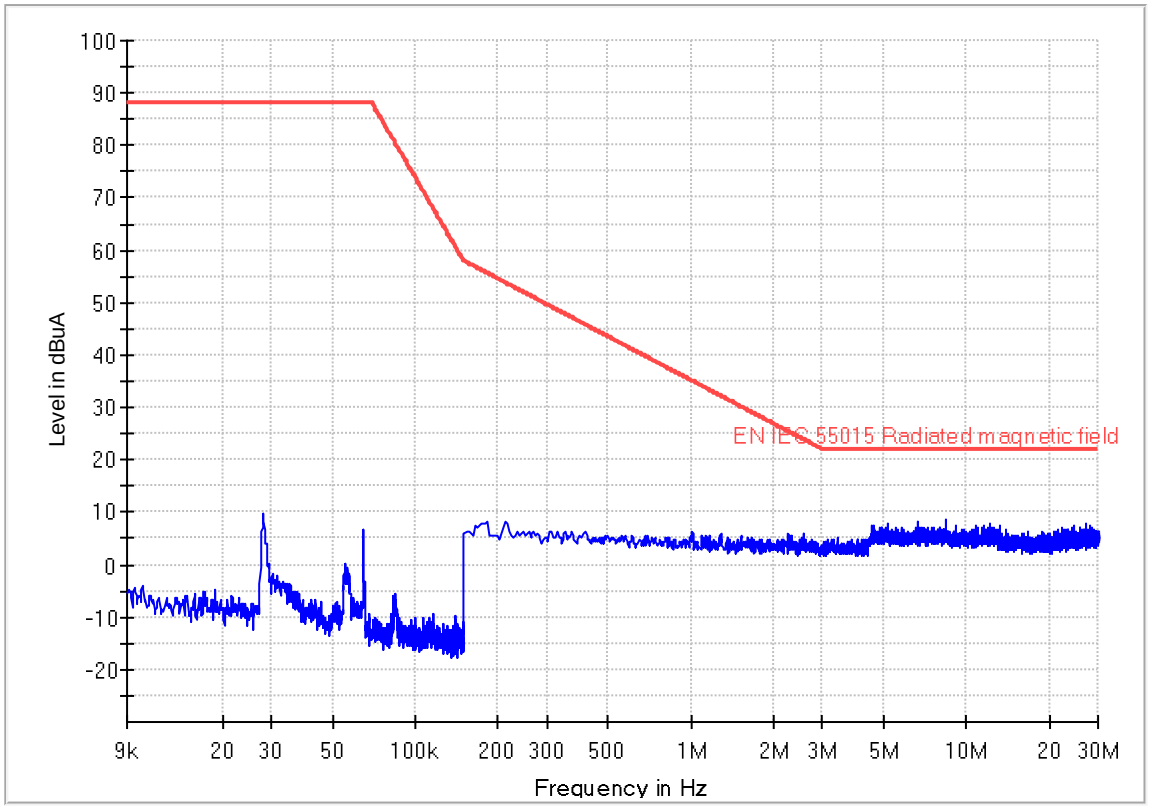
EUT Information

EUT Name:	LED Tri-proof light
Model:	12005222-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op cond:	Mode 1
Tester	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	Z
Sample No.:	SHA-804103-3

Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup:	TripleLoop
Receiver:	[ESR 3]
Level Unit:	dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



9K-30MHz Radiated Disturbance Test

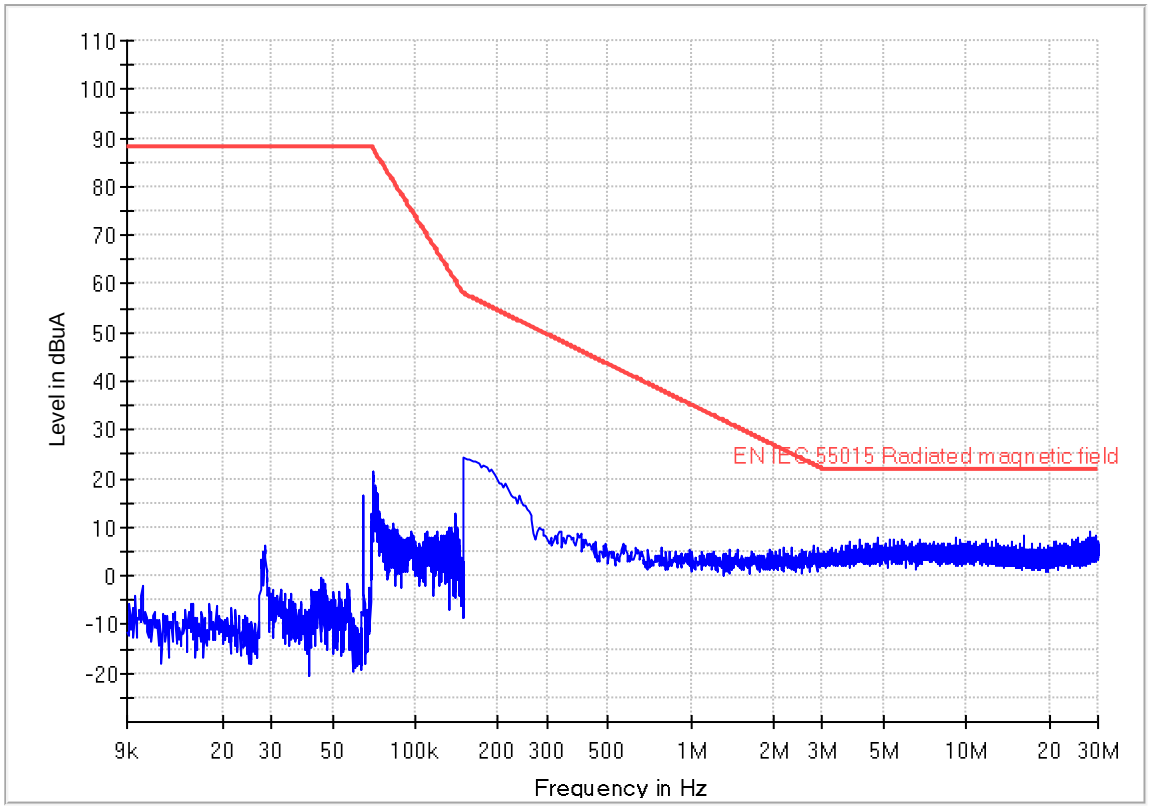
EUT Information

EUT Name:	LED Tri-proof light
Model:	12004513-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op cond:	Mode 1
Tester	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	X
Sample No.:	SHA-804103-4

Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup:	TripleLoop
Receiver:	[ESR 3]
Level Unit:	dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



9K-30MHz Radiated Disturbance Test

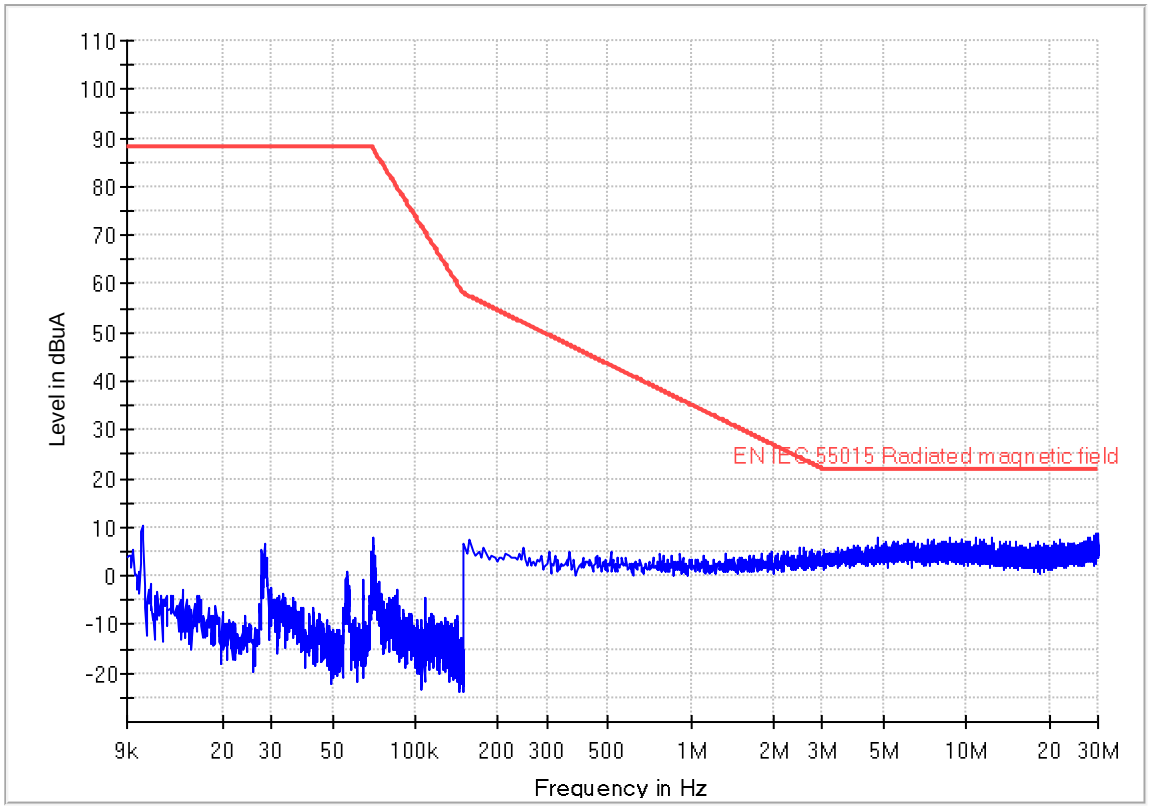
EUT Information

EUT Name:	LED Tri-proof light
Model:	12004513-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op cond:	Mode 1
Tester	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	Y
Sample No.:	SHA-804103-4

Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup:	TripleLoop
Receiver:	[ESR 3]
Level Unit:	dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



9K-30MHz Radiated Disturbance Test

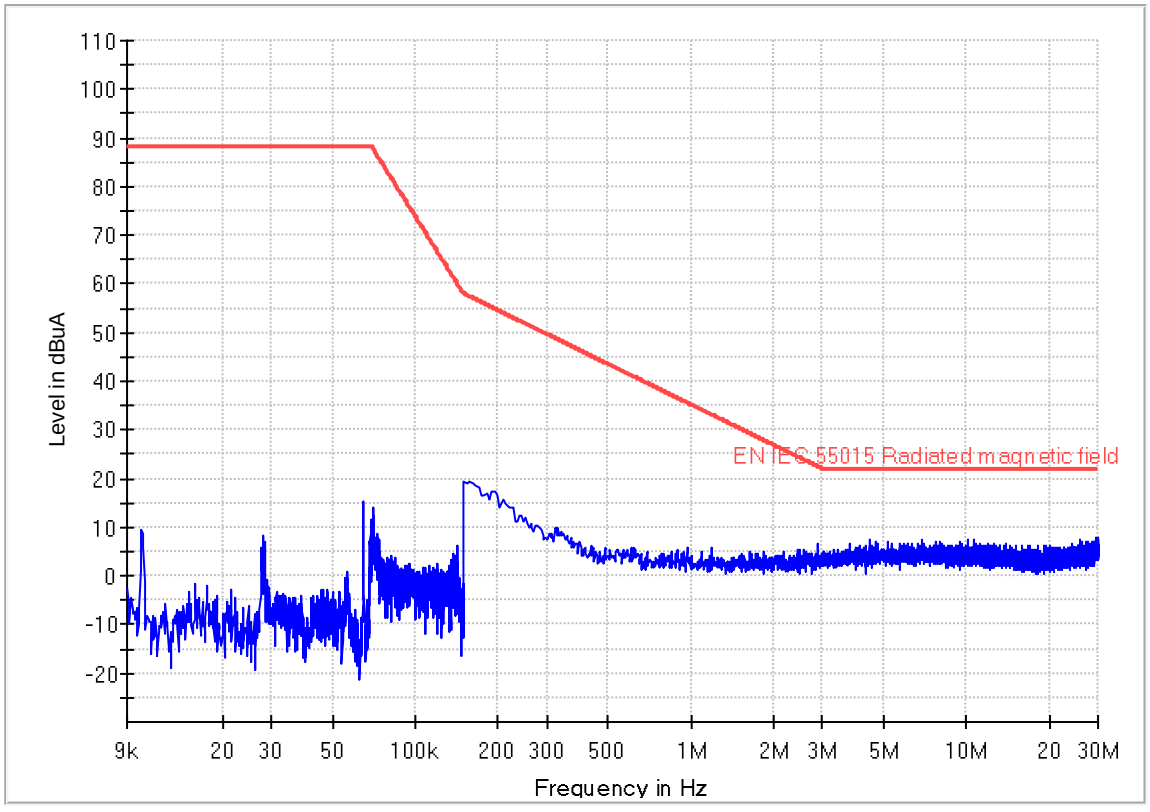
EUT Information

EUT Name:	LED Tri-proof light
Model:	12004513-F
Client:	Jiangxi Lepeng Electric Appliance Co.,LTD.
Op cond:	Mode 1
Tester	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	Z
Sample No.:	SHA-804103-4

Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup:	TripleLoop
Receiver:	[ESR 3]
Level Unit:	dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB

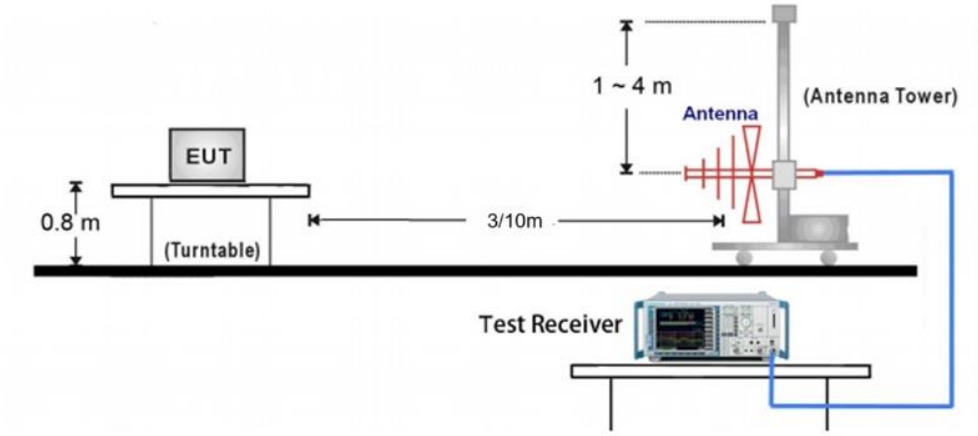


2.3 Radiated disturbance (30 MHz to 1 GHz)

2.3.1 Test Method

The EUT was set up in a semi-anechoic chamber on a remotely controlled turntable. Table top EUT was placed at 0,8 m above the reference plane. Floor standing EUT was placed at 0.1 m above the reference plane.

A prescan of the EUT emissions profile was made while varying the antenna-to-EUT azimuth and antenna-to-EUT polarization using a peak detector; measurements were taken at a 3m/10m distance. Using the prescan list of the highest emissions detected, their bearing and associated antenna polarization, the EUT was then formally measured using a Quasi-Peak detector. The readings were maximized by adjusting the antenna height, polarization and turntable azimuth, in accordance with the specification.

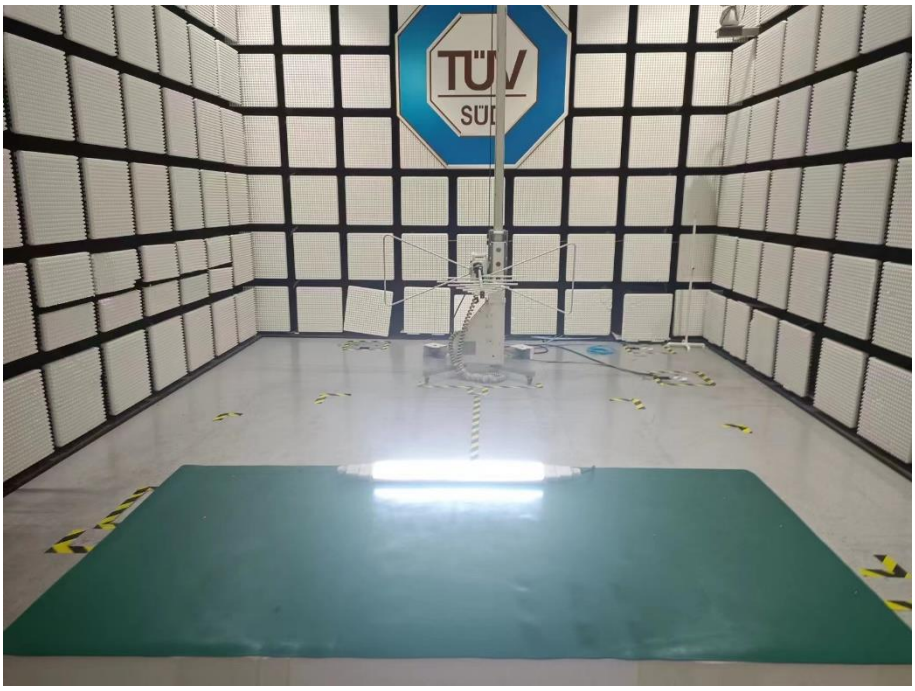


2.3.2 Specification Limits

Radiated disturbance limits for the frequency range 30MHz to 1000MHz at a measuring distance of 10 m	
Frequency range MHz	Quasi-peak limits dB(µV/m)
30 to 230	30
230 to 1000	37

Radiated disturbance limits for the frequency range 30MHz to 1000MHz at a measuring distance of 3 m	
Frequency range MHz	Quasi-peak limits dB(µV/m)
30 to 230	40
230 to 1000	47

2.3.3 Test Setup Photos



2.3.4 Test Results

30-1000MHz Radiated Disturbance Test

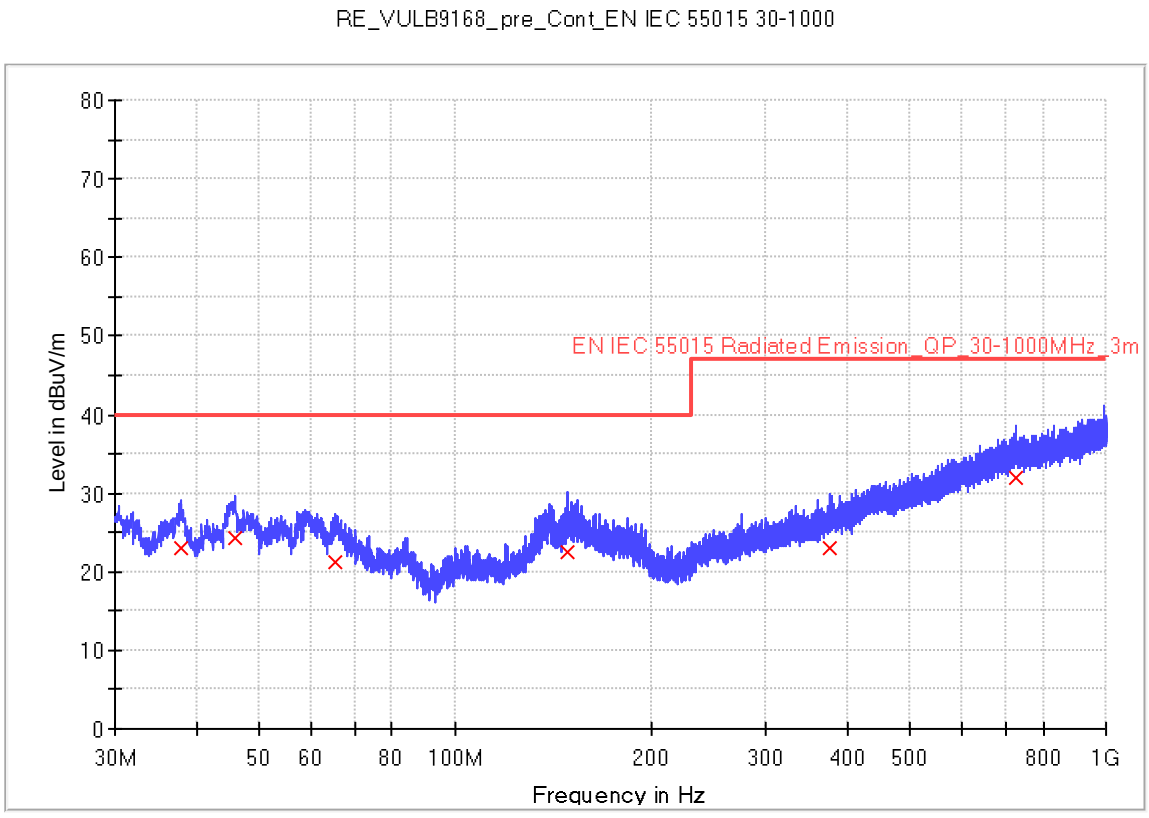
EUT Information

EUT Name:	LED Tri-proof light
Model:	12004540-F
Client:	Jiangxi Lepeng Electric Appliance Co.,Ltd
Op Cond:	Mode 1
Operator:	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	Horizontal
Sample No:	SHA-804103-1

Sweep Setup: RE_VULB9168_pre_Cont_EN IEC 55015 30-1000 [EMI radiated]

Hardware Setup:	RE_VULB9168
Receiver:	[ESR 3]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	48.5 kHz	PK+	120 kHz	0.2 s	20 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)
37.800000	22.9	1000.0	120.000	201.0	H	132.0	19.7	17.1
45.920000	24.3	1000.0	120.000	116.0	H	316.0	20.4	15.7
65.440000	21.1	1000.0	120.000	134.0	H	255.0	19.3	18.9
148.320000	22.5	1000.0	120.000	117.0	H	167.0	20.9	17.5
376.600000	23.0	1000.0	120.000	143.0	H	98.0	23.7	24.0
728.840000	31.9	1000.0	120.000	152.0	H	143.0	31.4	15.1

(continuation of the "Limit and Margin" table from column 16 ...)

Frequency (MHz)	Limit - QPK (dBuV/m)	Comment
37.800000	40.0	
45.920000	40.0	
65.440000	40.0	
148.320000	40.0	
376.600000	47.0	
728.840000	47.0	

30-1000MHz Radiated Disturbance Test

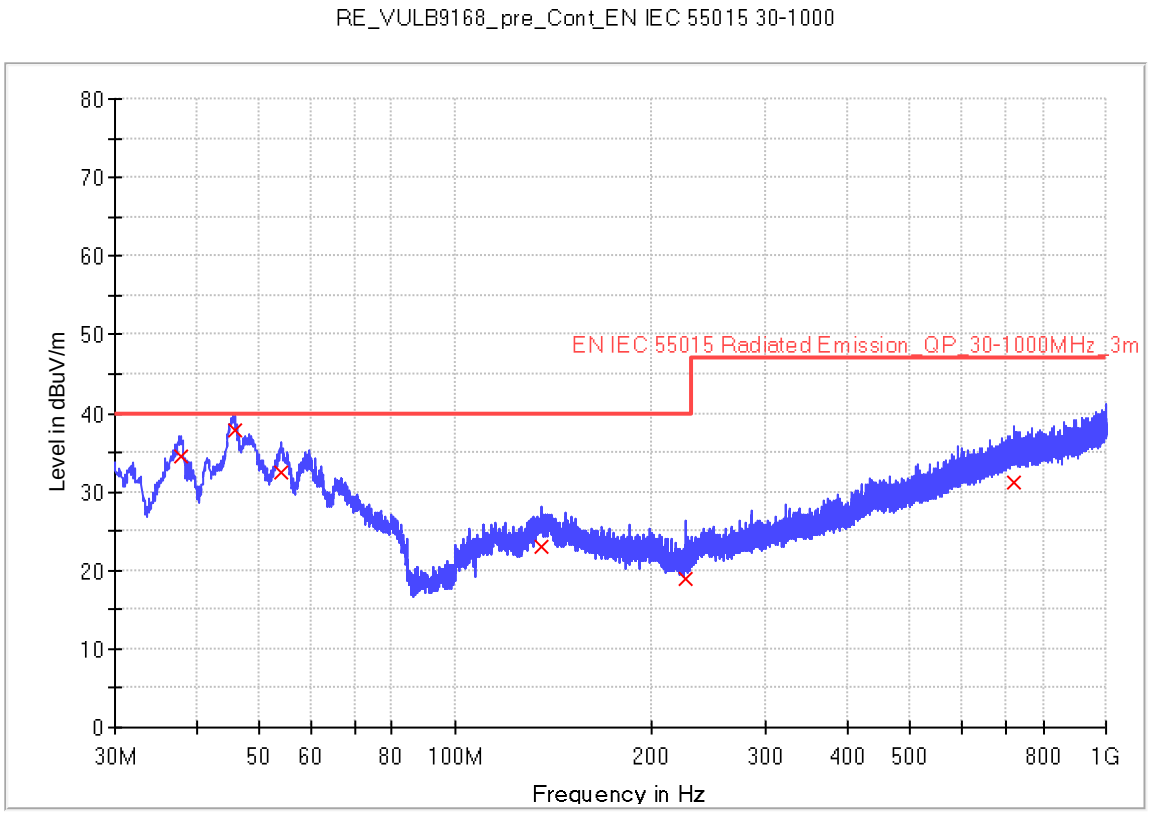
EUT Information

EUT Name:	LED Tri-proof light
Model:	12004540-F
Client:	Jiangxi Lepeng Electric Appliance Co.,Ltd
Op Cond:	Mode 1
Operator:	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	Vertical
Sample No:	SHA-804103-1

Sweep Setup: RE_VULB9168_pre_Cont_EN IEC 55015 30-1000 [EMI radiated]

Hardware Setup:	RE_VULB9168
Receiver:	[ESR 3]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	48.5 kHz	PK+	120 kHz	0.2 s	20 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)
37.840000	34.6	1000.0	120.000	119.0	V	165.0	19.7	5.5
45.840000	37.9	1000.0	120.000	105.0	V	346.0	20.4	2.2
53.880000	32.5	1000.0	120.000	110.0	V	118.0	20.4	7.5
135.720000	23.0	1000.0	120.000	143.0	V	246.0	19.9	17.0
226.200000	18.9	1000.0	120.000	116.0	V	143.0	17.6	21.1
719.560000	31.1	1000.0	120.000	152.0	V	89.0	31.0	15.9

(continuation of the "Limit and Margin" table from column 16 ...)

Frequency (MHz)	Limit - QPK (dBuV/m)	Comment
37.840000	40.0	
45.840000	40.0	
53.880000	40.0	
135.720000	40.0	
226.200000	40.0	
719.560000	47.0	

30-1000MHz Radiated Emission Test

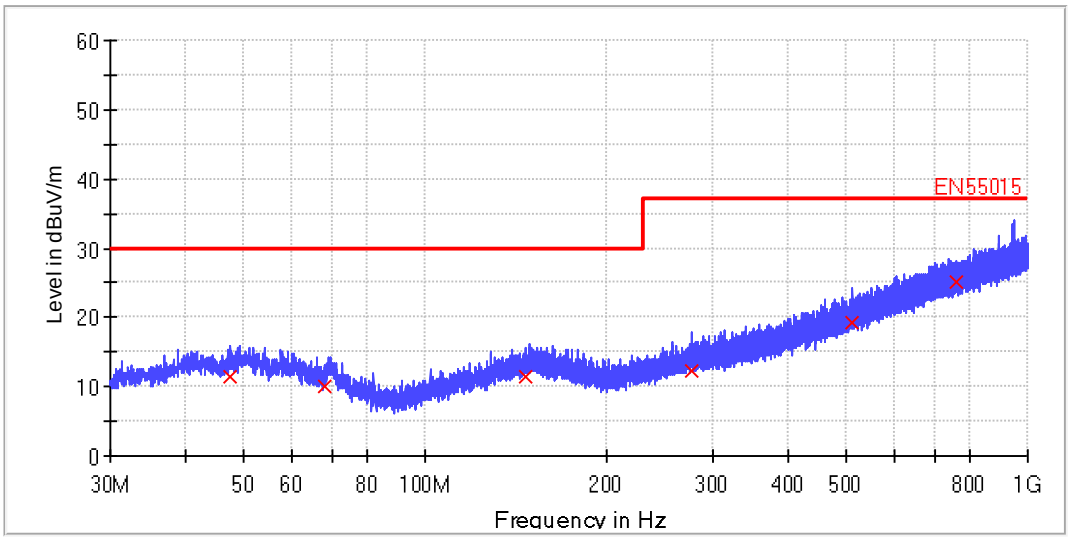
Common Information

EUT Name:	LED Tri-proof light
Model:	12004378-1-F
Client:	Jiangxi Lepeng Electric Appliance Co.,Ltd
Op Cond:	Mode 1
Operator:	Chumeng LIU
Test Spec:	EN IEC 55015
Comment:	Horizontal
Sample No:	SHA-804103-2

Scan Setup: EN 55015 30M-1G [EMI radiated]

Hardware Setup:	10m 30-1G VULB9168
Receiver:	[ESCI 3]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 1 GHz	40 kHz	PK+	120 kHz	0.001 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
47.280000	11.4	1000.0	146.0	4.0	-10.1	18.6	30.0
68.280000	10.1	1000.0	129.0	130.0	-12.0	20.0	30.0
146.440000	11.4	1000.0	150.0	166.0	-9.3	18.7	30.0
276.000000	12.3	1000.0	153.0	197.0	-7.9	24.7	37.0
509.120000	19.3	1000.0	166.0	54.0	-0.2	17.7	37.0
763.240000	25.2	1000.0	178.0	24.0	5.8	11.8	37.0

30-1000MHz Radiated Emission Test

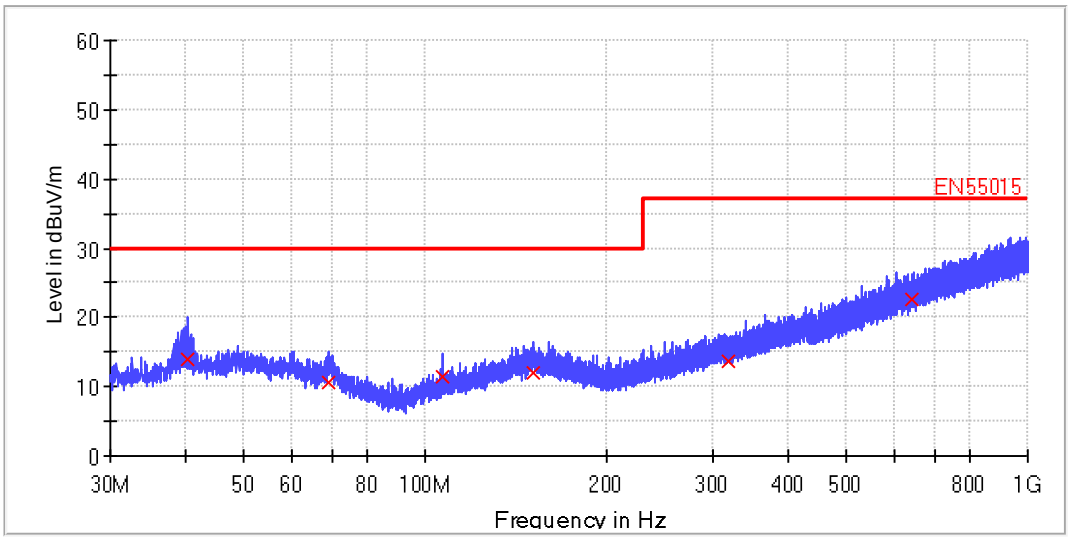
Common Information

EUT Name:	LED Tri-proof light
Model:	12004378-1-F
Client:	Jiangxi Lepeng Electric Appliance Co.,Ltd
Op Cond:	Mode 1
Operator:	Chumeng LIU
Test Spec:	EN IEC 55015
Comment:	Vertical
Sample No:	SHA-804103-2

Scan Setup: EN 55015 30M-1G [EMI radiated]

Hardware Setup:	10m 30-1G VULB9168
Receiver:	[ESCI 3]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 1 GHz	40 kHz	PK+	120 kHz	0.001 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
40.400000	13.9	1000.0	146.0	8.0	-10.7	16.1	30.0
69.160000	10.7	1000.0	159.0	7.0	-12.1	19.3	30.0
106.920000	11.6	1000.0	154.0	5.0	-13.1	18.5	30.0
151.240000	12.0	1000.0	123.0	46.0	-9.0	18.0	30.0
317.440000	13.7	1000.0	146.0	232.0	-6.3	23.3	37.0
643.520000	22.6	1000.0	179.0	87.0	3.3	14.4	37.0

30-1000MHz Radiated Disturbance Test

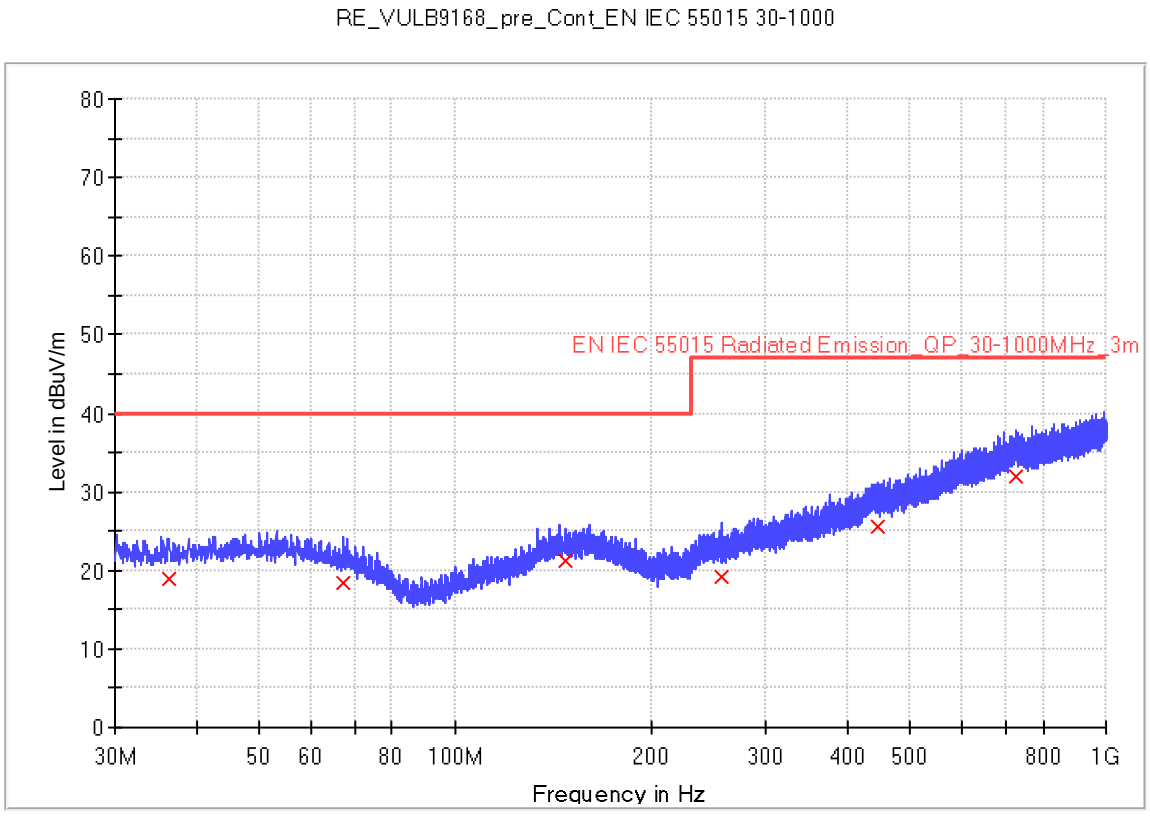
EUT Information

EUT Name:	LED Tri-proof light
Model:	12005222-F
Client:	Jiangxi Lepeng Electric Appliance Co.,Ltd
Op Cond:	Mode 1
Operator:	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	Horizontal
Sample No:	SHA-804103-3

Sweep Setup: RE_VULB9168_pre_Cont_EN IEC 55015 30-1000 [EMI radiated]

Hardware Setup:	RE_VULB9168
Receiver:	[ESR 3]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	48.5 kHz	PK+	120 kHz	0.2 s	20 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)
36.200000	19.0	1000.0	120.000	121.0	H	156.0	19.7	21.0
67.280000	18.4	1000.0	120.000	105.0	H	219.0	19.1	21.6
147.480000	21.1	1000.0	120.000	116.0	H	16.0	20.9	18.9
256.040000	19.1	1000.0	120.000	141.0	H	252.0	19.9	27.9
444.960000	25.4	1000.0	120.000	205.0	H	348.0	25.7	21.6
728.360000	31.9	1000.0	120.000	152.0	H	167.0	31.4	15.1

(continuation of the "Limit and Margin" table from column 16 ...)

Frequency (MHz)	Limit - QPK (dBuV/m)	Comment
36.200000	40.0	
67.280000	40.0	
147.480000	40.0	
256.040000	47.0	
444.960000	47.0	
728.360000	47.0	

30-1000MHz Radiated Disturbance Test

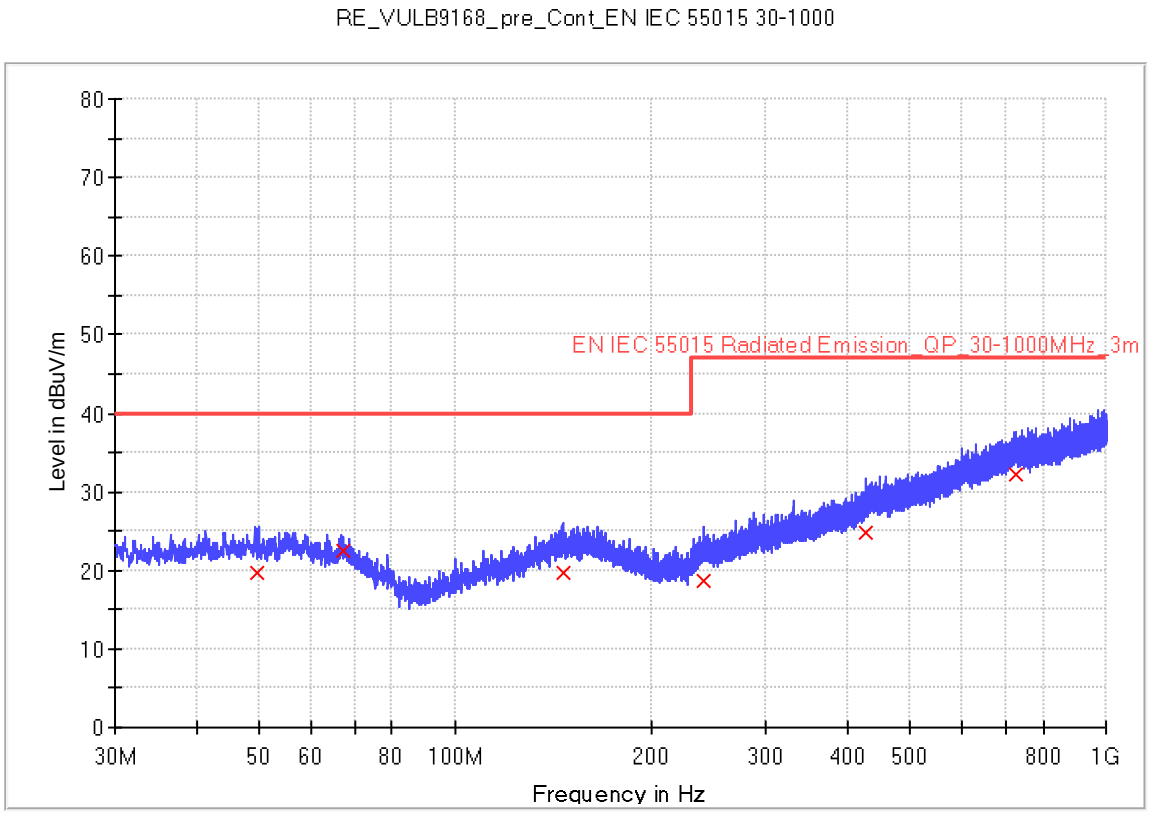
EUT Information

EUT Name:	LED Tri-proof light
Model:	12005222-F
Client:	Jiangxi Lepeng Electric Appliance Co.,Ltd
Op Cond:	Mode 1
Operator:	Weijie Xu
Test Spec:	EN IEC 55015
Comment:	Vertical
Sample No:	SHA-804103-3

Sweep Setup: RE_VULB9168_pre_Cont_EN IEC 55015 30-1000 [EMI radiated]

Hardware Setup:	RE_VULB9168
Receiver:	[ESR 3]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	48.5 kHz	PK+	120 kHz	0.2 s	20 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)
49.480000	19.8	1000.0	120.000	152.0	V	52.0	20.5	20.2
67.160000	22.6	1000.0	120.000	115.0	V	141.0	19.1	17.4
146.160000	19.7	1000.0	120.000	205.0	V	16.0	20.8	20.3
241.160000	18.6	1000.0	120.000	136.0	V	341.0	19.6	28.4
426.600000	24.7	1000.0	120.000	127.0	V	248.0	25.1	22.3
729.520000	32.1	1000.0	120.000	131.0	V	156.0	31.4	14.9

(continuation of the "Limit and Margin" table from column 16 ...)

Frequency (MHz)	Limit - QPK (dBuV/m)	Comment
49.480000	40.0	
67.160000	40.0	
146.160000	40.0	
241.160000	47.0	
426.600000	47.0	
729.520000	47.0	

30-1000MHz Radiated Emission Test

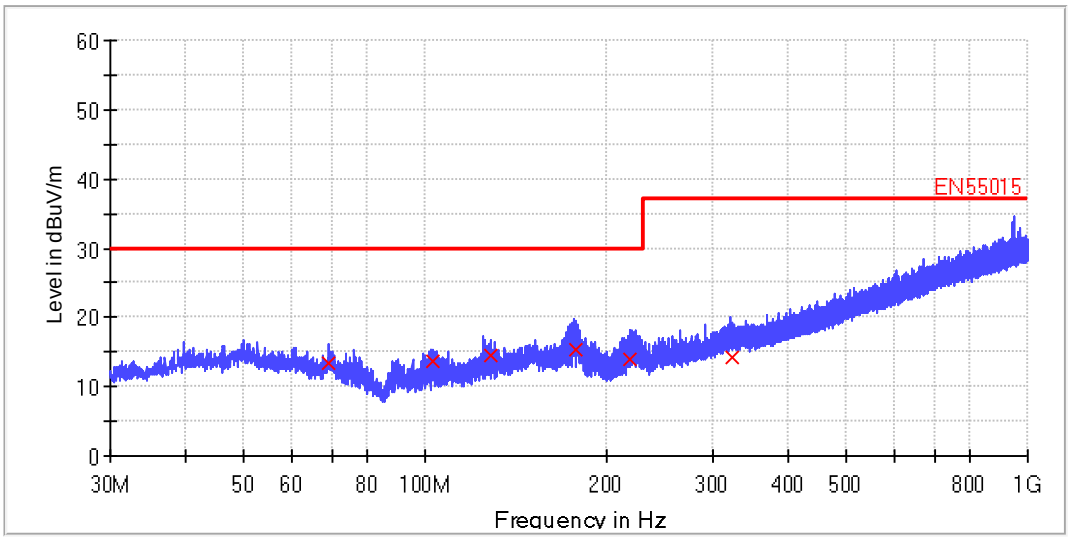
Common Information

EUT Name:	LED Tri-proof light
Model:	S12004513-F
Client:	Jiangxi Lepeng Electric Appliance Co.,Ltd
Op Cond:	Mode 1
Operator:	Chumeng LIU
Test Spec:	EN IEC 55015
Comment:	Horizontal
Sample No:	SHA-804103-4

Scan Setup: EN 55015 30M-1G [EMI radiated]

Hardware Setup:	10m 30-1G VULB9168
Receiver:	[ESCI 3]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 1 GHz	40 kHz	PK+	120 kHz	0.001 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
69.240000	13.5	1000.0	150.0	155.0	-12.1	16.5	30.0
103.000000	13.7	1000.0	149.0	156.0	-13.4	16.3	30.0
128.120000	14.4	1000.0	126.0	144.0	-11.0	15.6	30.0
177.240000	15.4	1000.0	151.0	23.0	-10.1	14.6	30.0
217.880000	13.9	1000.0	147.0	89.0	-10.4	16.1	30.0
322.760000	14.2	1000.0	166.0	7.0	-6.1	22.8	37.0

30-1000MHz Radiated Emission Test

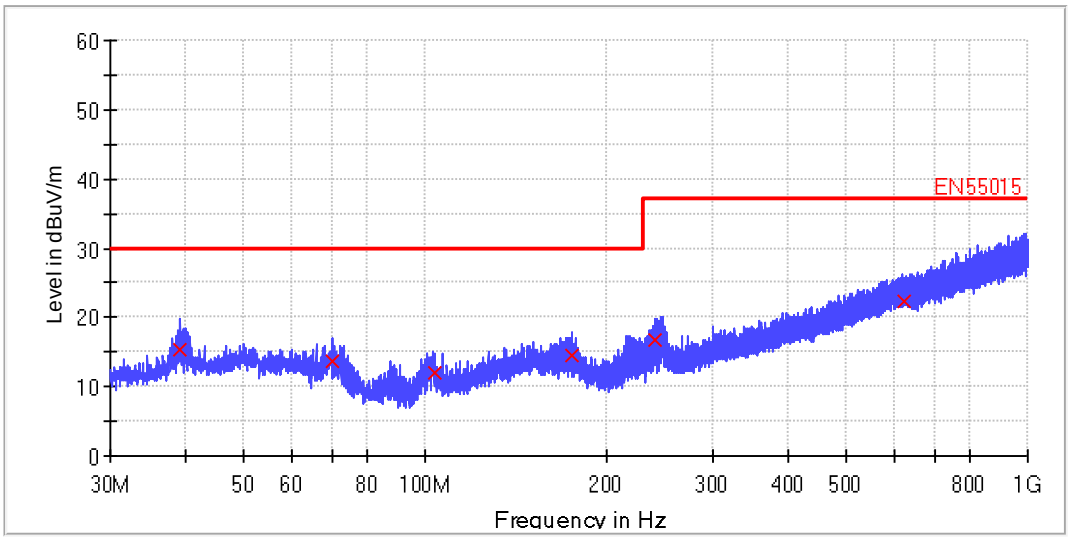
Common Information

EUT Name:	LED Tri-proof light
Model:	S12004513-F
Client:	Jiangxi Lepeng Electric Appliance Co.,Ltd
Op Cond:	Mode 1
Operator:	Chumeng LIU
Test Spec:	EN IEC 55015
Comment:	Vertical
Sample No:	SHA-804103-4

Scan Setup: EN 55015 30M-1G [EMI radiated]

Hardware Setup:	10m 30-1G VULB9168
Receiver:	[ESCI 3]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 1 GHz	40 kHz	PK+	120 kHz	0.001 s	0 dB



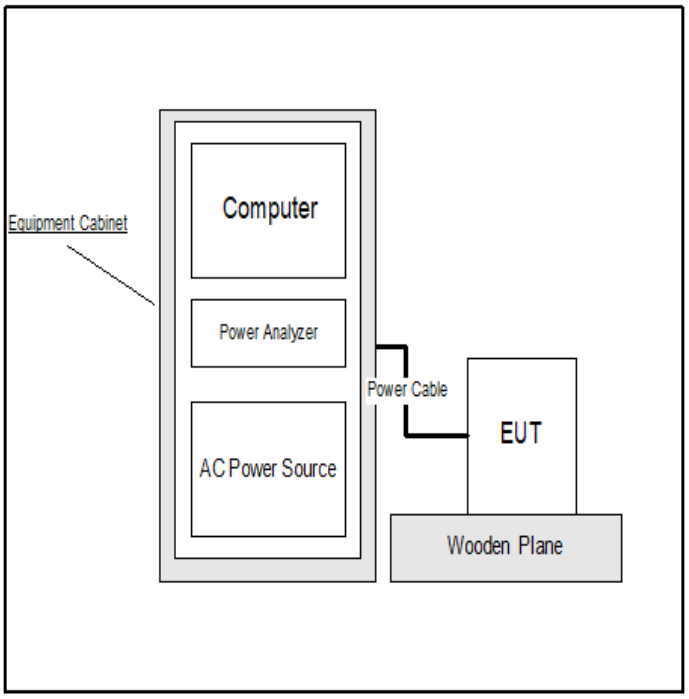
Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
39.120000	15.4	1000.0	199.0	23.0	-10.9	14.6	30.0
70.080000	13.7	1000.0	126.0	46.0	-12.2	16.3	30.0
103.440000	12.1	1000.0	157.0	157.0	-13.4	17.9	30.0
175.360000	14.7	1000.0	147.0	158.0	-10.1	15.4	30.0
240.920000	16.8	1000.0	169.0	19.0	-9.4	20.2	37.0
621.720000	22.3	1000.0	123.0	146.0	2.7	14.7	37.0

2.4 Harmonic current emission

2.4.1 Test Method

Harmonic components shall be measured in accordance with the requirements given in Annex A of EN 61000-3-2 for the test circuit and the supply source



2.4.2 Specification Limits

Limits for class C Equipment rated power ≥5W and ≤ 25W Comply with one of the following three sets of requirements	
Harmonic order h	Maximum permissible harmonic current per watt mA/W
3	3,4
5	1,9
7	1,0
9	0,5
11	0,35
13≤h≤ 39 (odd harmonic only)	3.85/h
– the third harmonic current, expressed as a percentage of the fundamental current, shall not exceed 86% and the fifth harmonic current shall not exceed 61%.In addition, the waveform of the input current shall be such that it reaches the 5 % current threshold before or at 60°, has its peak value before or at 65° and does not fall below the 5 % current threshold before 90°, referenced to any zero crossing of the fundamental supply voltage.	
– the *THD* shall not exceed 70 %. The third order harmonic current, expressed as a percentage of the fundamental current, shall not exceed 35 %, the fifth order current shall not exceed 25 %, the seventh order current shall not exceed 30 %, the ninth and eleventh order currents shall not exceed 20 % and the second order current shall not exceed 5 %.	

Limits for class C Equipment rated power > 25W [a]	
Harmonic order h	Maximum permissible harmonic current expressed as a percentage of the input current at the fundamental frequency %
2	2
3	27
5	10
7	7
9	5
11≤ h≤ 39 (odd harmonic only)	3
a For some class C products, other emission limits apply	

2.4.3 Test Setup Photos



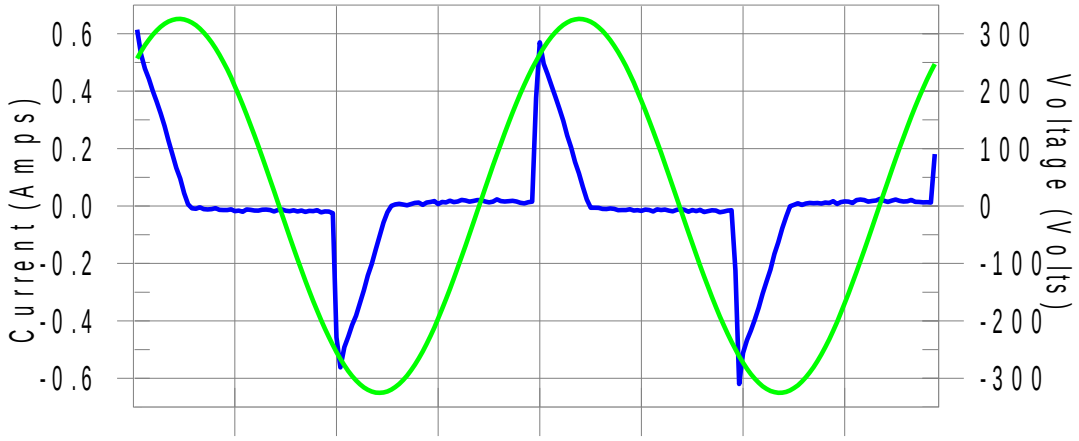
2.4.4 Test Results

Harmonics – Class-C (>=5W and <= 25W) per IEC 61000-3-2:2018/AMD1:2020(Run time)

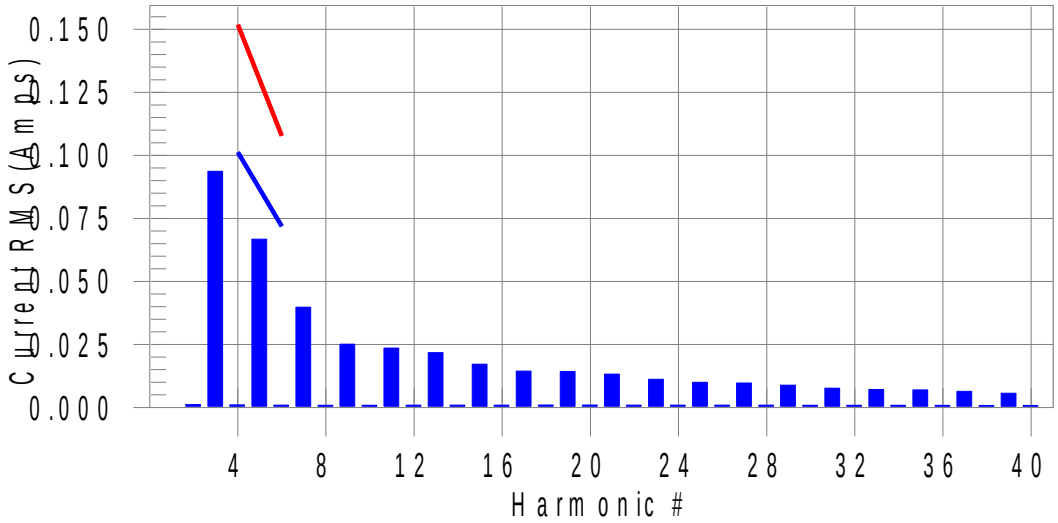
EUT: LED Tri-proof light **Tested by: Weijie XU**
Test category: Class-C (European limits) **Test Margin: 100**
Test date: 4/14/2024 **Start time: 4:35:18 PM** **End time: 4:38:00 PM**
Test duration (min): 2.5 **Data file name: H-000530.cts_data**
Comment: Mode 1, 12004540-F, SHA-804103-1
Customer: Jiangxi Lepeng Electric Appliance Co.,Ltd

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class C(Special waveform with 3rd & 5th harmonic limits)European Limits



Test result: Pass H3 & H5 < limit & waveform meets phase angle requirements

Current Test Result Summary (Run time)

EUT: LED Tri-proof light **Tested by: Weijie XU**
Test category: Class-C (European limits) **Test Margin: 100**
Test date: 4/14/2024 **Start time: 4:35:18 PM** **End time: 4:38:00 PM**
Test duration (min): 2.5 **Data file name: H-000530.cts_data**
Comment: Mode 1, 12004540-F, SHA-804103-1
Customer: Jiangxi Lepeng Electric Appliance Co.,Ltd

Test Result: Pass **Source qualification: Normal**

THC(A): 0.134 **I-THD(%): 114.0** **POHC: N/A** **POHC Limit: N/A**

Highest parameter values during test:

V_RMS (Volts):	230.25	Frequency (Hz):	
I_Peak (Amps):	0.630	I_RMS (Amps):	0.180
I_Fund (Amps):	0.118	Crest Factor:	3.526
Power (Watts):	23.7	Power Factor:	0.577

Harm#	Harms	100%Limit	%of Limit	
3	93.68	101.27	92.5	Pass
5	66.78	71.83	93.0	Pass

Peak current (Ipeak) = -629.80 mA (629.8 mA absolute)
Peak current max. phase angle = 54 degree (Pos) **Pass**

Min. Current at 60 deg (I_60) = -482.70 mA (Neg) **Limit = 31.49 mA** **Pass**
Min. Current at 90 deg (I_90) = -105.72 mA (Neg) **Limit = 31.49 mA** **Pass**

Voltage Source Verification Data (Run time)

EUT: LED Tri-proof light **Tested by: Weijie XU**
Test category: Class-C (European limits) **Test Margin: 100**
Test date: 4/14/2024 **Start time: 4:35:18 PM** **End time: 4:38:00 PM**
Test duration (min): 2.5 **Data file name: H-000530.cts_data**
Comment: Mode 1, 12004540-F, SHA-804103-1
Customer: Jiangxi Lepeng Electric Appliance Co.,Ltd

Test Result: Pass **Source qualification: Normal**

Highest parameter values during test:

Voltage (Vrms):	**230.25**	**Frequency(Hz):**	
I_Peak (Amps):	**0.630**	**I_RMS (Amps):**	**0.180**
I_Fund (Amps):	**0.118**	**Crest Factor:**	**3.526**
Power (Watts):	**23.7**	**Power Factor:**	**0.577**

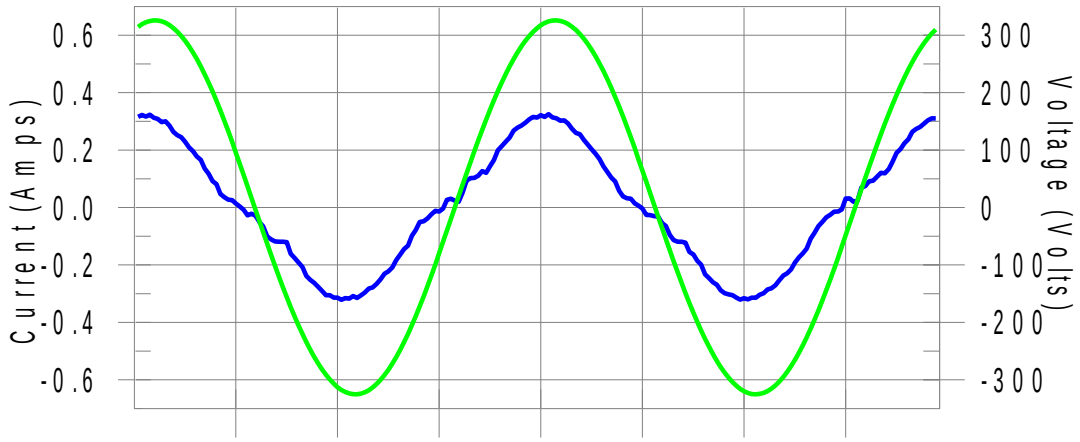
Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.075	0.460	16.33	OK
3	0.536	2.071	25.87	OK
4	0.047	0.460	10.26	OK
5	0.105	0.921	11.36	OK
6	0.010	0.460	2.18	OK
7	0.070	0.691	10.12	OK
8	0.023	0.460	4.93	OK
9	0.044	0.460	9.48	OK
10	0.019	0.460	4.18	OK
11	0.033	0.230	14.26	OK
12	0.007	0.230	3.19	OK
13	0.035	0.230	15.31	OK
14	0.007	0.230	3.22	OK
15	0.028	0.230	12.04	OK
16	0.008	0.230	3.48	OK
17	0.022	0.230	9.60	OK
18	0.007	0.230	2.90	OK
19	0.021	0.230	9.17	OK
20	0.009	0.230	3.86	OK
21	0.021	0.230	9.18	OK
22	0.004	0.230	1.70	OK
23	0.019	0.230	8.27	OK
24	0.002	0.230	1.08	OK
25	0.017	0.230	7.55	OK
26	0.004	0.230	1.93	OK
27	0.019	0.230	8.21	OK
28	0.004	0.230	1.80	OK
29	0.012	0.230	5.32	OK
30	0.003	0.230	1.28	OK
31	0.012	0.230	5.21	OK
32	0.003	0.230	1.45	OK
33	0.012	0.230	5.31	OK
34	0.003	0.230	1.14	OK
35	0.013	0.230	5.70	OK
36	0.002	0.230	0.95	OK
37	0.008	0.230	3.58	OK
38	0.003	0.230	1.22	OK
39	0.008	0.230	3.66	OK
40	0.003	0.230	1.23	OK

Harmonics – Class-C per IEC 61000-3-2:2018/AMD1:2020(Run time) incl. inter-harmonics

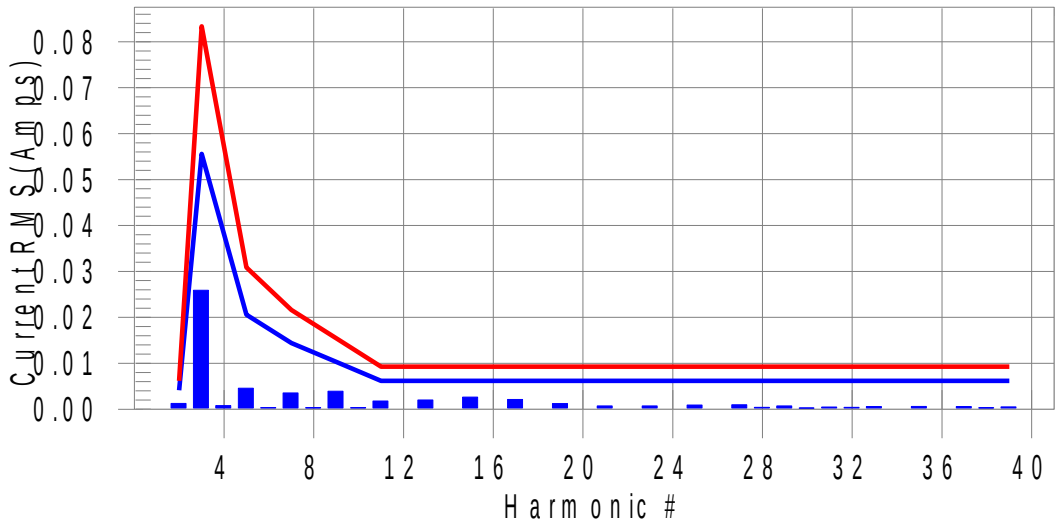
EUT: LED Tri-proof light **Tested by: Weijie XU**
Test category: Class-C (European limits) **Test Margin: 100**
Test date: 5/21/2024 **Start time: 1:54:32 PM** **End time: 1:57:13 PM**
Test duration (min): 2.5 **Data file name: H-000299.cts_data**
Comment: Mode 1, 12004378-1-F, SHA-804103-2
Customer: Jiangxi Lepeng Electric Appliance Co.,Ltd

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



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



Test result: Pass **Worst harmonics H3-32.7% of 150% limit, H3-46.6% of 100% limit**

Current Test Result Summary (Run time)

EUT: LED Tri-proof light **Tested by: Weijie XU**
Test category: Class-C (European limits) **Test Margin: 100**
Test date: 5/21/2024 **Start time: 1:54:32 PM** **End time: 1:57:13 PM**
Test duration (min): 2.5 **Data file name: H-000299.cts_data**
Comment: Mode 1, 12004378-1-F, SHA-804103-2
Customer: Jiangxi Lepeng Electric Appliance Co.,Ltd

Test Result: Pass **Source qualification: Normal**
THC(A): 0.027 **I-THD(%): 13.3** **POHC(A): 0.002** **POHC Limit(A): 0.020**

Highest parameter values during test:

V_RMS (Volts):	230.32	Frequency(Hz):	50.00
I_Peak (Amps):	0.334	I_RMS (Amps):	0.208
I_Fund (Amps):	0.206	Crest Factor:	1.625
Power (Watts):	46.6	Power Factor:	0.976

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	0.004	N/A	0.001	0.006	N/A	Pass
3	0.026	0.056	46.6	0.027	0.083	32.7	Pass
4	0.001	0.000	N/A	0.001	0.000	N/A	Pass
5	0.005	0.021	N/A	0.005	0.031	N/A	Pass
6	0.000	0.000	N/A	0.000	0.000	N/A	Pass
7	0.004	0.014	N/A	0.004	0.022	N/A	Pass
8	0.000	0.000	N/A	0.000	0.000	N/A	Pass
9	0.004	0.010	N/A	0.004	0.015	N/A	Pass
10	0.000	0.000	N/A	0.000	0.000	N/A	Pass
11	0.002	0.006	N/A	0.002	0.009	N/A	Pass
12	0.000	0.000	N/A	0.000	0.000	N/A	Pass
13	0.002	0.006	N/A	0.002	0.009	N/A	Pass
14	0.000	0.000	N/A	0.000	0.000	N/A	Pass
15	0.003	0.006	N/A	0.003	0.009	N/A	Pass
16	0.000	0.000	N/A	0.000	0.000	N/A	Pass
17	0.002	0.006	N/A	0.002	0.009	N/A	Pass
18	0.000	0.000	N/A	0.000	0.000	N/A	Pass
19	0.001	0.006	N/A	0.001	0.009	N/A	Pass
20	0.000	0.000	N/A	0.000	0.000	N/A	Pass
21	0.001	0.006	N/A	0.001	0.009	N/A	Pass
22	0.000	0.000	N/A	0.000	0.000	N/A	Pass
23	0.001	0.006	N/A	0.001	0.009	N/A	Pass
24	0.000	0.000	N/A	0.000	0.000	N/A	Pass
25	0.001	0.006	N/A	0.001	0.009	N/A	Pass
26	0.000	0.000	N/A	0.000	0.000	N/A	Pass
27	0.001	0.006	N/A	0.001	0.009	N/A	Pass
28	0.000	0.000	N/A	0.000	0.000	N/A	Pass
29	0.001	0.006	N/A	0.001	0.009	N/A	Pass
30	0.000	0.000	N/A	0.000	0.000	N/A	Pass
31	0.000	0.006	N/A	0.001	0.009	N/A	Pass
32	0.000	0.000	N/A	0.000	0.000	N/A	Pass
33	0.001	0.006	N/A	0.001	0.009	N/A	Pass
34	0.000	0.000	N/A	0.000	0.000	N/A	Pass
35	0.001	0.006	N/A	0.001	0.009	N/A	Pass
36	0.000	0.000	N/A	0.000	0.000	N/A	Pass
37	0.001	0.006	N/A	0.001	0.009	N/A	Pass
38	0.000	0.000	N/A	0.000	0.000	N/A	Pass
39	0.001	0.006	N/A	0.001	0.009	N/A	Pass
40	0.000	0.000	N/A	0.000	0.000	N/A	Pass

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

Voltage Source Verification Data (Run time)

EUT: LED Tri-proof light **Tested by: Weijie XU**
Test category: Class-C (European limits) **Test Margin: 100**
Test date: 5/21/2024 **Start time: 1:54:32 PM** **End time: 1:57:13 PM**
Test duration (min): 2.5 **Data file name: H-000299.cts_data**
Comment: Mode 1, 12004378-1-F, SHA-804103-2
Customer: Jiangxi Lepeng Electric Appliance Co.,Ltd

Test Result: Pass **Source qualification: Normal**

Highest parameter values during test:

Voltage (Vrms):	**230.32**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**0.334**	**I_RMS (Amps):**	**0.208**
I_Fund (Amps):	**0.206**	**Crest Factor:**	**1.625**
Power (Watts):	**46.6**	**Power Factor:**	**0.976**

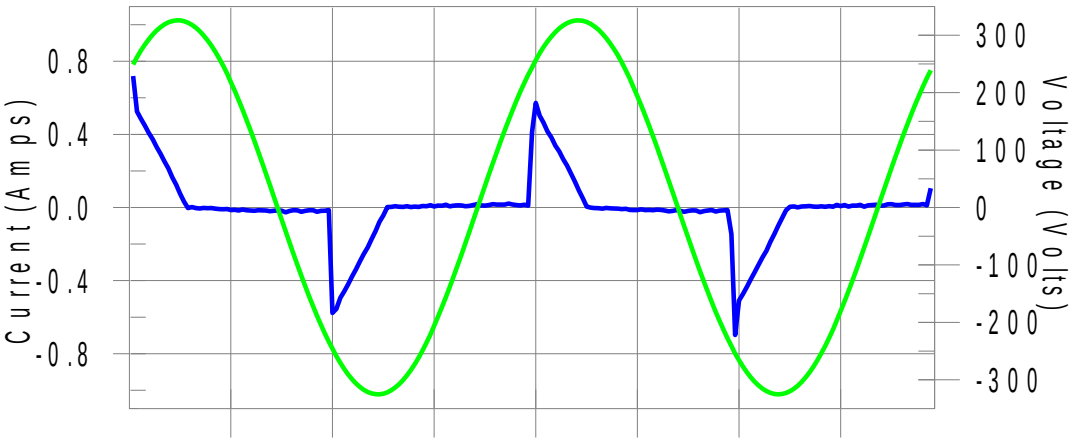
Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.078	0.461	16.91	OK
3	0.518	2.072	25.01	OK
4	0.045	0.460	9.67	OK
5	0.055	0.921	5.95	OK
6	0.010	0.460	2.19	OK
7	0.026	0.691	3.79	OK
8	0.023	0.461	4.93	OK
9	0.016	0.460	3.53	OK
10	0.016	0.460	3.50	OK
11	0.011	0.230	4.77	OK
12	0.006	0.230	2.81	OK
13	0.007	0.230	2.98	OK
14	0.007	0.230	2.95	OK
15	0.010	0.230	4.31	OK
16	0.007	0.230	2.91	OK
17	0.004	0.230	1.81	OK
18	0.006	0.230	2.47	OK
19	0.006	0.230	2.51	OK
20	0.008	0.230	3.59	OK
21	0.006	0.230	2.51	OK
22	0.004	0.230	1.83	OK
23	0.004	0.230	1.67	OK
24	0.003	0.230	1.13	OK
25	0.004	0.230	1.72	OK
26	0.003	0.230	1.41	OK
27	0.006	0.230	2.66	OK
28	0.002	0.230	0.99	OK
29	0.004	0.230	1.76	OK
30	0.002	0.230	0.96	OK
31	0.003	0.230	1.39	OK
32	0.002	0.230	1.01	OK
33	0.003	0.230	1.41	OK
34	0.002	0.230	0.84	OK
35	0.004	0.230	1.66	OK
36	0.002	0.230	0.92	OK
37	0.003	0.230	1.35	OK
38	0.002	0.230	0.87	OK
39	0.004	0.230	1.65	OK
40	0.003	0.230	1.30	OK

Harmonics – Class-C (>=5W and <= 25W) per IEC 61000-3-2:2018/AMD1:2020(Run time) incl. inter-harmonics

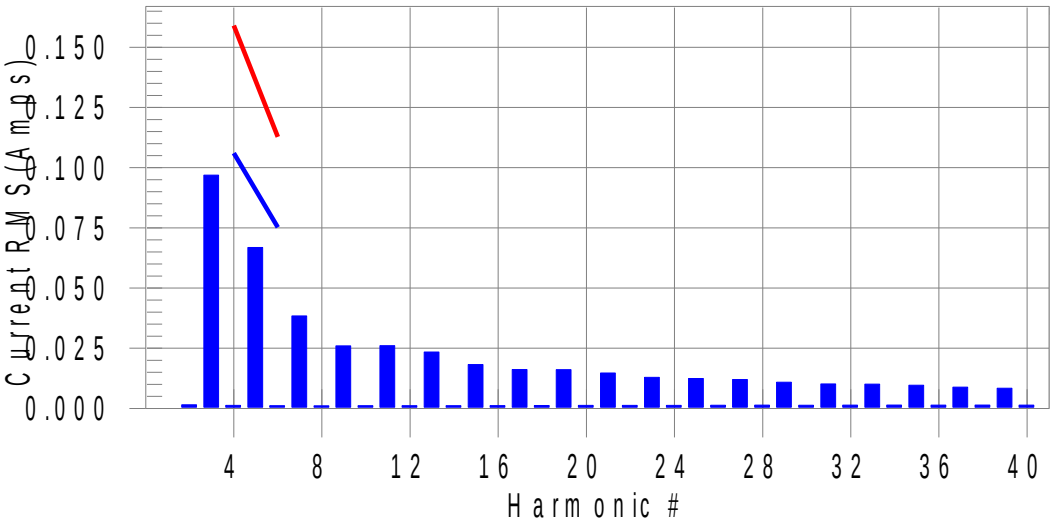
EUT: LED Tri-proof light **Tested by: Weijie XU**
Test category: Class-C (European limits) **Test Margin: 100**
Test date: 5/21/2024 **Start time: 1:54:32 PM** **End time: 1:57:13 PM**
Test duration (min): 2.5 **Data file name: H-000299.cts_data**
Comment: Mode 1, 12005222-F, SHA-804103-3
Customer: Jiangxi Lepeng Electric Appliance Co.,Ltd

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class C(Special waveform with 3rd & 5th harmonic limits)European Limits



Test result: Pass H3 & H5 < limit & waveform meets phase angle requirements

Current Test Result Summary (Run time)

EUT: LED Tri-proof light **Tested by: Weijie XU**
Test category: Class-C (European limits) **Test Margin: 100**
Test date: 5/21/2024 **Start time: 1:54:32 PM** **End time: 1:57:13 PM**
Test duration (min): 2.5 **Data file name: H-000299.cts_data**
Comment: Mode 1, 12005222-F, SHA-804103-3
Customer: Jiangxi Lepeng Electric Appliance Co.,Ltd

Test Result: Pass **Source qualification: Normal**

THC(A): 0.139 **I-THD(%): 112.9** **POHC: N/A** **POHC Limit: N/A**

Highest parameter values during test:

V_RMS (Volts):	230.31	Frequency (Hz):	
I_Peak (Amps):	0.732	I_RMS (Amps):	0.188
I_Fund (Amps):	0.123	Crest Factor:	3.936
Power (Watts):	24.6	Power Factor:	0.572

Harm#	Harms	100%Limit	%of Limit	
3	96.92	106.04	91.4	Pass
5	66.86	75.22	88.9	Pass

Peak current (Ipeak) = -732.29 mA (732.29 mA absolute)
Peak current max. phase angle = 52 degree (Pos) **Pass**

Min. Current at 60 deg (I_60) = -461.03 mA (Neg) **Limit = 36.61 mA** **Pass**
Min. Current at 90 deg (I_90) = -100.55 mA (Neg) **Limit = 36.61 mA** **Pass**

Voltage Source Verification Data (Run time)

EUT: LED Tri-proof light **Tested by: Weijie XU**
Test category: Class-C (European limits) **Test Margin: 100**
Test date: 5/21/2024 **Start time: 1:54:32 PM** **End time: 1:57:13 PM**
Test duration (min): 2.5 **Data file name: H-000299.cts_data**
Comment: Mode 1, 12005222-F, SHA-804103-3
Customer: Jiangxi Lepeng Electric Appliance Co.,Ltd

Test Result: Pass **Source qualification: Normal**

Highest parameter values during test:

Voltage (Vrms):	**230.31**	**Frequency(Hz):**	
I_Peak (Amps):	**0.732**	**I_RMS (Amps):**	**0.188**
I_Fund (Amps):	**0.123**	**Crest Factor:**	**3.936**
Power (Watts):	**24.6**	**Power Factor:**	**0.572**

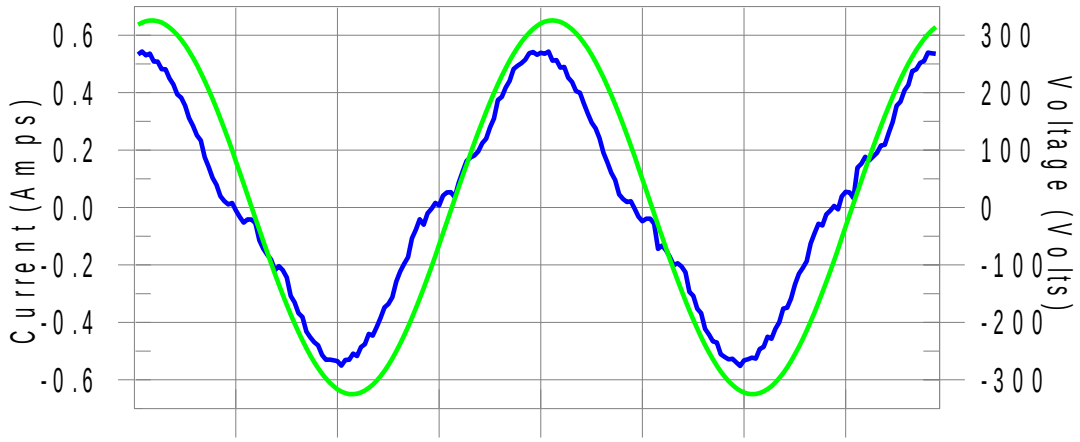
Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.077	0.461	16.76	OK
3	0.539	2.072	25.99	OK
4	0.046	0.460	10.05	OK
5	0.101	0.921	10.94	OK
6	0.011	0.461	2.35	OK
7	0.064	0.691	9.20	OK
8	0.024	0.460	5.19	OK
9	0.043	0.460	9.40	OK
10	0.019	0.460	4.18	OK
11	0.038	0.230	16.47	OK
12	0.007	0.230	3.17	OK
13	0.037	0.230	16.19	OK
14	0.008	0.230	3.37	OK
15	0.030	0.230	12.85	OK
16	0.007	0.230	3.03	OK
17	0.025	0.230	10.67	OK
18	0.007	0.230	2.92	OK
19	0.025	0.230	10.85	OK
20	0.010	0.230	4.35	OK
21	0.024	0.230	10.35	OK
22	0.004	0.230	1.59	OK
23	0.022	0.230	9.39	OK
24	0.003	0.230	1.30	OK
25	0.019	0.230	8.41	OK
26	0.003	0.230	1.35	OK
27	0.022	0.230	9.60	OK
28	0.003	0.230	1.44	OK
29	0.015	0.230	6.56	OK
30	0.003	0.230	1.38	OK
31	0.015	0.230	6.66	OK
32	0.004	0.230	1.52	OK
33	0.016	0.230	6.74	OK
34	0.003	0.230	1.36	OK
35	0.013	0.230	5.75	OK
36	0.003	0.230	1.14	OK
37	0.013	0.230	5.70	OK
38	0.003	0.230	1.24	OK
39	0.014	0.230	6.07	OK
40	0.003	0.230	1.32	OK

Harmonics – Class-C per IEC 61000-3-2:2018/AMD1:2020(Run time) incl. inter-harmonics

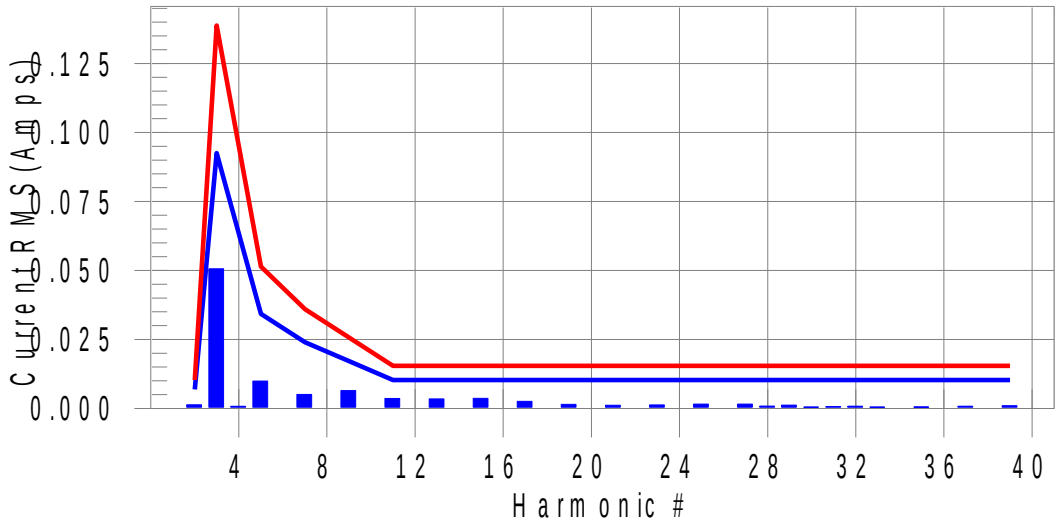
EUT: LED Tri-proof light **Tested by: Weijie XU**
Test category: Class-C (European limits) **Test Margin: 100**
Test date: 5/21/2024 **Start time: 1:59:42 PM** **End time: 2:02:24 PM**
Test duration (min): 2.5 **Data file name: H-000300.cts_data**
Comment: Mode 1, 12004513-F, SHA-804103-4
Customer: Jiangxi Lepeng Electric Appliance Co.,Ltd

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



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



Test result: Pass Worst harmonics H3-37.9% of 150% limit, H3-54.7% of 100% limit

Current Test Result Summary (Run time)

EUT: LED Tri-proof light **Tested by: Weijie XU**
Test category: Class-C (European limits) **Test Margin: 100**
Test date: 5/21/2024 **Start time: 1:59:42 PM** **End time: 2:02:24 PM**
Test duration (min): 2.5 **Data file name: H-000300.cts_data**
Comment: Mode 1, 12004513-F, SHA-804103-4
Customer: Jiangxi Lepeng Electric Appliance Co.,Ltd

Test Result: Pass **Source qualification: Normal**
THC(A): 0.053 **I-THD(%): 15.4** **POHC(A): 0.003** **POHC Limit(A): 0.033**

Highest parameter values during test:

V_RMS (Volts):	230.32	Frequency(Hz):	50.00
I_Peak (Amps):	0.560	I_RMS (Amps):	0.346
I_Fund (Amps):	0.343	Crest Factor:	1.629
Power (Watts):	77.1	Power Factor:	0.968

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	0.007	N/A	0.002	0.010	N/A	Pass
3	0.051	0.093	54.7	0.053	0.139	37.9	Pass
4	0.001	0.000	N/A	0.001	0.000	N/A	Pass
5	0.010	0.034	28.9	0.011	0.051	20.4	Pass
6	0.000	0.000	N/A	0.001	0.000	N/A	Pass
7	0.005	0.024	21.1	0.006	0.036	15.5	Pass
8	0.000	0.000	N/A	0.000	0.000	N/A	Pass
9	0.006	0.017	37.6	0.007	0.026	26.0	Pass
10	0.000	0.000	N/A	0.000	0.000	N/A	Pass
11	0.004	0.010	N/A	0.004	0.015	N/A	Pass
12	0.000	0.000	N/A	0.000	0.000	N/A	Pass
13	0.003	0.010	N/A	0.004	0.015	N/A	Pass
14	0.000	0.000	N/A	0.000	0.000	N/A	Pass
15	0.004	0.010	N/A	0.004	0.015	N/A	Pass
16	0.000	0.000	N/A	0.000	0.000	N/A	Pass
17	0.003	0.010	N/A	0.003	0.015	N/A	Pass
18	0.000	0.000	N/A	0.000	0.000	N/A	Pass
19	0.001	0.010	N/A	0.002	0.015	N/A	Pass
20	0.000	0.000	N/A	0.000	0.000	N/A	Pass
21	0.001	0.010	N/A	0.001	0.015	N/A	Pass
22	0.000	0.000	N/A	0.000	0.000	N/A	Pass
23	0.001	0.010	N/A	0.001	0.015	N/A	Pass
24	0.000	0.000	N/A	0.000	0.000	N/A	Pass
25	0.002	0.010	N/A	0.002	0.015	N/A	Pass
26	0.000	0.000	N/A	0.000	0.000	N/A	Pass
27	0.002	0.010	N/A	0.002	0.015	N/A	Pass
28	0.001	0.000	N/A	0.001	0.000	N/A	Pass
29	0.001	0.010	N/A	0.002	0.015	N/A	Pass
30	0.000	0.000	N/A	0.001	0.000	N/A	Pass
31	0.001	0.010	N/A	0.001	0.015	N/A	Pass
32	0.001	0.000	N/A	0.001	0.000	N/A	Pass
33	0.000	0.010	N/A	0.001	0.015	N/A	Pass
34	0.000	0.000	N/A	0.000	0.000	N/A	Pass
35	0.001	0.010	N/A	0.001	0.015	N/A	Pass
36	0.000	0.000	N/A	0.000	0.000	N/A	Pass
37	0.001	0.010	N/A	0.001	0.015	N/A	Pass
38	0.000	0.000	N/A	0.000	0.000	N/A	Pass
39	0.001	0.010	N/A	0.001	0.015	N/A	Pass
40	0.000	0.000	N/A	0.000	0.000	N/A	Pass

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

Voltage Source Verification Data (Run time)

EUT: LED Tri-proof light **Tested by: Weijie XU**
Test category: Class-C (European limits) **Test Margin: 100**
Test date: 5/21/2024 **Start time: 1:59:42 PM** **End time: 2:02:24 PM**
Test duration (min): 2.5 **Data file name: H-000300.cts_data**
Comment: Mode 1, 12004513-F, SHA-804103-4
Customer: Jiangxi Lepeng Electric Appliance Co.,Ltd

Test Result: Pass **Source qualification: Normal**

Highest parameter values during test:

Voltage (Vrms):	**230.32**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**0.560**	**I_RMS (Amps):**	**0.346**
I_Fund (Amps):	**0.343**	**Crest Factor:**	**1.629**
Power (Watts):	**77.1**	**Power Factor:**	**0.968**

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.080	0.460	17.26	OK
3	0.543	2.073	26.19	OK
4	0.045	0.460	9.81	OK
5	0.063	0.921	6.81	OK
6	0.012	0.461	2.56	OK
7	0.030	0.691	4.29	OK
8	0.025	0.461	5.51	OK
9	0.018	0.461	4.01	OK
10	0.018	0.461	3.98	OK
11	0.016	0.230	7.03	OK
12	0.008	0.230	3.41	OK
13	0.009	0.230	4.07	OK
14	0.008	0.230	3.53	OK
15	0.010	0.230	4.26	OK
16	0.008	0.230	3.62	OK
17	0.007	0.230	2.93	OK
18	0.006	0.230	2.74	OK
19	0.008	0.230	3.40	OK
20	0.009	0.230	3.86	OK
21	0.006	0.230	2.51	OK
22	0.005	0.230	1.96	OK
23	0.005	0.230	2.36	OK
24	0.003	0.230	1.33	OK
25	0.005	0.230	2.12	OK
26	0.004	0.230	1.56	OK
27	0.007	0.230	2.94	OK
28	0.003	0.230	1.21	OK
29	0.005	0.230	2.04	OK
30	0.002	0.230	1.07	OK
31	0.004	0.230	1.74	OK
32	0.002	0.230	1.07	OK
33	0.004	0.230	1.57	OK
34	0.002	0.230	0.83	OK
35	0.004	0.230	1.66	OK
36	0.002	0.230	0.94	OK
37	0.005	0.230	1.97	OK
38	0.002	0.230	0.85	OK
39	0.005	0.230	2.05	OK
40	0.003	0.230	1.35	OK

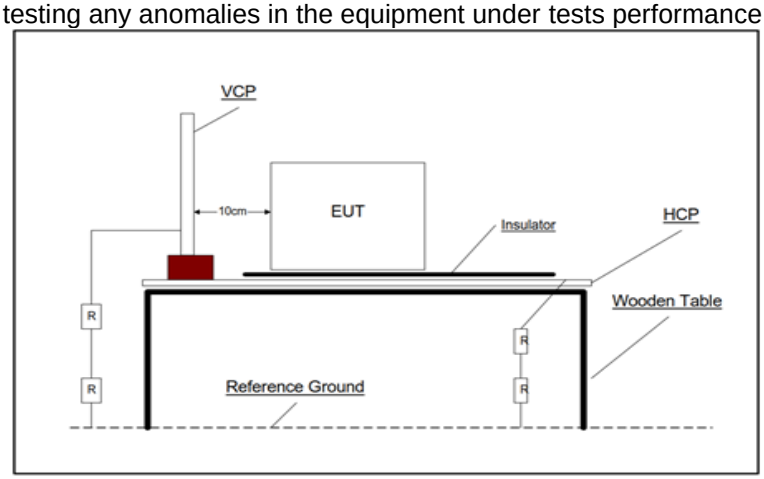
2.5 Electrostatic discharge immunity test

2.5.1 Test Method

The equipment under test including associated cabling was configured on but insulted from, using a 0.5mm isolator, a horizontal coupling plane fitted to the top of a 0.8m non-conductive table for table-top equipment; and on a 0.1m insulated support for floor standing equipment; above a ground reference plane all within a test laboratory.

Using the air discharge method for non-metallic parts, contact discharge method for metallic parts with both vertical and horizontal couple plane discharge methods for the sides of the equipment under test, the required electrostatic discharge voltage levels in both voltage polarities were applied at the detailed pulse repartition rate.

During this testing any anomalies in the equipment under tests performance was recorded.



2.5.2 Specification Limits

Required Test Levels at enclosure port				Performance Criteria
Discharge type	Discharge Level (kV)		Number of discharges per location (each polarity)	
	Positive	Negative		
Air – Direct	8	8	<10>	B
Contact – Direct	4	4	<10>	B
Contact – Indirect	4	4	<10>	B

2.5.3 Test Setup Phots





Handling mode

2.5.4 Test Results

Tested Point	Contact or Air Discharge	Discharge Voltage (kV)	No. of Discharge	Results
Indirect Discharge (HCP)	Contact	±2, ±4	10	Pass PC A
Indirect Discharge (VCP)	Contact	±2, ±4	10	Pass PC A
Plastic enclosure	Air	±2, ±4, ±8	10	Pass PC A
GAP	Air	±2, ±4, ±8	10	Pass PC A
AC terminals and pins See Note 1	Contact	±2, ±4	10	Pass PC A
Note 1: AC terminals and pins were performed in during handing mode, The EUT is not powered during the handling mode of ESD tests. Remark: No observable change during and after testing.				

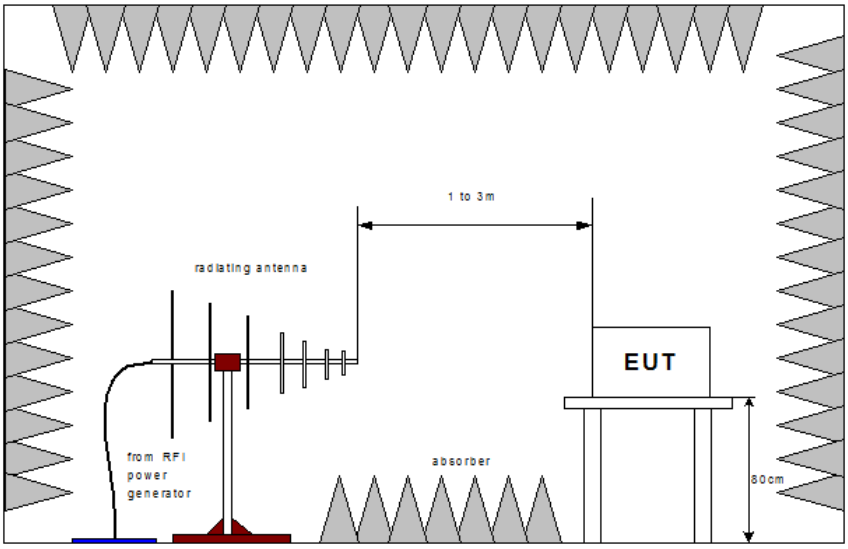
2.6 Radiated, radio-frequency, electromagnetic field immunity test

2.6.1 Test Method

The equipment under test including associated cabling was configured, on a 0.8 m non-conductive table for table-top equipment and on a 0.1 m insulated support for floor standing equipment; with a pre-calibrated semi anechoic chamber.

All four side of the equipment under test were subjected to the required RF field strength, modulated as described, swept over the frequency range of test with the antenna positioned in both horizontal and vertical polarizations.

During this testing any anomalies in the equipment under tests performance was recorded.



2.6.2 Specification Limits

Required Test Levels at enclosure port					Performance Criteria
Frequency Range (MHz)	Level (V/m)	Modulation	Step Size (%)	Dwell (s)	
80 to 1000	3	AM (80 %,1 kHz, sine wave)	1	3	A
Note 1. EUT powered at one of the Nominal input voltages and frequencies					

2.6.3 Test Setup Photos



2.6.4 Test Results

Frequency Range	Test Level	Sides of EUT	Antenna Polarization	Modulation	Step Size	Dwell Time	Result
80MHz-1GHz	3V/m	Four sides	Hor. & Ver.	AM 80% (1kHz)	1%	3s	Pass PC A
Remark: No observable change during and after testing.							

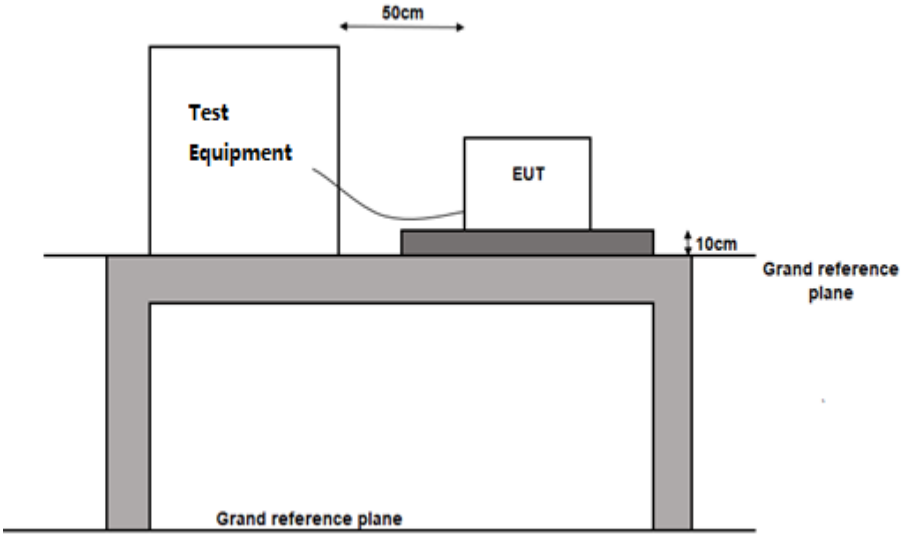
2.7 Electrical fast transient /burst immunity test

2.7.1 Test Method

The equipment under test including associated cabling was configured on but insulted from, using a 0.1 m isolator, a horizontal coupling plane fitted to the top of a 0.8 m non-conductive table for table-top equipment; and on a 0.1 m insulated support for floor standing equipment; above a ground reference plane all within a test laboratory.

Using a CDN for power ports, capacitive coupling clamp for signal and control ports and a 33nF coupling capacitor for earth ports, the required fast transient burst voltage levels in both voltage polarities were applied at the detailed pulse repartition rate and duration of test.

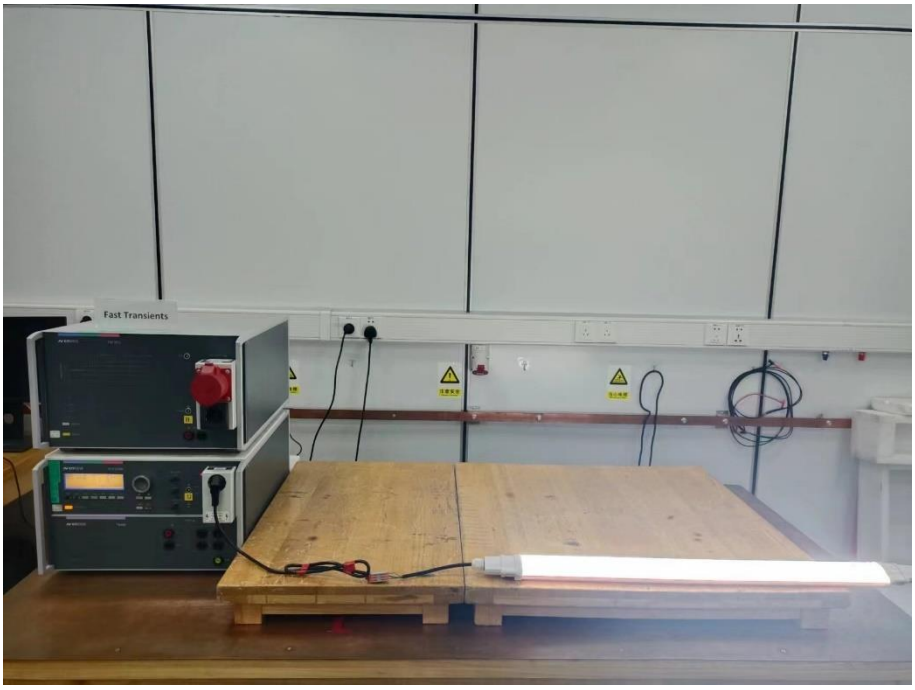
During this testing any anomalies in the equipment under tests performance was recorded.



2.7.2 Specification Limits

Required Test Levels at input and output a.c. power ports					Performance Criteria
Line Under Test	Level (kV)	Repetition Rate (kHz)	Test Duration	Coupling Method	
AC Power Port	± 1	5 kHz	2 min per polarity	CDN	B

2.7.3 Test Setup Photos



2.7.4 Test Results

Line under test	Test Level & Polarity (kV)	Repetition Rate	Test Duration	Coupling Method	Result
Power line	± 1	5 kHz	2 min	CDN	Pass PC A
Remark: No observable change during and after testing.					

2.8 Immunity to conducted disturbances, induced by radio-frequency fields

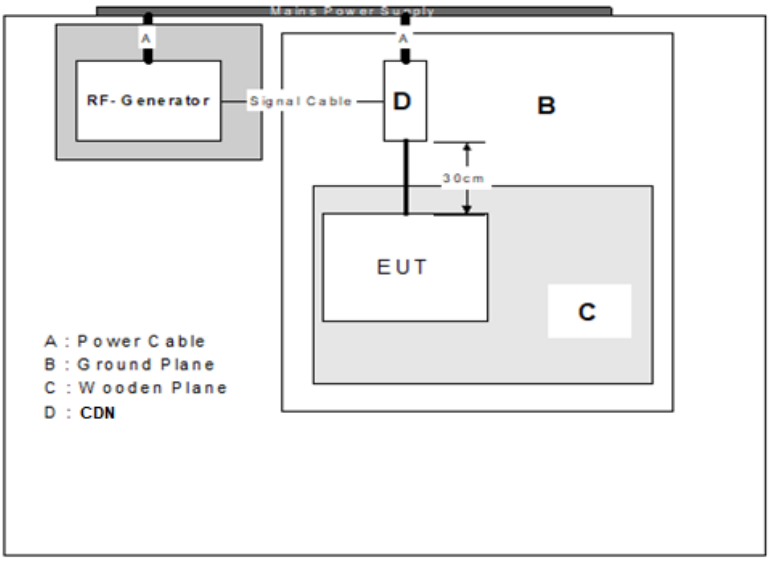
2.8.1 Test Method

The equipment under test was placed on an insulating support 0,1 m above the reference ground plane.

All associated cabling was configured, on but insulted from, using a 50 mm isolator, the same horizontal coupling plane as the equipment under test.

Using CDNs, EM Clamps or current clamps as appropriate, the power ports and applicable signal and control ports were subjected to the required, pre calibrated RF injected signal strength, modulated as described, swept over the frequency range of test.

During this testing any anomalies in the equipment under tests performance was recorded.



2.8.2 Specification Limits

Required Test Levels at input and output a.c. power ports						Performance Criteria
Line Under Test	Frequency Range (MHz)	Level (V)	Modulation	Step Size (%)	Dwell (s)	
AC power ports	0.15 to 80	3	AM (80 %,1 kHz, sine wave)	1	3	A
Note Only applicable to ports interfacing with cables whose total length, according to the manufacturer's specification, can exceed 3m.						

2.8.3 Test Setup Photos



2.8.4 Test Results

Line under test	Frequency Range	Test Level	Modulation	Step Size	Dwell Time	Result
Power Line	0.15-80MHz	3V	AM 80% (1kHz)	1%	3s	Pass PC A
Remark: No observable change during and after testing.						

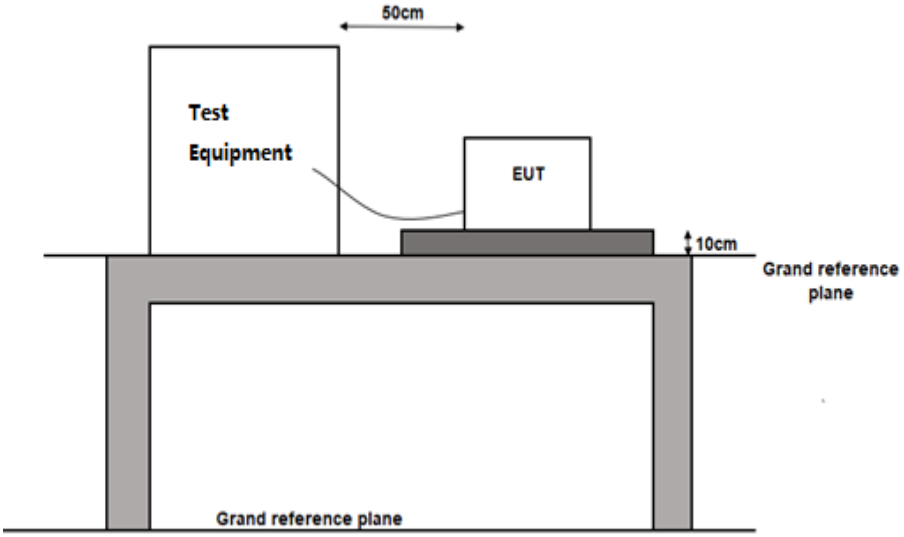
2.9 Surge immunity test

2.9.1 Test Method

The equipment under test including associated cabling was configured, on a 0.8 m non-conductive table for table-top equipment and on a 0.1 m insulated support for floor standing equipment above a ground reference plane all within a test laboratory.

Using CDNs for power ports and appropriate coupling methods for applicable signal and control ports, the required number of surges was applied for each surge voltage level using both positive and negative surge voltage polarities. Surges were applied at the power line frequency phase angles and repartition rates detailed.

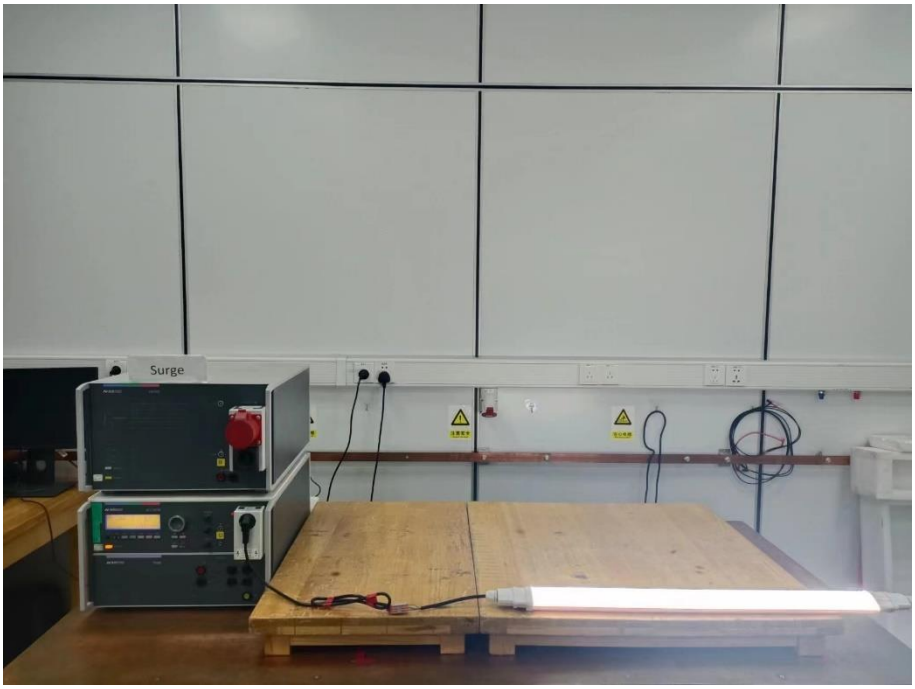
During this testing any anomalies in the equipment under tests performance was recorded.



2.9.2 Specification Limits

Required Test levels at input a.c. power ports			
Characteristics	Test Levels [a]		Performance Criteria
	Device		
	Self-ballasted lamps ≤ 25 W	Lighting equipment (except self-ballasted lamps ≤ 25 W)	
Wave- shape data Test levels line to line with 2Ω impedance line to earth with 12Ω impedance	1.2/50 µs ± 0.5 kV N.A.	1.2/50 µs ± 1.0 kV ± 2.0 kV[b]	C
a. In addition to the specified test level, all lower test levels as detailed in IEC 61000-4-5:2014 shall also be satisfied. b. Line to ground and neutral to ground surge tests also apply to class II lighting equipment with metal enclosures which may be connected to earth potential via, for example, the pole or conductive ceiling. Therefore, during the test the metal enclosure of the host or the luminaire shall be connected to the ground. For self-ballasted lamps (> 25 W) the conical housing as specified in Annex A of CISPR 15:2018 shall be used as metal enclosure.			

2.9.3 Test Setup Photos



2.9.4 Test Results

Line Name	Coupling	Test Level & Polarity(kV)	Phase Angle	No of Pulses	Repetition Rate	Result
Power line	L-N	-0.5, -1.0	270 deg	5	60s	Pass PC A
Power line	L-N	+0.5, +1.0	90 deg	5	60s	Pass PC A
Remark: No observable change during and after testing.						

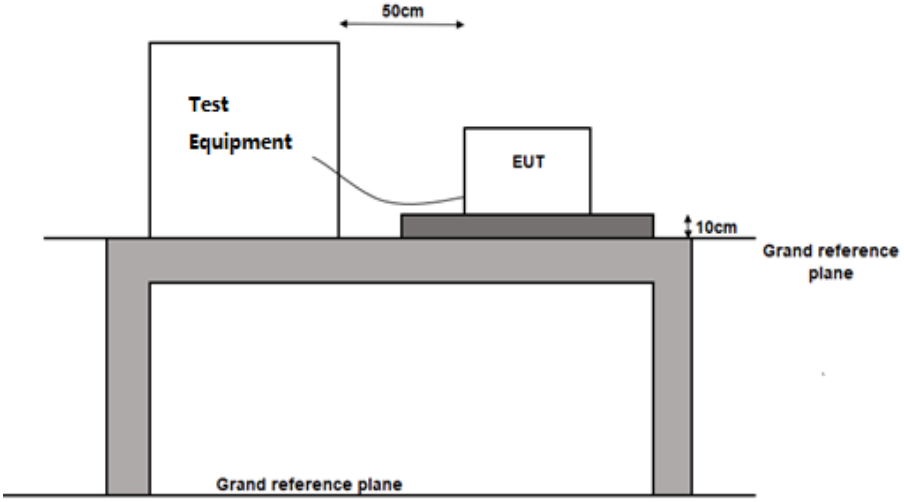
2.10 Voltage dips and short interruptions immunity tests

2.10.1 Test Method

The equipment under test including associated cabling was configured, on a 0.8 m non-conductive table for table-top equipment and on a 0.1 m insulated support for floor standing equipment above a ground reference plane all within a test laboratory.

Using a programmable power supply the equipment under test was subjected to the detailed supply voltage dips and interruptions. The required supply phase synchronization and test repetition rate, detailed, was controlled by the programmable power supply.

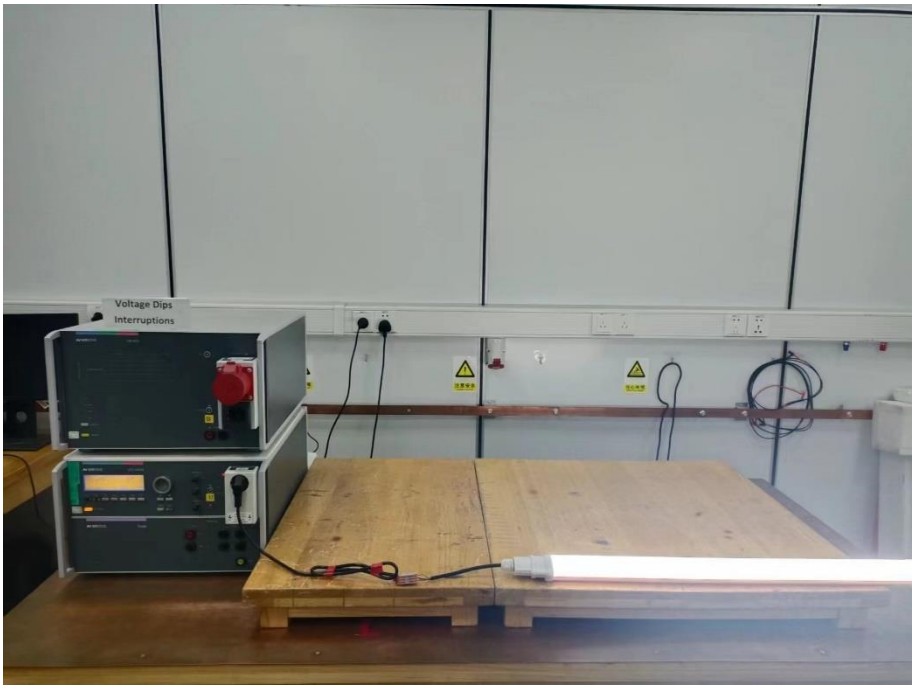
During this testing any anomalies in the equipment under tests performance was recorded.



2.10.2 Specification Limits

Required Test levels at input a.c. power ports			Performance Criteria
Test	Test level in % Ut	Duration	
Voltage short interruptions	0	½ cycle	B
Voltage dips	70	10 cycles	B
Ut is the rated voltage of the Equipment Under Test			

2.10.3 Test Setup Photos



2.10.4 Test Results

Line under test	Ut	Frequency	Test Level (% of Ut)	Duration (cycle)	Required Criterion:	Result
Power line	230 Vac	50 Hz	0%	10ms (0.5)	B	Pass PC B
Power line	230 Vac	50 Hz	70%	200ms (10)	B	Pass PC B
Remark: During the test of voltage short interruptions (0% of Ut, 10ms (0.5 cycle)) and voltage dips (70% of Ut, 200ms (10 cycle)), the EUT was flashed when adding the disturbance. after removing the disturbance, the EUT restored to its normal status automatically immediately.						

3 Test Equipment and Software Information

Instrument	Manufacturer	Type No	TE No	Calibration Date	Calibration Due
Conducted Disturbance					
EMI test receiver	R & S	ESR3	S1503001-YQ-EMC	2023.8.1	2024.7.31
2-Line V-network	R & S	ENV216	S1503103-YQ-EMC	2023.8.1	2024.7.31
Software	R & S	EMC32 V9.15.03	NA	NA	NA
Radiated Disturbance (9kHz to 30MHz)					
EMI test receiver	R & S	ESR3	S1503101-YQ-EMC	2023.8.1	2024.7.31
Triple loop antenna	R & S	HM020	S1503115-YQ-EMC	2023.7.10	2024.7.9
Software	R & S	EMC32 V9.15.03	NA	NA	NA
Radiated Disturbance (30MHz to 1000MHz) for test model: 12004540-F,12004378-1-F and 12005222-F.					
EMI test receiver	R & S	ESR3	S1503109-YQ-EMC	2023.8.1	2024.7.31
Trilog super broadband test antenna	SCHWARZBECK	VULB 9168	S1808296-YQ-EMC	2021.9.23	2024.9.22
3 meter semi-anechoic chamber	TDK	3m	S1503231-YQ-EMC	2024.5.8	2027.5.7
Coupling and decoupling network	SCHWARZBECK	CDNE M2	S1804289-YQ-EMC	2023.8.1	2024.7.31
Software	R & S	EMC32 V10.50.40	NA	NA	NA
Radiated Disturbance (30MHz to 1000MHz) for test model: 12004513-F.					
Trilog super broadband test antenna	SCHWARZBECK	VULB 9168	487/621840	2022.7.18	2025.7.17
Pre-amplifier	SONOMA	310N	487/401310	2023.11.23	2024.11.22
EMI test receiver	R&S	ESCI	487/631110	2024.4.8	2025.4.7
10m chamber	TDK	SAC	487/770201	2021.1.20	2026.1.19
Harmonic current emission and Flicker					
Harmonic-flicker test system	California Instruments	15003IX-CTS-400-413-LF-411	S1503193-YQ-EMC	2023.7.10	2024.7.9
Software	AMETEK	CTS 4 V4.29.0	NA	NA	NA

Instrument	Manufacturer	Type No	TE No	Calibration Date	Calibration Due
Electrostatic discharge immunity test					
ESD Simulator	HAEFELY	ONYX 16	S1905298-YQ-EMC	2023.7.10	2024.7.9
T/H record	Shanghai meteorological instrument	ZJ1-2A	S1503201-YQ-EMC	2023.6.9	2024.6.8
Horizontal Coupling Plane	TÜV Product Service	---	---	---	---
Vertical Coupling Plane	TÜV Product Service	---	---	---	---
Instrument	Manufacturer	Type No	TE No	Calibration Date	Calibration Due
Radiated, radio-frequency, electromagnetic field immunity test					
Signal generator	R&S	SMB 100A	S1503055-YQ-EMC	2023.8.1	2024.7.31
Power meter	R&S	NRP2	S1503062-YQ-EMC	2023.8.1	2024.7.31
Average power sensor	R&S	NRP-Z91	S1503068-YQ-EMC	2023.8.1	2024.7.31
Average power sensor	R&S	NRP-Z91	S1503069-YQ-EMC	2023.8.1	2024.7.31
Amplifier	AR	200W1000M7A	S2111427b-YQ-EMC	2024.2.19	2025.2.18
Dual directional coupler	AR	DC6180AM1	S2111428b-YQ-EMC	2024.2.19	2025.2.18
High gain log-periodic antenna	R&S	HL046E	S1503083-SB-EMC	NA	NA
Software	R&S	EMC32 V 10.50.40	NA	NA	NA
Electrical fast transient/burst immunity test					
Ultra compact simulator	EM test	UCS 500N5T	S1503171-YQ-EMC	2023.8.1	2024.7.31
Software	EM test	Iec.control V5.3.7	NA	NA	NA
Immunity to conducted disturbances, induced by radio-frequency field					
Continuous wave generator	CWS 500 N2.2	EM test	S1503159-YQ-EMC	2023.8.1	2024.7.31
6dB attenuator	EM test	ATT 6/80	S1503180-SB-EMC	--	--
Coupling and decoupling network	EM test	CDN M2/M3	S1503186-YQ-EMC	2023.8.1	2024.7.31
Software	EM test	Icd.control V5.3.12	NA	NA	NA

Instrument	Manufacturer	Type No	TE No	Calibration Date	Calibration Due
Surge immunity test					
Ultra compact simulator	EM test	UCS 500N5T	S1503171-YQ-EMC	2023.8.1	2024.7.31
Software	EM test	Iec.control V5.3.7	NA	NA	NA
Voltage dips, short interruptions and voltage variations immunity test					
Ultra compact simulator	EM test	UCS 500N5T	S1503171-YQ-EMC	2023.8.1	2024.7.31
Motor driven AC source	EM test	MV 2616	S1503175-YQ-EMC	2023.8.1	2024.7.31
Software	EM test	Iec.control V5.3.7	NA	NA	NA

4 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Name	Measurement Uncertainty
Conducted Disturbance	9kHz to 30MHz, 3.16dB (AMN)
Radiated Disturbance (LLAS)	9kHz to 30MHz, 2.78 dB
Radiated Disturbance	30MHz to 1GHz, 5.03dB (Horizontal) 5.12dB (Vertical)
Harmonic Current Measurement	2.56%

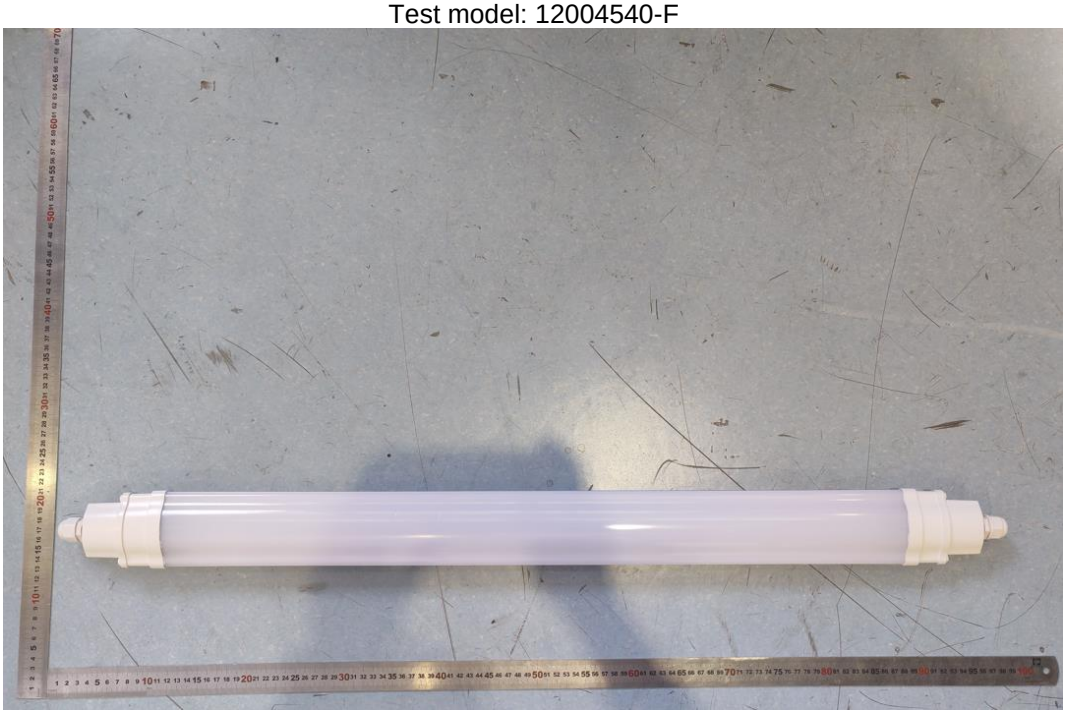
Measurement Uncertainty Decision Rule:

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2021, clause 4.4.3 and 4.5.1.

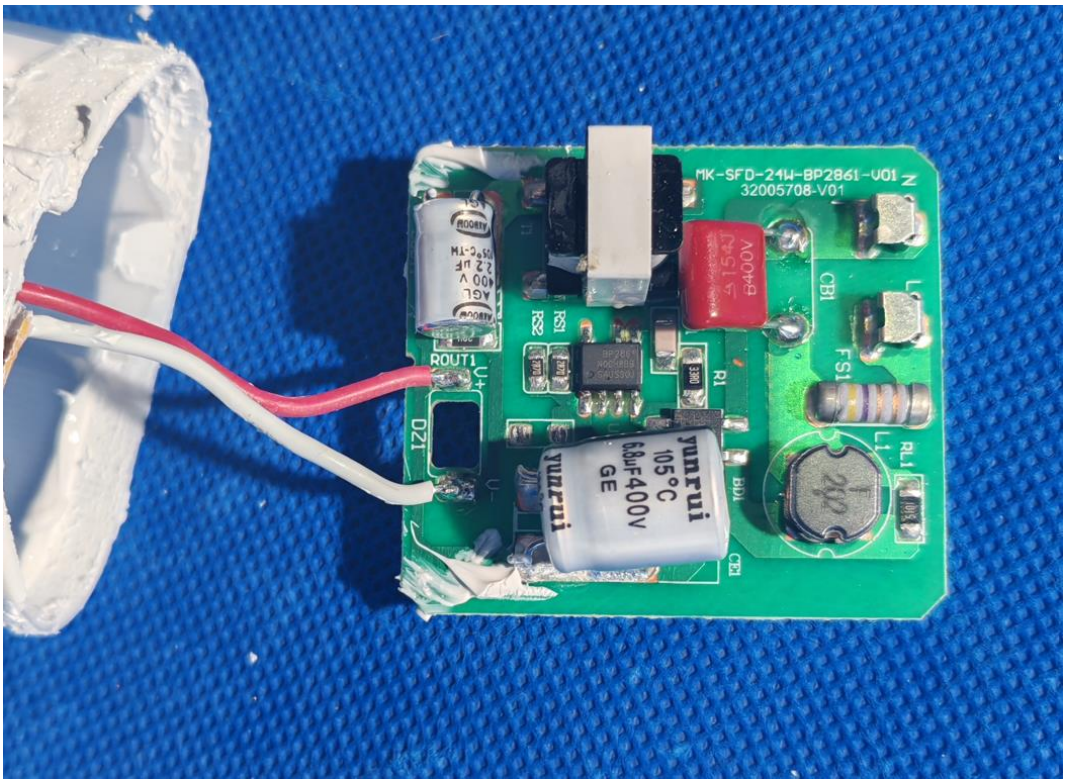
5 Photographs

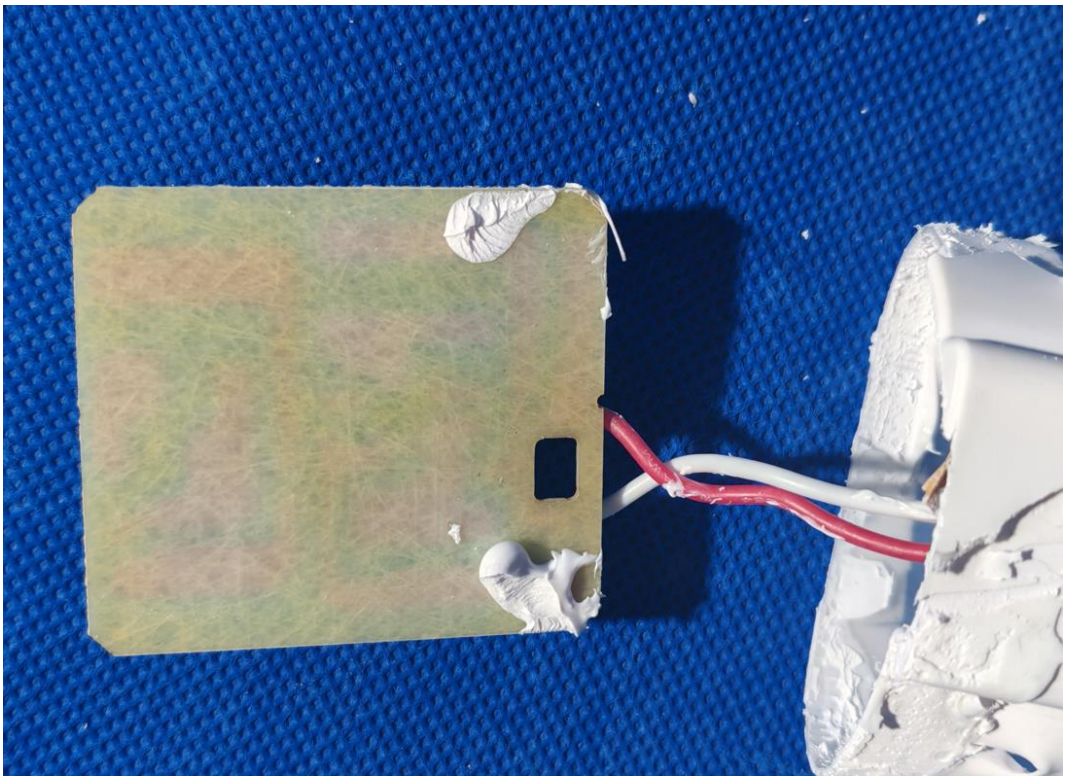
5.1 EUT Photo

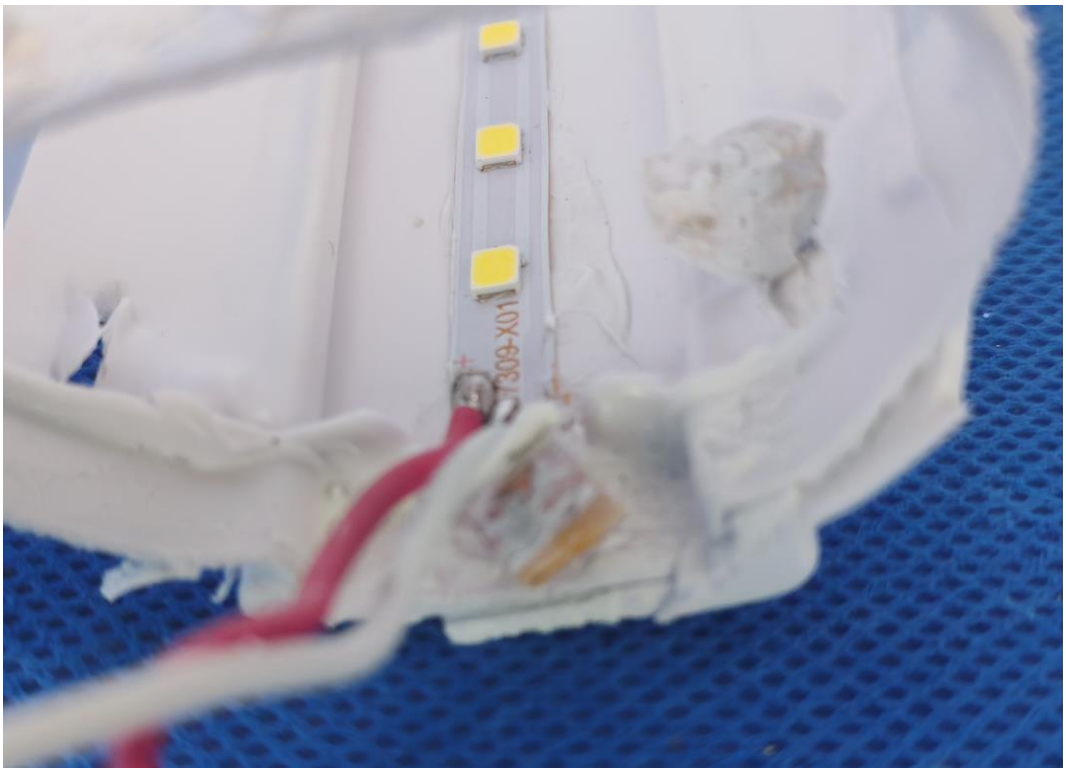
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32005708-V01
yunrui
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GE

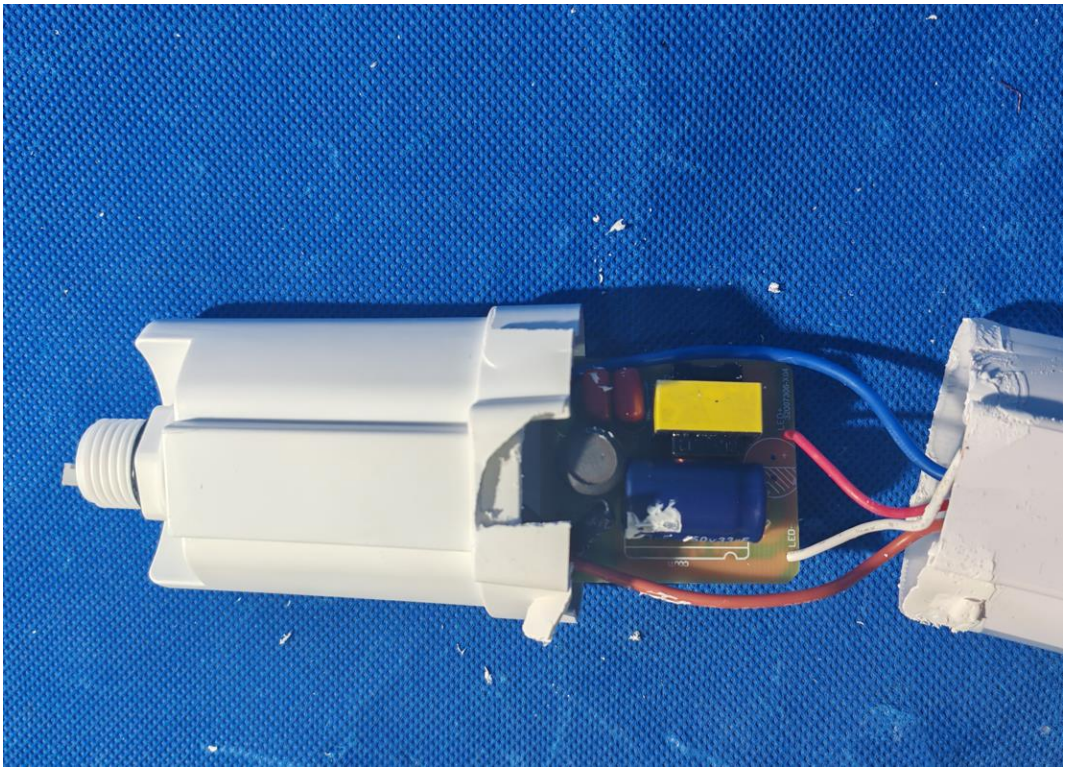


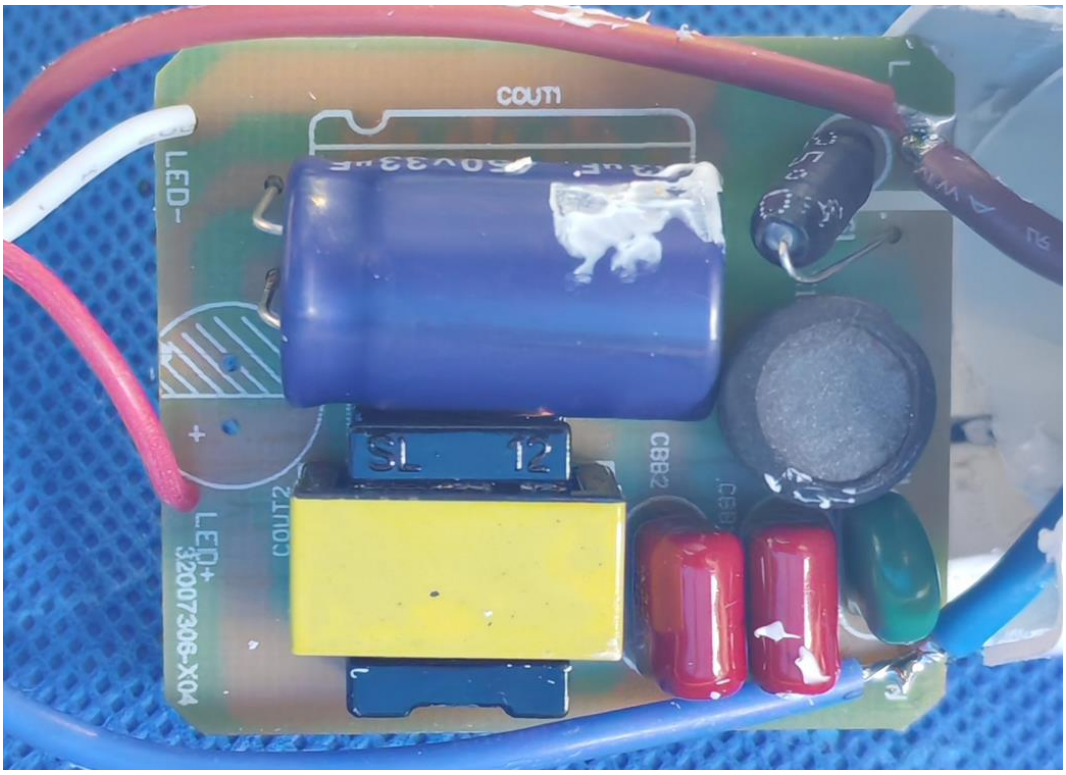


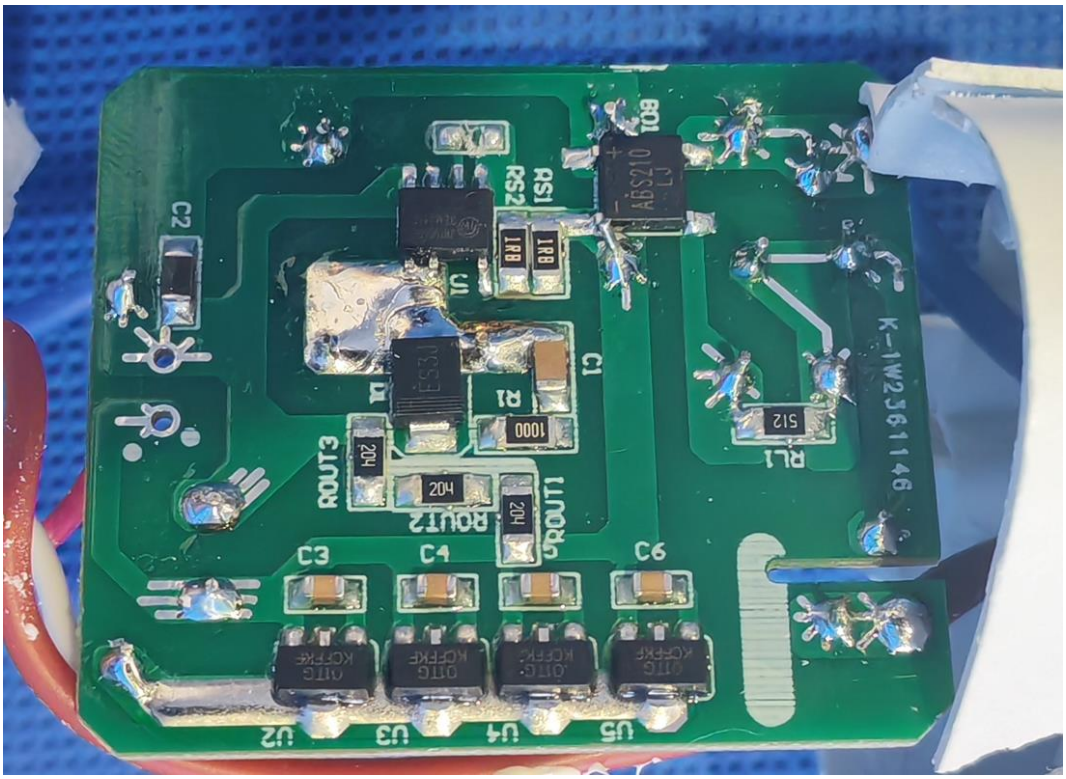
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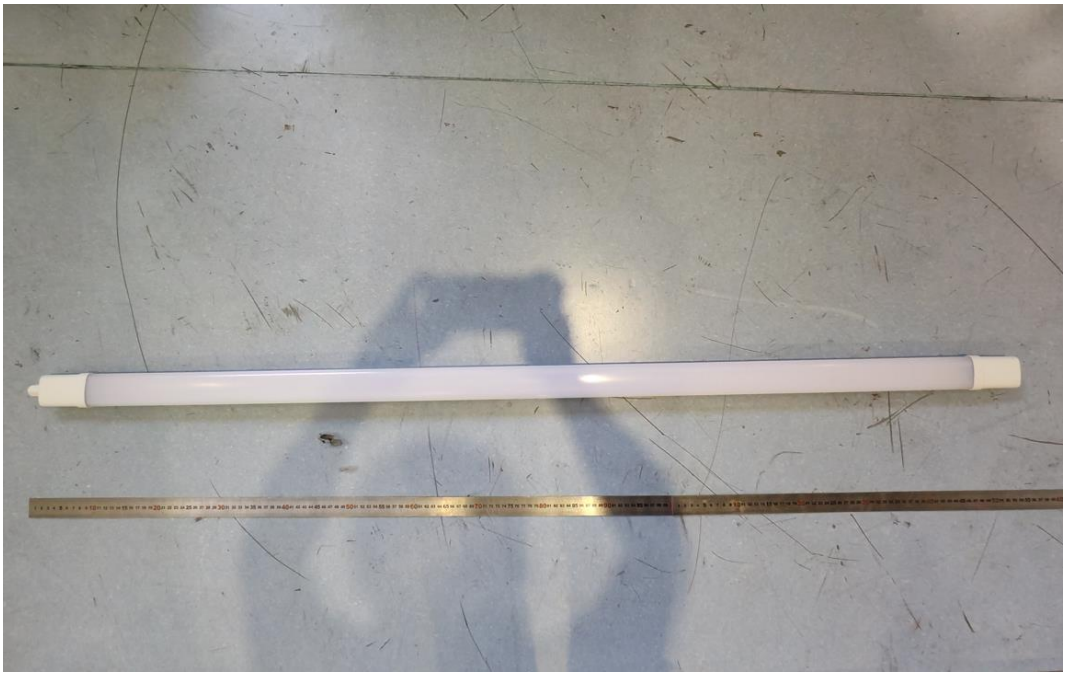


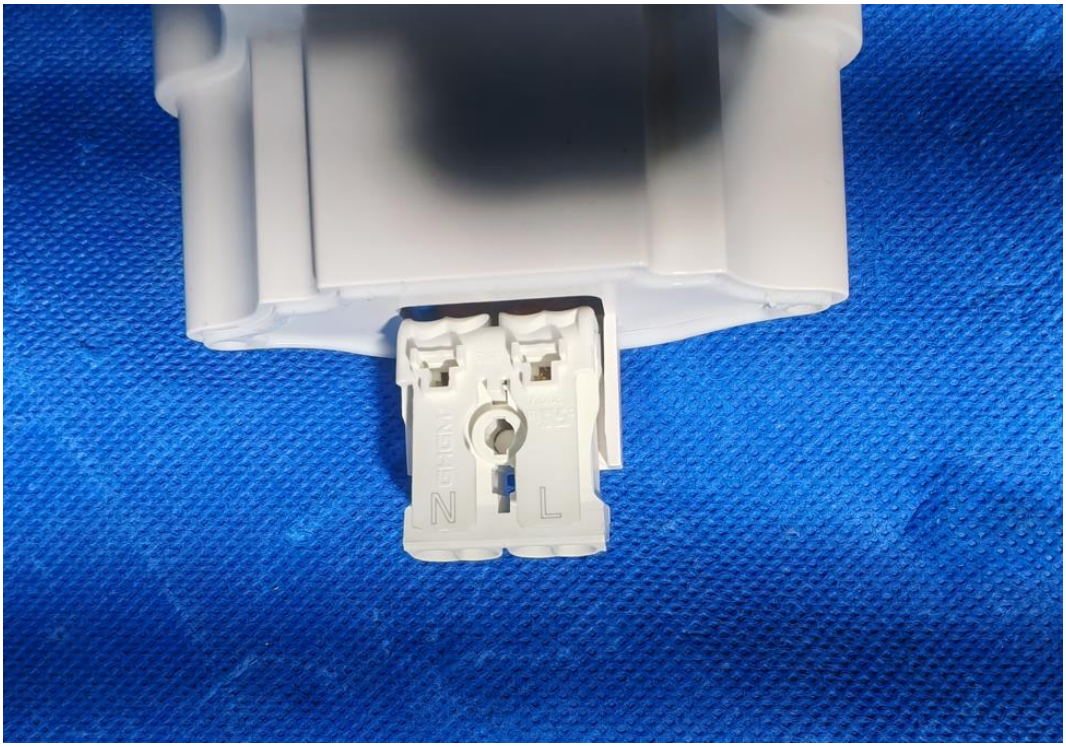


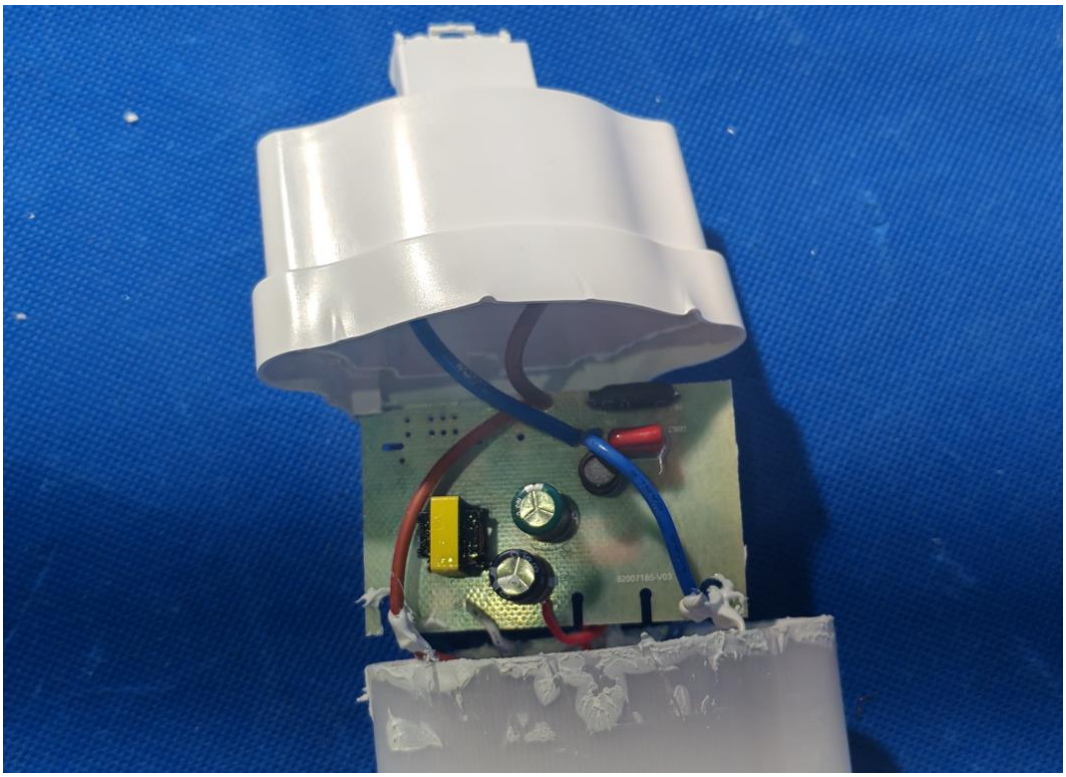

COUT1
LED-
SL 12
CBB2
COUT2
LED+
32007306-X04

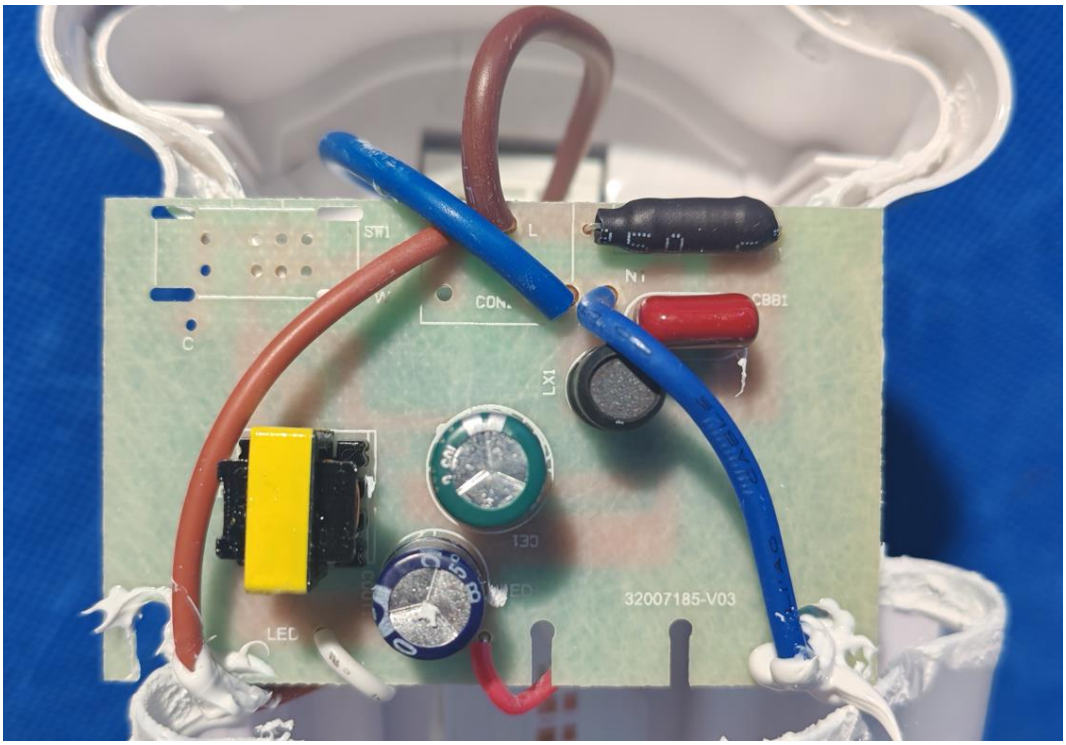

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RS2
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C1
R1
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R11
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ROUT2
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U2
U3
U4
U5

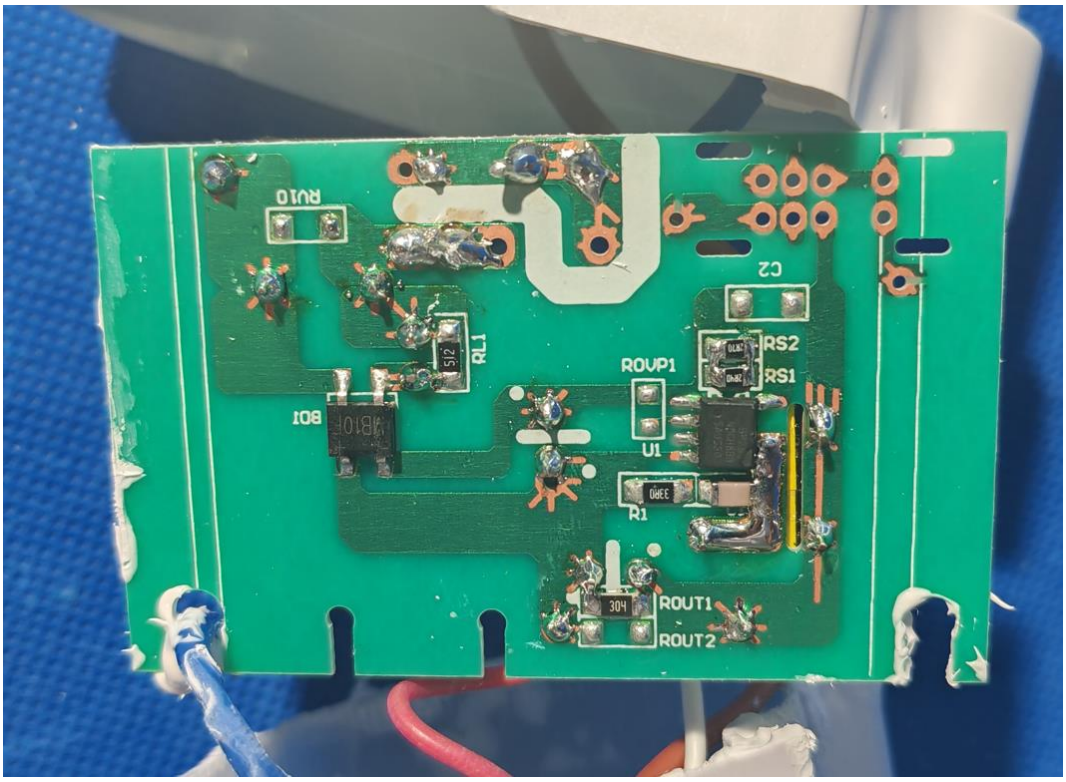
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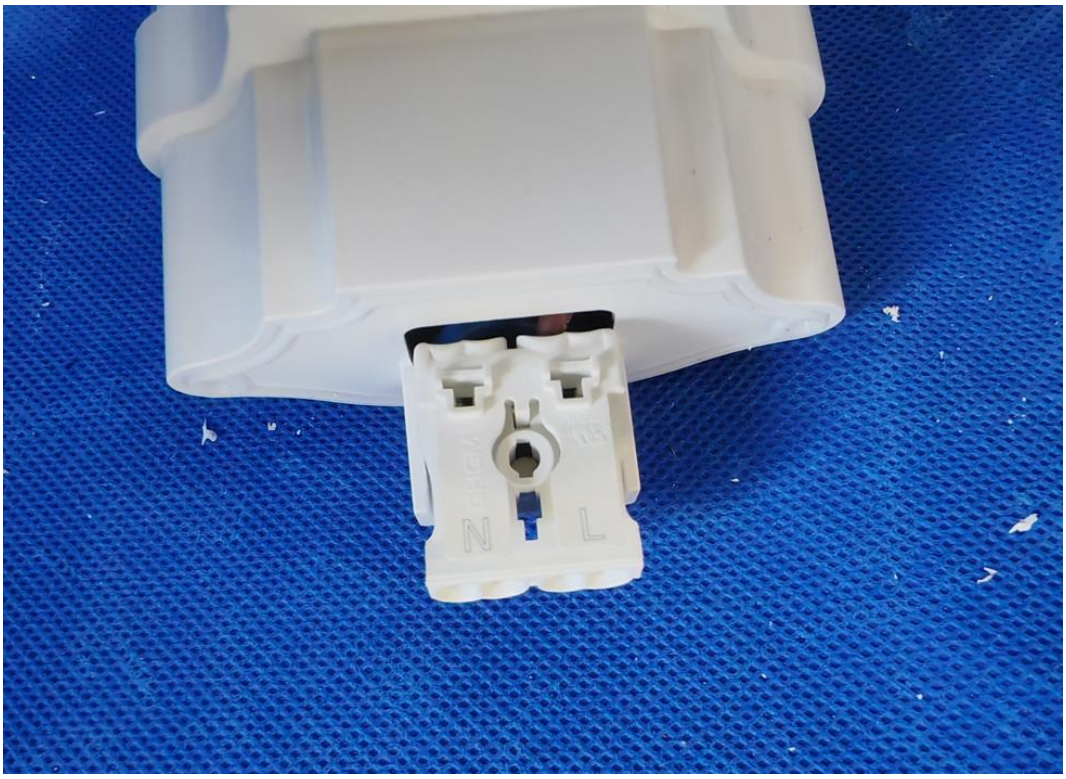

SW1
L
N
CBB1
C
LX1
32007185-V03
LED

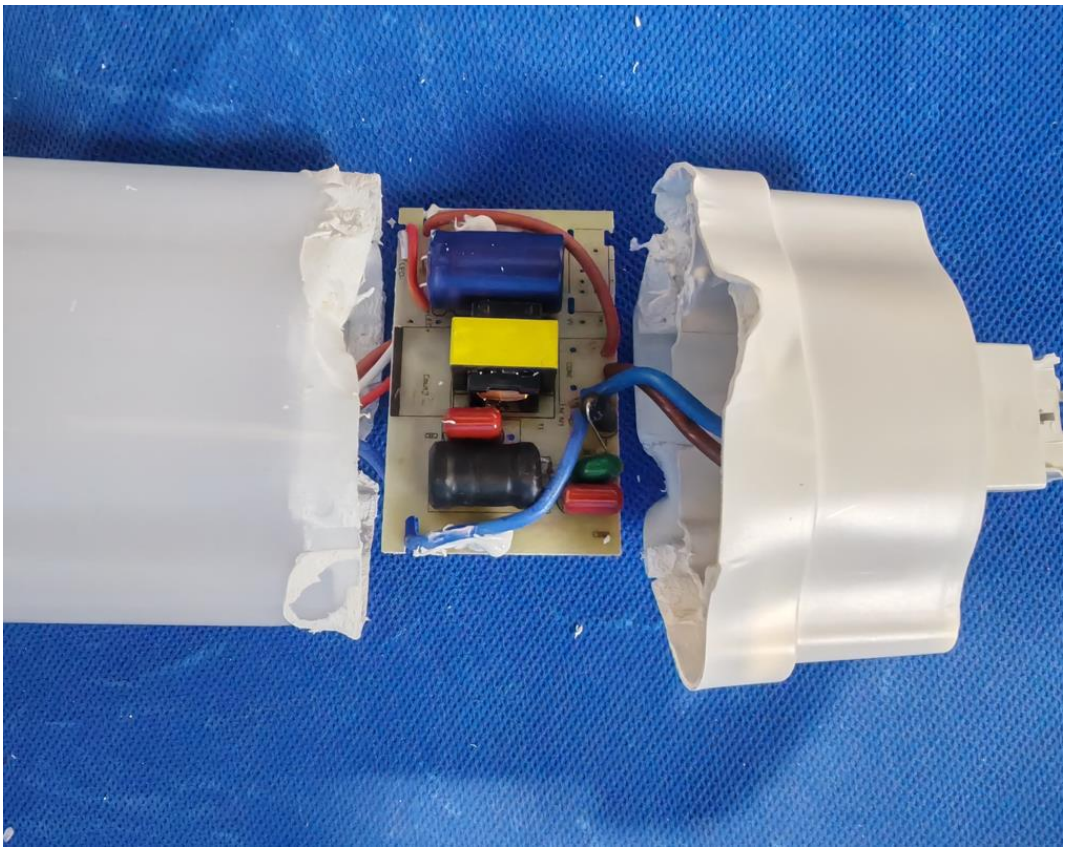

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ROVP1
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C2
RS2
RS1
R1
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ROUT1
ROUT2

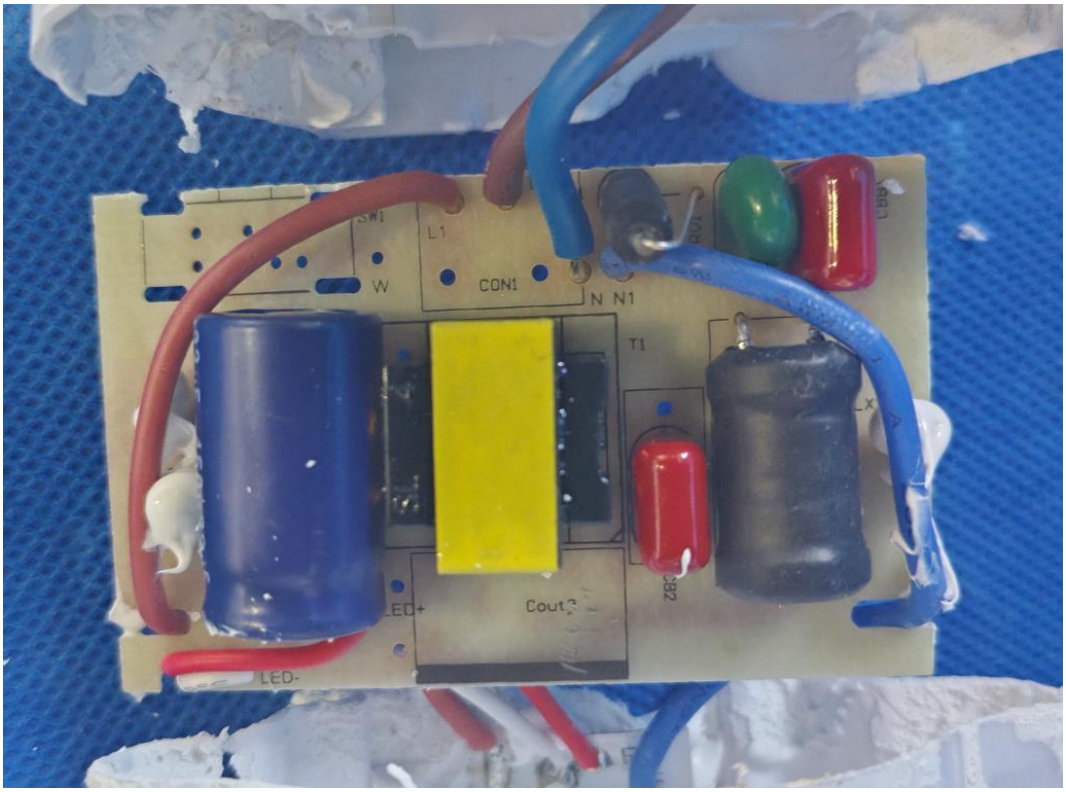

32000080

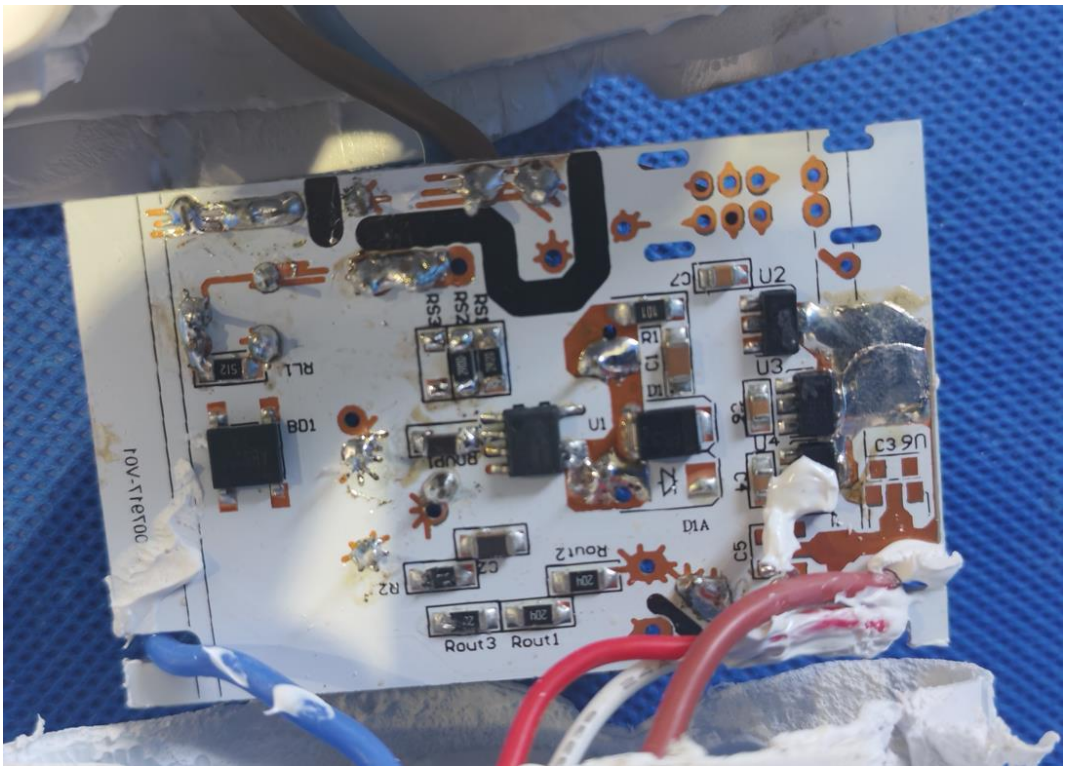
Test model:12004513-F








SW1
L1
W
CON1
N N1
T1
LED+
LED-





----------End of Test Report----------